

# Supplementary Document

## Enhancing the prediction of disease-gene associations with multimodal deep learning

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### 1. Hyperparameters

**Table S1.** The AUC scores of dgMDL with different combinations of hyperparameters

|        | 2     | 4            | 8     | 10    |
|--------|-------|--------------|-------|-------|
| 0.001  | 0.968 | 0.970        | 0.975 | 0.974 |
| 0.0005 | 0.966 | <b>0.978</b> | 0.974 | 0.973 |
| 0.0002 | 0.966 | 0.971        | 0.971 | 0.975 |
| 0.0001 | 0.970 | 0.970        | 0.976 | 0.974 |

### 2. Disease-gene associations

The data downloaded from OMIM are preprocessed using the approaches discussed in Section 2.6, and the resulted disease-gene associations are listed in the following table. Diseases removed in the third step are also listed in the table for future study. The classification results are indicated by the disease ID numbers, and disease terms with the same ID numbers are regarded as one disease. Braces, '{}', indicate the disease is multifactorial disorders or infections.

**Table S2** Classified OMIM disease-gene associations

| Disease ID | Disease name   | Gene symbol |
|------------|--|-------------|
| 1          | 17-alpha-hydroxylase or 1720-lyase deficiency 202110 | CYP17A1     |
| 1          | 1720-lyase deficiency isolated 202110                | CYP17A1     |
| 2          | 2-aminoadipic 2-oxoadipic aciduria 204750            | DHTKD1      |
| 3          | 2-methylbutyrylglucosaminuria 610006                 | ACADSB      |
| 4          | 3-M syndrome 1 273750                                | CUL7        |
| 4          | 3-M syndrome 2 612921                                | OBSL1       |
| 4          | 3-M syndrome 3 614205                                | CCDC8       |
| 5          | 3-Methylcrotonyl-CoA carboxylase 1 deficiency 210200 | MCCC1       |
| 5          | 3-Methylcrotonyl-CoA carboxylase 2 deficiency 210210 | MCCC2       |
| 6          | 3-hydroxyisobutyryl-CoA hydrolase deficiency 250620  | HIBCH       |
| 7          | 3-methylglutaconic aciduria type I 250950            | AUH         |
| 7          | 3-methylglutaconic aciduria type III 258501          | OPA3        |

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|----|---|---------|
| 7  | 3-methylglutaconic aciduria type IX 617698  | TIMM50  |
| 7  | 3-methylglutaconic aciduria type V 610198   | DNAJC19 |
| 7  | 3-methylglutaconic aciduria type VII with cataracts neurologic involvement and neutropenia 616271 | CLPB    |
| 7  | 3-methylglutaconic aciduria type VIII 617248  | HTRA2   |
| 7  | 3-methylglutaconic aciduria with deafness encephalopathy and Leigh-like syndrome 614739           | SERAC1  |
| 8  | 3MC syndrome 1 257920   | MASP1   |
| 8  | 3MC syndrome 2 265050   | COLEC11 |
| 8  | 3MC syndrome 3 248340   | COLEC10 |
| 9  | 46XX sex reversal 4 617480  | NR5A1   |
| 9  | 46XX sex reversal 1 400045  | SRY     |
| 9  | 46XY sex reversal 1 400044  | SRY     |
| 9  | 46XY sex reversal 2 dosage-sensitive 300018   | NR0B1   |
| 9  | 46XY sex reversal 3 612965  | NR5A1   |
| 9  | 46XY sex reversal 6 613762  | MAP3K1  |
| 9  | 46XY sex reversal 7 233420  | DHH     |
| 9  | 46XY sex reversal 8 614279  | AKR1C2  |
| 9  | 46XY sex reversal 9 616067  | ZFPM2   |
| 9  | {46XY sex reversal 8 modifier of} 614279  | AKR1C4  |
| 9  | 46XY partial gonadal dysgenesis with minifascicular neuropathy 607080                             | DHH     |
| 10 | 5-oxoprolinase deficiency 260005  | OPLAH   |
| 11 | ABCD syndrome 600501  | EDNRB   |
| 12 | ACTH-independent macronodular adrenal hyperplasia 2 615954  | ARMC5   |
| 12 | ACTH-independent macronodular adrenal hyperplasia 219080  | GNAS    |
| 13 | ADULT syndrome 103285   | TP63    |
| 14 | AICA-ribosiduria due to ATIC deficiency 608688  | ATIC    |
| 15 | Abdominal obesity-metabolic syndrome 3 615812   | DYRK1B  |
| 15 | {Metabolic syndrome protection against} 605552  | MTTP    |
| 16 | Abetalipoproteinemia 200100   | MTTP    |
| 17 | Ablepharon-macrostomia syndrome 200110  | TWIST2  |
| 18 | Acatlasemia 614097  | CAT     |
| 19 | Achalasia-addisonianism-alacrimia syndrome 231550   | AAAS    |
| 20 | Acheiropody 200500  | LMBR1   |
| 21 | Achondrogenesis Ib 600972   | SLC26A2 |
| 21 | Achondrogenesis type IA 200600  | TRIP11  |
| 21 | Achondrogenesis type II or hypochondrogenesis 200610  | COL2A1  |
| 21 | Achondroplasia 100800   | FGFR3   |
| 22 | Achromatopsia 2 216900  | CNGA3   |
| 22 | Achromatopsia 3 262300  | CNGB3   |
| 22 | Achromatopsia 4 613856  | GNAT2   |
| 22 | Achromatopsia 6 610024  | PDE6H   |
| 22 | Achromatopsia 7 616517  | ATF6    |
| 23 | Acid-labile subunit deficiency of 615961  | IGFALS  |

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|----|---|----------|
| 24 | Acne inversa familial 1 142690  | NCSTN    |
| 24 | Acne inversa familial 2 613736  | PSENE1   |
| 24 | Acne inversa familial 3 613737  | PSENE1   |
| 25 | Acrocapitofemoral dysplasia 607778  | IHH      |
| 26 | Acrodermatitis enteropathica 201100   | SLC39A4  |
| 27 | Acrodysostosis 1 with or without hormone resistance 101800                                    | PRKAR1A  |
| 27 | Acrodysostosis 2 with or without hormone resistance 614613                                    | PDE4D    |
| 28 | Acrofacial dysostosis 1 Nager type 154400   | SF3B4    |
| 28 | Acrofacial dysostosis Cincinnati type 616462  | POLR1A   |
| 29 | Acrokeratosis verruciformis 101900  | ATP2A2   |
| 30 | Acromelic frontonasal dysostosis 603671   | ZSWIM6   |
| 31 | Acromesomelic dysplasia Demirhan type 609441  | BMPR1B   |
| 31 | Acromesomelic dysplasia Maroteaux type 602875   | NPR2     |
| 31 | Acromicric dysplasia 102370   | FBN1     |
| 32 | Acyl-CoA dehydrogenase medium chain deficiency of 201450                                      | ACADM    |
| 32 | Acyl-CoA dehydrogenase short-chain deficiency of 201470                                       | ACADS    |
| 32 | 3-hydroxyacyl-CoA dehydrogenase deficiency 231530   | HADH     |
| 33 | Adams-Oliver syndrome 1 100300  | ARHGAP31 |
| 33 | Adams-Oliver syndrome 2 614219  | DOCK6    |
| 33 | Adams-Oliver syndrome 3 614814  | RBPJ     |
| 33 | Adams-Oliver syndrome 4 615297  | EOGT     |
| 33 | Adams-Oliver syndrome 5 616028  | NOTCH1   |
| 33 | Adams-Oliver syndrome 6 616589  | DLL4     |
| 34 | Adenine phosphoribosyltransferase deficiency 614723   | APRT     |
| 35 | Adenomas multiple colorectal 608456   | MUTYH    |
| 35 | Adenomas salivary gland pleomorphic somatic 181030  | PLAG1    |
| 35 | Adenomatous polyposis coli 175100   | APC      |
| 35 | Gardner syndrome 175100   | APC      |
| 35 | Brain tumor-polyposis syndrome 2 175100   | APC      |
| 36 | Adenosine deaminase deficiency partial 102700   | ADA      |
| 36 | Severe combined immunodeficiency due to ADA deficiency 102700                                 | ADA      |
| 37 | Adenosine triphosphate elevated of erythrocytes 102900  | PKLR     |
| 38 | Adenylosuccinase deficiency 103050  | ADSL     |
| 39 | Adermatoglyphia 136000  | SMARCAD1 |
| 39 | Basan syndrome 129200   | SMARCAD1 |
| 40 | Adiponectin deficiency 612556   | ADIPOQ   |
| 41 | Adrenal hyperplasia congenital due to 11-beta-hydroxylase deficiency 202010                   | CYP11B1  |
| 41 | Adrenal hyperplasia congenital due to 21-hydroxylase deficiency 201910                        | CYP21A2  |
| 41 | Hyperandrogenism nonclassic type due to 21-hydroxylase deficiency 201910                      | CYP21A2  |
| 41 | Adrenal hyperplasia congenital due to 3-beta-hydroxysteroid dehydrogenase 2 deficiency 201810 | HSD3B2   |

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| 41 | Adrenal hypoplasia congenital 300200   | NROB1    |
| 41 | Adrenal insufficiency congenital with 46XY sex reversal partial or complete 613743 | CYP11A1  |
| 42 | Adrenal cortical carcinoma 202300  | TP53     |
| 42 | Adrenocortical tumor somatic   | PRKAR1A  |
| 43 | Adrenocorticotrophic hormone deficiency 201400                                     | TBX19    |
| 44 | Adrenoleukodystrophy 300100  | ABCD1    |
| 44 | Adrenomyeloneuropathy adult 300100   | ABCD1    |
| 45 | Adult i phenotype without cataract 110800  | GCNT2    |
| 46 | Advanced sleep phase syndrome familial 1 604348                                    | PER2     |
| 46 | Advanced sleep-phase syndrome familial 2 615224                                    | CSNK1D   |
| 47 | {Delayed sleep phase disorder susceptibility to} 614163                            | CRY1     |
| 48 | Agammaglobulinemia 1 601495  | IGHM     |
| 48 | Agammaglobulinemia 2 613500  | IGLL1    |
| 48 | Agammaglobulinemia 3 613501  | CD79A    |
| 48 | Agammaglobulinemia 4 613502  | BLNK     |
| 48 | Agammaglobulinemia 6 612692  | CD79B    |
| 48 | Agammaglobulinemia 8 autosomal dominant 616941                                     | TCF3     |
| 48 | Agammaglobulinemia X-linked 1 300755   | BTK      |
| 48 | Agammaglobulinemia and isolated hormone deficiency 307200                          | BTK      |
| 49 | Agenesis of the corpus callosum with peripheral neuropathy 218000                  | SLC12A6  |
| 50 | Agnathia-otocephaly complex 202650   | PRRX1    |
| 51 | Aicardi-Goutieres syndrome 1 dominant and recessive 225750                         | TREX1    |
| 51 | Aicardi-Goutieres syndrome 2 610181  | RNASEH2B |
| 51 | Aicardi-Goutieres syndrome 3 610329  | RNASEH2C |
| 51 | Aicardi-Goutieres syndrome 4 610333  | RNASEH2A |
| 51 | Aicardi-Goutieres syndrome 5 612952  | SAMHD1   |
| 51 | Aicardi-Goutieres syndrome 6 615010  | ADAR     |
| 51 | Aicardi-Goutieres syndrome 7 615846  | IFIH1    |
| 52 | Al Kaissi syndrome 617694  | CDK10    |
| 53 | Al-Raqad syndrome 616459   | DCPS     |
| 54 | Alacrima achalasia and mental retardation syndrome 615510                          | GMPPA    |
| 55 | Alagille syndrome 1 118450   | JAG1     |
| 55 | Alagille syndrome 2 610205   | NOTCH2   |
| 56 | Aland Island eye disease 300600  | CACNA1F  |
| 57 | Alazami syndrome 615071  | LARP7    |
| 58 | Alazami-Yuan syndrome 617126   | TAF6     |
| 59 | Albinism brown oculocutaneous 203200   | OCA2     |
| 59 | Albinism oculocutaneous type IA 203100   | TYR      |
| 59 | Albinism oculocutaneous type IB 606952   | TYR      |
| 59 | Albinism oculocutaneous type II 203200   | OCA2     |
| 59 | Albinism oculocutaneous type III 203290  | TYRP1    |
| 59 | Albinism oculocutaneous type IV 606574   | SLC45A2  |
| 59 | Albinism oculocutaneous type VI 113750   | SLC24A5  |

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| 59 | Albinism oculocutaneous type VII 615179  | LRMDA   |
| 59 | {Albinism oculocutaneous type II modifier of} 203200   | MC1R    |
| 60 | Alcohol sensitivity acute 610251   | ALDH2   |
| 60 | {Hangover susceptibility to} 610251  | ALDH2   |
| 61 | Aldosteronism glucocorticoid-remediable 103900   | CYP11B1 |
| 62 | Alexander disease 203450   | GFAP    |
| 63 | Alkaptonuria 203500  | HGD     |
| 64 | Allan-Herndon-Dudley syndrome 300523   | SLC16A2 |
| 65 | Alopecia universalis 203655  | HR      |
| 66 | Alpha-2-plasmin inhibitor deficiency 262850  | PLI     |
| 67 | Alpha-fetoprotein deficiency 615969  | AFP     |
| 68 | Alpha-methylacetoacetic aciduria 203750  | ACAT1   |
| 69 | Alpha-methylacyl-CoA racemase deficiency 614307  | AMACR   |
| 70 | Alpha-thalassemia myelodysplasia syndrome somatic 300448   | ATRX    |
| 70 | Alpha-thalassemia or mental retardation syndrome 301040  | ATRX    |
| 71 | Alpha or beta T-cell lymphopenia with gamma or delta T-cell expansion severe cytomegalovirus infection and autoimmunity 609889 | RAG1    |
| 72 | Alport syndrome 301050   | COL4A5  |
| 72 | Alport syndrome autosomal dominant 104200  | COL4A3  |
| 72 | Alport syndrome autosomal recessive 203780   | COL4A3  |
| 72 | Alport syndrome autosomal recessive 203780   | COL4A4  |
| 73 | Alstrom syndrome 203800  | ALMS1   |
| 74 | Alternating hemiplegia of childhood 104290   | ATP1A2  |
| 74 | Alternating hemiplegia of childhood 2 614820   | ATP1A3  |
| 75 | Alveolar capillary dysplasia with misalignment of pulmonary veins 265380   | FOXF1   |
| 76 | Alveolar soft-part sarcoma 606243  | ASPSR1  |
| 77 | Alzheimer disease 1 familial 104300  | APP     |
| 77 | Alzheimer disease type 3 607822  | PSEN1   |
| 77 | Alzheimer disease type 3 with spastic paraparesis and apraxia 607822   | PSEN1   |
| 77 | Alzheimer disease type 3 with spastic paraparesis and unusual plaques 607822   | PSEN1   |
| 77 | Alzheimer disease-2 104310   | APOE    |
| 77 | Alzheimer disease-4 606889   | PSEN2   |
| 77 | {Alzheimer disease 18 susceptibility to} 615590  | ADAM10  |
| 77 | {Alzheimer disease 9 susceptibility to} 608907   | ABCA7   |
| 77 | {Alzheimer disease late-onset susceptibility to} 104300  | NOS3    |
| 77 | {Alzheimer disease late-onset susceptibility to} 104300  | PLAU    |
| 77 | {Alzheimer disease susceptibility to} 104300   | A2M     |
| 77 | {Alzheimer disease susceptibility to} 104300   | HFE     |
| 77 | {Alzheimer disease susceptibility to} 104300   | MPO     |
| 78 | Amelogenesis imperfecta hypomaturation type IIA6 617217  | GPR68   |
| 78 | Amelogenesis imperfecta type 1E 301200   | AMELX   |

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|----|---|---------|
| 78 | Amelogenesis imperfecta type IA 104530  | LAMB3   |
| 78 | Amelogenesis imperfecta type IB 104500  | ENAM    |
| 78 | Amelogenesis imperfecta type IC 204650  | ENAM    |
| 78 | Amelogenesis imperfecta type IF 616270  | AMBN    |
| 78 | Amelogenesis imperfecta type IG (enamel-renal syndrome) 204690                  | FAM20A  |
| 78 | Amelogenesis imperfecta type IH 616221  | ITGB6   |
| 78 | Amelogenesis imperfecta type IIA1 204700  | KLK4    |
| 78 | Amelogenesis imperfecta type IIA2 612529  | MMP20   |
| 78 | Amelogenesis imperfecta type IIA3 613211  | WDR72   |
| 78 | Amelogenesis imperfecta type IIA4 614832  | ODAPH   |
| 78 | Amelogenesis imperfecta type IIA5 615887  | SLC24A4 |
| 78 | Amelogenesis imperfecta type IIIA 130900  | FAM83H  |
| 78 | Amelogenesis imperfecta type IJ 617297  | ACP4    |
| 78 | Amelogenesis imperfecta type IV 104510  | DLX3    |
| 79 | Aminoacylase 1 deficiency 609924  | ACY1    |
| 80 | Amyloidosis 3 or more types 105200  | APOA1   |
| 80 | Amyloidosis Finnish type 105120   | GSN     |
| 80 | Amyloidosis familial visceral 105200  | FGA     |
| 80 | Amyloidosis hereditary transthyretin-related 105210                             | TTR     |
| 80 | Amyloidosis primary localized cutaneous 1 105250                                | OSMR    |
| 80 | Amyloidosis primary localized cutaneous 2 613955                                | IL31RA  |
| 80 | Amyloidosis renal 105200  | LYZ     |
| 81 | Amyotrophic lateral sclerosis 1 105400  | SOD1    |
| 81 | Amyotrophic lateral sclerosis 10 with or without FTD 612069                     | TARDBP  |
| 81 | Amyotrophic lateral sclerosis 11 612577   | FIG4    |
| 81 | Amyotrophic lateral sclerosis 12 613435   | OPTN    |
| 81 | Amyotrophic lateral sclerosis 14 with or without frontotemporal dementia 613954 | VCP     |
| 81 | Amyotrophic lateral sclerosis 15 with or without frontotemporal dementia 300857 | UBQLN2  |
| 81 | Amyotrophic lateral sclerosis 17 614696   | CHMP2B  |
| 81 | Amyotrophic lateral sclerosis 18 614808   | PFN1    |
| 81 | Amyotrophic lateral sclerosis 19 615515   | ERBB4   |
| 81 | Amyotrophic lateral sclerosis 2 juvenile 205100                                 | ALS2    |
| 81 | Amyotrophic lateral sclerosis 20 615426   | HNRNPA1 |
| 81 | Amyotrophic lateral sclerosis 21 606070   | MATR3   |
| 81 | Amyotrophic lateral sclerosis 22 with or without frontotemporal dementia 616208 | TUBA4A  |
| 81 | Amyotrophic lateral sclerosis 4 juvenile 602433                                 | SETX    |
| 81 | Amyotrophic lateral sclerosis 5 juvenile 602099                                 | SPG11   |
| 81 | Amyotrophic lateral sclerosis 6 with or without frontotemporal dementia 608030  | FUS     |
| 81 | Amyotrophic lateral sclerosis 8 608627  | VAPB    |
| 81 | Amyotrophic lateral sclerosis 9 611895  | ANG     |

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|----|---|----------|
| 81 | {Amyotrophic lateral sclerosis susceptibility to 13} 183090                               | ATXN2    |
| 81 | {Amyotrophic lateral sclerosis susceptibility to} 105400                                  | DCTN1    |
| 81 | {Amyotrophic lateral sclerosis susceptibility to} 105400                                  | PRPH     |
| 81 | {Amyotrophic lateral sclerosis-parkinsonism or dementia complex susceptibility to} 105500 | TRPM7    |
| 82 | Amyotrophy hereditary neuralgic 162100  | 9-Sep    |
| 83 | Analbuminemia 616000  | ALB      |
| 84 | Anauxetic dysplasia 1 607095  | RMRP     |
| 84 | Anauxetic dysplasia 2 617396  | POP1     |
| 85 | Andersen syndrome 170390  | KCNJ2    |
| 86 | Androgen insensitivity 300068   | AR       |
| 86 | Androgen insensitivity partial with or without breast cancer 312300                       | AR       |
| 87 | Anemia X-linked with without neutropenia and or platelet abnormalities 300835             | GATA1    |
| 87 | Anemia hemolytic Rh-null regulator type 268150  | RHAG     |
| 87 | Anemia hemolytic due to UMPH1 deficiency 266120   | NT5C3A   |
| 87 | Anemia hypochromic microcytic with iron overload 1 206100                                 | SLC11A2  |
| 87 | Anemia sideroblastic 1 300751   | ALAS2    |
| 87 | Anemia sideroblastic 2 pyridoxine-refractory 205950                                       | SLC25A38 |
| 87 | Anemia sideroblastic 3 pyridoxine-refractory 616860                                       | GLRX5    |
| 87 | Anemia sideroblastic 4 182170   | HSPA9    |
| 87 | Anemia sideroblastic with ataxia 301310   | ABCB7    |
| 87 | Anemia neonatal hemolytic fatal and near-fatal  | SPTB     |
| 88 | Angelman syndrome 105830  | UBE3A    |
| 89 | Angioedema hereditary type III 610618   | F12      |
| 89 | Angioedema hereditary types I and II 106100   | SERPING1 |
| 89 | {Angioedema induced by ACE inhibitors susceptibility to} 300909                           | XPNPEP2  |
| 90 | Angiopathy hereditary with nephropathy aneurysms and muscle cramps 611773                 | COL4A1   |
| 91 | Anonychia congenita 206800  | RSPO4    |
| 92 | Anterior segment anomalies with or without cataract 602588                                | EYA1     |
| 92 | Anterior segment dysgenesis 1 multiple subtypes 107250                                    | PITX3    |
| 92 | Anterior segment dysgenesis 2 multiple subtypes 610256                                    | FOXE3    |
| 92 | Anterior segment dysgenesis 3 multiple subtypes 601631                                    | FOXC1    |
| 92 | Anterior segment dysgenesis 4 137600  | PITX2    |
| 92 | Anterior segment dysgenesis 5 multiple subtypes 604229                                    | PAX6     |
| 92 | Anterior segment dysgenesis 6 multiple subtypes 617315                                    | CYP1B1   |
| 92 | Anterior segment dysgenesis 7 with sclerocornea 269400                                    | PXDN     |
| 92 | Anterior segment dysgenesis 8 617319  | CPAMD8   |
| 93 | Antley-Bixler syndrome with genital anomalies and disordered steroidogenesis 201750       | POR      |
| 93 | Antley-Bixler syndrome without genital anomalies or disordered steroidogenesis 207410     | FGFR2    |
| 94 | Aortic aneurysm familial thoracic 10 617168   | LOX      |

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|-----|---|---------|
| 94  | Aortic aneurysm familial thoracic 4 132900  | MYH11   |
| 94  | Aortic aneurysm familial thoracic 6 611788  | ACTA2   |
| 94  | Aortic aneurysm familial thoracic 7 613780  | MYLK    |
| 94  | Aortic aneurysm familial thoracic 8 615436  | PRKG1   |
| 94  | Aortic aneurysm familial thoracic 9 616166  | MFAP5   |
| 94  | {Aortic aneurysm familial thoracic 11 susceptibility to} 617349   | FOXE3   |
| 95  | Aortic valve disease 1 109730   | NOTCH1  |
| 95  | Aortic valve disease 2 614823   | SMAD6   |
| 96  | Apert syndrome 101200   | FGFR2   |
| 97  | Aplasia of lacrimal and salivary glands 180920  | FGF10   |
| 98  | Apolipoprotein C-III deficiency 614028  | APOC3   |
| 98  | ApoA-I and apoC-III deficiency combined   | APOA1   |
| 98  | Apolipoprotein A-II deficiency  | APOA2   |
| 99  | Apparent mineralocorticoid excess 218030  | HSD11B2 |
| 100 | Argininemia 207800  | ARG1    |
| 100 | Argininosuccinic aciduria 207900  | ASL     |
| 101 | Aromatase deficiency 613546   | CYP19A1 |
| 101 | Aromatase excess syndrome 139300  | CYP19A1 |
| 102 | Aromatic L-amino acid decarboxylase deficiency 608643   | DDC     |
| 103 | Arrhythmogenic right ventricular dysplasia 1 107970   | TGFB3   |
| 103 | Arrhythmogenic right ventricular dysplasia 10 610193  | DSG2    |
| 103 | Arrhythmogenic right ventricular dysplasia 11 610476  | DSC2    |
| 103 | Arrhythmogenic right ventricular dysplasia 11 with mild palmoplantar keratoderma and woolly hair 610476 | DSC2    |
| 103 | Arrhythmogenic right ventricular dysplasia 12 611528  | JUP     |
| 103 | Arrhythmogenic right ventricular dysplasia 2 600996   | RYR2    |
| 103 | Arrhythmogenic right ventricular dysplasia 5 604400   | TMEM43  |
| 103 | Arrhythmogenic right ventricular dysplasia 8 607450   | DSP     |
| 103 | Arrhythmogenic right ventricular dysplasia 9 609040   | PKP2    |
| 103 | Arrhythmogenic right ventricular dysplasia familial 13 615616   | CTNNA3  |
| 104 | Arterial calcification generalized of infancy 1 208000  | ENPP1   |
| 104 | Arterial calcification generalized of infancy 2 614473  | ABCC6   |
| 105 | Arterial tortuosity syndrome 208050   | SLC2A10 |
| 106 | Arthrogryposis distal type 1B 614335  | MYBPC1  |
| 106 | Arthrogryposis distal type 2A 193700  | MYH3    |
| 106 | Arthrogryposis distal type 2B 601680  | MYH3    |
| 106 | Arthrogryposis distal type 2B 601680  | TNNT3   |
| 106 | Arthrogryposis distal type 2B 601680  | TPM2    |
| 106 | Arthrogryposis distal type 3 114300   | PIEZO2  |
| 106 | Arthrogryposis distal type 5 108145   | PIEZO2  |
| 106 | Arthrogryposis distal type 5D 615065  | ECEL1   |
| 106 | Arthrogryposis distal type 8 178110   | MYH3    |
| 106 | Arthrogryposis distal with impaired proprioception and touch 617146                                     | PIEZO2  |
| 106 | Arthrogryposis lethal with anterior horn cell disease 611890  | GLE1    |



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|-----|---|---------|
| 106 | Arthrogryposis multiplex congenita distal type 1 108120                 | TPM2    |
| 106 | Arthrogryposis multiplex congenita distal type 2B 601680                | TNNI2   |
| 106 | Arthrogryposis multiplex congenita neurogenic with myelin defect 617468 | LGI4    |
| 106 | Arthrogryposis renal dysfunction and cholestasis 1 208085               | VPS33B  |
| 106 | Arthrogryposis renal dysfunction and cholestasis 2 613404               | VIPAS39 |
| 107 | Arts syndrome 301835  | PRPS1   |
| 108 | Asparagine synthetase deficiency 615574                                 | ASNS    |
| 109 | Aspartate aminotransferase serum level of QTL1 614419                   | GOT1    |
| 110 | Aspartylglucosaminuria 208400   | AGA     |
| 111 | Asplenia isolated congenital 271400                                     | RPSA    |
| 112 | Asthma and nasal polyps 208550  | TBX21   |
| 112 | {Asthma aspirin-induced susceptibility to} 208550                       | PTGER2  |
| 112 | {Asthma aspirin-induced susceptibility to} 208550                       | TBX21   |
| 112 | {Asthma diminished response to antileukotriene treatment in} 600807     | ALOX5   |
| 112 | {Asthma nocturnal susceptibility to} 600807                             | ADRB2   |
| 112 | {Asthma protection against} 600807                                      | MUC7    |
| 112 | {Asthma susceptibility 5} 611064  | IRAK3   |
| 112 | {Asthma susceptibility to 1} 607277                                     | PTGDR   |
| 112 | {Asthma susceptibility to 2} 608584                                     | NPSR1   |
| 112 | {Asthma susceptibility to} 600807                                       | CCL11   |
| 112 | {Asthma susceptibility to} 600807                                       | HNMT    |
| 112 | {Asthma susceptibility to} 600807                                       | IL13    |
| 112 | {Asthma susceptibility to} 600807                                       | PLA2G7  |
| 112 | {Asthma susceptibility to} 600807                                       | SCGB3A2 |
| 112 | {Asthma susceptibility to} 600807                                       | TNF     |
| 112 | {Asthma-related traits susceptibility to 7} 611960                      | CHI3L1  |
| 113 | Ataxia cerebellar Cayman type 601238                                    | ATCAY   |
| 113 | Ataxia early-onset with oculomotor apraxia and hypoalbuminemia 208920   | APTX    |
| 113 | Ataxia posterior column with retinitis pigmentosa 609033                | FLVCR1  |
| 113 | Ataxia sensory 1 autosomal dominant 608984                              | RNF170  |
| 113 | Ataxia with isolated vitamin E deficiency 277460                        | TTPA    |
| 113 | Ataxia-oculomotor apraxia 3 615217                                      | PIK3R5  |
| 113 | Ataxia-oculomotor apraxia 4 616267                                      | PNKP    |
| 113 | Ataxia-pancytopenia syndrome 159550                                     | SAMD9L  |
| 114 | Ataxia-telangiectasia 208900  | ATM     |
| 114 | Ataxia-telangiectasia-like disorder 1 604391                            | MRE11A  |
| 115 | De la Chapelle dysplasia 256050   | SLC26A2 |
| 115 | Atelosteogenesis II 256050  | SLC26A2 |
| 115 | Atelosteogenesis type I 108720  | FLNB    |
| 115 | Atelosteogenesis type III 108721  | FLNB    |
| 116 | Atransferrinemia 209300   | TF      |
| 117 | Atrial fibrillation familial 10 614022                                  | SCN5A   |

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| 117 | Atrial fibrillation familial 11 614049                                 | GJA5   |
| 117 | Atrial fibrillation familial 12 614050                                 | ABCC9  |
| 117 | Atrial fibrillation familial 13 615377                                 | SCN1B  |
| 117 | Atrial fibrillation familial 14 615378                                 | SCN2B  |
| 117 | Atrial fibrillation familial 16 613120                                 | SCN3B  |
| 117 | Atrial fibrillation familial 17 611819                                 | SCN4B  |
| 117 | Atrial fibrillation familial 3 607554                                  | KCNQ1  |
| 117 | Atrial fibrillation familial 4 611493                                  | KCNE2  |
| 117 | Atrial fibrillation familial 6 612201                                  | NPPA   |
| 117 | Atrial fibrillation familial 7 612240                                  | KCNA5  |
| 117 | Atrial fibrillation familial 9 613980                                  | KCNJ2  |
| 117 | Atrial septal defect 2 607941  | GATA4  |
| 117 | Atrial septal defect 3 614089  | MYH6   |
| 117 | Atrial septal defect 4 611363  | TBX20  |
| 117 | Atrial septal defect 5 612794  | ACTC1  |
| 117 | Atrial septal defect 6 613087  | TLL1   |
| 117 | Atrial septal defect 7 with or without AV conduction defects 108900    | NKX2-5 |
| 117 | Atrial septal defect 8 614433  | CITED2 |
| 117 | Atrial septal defect 9 614475  | GATA6  |
| 118 | Atrial standstill 2 615745   | NPPA   |
| 118 | Atrial standstill digenic (GJA5 or SCN5A) 108770                       | GJA5   |
| 119 | Atrichia with papular lesions 209500                                   | HR     |
| 120 | Atrioventricular septal defect 3 600309                                | GJA1   |
| 120 | Atrioventricular septal defect 4 614430                                | GATA4  |
| 120 | Atrioventricular septal defect 5 614474                                | GATA6  |
| 120 | Atrioventricular septal defect partial with heterotaxy syndrome 606217 | CRELD1 |
| 120 | {Atrioventricular septal defect susceptibility to 2} 606217            | CRELD1 |
| 121 | Au-Kline syndrome 616580   | HNRNPK |
| 122 | Auditory neuropathy and optic atrophy 617717                           | FDXR   |
| 122 | Auditory neuropathy autosomal dominant 1 609129                        | DIAPH3 |
| 122 | Auditory neuropathy autosomal recessive 1 601071                       | OTOF   |
| 123 | Aural atresia congenital 607842  | TSHZ1  |
| 124 | Auriculocondylar syndrome 1 602483                                     | GNAI3  |
| 124 | Auriculocondylar syndrome 2 614669                                     | PLCB4  |
| 124 | Auriculocondylar syndrome 3 615706                                     | EDN1   |
| 125 | Autoimmune disease multisystem infantile-onset 1 615952                | STAT3  |
| 125 | Autoimmune disease multisystem infantile-onset 2 617006                | ZAP70  |
| 125 | Autoimmune disease multisystem with facial dysmorphism 613385          | ITCH   |
| 125 | {Autoimmune disease susceptibility to 1} 607836                        | FOXD3  |
| 125 | {Autoimmune disease susceptibility to 6} 613551                        | SIAE   |
| 126 | {Autoimmune interstitial lung joint and kidney disease} 616414         | COPA   |
| 127 | {Autoimmune thyroid disease susceptibility to 3} 608175                | TG     |

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| 127 | {Autoimmune thyroid disease susceptibility to 3} 608175   | ZFAT    |
| 128 | Autoimmune lymphoproliferative syndrome type IA 601859  | FAS     |
| 128 | Autoimmune lymphoproliferative syndrome type IB 601859  | FASLG   |
| 128 | Autoimmune lymphoproliferative syndrome type II 603909  | CASP10  |
| 128 | Autoimmune lymphoproliferative syndrome type III 615559   | PRKCD   |
| 128 | Autoimmune lymphoproliferative syndrome type V 616100   | CTLA4   |
| 128 | {Autoimmune lymphoproliferative syndrome} 601859  | FAS     |
| 128 | Autoimmune polyendocrinopathy syndrome type I with or without reversible metaphyseal dysplasia 240300 | AIRE    |
| 129 | Autoinflammation antibody deficiency and immune dysregulation syndrome 614878                         | PLCG2   |
| 129 | Autoinflammation lipodystrophy and dermatosis syndrome 256040   | PSMB8   |
| 129 | Autoinflammation panniculitis and dermatosis syndrome 617099  | OTULIN  |
| 129 | Autoinflammation with arthritis and dyskeratosis 617388   | NLRP1   |
| 129 | Autoinflammation with infantile enterocolitis 616050  | NLRC4   |
| 129 | Autoinflammatory syndrome familial Behcet-like 616744   | TNFAIP3 |
| 130 | Avascular necrosis of the femoral head 608805   | COL2A1  |
| 131 | Axenfeld-Rieger syndrome type 1 180500  | PITX2   |
| 131 | Axenfeld-Rieger syndrome type 3 602482  | FOXC1   |
| 132 | Ayme-Gripp syndrome 601088  | MAF     |
| 133 | B-cell expansion with NFKB and T-cell anergy 616452   | CARD11  |
| 134 | Bainbridge-Ropers syndrome 615485   | ASXL3   |
| 135 | Baller-Gerold syndrome 218600   | RECQL4  |
| 136 | Bamforth-Lazarus syndrome 241850  | FOXE1   |
| 137 | Band heterotopia 600348   | EML1    |
| 138 | Bannayan-Riley-Ruvalcaba syndrome 153480  | PTEN    |
| 139 | Baraitser-Winter syndrome 1 243310  | ACTB    |
| 139 | Baraitser-Winter syndrome 2 614583  | ACTG1   |
| 140 | Barber-Say syndrome 209885  | TWIST2  |
| 141 | Bardet-Biedl syndrome 1 209900  | BBS1    |
| 141 | Bardet-Biedl syndrome 10 615987   | BBS10   |
| 141 | Bardet-Biedl syndrome 12 615989   | BBS12   |
| 141 | Bardet-Biedl syndrome 13 615990   | MKS1    |
| 141 | Bardet-Biedl syndrome 16 615993   | SDCCAG8 |
| 141 | Bardet-Biedl syndrome 17 615994   | LZTFL1  |
| 141 | Bardet-Biedl syndrome 2 615981  | BBS2    |
| 141 | Bardet-Biedl syndrome 21 617406   | C8orf37 |
| 141 | Bardet-Biedl syndrome 3 600151  | ARL6    |
| 141 | Bardet-Biedl syndrome 4 615982  | BBS4    |
| 141 | Bardet-Biedl syndrome 5 615983  | BBS5    |
| 141 | Bardet-Biedl syndrome 6 605231  | MKKS    |
| 141 | Bardet-Biedl syndrome 7 615984  | BBS7    |
| 141 | Bardet-Biedl syndrome 8 615985  | TTC8    |
| 141 | Bardet-Biedl syndrome 9 615986  | BBS9    |

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| 141 | {Bardet-Biedl syndrome 1 modifier of} 209900                    | ARL6    |
| 141 | {Bardet-Biedl syndrome 1 modifier of} 209900                    | CCDC28B |
| 141 | {Bardet-Biedl syndrome 14 modifier of} 615991                   | TMEM67  |
| 142 | Bare lymphocyte syndrome type I 604571                          | TAP1    |
| 142 | Bare lymphocyte syndrome type I 604571                          | TAPBP   |
| 142 | Bare lymphocyte syndrome type I due to TAP2 deficiency 604571   | TAP2    |
| 142 | Bare lymphocyte syndrome type II complementation group A 209920 | CIITA   |
| 142 | Bare lymphocyte syndrome type II complementation group C 209920 | RFX5    |
| 142 | Bare lymphocyte syndrome type II complementation group D 209920 | RFXAP   |
| 142 | Bare lymphocyte syndrome type II complementation group E 209920 | RFX5    |
| 142 | MHC class II deficiency complementation group B 209920          | RFXANK  |
| 143 | Barrett esophagus or esophageal adenocarcinoma 614266           | ASCC1   |
| 143 | Barrett esophagus or esophageal adenocarcinoma 614266           | CTHRC1  |
| 143 | Barrett esophagus or esophageal adenocarcinoma 614266           | MSR1    |
| 144 | Bart-Pumphrey syndrome 149200                                   | GJB2    |
| 145 | Barth syndrome 302060   | TAZ     |
| 146 | Bartter syndrome type 1 601678                                  | SLC12A1 |
| 146 | Bartter syndrome type 2 241200                                  | KCNJ1   |
| 146 | Bartter syndrome type 3 607364                                  | CLCNKB  |
| 146 | Bartter syndrome type 4a 602522                                 | BSND    |
| 146 | Bartter syndrome type 4b digenic 613090                         | CLCNKA  |
| 146 | Bartter syndrome type 4b digenic 613090                         | CLCNKB  |
| 146 | Bartter syndrome type 5 antenatal transient 300971              | MAGED2  |
| 146 | Sensorineural deafness with mild renal dysfunction 602522       | BSND    |
| 147 | Basal cell carcinoma somatic 605462                             | PTCH1   |
| 147 | Basal cell carcinoma somatic 605462                             | PTCH2   |
| 147 | Basal cell carcinoma somatic 605462                             | RASA1   |
| 147 | Basal cell carcinoma somatic 605462                             | SMO     |
| 147 | {Basal cell carcinoma 7} 614740                                 | TP53    |
| 148 | Basal cell nevus syndrome 109400                                | PTCH1   |
| 148 | Basal cell nevus syndrome 109400                                | PTCH2   |
| 148 | Basal cell nevus syndrome 109400                                | SUFU    |
| 149 | Basal ganglia calcification idiopathic 1 213600                 | SLC20A2 |
| 149 | Basal ganglia calcification idiopathic 4 615007                 | PDGFRB  |
| 149 | Basal ganglia calcification idiopathic 5 615483                 | PDGFB   |
| 149 | Basal ganglia calcification idiopathic 6 616413                 | XPR1    |
| 150 | Basal laminar drusen 126700                                     | CFH     |
| 151 | Basel-Vanagait-Smirin-Yosef syndrome 616449                     | MED25   |
| 152 | Beare-Stevenson cutis gyrata syndrome 123790                    | FGFR2   |
| 153 | Beaulieu-Boycott-Innes syndrome 613680                          | THOC6   |
| 154 | Becker muscular dystrophy 300376                                | DMD     |

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| 155 | Beckwith-Wiedemann syndrome 130650                              | CDKN1C   |
| 155 | Beckwith-Wiedemann syndrome 130650                              | H19      |
| 155 | Beckwith-Wiedemann syndrome 130650                              | H19-ICR  |
| 155 | Beckwith-Wiedemann syndrome 130650                              | KCNQ1OT1 |
| 156 | Behr syndrome 210000  | OPA1     |
| 157 | Bent bone dysplasia syndrome 614592                             | FGFR2    |
| 158 | Bernard-Soulier syndrome type A1 (recessive) 231200             | GP1BA    |
| 158 | Bernard-Soulier syndrome type A2 (dominant) 153670              | GP1BA    |
| 158 | Bernard-Soulier syndrome type B 231200                          | GP1BB    |
| 158 | Bernard-Soulier syndrome type C 231200                          | GP9      |
| 158 | Giant platelet disorder isolated 231200                         | GP1BB    |
| 159 | Bestrophinopathy autosomal recessive 611809                     | BEST1    |
| 160 | Beta-ureidopropionase deficiency 613161                         | UPB1     |
| 161 | Bethlem myopathy 1 158810                                       | COL6A1   |
| 161 | Bethlem myopathy 1 158810                                       | COL6A2   |
| 161 | Bethlem myopathy 1 158810                                       | COL6A3   |
| 161 | Bethlem myopathy 2 616471                                       | COL12A1  |
| 162 | Bietti crystalline corneoretinal dystrophy 210370               | CYP4V2   |
| 163 | Bifid nose with or without anorectal and renal anomalies 608980 | FREM1    |
| 164 | Bile acid malabsorption primary 613291                          | SLC10A2  |
| 165 | Bile acid synthesis defect congenital 1 607765                  | HSD3B7   |
| 165 | Bile acid synthesis defect congenital 2 235555                  | AKR1D1   |
| 165 | Bile acid synthesis defect congenital 3 613812                  | CYP7B1   |
| 165 | Bile acid synthesis defect congenital 4 214950                  | AMACR    |
| 165 | Bile acid synthesis defect congenital 6 617308                  | ACOX2    |
| 166 | Biotinidase deficiency 253260                                   | BTD      |
| 167 | Birk-Barel mental retardation dysmorphism syndrome 612292       | KCNK9    |
| 168 | Birt-Hogg-Dube syndrome 135150                                  | FLCN     |
| 169 | Bjornstad syndrome 262000                                       | BCS1L    |
| 170 | Bladder cancer somatic 109800                                   | FGFR3    |
| 170 | Bladder cancer somatic 109800                                   | KRAS     |
| 170 | Bladder cancer somatic 109800                                   | RB1      |
| 170 | {Bladder cancer somatic} 109800                                 | HRAS     |
| 171 | Blau syndrome 186580  | NOD2     |
| 172 | Bleeding disorder platelet-type 11 614201                       | GP6      |
| 172 | Bleeding disorder platelet-type 15 615193                       | ACTN1    |
| 172 | Bleeding disorder platelet-type 16 autosomal dominant 187800    | ITGA2B   |
| 172 | Bleeding disorder platelet-type 16 autosomal dominant 187800    | ITGB3    |
| 172 | Bleeding disorder platelet-type 17 187900                       | GFI1B    |
| 172 | Bleeding disorder platelet-type 20 616913                       | SLFN14   |
| 172 | Bleeding disorder platelet-type 21 617443                       | FLI1     |
| 172 | Bleeding disorder platelet-type 8 609821                        | P2RY12   |
| 172 | {Bleeding disorder platelet-type 13 susceptibility to} 614009   | TBXA2R   |
| 173 | Blepharocheilodontic syndrome 1 119580                          | CDH1     |
| 173 | Blepharocheilodontic syndrome 2 617681                          | CTNND1   |

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| 174 | Blepharophimosis epicanthus inversus and ptosis type 1 110100          | FOXL2   |
| 174 | Blepharophimosis epicanthus inversus and ptosis type 2 110100          | FOXL2   |
| 175 | Blood group--Lutheran inhibitor 111150                                 | KLF1    |
| 176 | Bloom syndrome 210900  | RECQL3  |
| 177 | Blue cone monochromacy 303700  | OPN1LW  |
| 177 | Blue cone monochromacy 303700  | OPN1MW  |
| 178 | Bohring-Opitz syndrome 605039  | ASXL1   |
| 179 | Bone marrow failure syndrome 1 614675                                  | SRP72   |
| 179 | Bone marrow failure syndrome 2 615715                                  | ERCC6L2 |
| 179 | Bone marrow failure syndrome 3 617052                                  | DNAJC21 |
| 180 | Bone mineral density QTL18 osteoporosis 300910                         | PLS3    |
| 180 | {Bone mineral density QTL 12 osteoporosis} 612560                      | UGT2B17 |
| 180 | {Bone mineral density low susceptibility to} 615311                    | LGR4    |
| 180 | {Bone mineral density variation QTL osteoporosis} 166710               | COL1A1  |
| 180 | {Osteoporosis postmenopausal susceptibility} 166710                    | CALCR   |
| 180 | {Osteoporosis postmenopausal} 166710                                   | COL1A2  |
| 180 | {Osteoporosis susceptibility to} 166710                                | PDLIM4  |
| 180 | {Osteoporosis} 166710  | LRP5    |
| 180 | {Osteoporosis early-onset susceptibility to autosomal dominant} 615221 | WNT1    |
| 181 | Boomerang dysplasia 112310   | FLNB    |
| 182 | Borjeson-Forssman-Lehmann syndrome 301900                              | PHF6    |
| 183 | Bosch-Boonstra-Schaaf optic atrophy syndrome 615722                    | NR2F1   |
| 184 | Bosley-Salih-Alorainy syndrome 601536                                  | HOXA1   |
| 184 | Athabaskan brainstem dysgenesis syndrome 601536                        | HOXA1   |
| 185 | Bosma arhinia microphthalmia syndrome 603457                           | SMCHD1  |
| 186 | Bothnia retinal dystrophy 607475                                       | RLBP1   |
| 187 | Boucher-Neuhauser syndrome 215470                                      | PNPLA6  |
| 188 | Bowen-Conradi syndrome 211180  | EMG1    |
| 189 | Brachycephaly trichomegaly and developmental delay 617412              | RPS23   |
| 190 | Brachydactyly type A1 112500   | IHH     |
| 190 | Brachydactyly type A1 C 615072   | GDF5    |
| 190 | Brachydactyly type A1 D 616849   | BMPR1B  |
| 190 | Brachydactyly type A2 112600   | BMP2    |
| 190 | Brachydactyly type A2 112600   | BMPR1B  |
| 190 | Brachydactyly type A2 112600   | GDF5    |
| 190 | Brachydactyly type B1 113000   | ROR2    |
| 190 | Brachydactyly type B2 611377   | NOG     |
| 190 | Brachydactyly type C 113100  | GDF5    |
| 190 | Brachydactyly type D 113200  | HOXD13  |
| 190 | Brachydactyly type E 113300  | HOXD13  |
| 190 | Brachydactyly type E2 613382   | PTHLH   |
| 191 | Brachyolmia 4 with mild epiphyseal and metaphyseal changes 612847      | PAPSS2  |
| 191 | Brachyolmia type 3 113500  | TRPV4   |

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| 192 | Bradyopsia 608415  | RGS9    |
| 192 | Bradyopsia 608415  | RGS9BP  |
| 193 | Brain malformations with or without urinary tract defects 613735   | NFIA    |
| 194 | Brain small vessel disease with or without ocular anomalies 607595 | COL4A1  |
| 195 | Branched-chain ketoacid dehydrogenase kinase deficiency 614923     | BCKDK   |
| 196 | Branchiooculofacial syndrome 113620                                | TFAP2A  |
| 197 | Branchiootic syndrome 1 602588                                     | EYA1    |
| 197 | Branchiootic syndrome 3 608389                                     | SIX1    |
| 197 | Branchiootorenal syndrome 1 with or without cataracts 113650       | EYA1    |
| 197 | Branchiootorenal syndrome 2 610896                                 | SIX5    |
| 198 | Breast cancer 114480   | TP53    |
| 198 | Breast cancer early-onset 114480                                   | BRIP1   |
| 198 | Breast cancer somatic 114480                                       | AKT1    |
| 198 | Breast cancer somatic 114480                                       | KRAS    |
| 198 | Breast cancer somatic 114480                                       | PIK3CA  |
| 198 | Breast cancer somatic 114480                                       | PPM1D   |
| 198 | Breast cancer somatic 114480                                       | RB1CC1  |
| 198 | Breast cancer somatic 114480                                       | SLC22A1 |
| 198 | Breast cancer somatic 114480                                       | TSG101  |
| 198 | {Breast cancer invasive ductal} 114480                             | RAD54L  |
| 198 | {Breast cancer lobular} 114480                                     | CDH1    |
| 198 | {Breast cancer male susceptibility to} 114480                      | BRCA2   |
| 198 | {Breast cancer protection against} 114480                          | CASP8   |
| 198 | {Breast cancer susceptibility to} 114480                           | ATM     |
| 198 | {Breast cancer susceptibility to} 114480                           | BARD1   |
| 198 | {Breast cancer susceptibility to} 114480                           | CHEK2   |
| 198 | {Breast cancer susceptibility to} 114480                           | HMMR    |
| 198 | {Breast cancer susceptibility to} 114480                           | PALB2   |
| 198 | {Breast cancer susceptibility to} 114480                           | PHB     |
| 198 | {Breast cancer susceptibility to} 114480                           | RAD51   |
| 198 | {Breast cancer susceptibility to} 114480                           | XRCC3   |
| 198 | {Breast-ovarian cancer familial 1} 604370                          | BRCA1   |
| 198 | {Breast-ovarian cancer familial 2} 612555                          | BRCA2   |
| 198 | {Breast-ovarian cancer familial susceptibility to 3} 613399        | RAD51C  |
| 198 | {Breast-ovarian cancer familial susceptibility to 4} 614291        | RAD51D  |
| 198 | {Breast and colorectal cancer, susceptibility to}                  | CHEK2   |
| 199 | Brittle cornea syndrome 1 229200                                   | ZNF469  |
| 199 | Brittle cornea syndrome 2 614170                                   | PRDM5   |
| 200 | Brody myopathy 601003  | ATP2A1  |
| 201 | Bronchiectasis with or without elevated sweat chloride 1 211400    | SCNN1B  |
| 201 | Bronchiectasis with or without elevated sweat chloride 2 613021    | SCNN1A  |
| 201 | Bronchiectasis with or without elevated sweat chloride 3 613071    | SCNN1G  |

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| 201 | {Bronchiectasis with or without elevated sweat chloride 1 modifier of} 211400 | CFTR    |
| 202 | Brooke-Spiegler syndrome 605041   | CYLD    |
| 203 | Brown-Vialetto-Van Laere syndrome 1 211530                                    | SLC52A3 |
| 203 | Brown-Vialetto-Van Laere syndrome 2 614707                                    | SLC52A2 |
| 204 | Bruck syndrome 1 259450   | FKBP10  |
| 204 | Bruck syndrome 2 609220   | PLOD2   |
| 205 | Brugada syndrome 1 601144   | SCN5A   |
| 205 | Brugada syndrome 2 611777   | GPD1L   |
| 205 | Brugada syndrome 3 611875   | CACNA1C |
| 205 | Brugada syndrome 4 611876   | CACNB2  |
| 205 | Brugada syndrome 5 612838   | SCN1B   |
| 205 | Brugada syndrome 6 613119   | KCNE3   |
| 205 | Brugada syndrome 7 613120   | SCN3B   |
| 205 | Brugada syndrome 8 613123   | HCN4    |
| 205 | Brugada syndrome 9 616399   | KCND3   |
| 206 | Brunner syndrome 300615   | MAOA    |
| 206 | {Antisocial behavior} 300615  | MAOA    |
| 207 | Burn-McKeown syndrome 608572  | TXNL4A  |
| 208 | C syndrome 211750   | CD96    |
| 209 | C1q deficiency 613652   | C1QA    |
| 209 | C1q deficiency 613652   | C1QB    |
| 209 | C1q deficiency 613652   | C1QC    |
| 209 | C1s deficiency 613783   | C1S     |
| 209 | C2 deficiency 217000  | C2      |
| 209 | C3 deficiency 613779  | C3      |
| 209 | C4B deficiency 614379   | C4B     |
| 209 | C4a deficiency 614380   | C4A     |
| 209 | C5 deficiency 609536  | C5      |
| 209 | C6 deficiency 612446  | C6      |
| 209 | C7 deficiency 610102  | C7      |
| 209 | C8 deficiency type I 613790   | C8A     |
| 209 | C8 deficiency type II 613789  | C8B     |
| 209 | C9 deficiency 613825  | C9      |
| 209 | Combined C6/C7 deficiency   | C6      |
| 210 | CAPOS syndrome 601338   | ATP1A3  |
| 211 | CARASIL syndrome 600142   | HTRA1   |
| 212 | CATSHL syndrome 610474  | FGFR3   |
| 213 | CD8 deficiency familial 608957  | CD8A    |
| 214 | CHARGE syndrome 214800  | CHD7    |
| 215 | CHILD syndrome 308050   | NSDHL   |
| 216 | CHIME syndrome 280000   | PIGL    |
| 217 | CHOPS syndrome 616368   | AFF4    |
| 218 | CINCA syndrome 607115   | NLRP3   |
| 219 | CK syndrome 300831  | NSDHL   |



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| 220 | CLOVE syndrome somatic 612918   | PIK3CA   |
| 221 | COACH syndrome 216360   | CC2D2A   |
| 221 | COACH syndrome 216360   | RPGRIP1L |
| 221 | COACH syndrome 216360   | TMEM67   |
| 222 | CODAS syndrome 600373   | LONP1    |
| 223 | COMMAD syndrome 617306  | MITF     |
| 224 | COPD rate of decline of lung function in 606963   | MMP1     |
| 224 | {Pulmonary disease chronic obstructive susceptibility to} 606963                        | HMOX1    |
| 225 | CPT II deficiency infantile 600649  | CPT2     |
| 225 | CPT II deficiency lethal neonatal 608836  | CPT2     |
| 225 | CPT II deficiency myopathic stress-induced 255110                                       | CPT2     |
| 225 | CPT deficiency hepatic type IA 255120   | CPT1A    |
| 226 | Caffey disease 114000   | COL1A1   |
| 227 | Calcification of joints and arteries 211800   | NT5E     |
| 228 | Campomelic dysplasia 114290   | SOX9     |
| 228 | Campomelic dysplasia with autosomal sex reversal 114290                                 | SOX9     |
| 228 | Acampomelic campomelic dysplasia 114290   | SOX9     |
| 229 | Camptodactyly-arthropathy-coxa vara-pericarditis syndrome 208250                        | PRG4     |
| 230 | Camurati-Engelmann disease 131300   | TGFB1    |
| 231 | Canavan disease 271900  | ASPA     |
| 232 | Candidiasis familial 2 autosomal recessive 212050                                       | CARD9    |
| 232 | Candidiasis familial 4 autosomal recessive 613108                                       | CLEC7A   |
| 232 | Candidiasis familial 9 616445   | IL17RC   |
| 233 | Capillary malformation-arteriovenous malformation 608354                                | RASA1    |
| 233 | Capillary malformations congenital 1 somatic mosaic 163000                              | GNAQ     |
| 234 | Carbamoylphosphate synthetase I deficiency 237300                                       | CPS1     |
| 235 | Carboxypeptidase N deficiency 212070  | CPN1     |
| 236 | Carcinoid tumors intestinal 114900  | SDHD     |
| 237 | Cardiac conduction defect nonspecific 612838  | SCN1B    |
| 237 | {Cardiac conduction defect susceptibility to} 115080                                    | AKAP10   |
| 238 | Cardiac valvular defect developmental 212093  | PLD1     |
| 238 | Cardiac valvular dysplasia X-linked 314400  | FLNA     |
| 239 | Cardioencephalomyopathy fatal infantile due to cytochrome c oxidase deficiency 1 604377 | SCO2     |
| 239 | Cardioencephalomyopathy fatal infantile due to cytochrome c oxidase deficiency 2 615119 | COX15    |
| 239 | Cardioencephalomyopathy fatal infantile due to cytochrome c oxidase deficiency 4 616501 | COA6     |
| 240 | Cardiofaciocutaneous syndrome 115150  | BRAF     |
| 240 | Cardiofaciocutaneous syndrome 2 615278  | KRAS     |
| 240 | Cardiofaciocutaneous syndrome 3 615279  | MAP2K1   |
| 240 | Cardiofaciocutaneous syndrome 4 615280  | MAP2K2   |
| 241 | Cardiomyopathy dilated 1A 115200  | LMNA     |
| 241 | Cardiomyopathy dilated 1AA with or without LVNC 612158                                  | ACTN2    |

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| 241 | Cardiomyopathy dilated 1BB 612877                              | DSG2   |
| 241 | Cardiomyopathy dilated 1C with or without LVNC 601493          | LDB3   |
| 241 | Cardiomyopathy dilated 1CC 613122                              | NEXN   |
| 241 | Cardiomyopathy dilated 1D 601494                               | TNNT2  |
| 241 | Cardiomyopathy dilated 1DD 613172                              | RBM20  |
| 241 | Cardiomyopathy dilated 1E 601154                               | SCN5A  |
| 241 | Cardiomyopathy dilated 1EE 613252                              | MYH6   |
| 241 | Cardiomyopathy dilated 1FF 613286                              | TNNI3  |
| 241 | Cardiomyopathy dilated 1G 604145                               | TTN    |
| 241 | Cardiomyopathy dilated 1GG 613642                              | SDHA   |
| 241 | Cardiomyopathy dilated 1HH 613881                              | BAG3   |
| 241 | Cardiomyopathy dilated 1I 604765                               | DES    |
| 241 | Cardiomyopathy dilated 1II 615184                              | CRYAB  |
| 241 | Cardiomyopathy dilated 1J 605362                               | EYA4   |
| 241 | Cardiomyopathy dilated 1JJ 615235                              | LAMA4  |
| 241 | Cardiomyopathy dilated 1KK 615248                              | MYPN   |
| 241 | Cardiomyopathy dilated 1L 606685                               | SGCD   |
| 241 | Cardiomyopathy dilated 1LL 615373                              | PRDM16 |
| 241 | Cardiomyopathy dilated 1MM 615396                              | MYBPC3 |
| 241 | Cardiomyopathy dilated 1NN 615916                              | RAF1   |
| 241 | Cardiomyopathy dilated 1O 608569                               | ABCC9  |
| 241 | Cardiomyopathy dilated 1P 609909                               | PLN    |
| 241 | Cardiomyopathy dilated 1R 613424                               | ACTC1  |
| 241 | Cardiomyopathy dilated 1S 613426                               | MYH7   |
| 241 | Cardiomyopathy dilated 1U 613694                               | PSEN1  |
| 241 | Cardiomyopathy dilated 1V 613697                               | PSEN2  |
| 241 | Cardiomyopathy dilated 1W 611407                               | VCL    |
| 241 | Cardiomyopathy dilated 1X 611615                               | FKTN   |
| 241 | Cardiomyopathy dilated 1Y 611878                               | TPM1   |
| 241 | Cardiomyopathy dilated 1Z 611879                               | TNNC1  |
| 241 | Cardiomyopathy dilated 3B 302045                               | DMD    |
| 241 | Cardiomyopathy dilated with woolly hair and keratoderma 605676 | DSP    |
| 241 | Cardiomyopathy familial hypertrophic 192600                    | CAV3   |
| 241 | Cardiomyopathy familial hypertrophic 26                        | FLNC   |
| 241 | Cardiomyopathy familial hypertrophic 9 613765                  | TTN    |
| 241 | Cardiomyopathy familial restrictive 1 115210                   | TNNI3  |
| 241 | Cardiomyopathy familial restrictive 3 612422                   | TNNT2  |
| 241 | Cardiomyopathy familial restrictive 4 615248                   | MYPN   |
| 241 | Cardiomyopathy familial restrictive 5 617047                   | FLNC   |
| 241 | Cardiomyopathy hypertrophic 1 192600                           | MYH7   |
| 241 | Cardiomyopathy hypertrophic 1 digenic 192600                   | MYLK2  |
| 241 | Cardiomyopathy hypertrophic 10 608758                          | MYL2   |
| 241 | Cardiomyopathy hypertrophic 11 612098                          | ACTC1  |
| 241 | Cardiomyopathy hypertrophic 12 612124                          | CSRP3  |

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| 241 | Cardiomyopathy hypertrophic 13 613243                      | TNNC1    |
| 241 | Cardiomyopathy hypertrophic 14 613251                      | MYH6     |
| 241 | Cardiomyopathy hypertrophic 15 613255                      | VCL      |
| 241 | Cardiomyopathy hypertrophic 16 613838                      | MYOZ2    |
| 241 | Cardiomyopathy hypertrophic 17 613873                      | JPH2     |
| 241 | Cardiomyopathy hypertrophic 18 613874                      | PLN      |
| 241 | Cardiomyopathy hypertrophic 2 115195                       | TNNT2    |
| 241 | Cardiomyopathy hypertrophic 20 613876                      | NEXN     |
| 241 | Cardiomyopathy hypertrophic 22 615248                      | MYPN     |
| 241 | Cardiomyopathy hypertrophic 23 with or without LVNC 612158 | ACTN2    |
| 241 | Cardiomyopathy hypertrophic 24 601493                      | LDB3     |
| 241 | Cardiomyopathy hypertrophic 25 607487                      | TCAP     |
| 241 | Cardiomyopathy hypertrophic 3 115196                       | TPM1     |
| 241 | Cardiomyopathy hypertrophic 4 115197                       | MYBPC3   |
| 241 | Cardiomyopathy hypertrophic 6 600858                       | PRKAG2   |
| 241 | Cardiomyopathy hypertrophic 7 613690                       | TNNI3    |
| 241 | Cardiomyopathy hypertrophic 8 608751                       | MYL3     |
| 242 | Cardiospondylocarpofacial syndrome 157800                  | MAP3K7   |
| 243 | Carey-Fineman-Ziter syndrome 254940                        | MYMK     |
| 244 | Carney complex type 1 160980                               | PRKAR1A  |
| 244 | Carney complex variant 608837                              | MYH8     |
| 245 | Carnitine deficiency systemic primary 212140               | SLC22A5  |
| 246 | Carnitine-acylcarnitine translocase deficiency 212138      | SLC25A20 |
| 247 | Carotid intimal medial thickness 1 609338                  | PPARG    |
| 248 | Carpal tunnel syndrome familial 115430                     | TTR      |
| 249 | Carpenter syndrome 2 614976                                | MEGF8    |
| 249 | Carpenter syndrome 201000                                  | RAB23    |
| 250 | Cartilage-hair hypoplasia 250250                           | RMRP     |
| 251 | Cataract 1 multiple types 116200                           | GJA8     |
| 251 | Cataract 10 multiple types 600881                          | CRYBA1   |
| 251 | Cataract 11 multiple types 610623                          | PITX3    |
| 251 | Cataract 11 syndromic 610623                               | PITX3    |
| 251 | Cataract 12 multiple types 611597                          | BFSP2    |
| 251 | Cataract 13 with adult i phenotype 116700                  | GCNT2    |
| 251 | Cataract 14 multiple types 601885                          | GJA3     |
| 251 | Cataract 15 multiple types 615274                          | MIP      |
| 251 | Cataract 16 multiple types 613763                          | CRYAB    |
| 251 | Cataract 17 multiple types 611544                          | CRYBB1   |
| 251 | Cataract 18 autosomal recessive 610019                     | FYCO1    |
| 251 | Cataract 19 multiple types 615277                          | LIM2     |
| 251 | Cataract 2 multiple types 604307                           | CRYGC    |
| 251 | Cataract 20 multiple types 116100                          | CRYGS    |
| 251 | Cataract 21 multiple types 610202                          | MAF      |
| 251 | Cataract 22 609741   | CRYBB3   |
| 251 | Cataract 23 610425   | CRYBA4   |

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| 251 | Cataract 3 multiple types 601547   | CRYBB2   |
| 251 | Cataract 30 pulverulent 116300   | VIM      |
| 251 | Cataract 31 multiple types 605387  | CHMP4B   |
| 251 | Cataract 33 multiple types 611391  | BFSP1    |
| 251 | Cataract 34 multiple types 612968  | FOXE3    |
| 251 | Cataract 36 613887   | TDRD7    |
| 251 | Cataract 38 autosomal recessive 614691   | AGK      |
| 251 | Cataract 39 multiple types autosomal dominant 615188                                     | CRYGB    |
| 251 | Cataract 4 multiple types 115700   | CRYGD    |
| 251 | Cataract 40 X-linked 302200  | NHS      |
| 251 | Cataract 44 616509   | LSS      |
| 251 | Cataract 46 juvenile-onset 212500  | LEMD2    |
| 251 | Cataract 47 juvenile with microcornea 612018   | SLC16A12 |
| 251 | Cataract 5 multiple types 116800   | HSF4     |
| 251 | Cataract 6 multiple types 116600   | EPHA2    |
| 251 | Cataract 9 multiple types 604219   | CRYAA    |
| 251 | Cataract with late-onset corneal dystrophy 106210  | PAX6     |
| 251 | Aniridia 106210  | PAX6     |
| 252 | Catel-Manzke syndrome 616145   | TGDS     |
| 253 | Caudal regression syndrome 600145  | VANGL1   |
| 254 | Cavitary optic disc anomalies 611543   | MMP19    |
| 255 | Cenani-Lenz syndactyly syndrome 212780   | LRP4     |
| 256 | Central core disease 117000  | RYR1     |
| 256 | Neuromuscular disease congenital with uniform type 1 fiber 117000                        | RYR1     |
| 257 | Central hypoventilation syndrome 209880  | GDNF     |
| 257 | Central hypoventilation syndrome congenital 209880                                       | ASCL1    |
| 257 | Central hypoventilation syndrome congenital 209880                                       | BDNF     |
| 257 | Central hypoventilation syndrome congenital 209880                                       | EDN3     |
| 257 | Central hypoventilation syndrome congenital 209880                                       | RET      |
| 257 | Central hypoventilation syndrome congenital with or without Hirschsprung disease 209880  | PHOX2B   |
| 257 | Haddad syndrome 209880   | ASCL1    |
| 258 | Centronuclear myopathy 1 160150  | DNM2     |
| 258 | Centronuclear myopathy 2 255200  | BIN1     |
| 258 | Centronuclear myopathy 3 614408  | MYF6     |
| 258 | Centronuclear myopathy 5 615959  | SPEG     |
| 258 | Centronuclear myopathy 6 with fiber-type disproportion 617760                            | ZAK      |
| 258 | {Centronuclear myopathy autosomal modifier of} 160150                                    | MTMR14   |
| 259 | Cerebellar ataxia 604290   | CP       |
| 259 | Hemosiderosis systemic due to aceruloplasminemia 604290                                  | CP       |
| 259 | Cerebellar ataxia and hypogonadotropic hypogonadism 212840                               | RNF216   |
| 259 | Cerebellar ataxia and mental retardation with or without quadrupedal locomotion 3 613227 | CA8      |

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| 259 | Cerebellar ataxia deafness and narcolepsy autosomal dominant 604121   | DNMT1   |
| 259 | Cerebellar ataxia mental retardation and dysequilibrium syndrome 2 610185                                       | WDR81   |
| 259 | Cerebellar ataxia nonprogressive with mental retardation 614756   | CAMTA1  |
| 259 | Cerebellar atrophy visual impairment and psychomotor retardation 616875   | EMC1    |
| 259 | Cerebellar hypoplasia and mental retardation with or without quadrupedal locomotion 1 224050                    | VLDLR   |
| 260 | Cerebellofaciodental syndrome 616202  | BRF1    |
| 261 | Cerebral amyloid angiopathy 105150  | CST3    |
| 261 | Cerebral amyloid angiopathy Dutch Italian Iowa Flemish Arctic variants 605714                                   | APP     |
| 261 | Cerebral amyloid angiopathy PRNP-related 137440   | PRNP    |
| 261 | Gerstmann-Straussler disease 137440   | PRNP    |
| 262 | Cerebral arteriopathy autosomal dominant with subcortical infarcts and leukoencephalopathy type 2 616779        | HTRA1   |
| 262 | Cerebral arteriopathy with subcortical infarcts and leukoencephalopathy 1 125310                                | NOTCH3  |
| 263 | Cerebral cavernous malformations 3 603285   | PDCD10  |
| 263 | Cerebral cavernous malformations-1 116860   | KRIT1   |
| 263 | Cerebral cavernous malformations-2 603284   | CCM2    |
| 263 | Cavernous malformations of CNS and retina 116860  | KRIT1   |
| 263 | Hyperkeratotic cutaneous capillary-venous malformations associated with cerebral capillary malformations 116860 | KRIT1   |
| 264 | Cerebral creatine deficiency syndrome 1 300352  | SLC6A8  |
| 264 | Cerebral creatine deficiency syndrome 2 612736  | GAMT    |
| 264 | Cerebral creatine deficiency syndrome 3 612718  | GATM    |
| 265 | Cerebral dysgenesis neuropathy ichthyosis and palmoplantar keratoderma syndrome 609528                          | SNAP29  |
| 266 | Cerebral palsy spastic quadriplegic 2 612900  | KANK1   |
| 266 | Cerebral palsy spastic quadriplegic 3 617008  | ADD3    |
| 267 | {Cerebral infarction susceptibility to} 601367  | PRKCH   |
| 267 | {Ischemic stroke susceptibility to} 601367  | NOS3    |
| 267 | {Stroke ischemic susceptibility to} 601367  | F2      |
| 267 | {Stroke ischemic susceptibility to} 601367  | F5      |
| 267 | {Stroke susceptibility to} 601367   | ALOX5AP |
| 267 | {Stroke susceptibility to 1} 606799   | PDE4D   |
| 267 | {Stroke susceptibility to} 601367   | ALOX5AP |
| 268 | Cerebrocostomandibular syndrome 117650  | SNRPB   |
| 269 | Cerebrooculofacioskeletal syndrome 1 214150   | ERCC6   |
| 269 | Cerebrooculofacioskeletal syndrome 3 616570   | ERCC5   |
| 269 | Cerebrooculofacioskeletal syndrome 4 610758   | ERCC1   |
| 270 | Cerebroretinal microangiopathy with calcifications and cysts 2 617341   | STN1    |

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| 270 | Cerebroretinal microangiopathy with calcifications and cysts 612199 | CTC1    |
| 271 | Cerebrotendinous xanthomatosis 213700                               | CYP27A1 |
| 272 | Ceroid lipofuscinosis neuronal 1 256730                             | PPT1    |
| 272 | Ceroid lipofuscinosis neuronal 10 610127                            | CTSD    |
| 272 | Ceroid lipofuscinosis neuronal 11 614706                            | GRN     |
| 272 | Ceroid lipofuscinosis neuronal 13 Kufs type 615362                  | CTSF    |
| 272 | Ceroid lipofuscinosis neuronal 2 204500                             | TPP1    |
| 272 | Ceroid lipofuscinosis neuronal 3 204200                             | CLN3    |
| 272 | Ceroid lipofuscinosis neuronal 4 Parry type 162350                  | DNAJC5  |
| 272 | Ceroid lipofuscinosis neuronal 5 256731                             | CLN5    |
| 272 | Ceroid lipofuscinosis neuronal 6 601780                             | CLN6    |
| 272 | Ceroid lipofuscinosis neuronal 7 610951                             | MFSD8   |
| 272 | Ceroid lipofuscinosis neuronal 8 600143                             | CLN8    |
| 272 | Ceroid lipofuscinosis neuronal 8 Northern epilepsy variant 610003   | CLN8    |
| 272 | Ceroid lipofuscinosis neuronal Kufs type adult onset 204300         | CLN6    |
| 273 | Cervical cancer somatic 603956                                      | FGFR3   |
| 274 | Chanarin-Dorfman syndrome 275630                                    | ABHD5   |
| 275 | Char syndrome 169100  | TFAP2B  |
| 276 | Charcot-Marie-Tooth disease X-linked recessive 5 311070             | PRPS1   |
| 276 | Charcot-Marie-Tooth disease axonal type 20 614228                   | DYNC1H1 |
| 276 | Charcot-Marie-Tooth disease axonal type 2A2A 609260                 | MFN2    |
| 276 | Charcot-Marie-Tooth disease axonal type 2A2B 617087                 | MFN2    |
| 276 | Charcot-Marie-Tooth disease axonal type 2CC 616924                  | NEFH    |
| 276 | Charcot-Marie-Tooth disease axonal type 2F 606595                   | HSPB1   |
| 276 | Charcot-Marie-Tooth disease axonal type 2K 607831                   | GDAP1   |
| 276 | Charcot-Marie-Tooth disease axonal type 2L 608673                   | HSPB8   |
| 276 | Charcot-Marie-Tooth disease axonal type 2M 606482                   | DNM2    |
| 276 | Charcot-Marie-Tooth disease axonal type 2N 613287                   | AARS    |
| 276 | Charcot-Marie-Tooth disease axonal type 2P 614436                   | LRSAM1  |
| 276 | Charcot-Marie-Tooth disease axonal type 2S 616155                   | IGHMBP2 |
| 276 | Charcot-Marie-Tooth disease axonal type 2T 617017                   | MME     |
| 276 | Charcot-Marie-Tooth disease axonal type 2U 616280                   | MARS    |
| 276 | Charcot-Marie-Tooth disease axonal type 2W 616625                   | HARS    |
| 276 | Charcot-Marie-Tooth disease axonal type 2X 616668                   | SPG11   |
| 276 | Charcot-Marie-Tooth disease axonal type 2Z 616688                   | MORC2   |
| 276 | Charcot-Marie-Tooth disease axonal with vocal cord paresis 607706   | GDAP1   |
| 276 | Charcot-Marie-Tooth disease dominant intermediate B 606482          | DNM2    |
| 276 | Charcot-Marie-Tooth disease dominant intermediate C 608323          | YARS    |
| 276 | Charcot-Marie-Tooth disease dominant intermediate D 607791          | MPZ     |
| 276 | Charcot-Marie-Tooth disease dominant intermediate E 614455          | INF2    |
| 276 | Charcot-Marie-Tooth disease dominant intermediate F 615185          | GNB4    |
| 276 | Charcot-Marie-Tooth disease foot deformity of 192950                | HOXD10  |

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| 276 | Charcot-Marie-Tooth disease recessive intermediate A 608340 | GDAP1   |
| 276 | Charcot-Marie-Tooth disease recessive intermediate C 615376 | PLEKHG5 |
| 276 | Charcot-Marie-Tooth disease recessive intermediate D 616039 | COX6A1  |
| 276 | Charcot-Marie-Tooth disease type 1A 118220                  | PMP22   |
| 276 | Charcot-Marie-Tooth disease type 1B 118200                  | MPZ     |
| 276 | Charcot-Marie-Tooth disease type 1C 601098                  | LITAF   |
| 276 | Charcot-Marie-Tooth disease type 1D 607678                  | EGR2    |
| 276 | Charcot-Marie-Tooth disease type 1E 118300                  | PMP22   |
| 276 | Charcot-Marie-Tooth disease type 1F 607734                  | NEFL    |
| 276 | Charcot-Marie-Tooth disease type 2B 600882                  | RAB7A   |
| 276 | Charcot-Marie-Tooth disease type 2B1 605588                 | LMNA    |
| 276 | Charcot-Marie-Tooth disease type 2D 601472                  | GARS    |
| 276 | Charcot-Marie-Tooth disease type 2E 607684                  | NEFL    |
| 276 | Charcot-Marie-Tooth disease type 2I 607677                  | MPZ     |
| 276 | Charcot-Marie-Tooth disease type 2J 607736                  | MPZ     |
| 276 | Charcot-Marie-Tooth disease type 2R 615490                  | TRIM2   |
| 276 | Charcot-Marie-Tooth disease type 2Y 616687                  | VCP     |
| 276 | Charcot-Marie-Tooth disease type 4A 214400                  | GDAP1   |
| 276 | Charcot-Marie-Tooth disease type 4B1 601382                 | MTMR2   |
| 276 | Charcot-Marie-Tooth disease type 4B2 604563                 | SBF2    |
| 276 | Charcot-Marie-Tooth disease type 4B3 615284                 | SBF1    |
| 276 | Charcot-Marie-Tooth disease type 4C 601596                  | SH3TC2  |
| 276 | Charcot-Marie-Tooth disease type 4D 601455                  | NDRG1   |
| 276 | Charcot-Marie-Tooth disease type 4F 614895                  | PRX     |
| 276 | Charcot-Marie-Tooth disease type 4H 609311                  | FGD4    |
| 276 | Charcot-Marie-Tooth disease type 4J 611228                  | FIG4    |
| 276 | Charcot-Marie-Tooth disease type 4K 616684                  | SURF1   |
| 276 | Charcot-Marie-Tooth neuropathy X-linked dominant 1 302800   | GJB1    |
| 276 | Vertical talus congenital 192950                            | HOXD10  |
| 277 | Chediak-Higashi syndrome 214500                             | LYST    |
| 278 | Cherubism 118400  | SH3BP2  |
| 279 | Chilblain lupus 610448                                      | TREX1   |
| 280 | Chitayat syndrome 617180                                    | ERF     |
| 281 | Choanal atresia and lymphedema 613611                       | PTPN14  |
| 282 | Cholestasis benign recurrent intrahepatic 2 605479          | ABCB11  |
| 282 | Cholestasis benign recurrent intrahepatic 243300            | ATP8B1  |
| 282 | Cholestasis intrahepatic of pregnancy 1 147480              | ATP8B1  |
| 282 | Cholestasis intrahepatic of pregnancy 3 614972              | ABCB4   |
| 282 | Cholestasis progressive familial intrahepatic 1 211600      | ATP8B1  |
| 282 | Cholestasis progressive familial intrahepatic 2 601847      | ABCB11  |
| 282 | Cholestasis progressive familial intrahepatic 3 602347      | ABCB4   |
| 282 | Cholestasis progressive familial intrahepatic 4 615878      | TJP2    |
| 282 | Cholestasis progressive familial intrahepatic 5 617049      | NR1H4   |
| 283 | Chondrocalcinosis 2 118600                                  | ANKH    |
| 284 | Chondrodysplasia Blomstrand type 215045                     | PTH1R   |

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| 285 | Chondrodysplasia Grebe type 200700                                       | GDF5     |
| 286 | Chondrodysplasia punctata X-linked dominant 302960                       | EBP      |
| 286 | Chondrodysplasia punctata X-linked recessive 302950                      | ARSE     |
| 287 | Chondrodysplasia with joint dislocations GPAPP type 614078               | IMPAD1   |
| 288 | Chondrosarcoma 215300  | EXT1     |
| 288 | Chondrosarcoma extraskeletal myxoid 612237                               | NR4A3    |
| 289 | Chorea hereditary benign 118700  | NKX2-1   |
| 290 | Choreoacanthocytosis 200150  | VPS13A   |
| 291 | Choreoathetosis hypothyroidism and neonatal respiratory distress 610978  | NKX2-1   |
| 292 | Choroid plexus papilloma 260500  | TP53     |
| 293 | Choroidal dystrophy central areolar 2 613105                             | PRPH2    |
| 294 | Choroideremia 303100   | CHM      |
| 295 | Chronic atrial and intestinal dysrhythmia 616201                         | SGOL1    |
| 296 | Chronic granulomatous disease X-linked 306400                            | CYBB     |
| 296 | Chronic granulomatous disease autosomal due to deficiency of CYBA 233690 | CYBA     |
| 296 | Chronic granulomatous disease due to deficiency of NCF-1 233700          | NCF1     |
| 296 | Chronic granulomatous disease due to deficiency of NCF-2 233710          | NCF2     |
| 297 | Chudley-McCullough syndrome 604213                                       | GPSM2    |
| 298 | Chylomicron retention disease 246700                                     | SAR1B    |
| 299 | Ciliary dyskinesia primary 1 with or without situs inversus 244400       | DNAI1    |
| 299 | Ciliary dyskinesia primary 10 612518                                     | DNAAF2   |
| 299 | Ciliary dyskinesia primary 11 612649                                     | RSPH4A   |
| 299 | Ciliary dyskinesia primary 12 612650                                     | RSPH9    |
| 299 | Ciliary dyskinesia primary 13 613193                                     | DNAAF1   |
| 299 | Ciliary dyskinesia primary 14 613807                                     | CCDC39   |
| 299 | Ciliary dyskinesia primary 15 613808                                     | CCDC40   |
| 299 | Ciliary dyskinesia primary 16 614017                                     | DNAL1    |
| 299 | Ciliary dyskinesia primary 17 614679                                     | CCDC103  |
| 299 | Ciliary dyskinesia primary 18 614874                                     | DNAAF5   |
| 299 | Ciliary dyskinesia primary 19 614935                                     | LRRC6    |
| 299 | Ciliary dyskinesia primary 2 606763                                      | DNAAF3   |
| 299 | Ciliary dyskinesia primary 20 615067                                     | CCDC114  |
| 299 | Ciliary dyskinesia primary 21 615294                                     | DRC1     |
| 299 | Ciliary dyskinesia primary 22 615444                                     | ZMYND10  |
| 299 | Ciliary dyskinesia primary 23 615451                                     | ARMC4    |
| 299 | Ciliary dyskinesia primary 24 615481                                     | RSPH1    |
| 299 | Ciliary dyskinesia primary 25 615482                                     | DNAAF4   |
| 299 | Ciliary dyskinesia primary 26 615500                                     | C21orf59 |
| 299 | Ciliary dyskinesia primary 27 615504                                     | CCDC65   |
| 299 | Ciliary dyskinesia primary 28 615505                                     | SPAG1    |
| 299 | Ciliary dyskinesia primary 29 615872                                     | CCNO     |



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| 299 | Ciliary dyskinesia primary 3 with or without situs inversus 608644                                  | DNAH5    |
| 299 | Ciliary dyskinesia primary 30 616037  | CCDC151  |
| 299 | Ciliary dyskinesia primary 32 616481  | RSPH3    |
| 299 | Ciliary dyskinesia primary 33 616726  | GAS8     |
| 299 | Ciliary dyskinesia primary 34 617091  | DNAJB13  |
| 299 | Ciliary dyskinesia primary 35 617092  | TTC25    |
| 299 | Ciliary dyskinesia primary 36 X-linked 300991   | PIH1D3   |
| 299 | Ciliary dyskinesia primary 5 608647   | HYDIN    |
| 299 | Ciliary dyskinesia primary 6 610852   | NME8     |
| 299 | Ciliary dyskinesia primary 7 with or without situs inversus 611884                                  | DNAH11   |
| 299 | Ciliary dyskinesia primary 9 with or without situs inversus 612444                                  | DNAI2    |
| 300 | Cirrhosis cryptogenic 215600  | KRT18    |
| 300 | Cirrhosis cryptogenic 215600  | KRT8     |
| 300 | {Cirrhosis noncryptogenic susceptibility to} 215600   | KRT18    |
| 300 | {Cirrhosis noncryptogenic susceptibility to} 215600   | KRT8     |
| 301 | Citrullinemia 215700  | ASS1     |
| 301 | Citrullinemia adult-onset type II 603471  | SLC25A13 |
| 301 | Citrullinemia type II neonatal-onset 605814   | SLC25A13 |
| 302 | Cleft lip or palate-ectodermal dysplasia syndrome 225060  | NECTIN1  |
| 302 | Cleft palate cardiac defects and mental retardation 600987  | MEIS2    |
| 302 | Cleft palate psychomotor retardation and distinctive facial features 616728                         | KDM1A    |
| 302 | Cleft palate with ankyloglossia 303400  | TBX22    |
| 303 | Cleidocranial dysplasia 119600  | RUNX2    |
| 303 | Cleidocranial dysplasia forme fruste dental anomalies only 119600                                   | RUNX2    |
| 303 | Cleidocranial dysplasia forme fruste with brachydactyly 119600                                      | RUNX2    |
| 304 | Clopidogrel impaired responsiveness to 609535   | CYP2C19  |
| 304 | Proguanil poor metabolizer 609535   | CYP2C19  |
| 305 | Clubfoot congenital with or without deficiency of long bones and or mirror-image polydactyly 119800 | PITX1    |
| 306 | Cockayne syndrome type A 216400   | ERCC8    |
| 306 | Cockayne syndrome type B 133540   | ERCC6    |
| 307 | Cocoon syndrome 613630  | CHUK     |
| 308 | Coenzyme Q10 deficiency primary 1 607426  | COQ2     |
| 308 | Coenzyme Q10 deficiency primary 2 614651  | PDSS1    |
| 308 | Coenzyme Q10 deficiency primary 3 614652  | PDSS2    |
| 308 | Coenzyme Q10 deficiency primary 4 612016  | ADCK3    |
| 308 | Coenzyme Q10 deficiency primary 5 614654  | COQ9     |
| 308 | Coenzyme Q10 deficiency primary 6 614650  | COQ6     |
| 308 | Coenzyme Q10 deficiency primary 7 616276  | COQ4     |
| 309 | Coffin-Lowry syndrome 303600  | RPS6KA3  |
| 310 | Coffin-Siris syndrome 1 135900  | ARID1B   |
| 310 | Coffin-Siris syndrome 2 614607  | ARID1A   |
| 310 | Coffin-Siris syndrome 3 614608  | SMARCB1  |

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| 310 | Coffin-Siris syndrome 4 614609   | SMARCA4 |
| 310 | Coffin-Siris syndrome 5 616938   | SMARCE1 |
| 311 | Cohen syndrome 216550  | VPS13B  |
| 312 | Cohen-Gibson syndrome 617561   | EED     |
| 313 | Cold-induced sweating syndrome 1 272430  | CRLF1   |
| 313 | Cold-induced sweating syndrome 2 610313  | CLCF1   |
| 313 | Cold-induced sweating syndrome 3 617055  | KLHL7   |
| 314 | Cole disease 615522  | ENPP1   |
| 315 | Cole-Carpenter syndrome 1 112240   | P4HB    |
| 315 | Cole-Carpenter syndrome 2 616294   | SEC24D  |
| 316 | Coloboma ocular 120433   | YAP1    |
| 316 | Coloboma ocular with or without hearing impairment cleft lip palate and or mental retardation 120433 | YAP1    |
| 317 | Colorblindness deutan 303800   | OPN1MW  |
| 317 | Colorblindness protan 303900   | OPN1LW  |
| 317 | Colorblindness tritan 190900   | OPN1SW  |
| 318 | Colorectal adenomatous polyposis autosomal recessive with pilomatricomas 132600                      | MUTYH   |
| 318 | Pilomatricoma somatic 132600   | CTNNB1  |
| 318 | Colorectal cancer 114500   | TP53    |
| 318 | Colorectal cancer hereditary nonpolyposis type 1 120435  | MSH2    |
| 318 | Colorectal cancer hereditary nonpolyposis type 2 609310  | MLH1    |
| 318 | Colorectal cancer hereditary nonpolyposis type 4 614337  | PMS2    |
| 318 | Colorectal cancer hereditary nonpolyposis type 5 614350  | MSH6    |
| 318 | Colorectal cancer hereditary nonpolyposis type 6 614331  | TGFBR2  |
| 318 | Colorectal cancer hereditary nonpolyposis type 7 614385  | MLH3    |
| 318 | Colorectal cancer hereditary nonpolyposis type 8 613244  | EPCAM   |
| 318 | Colorectal cancer somatic 114500   | AKT1    |
| 318 | Colorectal cancer somatic 114500   | APC     |
| 318 | Colorectal cancer somatic 114500   | AXIN2   |
| 318 | Colorectal cancer somatic 114500   | BAX     |
| 318 | Colorectal cancer somatic 114500   | BUB1B   |
| 318 | Colorectal cancer somatic 114500   | CTNNB1  |
| 318 | Colorectal cancer somatic 114500   | DCC     |
| 318 | Colorectal cancer somatic 114500   | DLC1    |
| 318 | Colorectal cancer somatic 114500   | EP300   |
| 318 | Colorectal cancer somatic 114500   | FGFR3   |
| 318 | Colorectal cancer somatic 114500   | FLCN    |
| 318 | Colorectal cancer somatic 114500   | MCC     |
| 318 | Colorectal cancer somatic 114500   | MLH3    |
| 318 | Colorectal cancer somatic 114500   | NRAS    |
| 318 | Colorectal cancer somatic 114500   | PDGFR1  |
| 318 | Colorectal cancer somatic 114500   | PIK3CA  |
| 318 | Colon cancer advanced somatic 114500   | SRC     |
| 318 | Colon cancer somatic 114500  | PTPN12  |

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| 318 | Colon cancer somatic 114500  | PTPRJ    |
| 318 | Colon cancer somatic 114500  | RAD54B   |
| 318 | {Colon cancer susceptibility to} 114500  | AURKA    |
| 318 | {Colonic adenoma recurrence reduced risk of} 114500  | ODC1     |
| 318 | {Colorectal cancer susceptibility to 10} 612591  | POLD1    |
| 318 | {Colorectal cancer susceptibility to 12} 615083  | POLE     |
| 318 | {Colorectal cancer susceptibility to 1} 608812   | GALNT12  |
| 318 | {Colorectal cancer susceptibility to 3} 612229   | SMAD7    |
| 318 | {Colorectal cancer susceptibility to} 114500   | CCND1    |
| 318 | {Colorectal cancer susceptibility to} 114500   | TLR2     |
| 318 | {Colorectal cancer} 114500   | PLA2G2A  |
| 318 | Colonic Adenocarcinoma somatic   | RAD54L   |
| 318 | Colorectal cancer with chromosomal instability somatic   | BUB1     |
| 318 | Colorectal cancer somatic  | BRAF     |
| 318 | {Breast and colorectal cancer, susceptibility to}  | CHEK2    |
| 318 | {Breast cancer, poor survival after chemotherapy for}  | NQO1     |
| 319 | Combined D-2- and L-2-hydroxyglutaric aciduria 615182  | SLC25A1  |
| 320 | Combined SAP deficiency 611721   | PSAP     |
| 321 | Combined cellular and humoral immune defects with granulomas 233650                            | RAG1     |
| 321 | Combined cellular and humoral immune defects with granulomas 233650                            | RAG2     |
| 322 | Combined factor V and VIII deficiency 227300   | LMAN1    |
| 323 | Combined hyperlipidemia familial 144250  | LPL      |
| 323 | {Hyperlipidemia familial combined susceptibility to} 602491                                    | USF1     |
| 324 | Combined immunodeficiency X-linked moderate 312863   | IL2RG    |
| 324 | Combined immunodeficiency and megaloblastic anemia with or without hyperhomocysteinemia 617780 | MTHFD1   |
| 325 | Combined malonic and methylmalonic aciduria 614265   | ACSF3    |
| 326 | Combined oxidative phosphorylation deficiency 1 609060   | GFM1     |
| 326 | Combined oxidative phosphorylation deficiency 10 614702  | MTO1     |
| 326 | Combined oxidative phosphorylation deficiency 11 614922  | RMND1    |
| 326 | Combined oxidative phosphorylation deficiency 12 614924  | EARS2    |
| 326 | Combined oxidative phosphorylation deficiency 13 614932  | PNPT1    |
| 326 | Combined oxidative phosphorylation deficiency 14 614946  | FARS2    |
| 326 | Combined oxidative phosphorylation deficiency 15 614947  | MTFMT    |
| 326 | Combined oxidative phosphorylation deficiency 17 615440  | ELAC2    |
| 326 | Combined oxidative phosphorylation deficiency 18 615578  | SFXN4    |
| 326 | Combined oxidative phosphorylation deficiency 2 610498   | MRPS16   |
| 326 | Combined oxidative phosphorylation deficiency 20 615917  | VARs2    |
| 326 | Combined oxidative phosphorylation deficiency 23 616198  | GTPBP3   |
| 326 | Combined oxidative phosphorylation deficiency 24 616239  | NARS2    |
| 326 | Combined oxidative phosphorylation deficiency 26 616539  | TRMT5    |
| 326 | Combined oxidative phosphorylation deficiency 27 616672  | CARS2    |
| 326 | Combined oxidative phosphorylation deficiency 28 616794  | SLC25A26 |

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| 326 | Combined oxidative phosphorylation deficiency 3 610505   | TSMF     |
| 326 | Combined oxidative phosphorylation deficiency 30 616974  | TRMT10C  |
| 326 | Combined oxidative phosphorylation deficiency 31 617228  | MIPEP    |
| 326 | Combined oxidative phosphorylation deficiency 32 617664  | MRPS34   |
| 326 | Combined oxidative phosphorylation deficiency 33 617713  | C1QBP    |
| 326 | Combined oxidative phosphorylation deficiency 4 610678   | TUFM     |
| 326 | Combined oxidative phosphorylation deficiency 5 611719   | MRPS22   |
| 326 | Combined oxidative phosphorylation deficiency 6 300816   | AIFM1    |
| 326 | Combined oxidative phosphorylation deficiency 7 613559   | C12orf65 |
| 326 | Combined oxidative phosphorylation deficiency 8 614096   | AARS2    |
| 326 | Combined oxidative phosphorylation deficiency 9 614582   | MRPL3    |
| 327 | Complement component 4 partial deficiency of 120790  | SERPING1 |
| 328 | Complement factor D deficiency 613912  | CFD      |
| 328 | Complement factor H deficiency 609814  | CFH      |
| 328 | Complement factor I deficiency 610984  | CFI      |
| 329 | Complement hyperactivation angiopathic thrombosis and protein-losing enteropathy 226300  | CD55     |
| 330 | Cone dystrophy 4 613093  | PDE6C    |
| 330 | Cone dystrophy-3 602093  | GUCA1A   |
| 330 | Cone-rod dystrophy 10 610283   | SEMA4A   |
| 330 | Cone-rod dystrophy 11 610381   | RAX2     |
| 330 | Cone-rod dystrophy 12 612657   | PROM1    |
| 330 | Cone-rod dystrophy 13 608194   | RPGRIP1  |
| 330 | Cone-rod dystrophy 14 602093   | GUCA1A   |
| 330 | Cone-rod dystrophy 15 613660   | CDHR1    |
| 330 | Cone-rod dystrophy 16 614500   | C8orf37  |
| 330 | Cone-rod dystrophy 18 615374   | RAB28    |
| 330 | Cone-rod dystrophy 19 615860   | TTLL5    |
| 330 | Cone-rod dystrophy 20 615973   | POC1B    |
| 330 | Cone-rod dystrophy 21 616502   | DRAM2    |
| 330 | Cone-rod dystrophy 3 604116  | ABCA4    |
| 330 | Cone-rod dystrophy 5 600977  | PITPNM3  |
| 330 | Cone-rod dystrophy 6 601777  | GUCY2D   |
| 330 | Cone-rod dystrophy 604393  | AIPL1    |
| 330 | Cone-rod dystrophy 7 603649  | RIMS1    |
| 330 | Cone-rod dystrophy 9 612775  | ADAM9    |
| 330 | Cone-rod dystrophy X-linked 1 304020   | RPGR     |
| 330 | Cone-rod dystrophy X-linked 3 300476   | CACNA1F  |
| 330 | Cone-rod dystrophy and hearing loss 617236   | CEP78    |
| 330 | Cone-rod retinal dystrophy-2 120970  | CRX      |
| 330 | Cone-rod synaptic disorder congenital nonprogressive 610427  | CABP4    |
| 331 | Congenital anomalies of kidney and urinary tract 2 143400  | TBX18    |
| 331 | Congenital anomalies of kidney and urinary tract syndrome with or without hearing loss abnormal ears or developmental delay 617641 | PBX1     |

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| 331 | {Congenital anomalies of kidney and urinary tract susceptibility to} 610805            | DSTYK   |
| 332 | Congenital bilateral absence of vas deferens 277180                                    | CFTR    |
| 333 | Congenital cataracts facial dysmorphism and neuropathy 604168                          | CTDP1   |
| 333 | Congenital cataracts hearing loss and neurodegeneration 614482                         | SLC33A1 |
| 334 | Congenital contractures of the limbs and face hypotonia and developmental delay 616266 | NALCN   |
| 335 | Congenital disorder of deglycosylation 615273  | NGLY1   |
| 335 | Congenital disorder of glycosylation type IIa 212066                                   | MGAT2   |
| 335 | Congenital disorder of glycosylation type IIb 606056                                   | MOGS    |
| 335 | Congenital disorder of glycosylation type IIc 266265                                   | SLC35C1 |
| 335 | Congenital disorder of glycosylation type II d 607091                                  | B4GALT1 |
| 335 | Congenital disorder of glycosylation type II e 608779                                  | COG7    |
| 335 | Congenital disorder of glycosylation type II f 603585                                  | SLC35A1 |
| 335 | Congenital disorder of glycosylation type II g 611209                                  | COG1    |
| 335 | Congenital disorder of glycosylation type II h 611182                                  | COG8    |
| 335 | Congenital disorder of glycosylation type II i 613612                                  | COG5    |
| 335 | Congenital disorder of glycosylation type II j 613489                                  | COG4    |
| 335 | Congenital disorder of glycosylation type II k 614727                                  | TMEM165 |
| 335 | Congenital disorder of glycosylation type II l 614576                                  | COG6    |
| 335 | Congenital disorder of glycosylation type II m 300896                                  | SLC35A2 |
| 335 | Congenital disorder of glycosylation type II n 616721                                  | SLC39A8 |
| 335 | Congenital disorder of glycosylation type II o 616828                                  | CCDC115 |
| 335 | Congenital disorder of glycosylation type II p 616829                                  | TMEM199 |
| 335 | Congenital disorder of glycosylation type Ia 212065                                    | PMM2    |
| 335 | Congenital disorder of glycosylation type Ib 602579                                    | MPI     |
| 335 | Congenital disorder of glycosylation type Ic 603147                                    | ALG6    |
| 335 | Congenital disorder of glycosylation type Id 601110                                    | ALG3    |
| 335 | Congenital disorder of glycosylation type Ie 608799                                    | DPM1    |
| 335 | Congenital disorder of glycosylation type If 609180                                    | MPDU1   |
| 335 | Congenital disorder of glycosylation type Ig 607143                                    | ALG12   |
| 335 | Congenital disorder of glycosylation type Ih 608104                                    | ALG8    |
| 335 | Congenital disorder of glycosylation type Ij 608093                                    | DPAGT1  |
| 335 | Congenital disorder of glycosylation type Ik 608540                                    | ALG1    |
| 335 | Congenital disorder of glycosylation type Il 608776                                    | ALG9    |
| 335 | Congenital disorder of glycosylation type Im 610768                                    | DOLK    |
| 335 | Congenital disorder of glycosylation type In 612015                                    | RFT1    |
| 335 | Congenital disorder of glycosylation type Io 612937                                    | DPM3    |
| 335 | Congenital disorder of glycosylation type Ip 613661                                    | ALG11   |
| 335 | Congenital disorder of glycosylation type Iq 612379                                    | SRD5A3  |
| 335 | Congenital disorder of glycosylation type It 614921                                    | PGM1    |
| 335 | Congenital disorder of glycosylation type Iu 615042                                    | DPM2    |
| 335 | Congenital disorder of glycosylation type Iy 300934                                    | SSR4    |
| 336 | Congenital heart defects and ectodermal dysplasia 617364                               | PRKD1   |

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| 336 | Congenital heart defects and skeletal malformations syndrome 617602                                | ABL1    |
| 336 | Congenital heart defects dysmorphic facial features and intellectual developmental disorder 617360 | CDK13   |
| 336 | Congenital heart defects multiple types 4 615779   | NR2F2   |
| 336 | Congenital heart defects nonsyndromic 1 X-linked 306955  | ZIC3    |
| 336 | Congenital heart defects nonsyndromic 2 614980   | TAB2    |
| 337 | Congenital myopathy with excess of muscle spindles 218040  | HRAS    |
| 337 | Costello syndrome 218040   | HRAS    |
| 338 | Congenital short bowel syndrome 300048   | FLNA    |
| 338 | Intestinal pseudoobstruction neuronal 300048   | FLNA    |
| 338 | Congenital short bowel syndrome 615237   | CLMP    |
| 339 | Conotruncal anomaly face syndrome 217095   | TBX1    |
| 339 | Conotruncal heart malformations 217095   | NKX2-6  |
| 339 | Conotruncal heart malformations variable 217095  | NKX2-5  |
| 339 | Persistent truncus arteriosus 217095   | GATA6   |
| 339 | Persistent truncus arteriosus 217095   | NKX2-6  |
| 339 | Double-outlet right ventricle 217095   | GDF1    |
| 340 | Contractural arachnodactyly congenital 121050  | FBN2    |
| 341 | Convulsions familial infantile with paroxysmal choreoathetosis 602066                              | PRRT2   |
| 342 | Cornea plana 2 autosomal recessive 217300  | KERA    |
| 343 | Corneal dystrophy Avellino type 607541   | TGFBI   |
| 343 | Corneal dystrophy Fuchs endothelial 1 136800   | COL8A2  |
| 343 | Corneal dystrophy Fuchs endothelial 3 613267   | TCF4    |
| 343 | Corneal dystrophy Fuchs endothelial 4 613268   | SLC4A11 |
| 343 | Corneal dystrophy Fuchs endothelial 6 613270   | ZEB1    |
| 343 | Corneal dystrophy Fuchs endothelial 8 615523   | AGBL1   |
| 343 | Corneal dystrophy Groenouw type I 121900   | TGFBI   |
| 343 | Corneal dystrophy Reis-Bucklers type 608470  | TGFBI   |
| 343 | Corneal dystrophy Schnyder type 121800   | UBIAD1  |
| 343 | Corneal dystrophy Thiel-Behnke type 602082   | TGFBI   |
| 343 | Corneal dystrophy congenital stromal 610048  | DCN     |
| 343 | Corneal dystrophy epithelial basement membrane 121820  | TGFBI   |
| 343 | Corneal dystrophy gelatinous drop-like 204870  | TACSTD2 |
| 343 | Corneal dystrophy lattice type I 122200  | TGFBI   |
| 343 | Corneal dystrophy lattice type IIIA 608471   | TGFBI   |
| 343 | Corneal dystrophy posterior polymorphous 1 122000  | OVOL2   |
| 343 | Corneal dystrophy posterior polymorphous 2 609140  | COL8A2  |
| 343 | Corneal dystrophy posterior polymorphous 3 609141  | ZEB1    |
| 343 | Corneal endothelial dystrophy and perceptive deafness 217400                                       | SLC4A11 |
| 343 | Corneal endothelial dystrophy autosomal recessive 217700   | SLC4A11 |
| 343 | Corneal fleck dystrophy 121850   | PIKFYVE |
| 343 | Corneal clouding autosomal recessive   | APOA1   |
| 344 | Cornelia de Lange syndrome 1 122470  | NIPBL   |

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| 344 | Cornelia de Lange syndrome 2 300590   | SMC1A   |
| 344 | Cornelia de Lange syndrome 3 610759   | SMC3    |
| 344 | Cornelia de Lange syndrome 4 614701   | RAD21   |
| 344 | Cornelia de Lange syndrome 5 300882   | HDAC8   |
| 345 | Corpus callosum agenesis of with mental retardation ocular coloboma and micrognathia 300472 | IGBP1   |
| 345 | Corpus callosum partial agenesis of 304100  | L1CAM   |
| 346 | Cortical dysplasia complex with other brain malformations 1 614039                          | TUBB3   |
| 346 | Cortical dysplasia complex with other brain malformations 2 615282                          | KIF5C   |
| 346 | Cortical dysplasia complex with other brain malformations 3 615411                          | KIF2A   |
| 346 | Cortical dysplasia complex with other brain malformations 4 615412                          | TUBG1   |
| 346 | Cortical dysplasia complex with other brain malformations 5 615763                          | TUBB2A  |
| 346 | Cortical dysplasia complex with other brain malformations 6 615771                          | TUBB    |
| 346 | Cortical dysplasia complex with other brain malformations 7 610031                          | TUBB2B  |
| 346 | Cortical dysplasia complex with other brain malformations 8 613180                          | TUBA8   |
| 346 | Cortical dysplasia-focal epilepsy syndrome 610042   | CNTNAP2 |
| 346 | Cortical malformations occipital 614115   | LAMC3   |
| 347 | Corticosteroid-binding globulin deficiency 611489   | CBG     |
| 348 | Cortisone reductase deficiency 1 604931   | H6PD    |
| 348 | Cortisone reductase deficiency 2 614662   | HSD11B1 |
| 349 | Cousin syndrome 260660  | TBX15   |
| 350 | Cowchock syndrome 310490  | AIFM1   |
| 351 | Lhermitte-Duclos syndrome 158350  | PTEN    |
| 351 | Cowden syndrome 1 158350  | PTEN    |
| 351 | Cowden syndrome 2 612359  | SDHB    |
| 351 | Cowden syndrome 3 615106  | SDHD    |
| 351 | Cowden syndrome 4 615107  | KLLN    |
| 351 | Cowden syndrome 5 615108  | PIK3CA  |
| 351 | Cowden syndrome 6 615109  | AKT1    |
| 351 | Cowden syndrome 7 616858  | SEC23B  |
| 352 | Craniodiaphyseal dysplasia autosomal dominant 122860  | SOST    |
| 352 | Cranioectodermal dysplasia 1 218330   | IFT122  |
| 352 | Cranioectodermal dysplasia 2 613610   | WDR35   |
| 352 | Cranioectodermal dysplasia 3 614099   | IFT43   |
| 353 | Craniofacial dysmorphism skeletal anomalies and mental retardation syndrome 213980          | TMCO1   |
| 354 | Craniofacial-deafness-hand syndrome 122880  | PAX3    |

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| 355 | Craniofrontonasal dysplasia 304110  | EFNB1    |
| 356 | Cranioleptoculosutural dysplasia 607812   | SEC23A   |
| 357 | Craniometaphyseal dysplasia 123000  | ANKH     |
| 357 | Craniometaphyseal dysplasia autosomal recessive 218400  | GJA1     |
| 358 | Craniosynostosis 1 123100   | TWIST1   |
| 358 | Craniosynostosis 2 604757   | MSX2     |
| 358 | Craniosynostosis 3 615314   | TCF12    |
| 358 | Craniosynostosis 4 600775   | ERF      |
| 358 | Craniosynostosis 6 616602   | ZIC1     |
| 358 | Craniosynostosis and dental anomalies 614188  | IL11RA   |
| 358 | Craniosynostosis with radiohumeral fusions and other skeletal and craniofacial anomalies 614416 | CYP26B1  |
| 358 | {Craniosynostosis 5 susceptibility to} 615529   | ALX4     |
| 358 | {Craniosynostosis 7 susceptibility to} 617439   | SMAD6    |
| 358 | Craniosynostosis nonspecific  | FGFR2    |
| 359 | Creatine phosphokinase elevated serum 123320  | CAV3     |
| 360 | Creutzfeldt-Jakob disease 123400  | PRNP     |
| 360 | {Creutzfeldt-Jakob disease variant resistance to} 123400  | HLA-DQB1 |
| 361 | Crigler-Najjar syndrome type I 218800   | UGT1A1   |
| 361 | Crigler-Najjar syndrome type II 606785  | UGT1A1   |
| 362 | Crouzon syndrome 123500   | FGFR2    |
| 362 | Crouzon syndrome with acanthosis nigricans 612247   | FGFR3    |
| 363 | Cryohydrocytosis 185020   | SLC4A1   |
| 364 | Cryptorchidism 219050   | INSL3    |
| 365 | Culler-Jones syndrome 615849  | GLI2     |
| 366 | Currarino syndrome 176450   | MNX1     |
| 367 | Curry-Jones syndrome somatic mosaic 601707  | SMO      |
| 368 | Cushing syndrome ACTH-independent adrenal somatic 615830  | PRKACA   |
| 369 | Cutis laxa autosomal dominant 123700  | ELN      |
| 369 | Cutis laxa autosomal dominant 2 614434  | FBLN5    |
| 369 | Cutis laxa autosomal dominant 3 616603  | ALDH18A1 |
| 369 | Cutis laxa autosomal recessive type IA 219100   | FBLN5    |
| 369 | Cutis laxa autosomal recessive type IB 614437   | EFEMP2   |
| 369 | Cutis laxa autosomal recessive type IC 613177   | LTBP4    |
| 369 | Cutis laxa autosomal recessive type IIA 219200  | ATP6V0A2 |
| 369 | Cutis laxa autosomal recessive type IIB 612940  | PYCR1    |
| 369 | Cutis laxa autosomal recessive type IIC 617402  | ATP6V1E1 |
| 369 | Cutis laxa autosomal recessive type IID 617403  | ATP6V1A  |
| 369 | Cutis laxa autosomal recessive type IIIA 219150   | ALDH18A1 |
| 369 | Cutis laxa autosomal recessive type IIIB 614438   | PYCR1    |
| 370 | Cyanosis transient neonatal 613977  | HBG2     |
| 371 | Cylindromatosis familial 132700   | CYLD     |
| 372 | Cystathioninuria 219500   | CTH      |
| 373 | Cystic fibrosis 219700  | CFTR     |
| 373 | {Cystic fibrosis lung disease modifier of} 219700   | TGFB1    |



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| 373 | {Pseudomonas aeruginosa susceptibility to chronic infection by in cystic fibrosis} 219700 | FCGR2A  |
| 374 | Cystinosis atypical nephropathic 219800   | CTNS    |
| 374 | Cystinosis late-onset juvenile or adolescent nephropathic 219900                          | CTNS    |
| 374 | Cystinosis nephropathic 219800  | CTNS    |
| 374 | Cystinosis ocular nonnephropathic 219750  | CTNS    |
| 374 | Cystinuria 220100   | SLC3A1  |
| 374 | Cystinuria 220100   | SLC7A9  |
| 375 | Czech dysplasia 609162  | COL2A1  |
| 376 | D-2-hydroxyglutaric aciduria 2 613657   | IDH2    |
| 376 | D-2-hydroxyglutaric aciduria 600721   | D2HGDH  |
| 377 | D-bifunctional protein deficiency 261515  | HSD17B4 |
| 378 | D-glyceric aciduria 220120  | GLYCTK  |
| 379 | DOOR syndrome 220500  | TBC1D24 |
| 380 | Danon disease 300257  | LAMP2   |
| 381 | Darier disease 124200   | ATP2A2  |
| 382 | De Sanctis-Cacchione syndrome 278800  | ERCC6   |
| 383 | Deafness autosomal recessive 86 614617  | TBC1D24 |
| 383 | Deafness X-linked 1 304500  | PRPS1   |
| 383 | Deafness X-linked 2 304400  | POU3F4  |
| 383 | Deafness X-linked 4 300066  | SMPX    |
| 383 | Deafness X-linked 5 300614  | AIFM1   |
| 383 | Deafness and myopia 221200  | SLITRK6 |
| 383 | Deafness autosomal dominant 1 124900  | DIAPH1  |
| 383 | Deafness autosomal dominant 10 601316   | EYA4    |
| 383 | Deafness autosomal dominant 11 601317   | MYO7A   |
| 383 | Deafness autosomal dominant 13 601868   | COL11A2 |
| 383 | Deafness autosomal dominant 15 602459   | POU4F3  |
| 383 | Deafness autosomal dominant 17 603622   | MYH9    |
| 383 | Deafness autosomal dominant 20 or 26 604717   | ACTG1   |
| 383 | Deafness autosomal dominant 22 606346   | MYO6    |
| 383 | Deafness autosomal dominant 22 with hypertrophic cardiomyopathy 606346                    | MYO6    |
| 383 | Deafness autosomal dominant 23 605192   | SIX1    |
| 383 | Deafness autosomal dominant 25 605583   | SLC17A8 |
| 383 | Deafness autosomal dominant 28 608641   | GRHL2   |
| 383 | Deafness autosomal dominant 2A 600101   | KCNQ4   |
| 383 | Deafness autosomal dominant 2B 612644   | GJB3    |
| 383 | Deafness autosomal dominant 34 with or without inflammation 617772                        | NLRP3   |
| 383 | Deafness autosomal dominant 36 606705   | TMC1    |
| 383 | Deafness autosomal dominant 39 with dentinogenesis 605594                                 | DSPP    |
| 383 | Deafness autosomal dominant 3A 601544   | GJB2    |
| 383 | Deafness autosomal dominant 3B 612643   | GJB6    |
| 383 | Deafness autosomal dominant 40 616357   | CRYM    |

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| 383 | Deafness autosomal dominant 41 608224                                   | P2RX2    |
| 383 | Deafness autosomal dominant 4A 600652                                   | MYH14    |
| 383 | Deafness autosomal dominant 4B 614614                                   | CEACAM16 |
| 383 | Deafness autosomal dominant 5 600994                                    | GSDME    |
| 383 | Deafness autosomal dominant 50 613074                                   | MIR96    |
| 383 | Deafness autosomal dominant 56 615629                                   | TNC      |
| 383 | Deafness autosomal dominant 6 or 14 or 38 600965                        | WFS1     |
| 383 | Deafness autosomal dominant 64 614152                                   | DIABLO   |
| 383 | Deafness autosomal dominant 65 616044                                   | TBC1D24  |
| 383 | Deafness autosomal dominant 67 616340                                   | OSBPL2   |
| 383 | Deafness autosomal dominant 69 unilateral or asymmetric 616697          | KITLG    |
| 383 | Deafness autosomal dominant 73 617663                                   | PTPRR    |
| 383 | Deafness autosomal dominant 8 or 12 601543                              | TECTA    |
| 383 | Deafness autosomal dominant 9 601369                                    | COCH     |
| 383 | Deafness autosomal recessive 105 616958                                 | CDC14A   |
| 383 | Deafness autosomal recessive 106 617637                                 | EPS8L2   |
| 383 | Deafness autosomal recessive 107 617639                                 | WBP2     |
| 383 | Deafness autosomal recessive 12 601386                                  | CDH23    |
| 383 | Deafness autosomal recessive 15 601869                                  | GIPC3    |
| 383 | Deafness autosomal recessive 16 603720                                  | STRC     |
| 383 | Deafness autosomal recessive 18A 602092                                 | USH1C    |
| 383 | Deafness autosomal recessive 18B 614945                                 | OTOG     |
| 383 | Deafness autosomal recessive 1A 220290                                  | GJB2     |
| 383 | Deafness autosomal recessive 1B 612645                                  | GJB6     |
| 383 | Deafness autosomal recessive 2 600060                                   | MYO7A    |
| 383 | Deafness autosomal recessive 21 603629                                  | TECTA    |
| 383 | Deafness autosomal recessive 22 607039                                  | OTOA     |
| 383 | Deafness autosomal recessive 23 609533                                  | PCDH15   |
| 383 | Deafness autosomal recessive 24 611022                                  | RDX      |
| 383 | Deafness autosomal recessive 25 613285                                  | GRXCR1   |
| 383 | Deafness autosomal recessive 28 609823                                  | TRIOBP   |
| 383 | Deafness autosomal recessive 29 614035                                  | CLDN14   |
| 383 | Deafness autosomal recessive 3 600316                                   | MYO15A   |
| 383 | Deafness autosomal recessive 30 607101                                  | MYO3A    |
| 383 | Deafness autosomal recessive 31 607084                                  | WHRN     |
| 383 | Deafness autosomal recessive 35 608565                                  | ESRRB    |
| 383 | Deafness autosomal recessive 36 609006                                  | ESPN     |
| 383 | Deafness autosomal recessive 37 607821                                  | MYO6     |
| 383 | Deafness autosomal recessive 39 608265                                  | HGF      |
| 383 | Deafness autosomal recessive 4 with enlarged vestibular aqueduct 600791 | SLC26A4  |
| 383 | Deafness autosomal recessive 42 609646                                  | ILDR1    |
| 383 | Deafness autosomal recessive 48 609439                                  | CIB2     |
| 383 | Deafness autosomal recessive 49 610153                                  | MARVELD2 |

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| 383 | Deafness autosomal recessive 53 609706  | COL11A2  |
| 383 | Deafness autosomal recessive 59 610220  | PJKV     |
| 383 | Deafness autosomal recessive 6 600971   | TMIE     |
| 383 | Deafness autosomal recessive 63 611451  | LRTOMT   |
| 383 | Deafness autosomal recessive 67 610265  | LHFPL5   |
| 383 | Deafness autosomal recessive 68 610419  | S1PR2    |
| 383 | Deafness autosomal recessive 7 600974   | TMC1     |
| 383 | Deafness autosomal recessive 70 614934  | PNPT1    |
| 383 | Deafness autosomal recessive 74 613718  | MSRB3    |
| 383 | Deafness autosomal recessive 76 615540  | SYNE4    |
| 383 | Deafness autosomal recessive 77 613079  | LOXHD1   |
| 383 | Deafness autosomal recessive 79 613307  | TPRN     |
| 383 | Deafness autosomal recessive 8 or 10 601072   | TMPRSS3  |
| 383 | Deafness autosomal recessive 84A 613391   | PTPRR    |
| 383 | Deafness autosomal recessive 84B 614944   | OTOGL    |
| 383 | Deafness autosomal recessive 89 613916  | KARS     |
| 383 | Deafness autosomal recessive 9 601071   | OTOF     |
| 383 | Deafness autosomal recessive 93 614899  | CABP2    |
| 383 | Deafness autosomal recessive 98 614861  | TSPEAR   |
| 383 | {Deafness autosomal recessive 12 modifier of} 601386  | ATP2B2   |
| 383 | Deafness congenital with inner ear agenesis microtia and microdontia 610706                           | FGF3     |
| 383 | Deafness congenital with onychodystrophy autosomal dominant 124480                                    | ATP6V1B2 |
| 383 | Deafness digenic GJB2 or GJB3 220290  | GJB3     |
| 383 | Deafness digenic GJB2 or GJB6 220290  | GJB6     |
| 383 | Deafness dystonia and cerebral hypomyelination 300475   | BCAP31   |
| 383 | {Deafness mitochondrial modifier of} 580000   | TRMU     |
| 383 | Deafness autosomal dominant with peripheral neuropathy  | GJB3     |
| 383 | Deafness autosomal recessive  | GJB3     |
| 383 | Deafness neurosensory without vestibular involvement autosomal dominant                               | ESPN     |
| 384 | Dehydrated hereditary stomatocytosis 2 616689   | KCNN4    |
| 384 | Dehydrated hereditary stomatocytosis with or without pseudohyperkalemia and or perinatal edema 194380 | PIEZO1   |
| 385 | Dejerine-Sottas disease 145900  | EGR2     |
| 385 | Dejerine-Sottas disease 145900  | MPZ      |
| 385 | Dejerine-Sottas disease 145900  | PMP22    |
| 385 | Dejerine-Sottas disease 145900  | PRX      |
| 386 | Dementia Lewy body 127750   | SNCA     |
| 386 | Dementia Lewy body 127750   | SNCB     |
| 386 | {Lewy body dementia susceptibility to} 127750   | GBA      |
| 386 | Dementia familial British 176500  | ITM2B    |
| 386 | Dementia familial Danish 117300   | ITM2B    |
| 386 | Dementia familial nonspecific 600795  | CHMP2B   |

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| 386 | Dementia frontotemporal 600274  | PSEN1  |
| 386 | Dementia frontotemporal with or without parkinsonism 600274                       | MAPT   |
| 386 | {Dementia, vascular, susceptibility to}   | TNF    |
| 387 | Dent disease 2 300555   | OCRL   |
| 387 | Dent disease 300009   | CLCN5  |
| 388 | Dental anomalies and short stature 601216   | LTBP3  |
| 389 | Dentatorubro-pallidoluysian atrophy 125370  | ATN1   |
| 390 | Dentin dysplasia type I with microdontia and misshapen teeth 125400               | SMOC2  |
| 390 | Dentin dysplasia type II 125420   | DSPP   |
| 391 | Dentinogenesis imperfecta Shields type II 125490                                  | DSPP   |
| 391 | Dentinogenesis imperfecta Shields type III 125500                                 | DSPP   |
| 392 | Denys-Drash syndrome 194080   | WT1    |
| 393 | Dermatofibrosarcoma protuberans 607907  | PDGFB  |
| 394 | Dermatopathia pigmentosa reticularis 125595                                       | KRT14  |
| 395 | Desanto-Shinawi syndrome 616708   | WAC    |
| 396 | Desbuquois dysplasia 1 251450   | CANT1  |
| 396 | Desbuquois dysplasia 2 615777   | XYLT1  |
| 397 | Desmoid disease hereditary 135290   | APC    |
| 398 | Desmosterolosis 602398  | DHCR24 |
| 399 | Developmental delay with short stature dysmorphic features and sparse hair 616901 | DPH1   |
| 400 | DiGeorge syndrome 188400  | TBX1   |
| 401 | Diabetes insipidus nephrogenic 125800   | AQP2   |
| 401 | Diabetes insipidus nephrogenic 304800   | AVPR2  |
| 401 | Diabetes insipidus neurohypophyseal 125700  | AVP    |
| 402 | Diabetes mellitus insulin-dependent 2 125852                                      | INS    |
| 402 | Diabetes mellitus insulin-dependent 20 612520                                     | HNF1A  |
| 402 | Diabetes mellitus insulin-resistant with acanthosis nigricans 610549              | INSR   |
| 402 | Diabetes mellitus neonatal with congenital hypothyroidism 610199                  | GLIS3  |
| 402 | Diabetes mellitus noninsulin-dependent 125853                                     | ABCC8  |
| 402 | Diabetes mellitus noninsulin-dependent 125853                                     | HNF1B  |
| 402 | Diabetes mellitus noninsulin-dependent late onset 125853                          | GCK    |
| 402 | Diabetes mellitus permanent neonatal 606176                                       | ABCC8  |
| 402 | Diabetes mellitus permanent neonatal 606176                                       | GCK    |
| 402 | Diabetes mellitus permanent neonatal 606176                                       | INS    |
| 402 | Diabetes mellitus transient neonatal 1 601410                                     | ZFP57  |
| 402 | Diabetes mellitus transient neonatal 2 610374                                     | ABCC8  |
| 402 | Diabetes mellitus transient neonatal 3 610582                                     | KCNJ11 |
| 402 | Diabetes mellitus type 2 125853   | PAX4   |
| 402 | Diabetes mellitus type II 125853  | AKT2   |
| 402 | Diabetes permanent neonatal with or without neurologic features 606176            | KCNJ11 |

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| 402 | {Diabetes mellitus insulin-dependent 12} 601388                    | CTLA4    |
| 402 | {Diabetes mellitus insulin-dependent 22} 612522                    | CCR5     |
| 402 | {Diabetes mellitus insulin-dependent 5} 600320                     | SUMO4    |
| 402 | {Diabetes mellitus insulin-dependent susceptibility to 10} 601942  | IL2RA    |
| 402 | {Diabetes mellitus insulin-dependent} 222100                       | HNF1A    |
| 402 | {Diabetes mellitus ketosis-prone susceptibility to} 612227         | PAX4     |
| 402 | {Diabetes mellitus non-insulin-dependent susceptibility to} 125853 | ENPP1    |
| 402 | {Diabetes mellitus noninsulin-dependent 1} 601283                  | CAPN10   |
| 402 | {Diabetes mellitus noninsulin-dependent 2} 125853                  | HNF1A    |
| 402 | {Diabetes mellitus noninsulin-dependent 5} 616087                  | TBC1D4   |
| 402 | {Diabetes mellitus noninsulin-dependent association with} 125853   | WFS1     |
| 402 | {Diabetes mellitus noninsulin-dependent susceptibility to} 125853  | CDKAL1   |
| 402 | {Diabetes mellitus noninsulin-dependent susceptibility to} 125853  | HMGA1    |
| 402 | {Diabetes mellitus noninsulin-dependent susceptibility to} 125853  | IGF2BP2  |
| 402 | {Diabetes mellitus noninsulin-dependent susceptibility to} 125853  | RETN     |
| 402 | {Diabetes mellitus noninsulin-dependent susceptibility to} 125853  | SLC30A8  |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | GCGR     |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | HNF4A    |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | IRS1     |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | IRS2     |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | LIPC     |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | MAPK8IP1 |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | NEUROD1  |
| 402 | {Diabetes mellitus noninsulin-dependent} 125853                    | SLC2A2   |
| 402 | {Diabetes mellitus type 1 susceptibility to} 222100                | OAS1     |
| 402 | {Diabetes mellitus type 2 susceptibility to} 125853                | KCNJ11   |
| 402 | {Diabetes mellitus type 2 susceptibility to} 125853                | MTNR1B   |
| 402 | {Diabetes mellitus type 2 susceptibility to} 125853                | TCF7L2   |
| 402 | {Diabetes mellitus type I susceptibility to} 222100                | FOXP3    |
| 402 | {Diabetes mellitus type II susceptibility to} 125853               | PDX1     |
| 402 | {Diabetes susceptibility to} 222100 125853                         | IL6      |
| 402 | {Diabetes type 1 susceptibility to} 222100                         | PTPN22   |
| 402 | {Diabetes type 2 susceptibility to} 125853                         | GPD2     |
| 402 | {Diabetes type 2} 125853   | PPARG    |
| 402 | Maturity-onset diabetes of the young 6 606394                      | NEUROD1  |
| 402 | Maturity-onset diabetes of the young type 10 613370                | INS      |
| 402 | Maturity-onset diabetes of the young type 11 613375                | BLK      |
| 402 | Maturity-onset diabetes of the young type 13 616329                | KCNJ11   |

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| 402 | Maturity-onset diabetes of the young type IX 612225                           | PAX4    |
| 402 | Maturity-onset diabetes of the young type VII 610508                          | KLF11   |
| 402 | Maturity-onset diabetes of the young type VIII 609812                         | CEL     |
| 402 | {Maturity-onset diabetes of the young type 14} 616511                         | APPL1   |
| 403 | Diamond-Blackfan anemia 15 with mandibulofacial dysostosis 606164             | RPS28   |
| 403 | Diamond-Blackfan anemia 1 105650  | RPS19   |
| 403 | Diamond-Blackfan anemia 10 613309   | RPS26   |
| 403 | Diamond-Blackfan anemia 13 615909   | RPS29   |
| 403 | Diamond-Blackfan anemia 4 612527  | RPS17   |
| 403 | Diamond-Blackfan anemia 5 612528  | RPL35A  |
| 403 | Diamond-Blackfan anemia 6 612561  | RPL5    |
| 403 | Diamond-Blackfan anemia 7 612562  | RPL11   |
| 403 | Diamond-Blackfan anemia 8 612563  | RPS7    |
| 403 | Diamond-Blackfan anemia 9 613308  | RPS10   |
| 403 | Diamond-blackfan anemia 3 610629  | RPS24   |
| 404 | Diaphanospondylodysostosis 608022   | BMPER   |
| 405 | Diaphragmatic hernia 3 610187   | ZFPM2   |
| 406 | Diaphyseal medullary stenosis with malignant fibrous histiocytoma 112250      | MTAP    |
| 407 | Diarrhea 1 secretory chloride congenital 214700                               | SLC26A3 |
| 407 | Diarrhea 3 secretory sodium congenital syndromic 270420                       | SPINT2  |
| 407 | Diarrhea 4 malabsorptive congenital 610370                                    | NEUROG3 |
| 407 | Diarrhea 5 with tufting enteropathy congenital 613217                         | EPCAM   |
| 407 | Diarrhea 6 614616   | GUCY2C  |
| 407 | Diarrhea 8 secretory sodium congenital 616868                                 | SLC9A3  |
| 408 | Dias-Logan syndrome 617101  | BCL11A  |
| 409 | Diastrophic dysplasia 222600  | SLC26A2 |
| 409 | Diastrophic dysplasia broad bone-platyspondylic variant 222600                | SLC26A2 |
| 410 | Dicarboxylic aminoaciduria 222730   | SLC1A1  |
| 411 | Digital arthropathy-brachydactyly familial 606835                             | TRPV4   |
| 412 | Digital clubbing isolated congenital 119900                                   | HPGD    |
| 413 | Dihydrolipoamide dehydrogenase deficiency 246900                              | DLD     |
| 414 | Dihydropyrimidine dehydrogenase deficiency 274270                             | DPYD    |
| 414 | 5-fluorouracil toxicity 274270  | DPYD    |
| 415 | Dihydropyrimidinuria 222748   | DPYS    |
| 416 | Dilated cardiomyopathy with woolly hair keratoderma and tooth agenesis 615821 | DSP     |
| 417 | Dimethylglycine dehydrogenase deficiency 605850                               | DMGDH   |
| 418 | Disordered steroidogenesis due to cytochrome P450 oxidoreductase 613571       | POR     |
| 419 | Donnai-Barrow syndrome 222448   | LRP2    |
| 420 | Dopamine beta-hydroxylase deficiency 223360                                   | DBH     |
| 421 | Dowling-Degos disease 1 179850  | KRT5    |
| 421 | Dowling-Degos disease 2 615327  | POFUT1  |

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| 421 | Dowling-Degos disease 4 615696                         | POGLUT1  |
| 422 | Doyme honeycomb degeneration of retina 126600          | EFEMP1   |
| 423 | Du Pan syndrome 228900                                 | GDF5     |
| 424 | Duane retraction syndrome 2 604356                     | CHN1     |
| 424 | Duane retraction syndrome 3 617041                     | MAFB     |
| 425 | Duane-radial ray syndrome 607323                       | SALL4    |
| 426 | Dubin-Johnson syndrome 237500                          | ABCC2    |
| 427 | Duchenne muscular dystrophy 310200                     | DMD      |
| 428 | Dyggve-Melchior-Clausen disease 223800                 | DYM      |
| 429 | Dysautonomia familial 223900                           | IKBKAP   |
| 430 | Dyschromatosis symmetrica hereditaria 127400           | ADAR     |
| 430 | Dyschromatosis universalis hereditaria 3 615402        | ABCB6    |
| 431 | Dyserythropoietic anemia congenital type II 224100     | SEC23B   |
| 431 | Dyserythropoietic anemia congenital type IV 613673     | KLF1     |
| 431 | Dyserythropoietic anemia congenital type Ia 224120     | CDAN1    |
| 431 | Dyserythropoietic anemia congenital type Ib 615631     | C15orf41 |
| 432 | Dysfibrinogenemia congenital 616004                    | FGA      |
| 432 | Dysfibrinogenemia congenital 616004                    | FGB      |
| 432 | Dysfibrinogenemia congenital 616004                    | FGG      |
| 432 | Hypodysfibrinogenemia 616004                           | FGG      |
| 432 | Hypodysfibrinogenemia congenital 616004                | FGA      |
| 432 | Hypofibrinogenemia congenital 202400                   | FGB      |
| 432 | Hypofibrinogenemia congenital 202400                   | FGG      |
| 432 | Afibrinogenemia congenital 202400                      | FGA      |
| 432 | Afibrinogenemia congenital 202400                      | FGB      |
| 432 | Afibrinogenemia congenital 202400                      | FGG      |
| 433 | Dyskeratosis congenita X-linked 305000                 | DKC1     |
| 433 | Dyskeratosis congenita autosomal dominant 1 127550     | TERC     |
| 433 | Dyskeratosis congenita autosomal dominant 3 613990     | TINF2    |
| 433 | Dyskeratosis congenita autosomal dominant 4 615190     | RTEL1    |
| 433 | Dyskeratosis congenita autosomal recessive 1 224230    | NOP10    |
| 433 | Dyskeratosis congenita autosomal recessive 2 613987    | NHP2     |
| 433 | Dyskeratosis congenita autosomal recessive 3 613988    | WRAP53   |
| 433 | Dyskeratosis congenita autosomal recessive 5 615190    | RTEL1    |
| 433 | Dyskeratosis congenita autosomal recessive 6 616353    | PARN     |
| 433 | {Dyskeratosis congenita autosomal dominant 2} 613989   | TERT     |
| 433 | {Dyskeratosis congenita autosomal recessive 4} 613989  | TERT     |
| 434 | Dyskinesia familial with facial myokymia 606703        | ADCY5    |
| 435 | Dyskinesia limb and orofacial infantile-onset 616921   | PDE10A   |
| 436 | Dyssegmental dysplasia Silverman-Handmaker type 224410 | HSPG2    |
| 437 | Dystonia 16 612067                                     | PRKRA    |
| 437 | Dystonia 2 torsion autosomal recessive 224500          | HPCA     |
| 437 | Dystonia 24 615034                                     | ANO3     |
| 437 | Dystonia 25 615073                                     | GNAL     |
| 437 | Dystonia 26 myoclonic 616398                           | KCTD17   |

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| 437 | Dystonia 27 616411   | COL6A3   |
| 437 | Dystonia 28 childhood-onset 617284   | KMT2B    |
| 437 | Dystonia 4 torsion autosomal dominant 128101   | TUBB4A   |
| 437 | Dystonia 6 torsion 602629  | THAP1    |
| 437 | Dystonia 9 601042  | SLC2A1   |
| 437 | Dystonia DOPA-responsive with or without hyperphenylalaninemia 128230                  | GCH1     |
| 437 | Dystonia childhood-onset with optic atrophy and basal ganglia abnormalities 617282     | MECR     |
| 437 | Dystonia dopa-responsive due to sepiapterin reductase deficiency 612716                | SPR      |
| 437 | Dystonia-1 torsion 128100  | TOR1A    |
| 437 | Dystonia-11 myoclonic 159900   | SGCE     |
| 437 | Dystonia-12 128235   | ATP1A3   |
| 437 | Dystonia-Parkinsonism X-linked 314250  | TAF1     |
| 437 | Dystonia primary cervical  | DRD5     |
| 437 | {Dystonia-1, modifier of}  | TOR1A    |
| 438 | EDICT syndrome 614303  | MIR184   |
| 439 | Ectodermal dysplasia 1 hypohidrotic X-linked 305100                                    | EDA      |
| 439 | Ectodermal dysplasia 10A hypohidrotic or hair or nail type autosomal dominant 129490   | EDAR     |
| 439 | Ectodermal dysplasia 10B hypohidrotic or hair or tooth type autosomal recessive 224900 | EDAR     |
| 439 | Ectodermal dysplasia 11A hypohidrotic or hair or tooth type autosomal dominant 614940  | EDARADD  |
| 439 | Ectodermal dysplasia 11B hypohidrotic or hair or tooth type autosomal recessive 614941 | EDARADD  |
| 439 | Ectodermal dysplasia 13 hair or tooth type 617392                                      | KREMEN1  |
| 439 | Ectodermal dysplasia 2 Clouston type 129500  | GJB6     |
| 439 | Ectodermal dysplasia 3 Witkop type 189500  | MSX1     |
| 439 | Ectodermal dysplasia 4 hair or nail type 602032  | KRT85    |
| 439 | Ectodermal dysplasia 9 hair or nail type 614931  | HOXC13   |
| 439 | Ectodermal dysplasia anhidrotic lymphedema and immunodeficiency 300301                 | IKBKG    |
| 439 | Ectodermal dysplasia anhidrotic with T-cell immunodeficiency 612132                    | NFKBIA   |
| 439 | Ectodermal dysplasia ectrodactyly and macular dystrophy 225280                         | CDH3     |
| 439 | Ectodermal dysplasia hypohidrotic with immune deficiency 300291                        | IKBKG    |
| 439 | Ectodermal dysplasia-syndactyly syndrome 1 613573                                      | NECTIN4  |
| 439 | Ectodermal dysplasia or short stature syndrome 616029                                  | GRHL2    |
| 439 | Ectodermal dysplasia or skin fragility syndrome 604536                                 | PKP1     |
| 440 | Ectopia lentis et pupillae 225200  | ADAMTSL4 |
| 440 | Ectopia lentis familial 129600   | FBN1     |
| 440 | Ectopia lentis isolated autosomal recessive 225100                                     | ADAMTSL4 |



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| 441 | Ectrodactyly ectodermal dysplasia and cleft lip or palate syndrome 3 604292             | TP63     |
| 442 | Efavirenz poor metabolism of 614546   | CYP2B6   |
| 442 | {Efavirenz central nervous system toxicity susceptibility to} 614546                    | CYP2B6   |
| 443 | Ehlers-Danlos syndrome cardiac valvular form 225320                                     | COL1A2   |
| 443 | Ehlers-Danlos syndrome classic 130000   | COL1A1   |
| 443 | Ehlers-Danlos syndrome classic type 130000  | COL5A1   |
| 443 | Ehlers-Danlos syndrome classic type 130000  | COL5A2   |
| 443 | Ehlers-Danlos syndrome due to tenascin X deficiency 606408                              | TNXB     |
| 443 | Ehlers-Danlos syndrome musculocontractural type 1 601776                                | CHST14   |
| 443 | Ehlers-Danlos syndrome musculocontractural type 2 615539                                | DSE      |
| 443 | Ehlers-Danlos syndrome periodontal type 1 130080  | C1R      |
| 443 | Ehlers-Danlos syndrome periodontal type 2 617174  | C1S      |
| 443 | Ehlers-Danlos syndrome progeroid type 2 615349  | B3GALT6  |
| 443 | Ehlers-Danlos syndrome type IV 130050   | COL3A1   |
| 443 | Ehlers-Danlos syndrome type VI 225400   | PLOD1    |
| 443 | Ehlers-Danlos syndrome type VIIA 130060   | COL1A1   |
| 443 | Ehlers-Danlos syndrome type VIIB 130060   | COL1A2   |
| 443 | Ehlers-Danlos syndrome type VIIC 225410   | ADAMTS2  |
| 443 | Ehlers-Danlos syndrome with progressive kyphoscoliosis myopathy and hearing loss 614557 | FKBP14   |
| 443 | Ehlers-Danlos syndrome with short stature and limb anomalies 130070                     | B4GALT7  |
| 444 | Eiken syndrome 600002   | PTH1R    |
| 445 | Elliptocytosis-1 611804   | EPB41    |
| 445 | Elliptocytosis-2 130600   | SPTA1    |
| 445 | Elliptocytosis-3  | SPTB     |
| 446 | Ellis-van Creveld syndrome 225500   | EVC      |
| 446 | Ellis-van Creveld syndrome 225500   | EVC2     |
| 447 | Emberger syndrome 614038  | GATA2    |
| 448 | Emery-Dreifuss muscular dystrophy 1 X-linked 310300                                     | EMD      |
| 448 | Emery-Dreifuss muscular dystrophy 2 AD 181350   | LMNA     |
| 448 | Emery-Dreifuss muscular dystrophy 3 AR 616516   | LMNA     |
| 448 | Emery-Dreifuss muscular dystrophy 4 autosomal dominant 612998                           | SYNE1    |
| 448 | Emery-Dreifuss muscular dystrophy 5 autosomal dominant 612999                           | SYNE2    |
| 448 | Emery-Dreifuss muscular dystrophy 6 X-linked 300696                                     | FHL1     |
| 448 | Emery-Dreifuss muscular dystrophy 7 AD 614302   | TMEM43   |
| 448 | Myopathy X-linked with postural muscle atrophy 300696                                   | FHL1     |
| 449 | Emphysema due to AAT deficiency 613490  | SERPINA1 |
| 449 | Emphysema-cirrhosis due to AAT deficiency 613490  | SERPINA1 |
| 449 | Hemorrhagic diathesis due to antithrombin Pittsburgh 613490                             | SERPINA1 |
| 450 | Encephalocraniocutaneous lipomatosis 613001   | FGFR1    |

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| 450 | Lipoma  | LPP      |
| 450 | Lipoma somatic  | MEN1     |
| 451 | Encephalopathy due to defective mitochondrial and peroxisomal fission 2 617086            | MFF      |
| 451 | Encephalopathy familial with neuroserpin inclusion bodies 604218                          | SERPINI1 |
| 451 | Encephalopathy lethal due to defective mitochondrial peroxisomal fission 1 614388         | DNM1L    |
| 451 | Encephalopathy neonatal severe 300673   | MECP2    |
| 451 | Encephalopathy neonatal severe with lactic acidosis and brain abnormalities 617668        | LIPT2    |
| 451 | Encephalopathy progressive early-onset with brain atrophy and spasticity 617669           | TRAPPC12 |
| 451 | Encephalopathy progressive early-onset with brain atrophy and thin corpus callosum 617193 | TBCD     |
| 451 | Encephalopathy progressive early-onset with brain edema and or leukoencephalopathy 617186 | NAXE     |
| 451 | Encephalopathy progressive with amyotrophy and optic atrophy 617207                       | TBCE     |
| 451 | Encephalopathy progressive with or without lipodystrophy 615924                           | BSCL2    |
| 452 | Endocrine-cerebroostedysplasia 612651   | ICK      |
| 453 | Endometrial cancer familial 608089  | MSH6     |
| 453 | Endometrial carcinoma somatic 608089  | CDH1     |
| 453 | Endometrial carcinoma somatic 608089  | MSH3     |
| 453 | Endometrial carcinoma somatic 608089  | PTEN     |
| 453 | {Endometrial cancer susceptibility to} 608089   | MLH3     |
| 454 | Enhanced S-cone syndrome 268100   | NR2E3    |
| 455 | Enlarged vestibular aqueduct 600791   | FOXI1    |
| 455 | Enlarged vestibular aqueduct digenic 600791   | KCNJ10   |
| 456 | Enterokinase deficiency 226200  | PRSS7    |
| 457 | Epidermodysplasia verruciformis 226400  | TMC6     |
| 457 | Epidermodysplasia verruciformis 226400  | TMC8     |
| 458 | Epidermolysis bullosa dystrophica AD 131750   | COL7A1   |
| 458 | Epidermolysis bullosa dystrophica AR 226600   | COL7A1   |
| 458 | EBD Bart type 132000  | COL7A1   |
| 458 | EBD inversa 226600  | COL7A1   |
| 458 | EBD localisata variant  | COL7A1   |
| 458 | {Epidermolysis bullosa dystrophica autosomal recessive modifier of} 226600                | MMP1     |
| 458 | Epidermolysis bullosa generalized atrophic benign 226650                                  | LAMA3    |
| 458 | Epidermolysis bullosa junctional Herlitz type 226700                                      | LAMA3    |
| 458 | Epidermolysis bullosa junctional Herlitz type 226700                                      | LAMB3    |
| 458 | Epidermolysis bullosa junctional Herlitz type 226700                                      | LAMC2    |
| 458 | Epidermolysis bullosa junctional localisata variant 226650                                | COL17A1  |

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| 458 | Epidermolysis bullosa junctional non-Herlitz type 226650                            | COL17A1 |
| 458 | Epidermolysis bullosa junctional non-Herlitz type 226650                            | ITGB4   |
| 458 | Epidermolysis bullosa junctional non-Herlitz type 226650                            | LAMB3   |
| 458 | Epidermolysis bullosa junctional non-Herlitz type 226650                            | LAMC2   |
| 458 | Epidermolysis bullosa junctional with pyloric atresia 226730                        | ITGB4   |
| 458 | Epidermolysis bullosa junctional with pyloric stenosis 226730                       | ITGA6   |
| 458 | Epidermolysis bullosa lethal acantholytic 609638                                    | DSP     |
| 458 | Epidermolysis bullosa nonspecific autosomal recessive 615028                        | EXPH5   |
| 458 | Epidermolysis bullosa of hands and feet 131800                                      | ITGB4   |
| 458 | Epidermolysis bullosa pretibial 131850  | COL7A1  |
| 458 | Epidermolysis bullosa pruriginosa 604129  | COL7A1  |
| 458 | Epidermolysis bullosa simplex Dowling-Meara type 131760                             | KRT14   |
| 458 | Epidermolysis bullosa simplex Dowling-Meara type 131760                             | KRT5    |
| 458 | Epidermolysis bullosa simplex Koebner type 131900                                   | KRT14   |
| 458 | Epidermolysis bullosa simplex Koebner type 131900                                   | KRT5    |
| 458 | Epidermolysis bullosa simplex Onga type 131950                                      | PLEC    |
| 458 | Epidermolysis bullosa simplex Weber-Cockayne type 131800                            | KRT14   |
| 458 | Epidermolysis bullosa simplex Weber-Cockayne type 131800                            | KRT5    |
| 458 | Epidermolysis bullosa simplex autosomal recessive 2 615425                          | DST     |
| 458 | Epidermolysis bullosa simplex generalized with scarring and hair loss 617294        | KLHL24  |
| 458 | Epidermolysis bullosa simplex recessive 1 601001                                    | KRT14   |
| 458 | Epidermolysis bullosa simplex recessive 1 601001                                    | KRT5    |
| 458 | Epidermolysis bullosa simplex with muscular dystrophy 226670                        | PLEC    |
| 458 | Epidermolysis bullosa simplex with pyloric atresia 612138                           | PLEC    |
| 458 | Epidermolysis bullosa simplex-MCR 609352  | KRT5    |
| 458 | Epidermolysis bullosa simplex-MP 131960   | KRT5    |
| 459 | Epidermolytic hyperkeratosis 113800   | KRT1    |
| 459 | Epidermolytic hyperkeratosis 113800   | KRT10   |
| 460 | Epilepsy X-linked with variable learning disabilities and behavior disorders 300491 | SYN1    |
| 460 | Epilepsy early-onset vitamin B6-dependent 617290                                    | PROSC   |
| 460 | Epilepsy familial focal with variable foci 1 604364                                 | DEPDC5  |
| 460 | Epilepsy familial focal with variable foci 2 617116                                 | NPRL2   |
| 460 | Epilepsy familial focal with variable foci 3 617118                                 | NPRL3   |
| 460 | Epilepsy familial temporal lobe 1 600512  | LGI1    |
| 460 | Epilepsy familial temporal lobe 5 614417  | CPA6    |
| 460 | Epilepsy focal with speech disorder and with or without mental retardation 245570   | GRIN2A  |
| 460 | Epilepsy generalized with febrile seizures plus type 1 604233                       | SCN1B   |
| 460 | Epilepsy generalized with febrile seizures plus type 2 604403                       | SCN1A   |
| 460 | Epilepsy generalized with febrile seizures plus type 3 611277                       | GABRG2  |
| 460 | Epilepsy generalized with febrile seizures plus type 7 613863                       | SCN9A   |
| 460 | Epilepsy hearing loss and mental retardation syndrome 616577                        | SPATA5  |
| 460 | Epilepsy myoclonic familial adult 2 607876  | ADRA2B  |

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| 460 | Epilepsy nocturnal frontal lobe 1 600513   | CHRNA4   |
| 460 | Epilepsy nocturnal frontal lobe 3 605375   | CHRN2    |
| 460 | Epilepsy nocturnal frontal lobe 5 615005   | KCNT1    |
| 460 | Epilepsy nocturnal frontal lobe type 4 610353                                    | CHRNA2   |
| 460 | Epilepsy progressive myoclonic 1A (Unverricht and Lundborg) 254800               | CSTB     |
| 460 | Epilepsy progressive myoclonic 1B 612437   | PRICKLE1 |
| 460 | Epilepsy progressive myoclonic 2A (Lafora) 254780                                | EPM2A    |
| 460 | Epilepsy progressive myoclonic 2B (Lafora) 254780                                | NHLRC1   |
| 460 | Epilepsy progressive myoclonic 3 with or without intracellular inclusions 611726 | KCTD7    |
| 460 | Epilepsy progressive myoclonic 4 with or without renal failure 254900            | SCARB2   |
| 460 | Epilepsy progressive myoclonic 6 614018  | GOSR2    |
| 460 | Epilepsy progressive myoclonic 7 616187  | KCNC1    |
| 460 | Epilepsy pyridoxine-dependent 266100   | ALDH7A1  |
| 460 | Epileptic encephalopathy childhood-onset 615369                                  | CHD2     |
| 460 | Epileptic encephalopathy early infantile 1 308350                                | ARX      |
| 460 | Epileptic encephalopathy early infantile 11 613721                               | SCN2A    |
| 460 | Epileptic encephalopathy early infantile 12 613722                               | PLCB1    |
| 460 | Epileptic encephalopathy early infantile 13 614558                               | SCN8A    |
| 460 | Epileptic encephalopathy early infantile 14 614959                               | KCNT1    |
| 460 | Epileptic encephalopathy early infantile 16 615338                               | TBC1D24  |
| 460 | Epileptic encephalopathy early infantile 17 615473                               | GNAO1    |
| 460 | Epileptic encephalopathy early infantile 18 615476                               | SZT2     |
| 460 | Epileptic encephalopathy early infantile 19 615744                               | GABRA1   |
| 460 | Epileptic encephalopathy early infantile 2 300672                                | CDKL5    |
| 460 | Epileptic encephalopathy early infantile 23 615859                               | DOCK7    |
| 460 | Epileptic encephalopathy early infantile 24 615871                               | HCN1     |
| 460 | Epileptic encephalopathy early infantile 25 615905                               | SLC13A5  |
| 460 | Epileptic encephalopathy early infantile 26 616056                               | KCNB1    |
| 460 | Epileptic encephalopathy early infantile 27 616139                               | GRIN2B   |
| 460 | Epileptic encephalopathy early infantile 28 616211                               | WWOX     |
| 460 | Epileptic encephalopathy early infantile 29 616339                               | AARS     |
| 460 | Epileptic encephalopathy early infantile 3 609304                                | SLC25A22 |
| 460 | Epileptic encephalopathy early infantile 30 616341                               | SIK1     |
| 460 | Epileptic encephalopathy early infantile 31 616346                               | DNM1     |
| 460 | Epileptic encephalopathy early infantile 32 616366                               | KCNA2    |
| 460 | Epileptic encephalopathy early infantile 33 616409                               | EEF1A2   |
| 460 | Epileptic encephalopathy early infantile 34 616645                               | SLC12A5  |
| 460 | Epileptic encephalopathy early infantile 35 616647                               | ITPA     |
| 460 | Epileptic encephalopathy early infantile 36 300884                               | ALG13    |
| 460 | Epileptic encephalopathy early infantile 37 616981                               | FRRS1L   |
| 460 | Epileptic encephalopathy early infantile 38 617020                               | ARV1     |
| 460 | Epileptic encephalopathy early infantile 39 612949                               | SLC25A12 |

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| 460 | Epileptic encephalopathy early infantile 4 612164                                 | STXBP1  |
| 460 | Epileptic encephalopathy early infantile 41 617105                                | SLC1A2  |
| 460 | Epileptic encephalopathy early infantile 42 617106                                | CACNA1A |
| 460 | Epileptic encephalopathy early infantile 43 617113                                | GABRB3  |
| 460 | Epileptic encephalopathy early infantile 44 617132                                | UBA5    |
| 460 | Epileptic encephalopathy early infantile 45 617153                                | GABRB1  |
| 460 | Epileptic encephalopathy early infantile 46 617162                                | GRIN2D  |
| 460 | Epileptic encephalopathy early infantile 47 617166                                | FGF12   |
| 460 | Epileptic encephalopathy early infantile 48 617276                                | AP3B2   |
| 460 | Epileptic encephalopathy early infantile 49 617281                                | DENND5A |
| 460 | Epileptic encephalopathy early infantile 5 613477                                 | SPTAN1  |
| 460 | Epileptic encephalopathy early infantile 50 616457                                | CAD     |
| 460 | Epileptic encephalopathy early infantile 51 617339                                | MDH2    |
| 460 | Epileptic encephalopathy early infantile 52 617350                                | SCN1B   |
| 460 | Epileptic encephalopathy early infantile 53 617389                                | SYNJ1   |
| 460 | Epileptic encephalopathy early infantile 54 617391                                | HNRNPU  |
| 460 | Epileptic encephalopathy early infantile 56 617665                                | YWHAG   |
| 460 | Epileptic encephalopathy early infantile 6 (Dravet syndrome) 607208               | SCN1A   |
| 460 | {Dravet syndrome modifier of} 607208  | SCN9A   |
| 460 | Epileptic encephalopathy early infantile 7 613720                                 | KCNQ2   |
| 460 | Epileptic encephalopathy early infantile 8 300607                                 | ARHGEF9 |
| 460 | Epileptic encephalopathy early infantile 9 300088                                 | PCDH19  |
| 460 | Epileptic encephalopathy infantile or early childhood 617711                      | PPP3CA  |
| 460 | {Epilepsy childhood absence susceptibility to 2} 607681                           | GABRG2  |
| 460 | {Epilepsy childhood absence susceptibility to 4} 611136                           | GABRA1  |
| 460 | {Epilepsy childhood absence susceptibility to 5} 612269                           | GABRB3  |
| 460 | {Epilepsy childhood absence susceptibility to 6} 611942                           | CACNA1H |
| 460 | {Epilepsy familial temporal lobe 7} 616436  | RELN    |
| 460 | {Epilepsy generalized with febrile seizures plus type 5 susceptibility to} 613060 | GABRD   |
| 460 | {Epilepsy idiopathic generalized 10} 613060                                       | GABRD   |
| 460 | {Epilepsy idiopathic generalized susceptibility to 11} 607628                     | CLCN2   |
| 460 | {Epilepsy idiopathic generalized susceptibility to 12} 614847                     | SLC2A1  |
| 460 | {Epilepsy idiopathic generalized susceptibility to 14} 616685                     | SLC12A5 |
| 460 | {Epilepsy idiopathic generalized susceptibility to 6} 611942                      | CACNA1H |
| 460 | {Epilepsy idiopathic generalized susceptibility to 8} 612899                      | CASR    |
| 460 | {Epilepsy idiopathic generalized susceptibility to 9} 607682                      | CACNB4  |
| 460 | {Epilepsy juvenile absence susceptibility to 1} 607631                            | EFHC1   |
| 460 | {Epilepsy juvenile absence susceptibility to 2} 607628                            | CLCN2   |
| 460 | {Epilepsy juvenile myoclonic susceptibility to 5} 611136                          | GABRA1  |
| 460 | {Epilepsy juvenile myoclonic susceptibility to 6} 607682                          | CACNB4  |
| 460 | {Epilepsy juvenile myoclonic susceptibility to 8} 607628                          | CLCN2   |
| 460 | {Epilepsy juvenile myoclonic susceptibility to} 613060                            | GABRD   |
| 461 | Epiphyseal chondrodysplasia Miura type 615923                                     | NPR2    |

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| 461 | Epiphyseal dysplasia multiple 1 132400   | COMP    |
| 461 | Epiphyseal dysplasia multiple 2 600204   | COL9A2  |
| 461 | Epiphyseal dysplasia multiple 3 with or without myopathy 600969                          | COL9A3  |
| 461 | Epiphyseal dysplasia multiple 4 226900   | SLC26A2 |
| 461 | Epiphyseal dysplasia multiple 5 607078   | MATN3   |
| 461 | Epiphyseal dysplasia multiple 7 617719   | CANT1   |
| 461 | Epiphyseal dysplasia multiple with myopia and deafness 132450                            | COL2A1  |
| 462 | Episodic ataxia type 2 108500  | CACNA1A |
| 462 | Episodic ataxia type 5 613855  | CACNB4  |
| 462 | Episodic ataxia type 6 612656  | SLC1A3  |
| 462 | Episodic ataxia or myokymia syndrome 160120  | KCNA1   |
| 462 | Episodic kinesigenic dyskinesia 1 128200   | PRRT2   |
| 463 | Episodic pain syndrome familial 2 615551   | SCN10A  |
| 463 | Episodic pain syndrome familial 3 615552   | SCN11A  |
| 464 | Epithelial recurrent erosion dystrophy 122400  | COL17A1 |
| 465 | Epstein syndrome 153650  | MYH9    |
| 466 | Erythrocyte lactate transporter defect 245340  | SLC16A1 |
| 467 | Erythrocytosis due to bisphosphoglycerate mutase deficiency 222800                       | BPGM    |
| 467 | Erythrocytosis familial 2 263400   | VHL     |
| 467 | Erythrocytosis familial 3 609820   | EGLN1   |
| 467 | Erythrocytosis familial 4 611783   | EPAS1   |
| 467 | Erythrocytosis somatic 133100  | JAK2    |
| 467 | Erythrocytosis somatic 133100  | SH2B3   |
| 467 | Erythrocytosis   | HBA2    |
| 468 | Erythroderma congenital with palmoplantar keratoderma hypotrichosis and hyper IgE 615508 | DSG1    |
| 469 | Erythrokeratoderma variabilis et progressiva 1 133200                                    | GJB3    |
| 469 | Erythrokeratoderma variabilis et progressiva 2 617524                                    | GJB4    |
| 469 | Erythrokeratoderma variabilis et progressiva 3 617525                                    | GJA1    |
| 469 | Erythrokeratoderma variabilis et progressiva 4 617526                                    | KDSR    |
| 469 | Erythrokeratoderma variabilis et progressiva 5 617756                                    | KRT83   |
| 470 | Escobar syndrome 265000  | CHRNA3  |
| 471 | Esophageal cancer somatic 133239   | TGFBR2  |
| 471 | Esophageal carcinoma somatic 133239  | DCC     |
| 471 | Esophageal carcinoma somatic 133239  | RNF6    |
| 471 | Esophageal squamous cell carcinoma 133239  | LZTS1   |
| 471 | Esophageal squamous cell carcinoma somatic 133239  | WWOX    |
| 471 | {Esophageal cancer, alcohol-related, susceptibility to}                                  | ALDH2   |
| 472 | Essential tremor hereditary 4 614782   | FUS     |
| 472 | Essential tremor hereditary 5 616736   | TENM4   |
| 472 | {Essential tremor hereditary 1}  | DRD3    |
| 473 | Estrogen resistance 615363   | ESR1    |
| 474 | Ethylmalonic encephalopathy 602473   | ETHE1   |
| 475 | Even-plus syndrome 616854  | HSPA9   |

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| 476 | Ewing sarcoma 612219   | EWSR1   |
| 476 | Neuroepithelioma 612219  | EWSR1   |
| 477 | Exocrine pancreatic insufficiency dyserythropoietic anemia and calvarial hyperostosis 612714 | COX4I2  |
| 478 | Exostoses multiple type 1 133700   | EXT1    |
| 478 | Exostoses multiple type 2 133701   | EXT2    |
| 479 | Exudative vitreoretinopathy 1 133780   | FZD4    |
| 479 | Retinopathy of prematurity 133780  | FZD4    |
| 479 | Exudative vitreoretinopathy 2 X-linked 305390  | NDP     |
| 479 | Exudative vitreoretinopathy 4 601813   | LRP5    |
| 479 | Exudative vitreoretinopathy 5 613310   | TSPAN12 |
| 479 | Exudative vitreoretinopathy 7 617572   | CTNNB1  |
| 479 | Vitreoretinopathy with phalangeal epiphyseal dysplasia                                       | COL2A1  |
| 479 | Vitreoretinopathy neovascular inflammatory 193235  | CAPN5   |
| 480 | FG syndrome 2 300321   | FLNA    |
| 480 | FG syndrome 4 300422   | CASK    |
| 481 | FILS syndrome 615139   | POLE    |
| 482 | Fabry disease 301500   | GLA     |
| 482 | Fabry disease cardiac variant 301500   | GLA     |
| 483 | Facial palsy hereditary congenital 3 614744  | HOXB1   |
| 484 | Factor V and factor VIII combined deficiency of 613625                                       | MCDF2   |
| 484 | Factor V deficiency 227400   | F5      |
| 484 | Factor VII deficiency 227500   | F7      |
| 484 | Factor X deficiency 227600   | F10     |
| 484 | Factor XI deficiency autosomal dominant 612416   | F11     |
| 484 | Factor XI deficiency autosomal recessive 612416  | F11     |
| 484 | Factor XII deficiency 234000   | F12     |
| 484 | Factor XIII A deficiency 613225  | F13A1   |
| 484 | Factor XIII B deficiency 613235  | F13B    |
| 485 | Failure of tooth eruption primary 125350   | PTH1R   |
| 486 | Familial Mediterranean fever AD 134610   | MEFV    |
| 486 | Familial Mediterranean fever AR 249100   | MEFV    |
| 487 | Familial adenomatous polyposis 3 616415  | NTHL1   |
| 487 | Familial adenomatous polyposis 4 617100  | MSH3    |
| 488 | Familial cold autoinflammatory syndrome 2 611762   | NLRP12  |
| 488 | Familial cold autoinflammatory syndrome 3 614468   | PLCG2   |
| 488 | Familial cold-induced inflammatory syndrome 1 120100   | NLRP3   |
| 489 | Fanconi anemia complementation group A 227650  | FANCA   |
| 489 | Fanconi anemia complementation group B 300514  | FANCB   |
| 489 | Fanconi anemia complementation group C 227645  | FANCC   |
| 489 | Fanconi anemia complementation group D1 605724   | BRCA2   |
| 489 | Fanconi anemia complementation group D2 227646   | FANCD2  |
| 489 | Fanconi anemia complementation group E 600901  | FANCE   |
| 489 | Fanconi anemia complementation group F 603467  | FANCF   |
| 489 | Fanconi anemia complementation group G 614082  | FANCG   |

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| 489 | Fanconi anemia complementation group I 609053                                   | FANCI   |
| 489 | Fanconi anemia complementation group J 609054                                   | BRIP1   |
| 489 | Fanconi anemia complementation group L 614083                                   | FANCL   |
| 489 | Fanconi anemia complementation group N 610832                                   | PALB2   |
| 489 | Fanconi anemia complementation group O 613390                                   | RAD51C  |
| 489 | Fanconi anemia complementation group P 613951                                   | SLX4    |
| 489 | Fanconi anemia complementation group Q 615272                                   | ERCC4   |
| 489 | Fanconi anemia complementation group T 616435                                   | UBE2T   |
| 490 | Fanconi renotubular syndrome 4 with maturity-onset diabetes of the young 616026 | HNF4A   |
| 490 | Fanconi-Bickel syndrome 227810  | SLC2A2  |
| 491 | Farber lipogranulomatosis 228000  | ASAH1   |
| 492 | Fascioscapulohumeral muscular dystrophy 2 digenic 158901                        | SMCHD1  |
| 493 | Fatty liver acute of pregnancy 609016   | HADHA   |
| 493 | LCHAD deficiency 609016   | HADHA   |
| 494 | Favism 134700   | G6PD    |
| 495 | Febrile seizures familial 11 614418   | CPA6    |
| 495 | Febrile seizures familial 3A 604403   | SCN1A   |
| 495 | Febrile seizures familial 3B 613863   | SCN9A   |
| 495 | Febrile seizures familial 8 611277  | GABRG2  |
| 496 | Fechtner syndrome 153640  | MYH9    |
| 497 | Feingold syndrome 1 164280  | MYCN    |
| 497 | Feingold syndrome 2 614326  | MIR17HG |
| 498 | Fetal akinesia deformation sequence 208150                                      | MUSK    |
| 498 | Fetal akinesia deformation sequence 208150                                      | RAPSN   |
| 499 | Fetal hemoglobin quantitative trait locus 1 141749                              | HBG1    |
| 499 | Fetal hemoglobin quantitative trait locus 1 141749                              | HBG2    |
| 499 | Hereditary persistence of fetal hemoglobin 141749                               | HBB     |
| 500 | Fibrochondrogenesis 1 228520  | COL11A1 |
| 500 | Fibrochondrogenesis 2 614524  | COL11A2 |
| 501 | Fibrodysplasia ossificans progressiva 135100                                    | ACVR1   |
| 502 | Fibromatosis gingival 5 617626  | REST    |
| 503 | Fibrosis of extraocular muscles congenital 1 135700                             | KIF21A  |
| 503 | Fibrosis of extraocular muscles congenital 2 602078                             | PHOX2A  |
| 503 | Fibrosis of extraocular muscles congenital 3A 600638                            | TUBB3   |
| 503 | Fibrosis of extraocular muscles congenital 3B 135700                            | KIF21A  |
| 503 | Fibrosis of extraocular muscles congenital 5 616219                             | COL25A1 |
| 504 | Filippi syndrome 272440   | CKAP2L  |
| 505 | Fish-eye disease 136120   | LCAT    |
| 506 | Fletcher factor (prekallikrein) deficiency 612423                               | KLKB1   |
| 507 | Floating-Harbor syndrome 136140   | SRCAP   |
| 508 | Focal cortical dysplasia type II somatic 607341                                 | MTOR    |
| 508 | Focal cortical dysplasia type II somatic 607341                                 | TSC1    |
| 509 | Focal dermal hypoplasia 305600  | PORCN   |
| 510 | Focal facial dermal dysplasia 3 Setleis type 227260                             | TWIST2  |



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| 510 | Focal facial dermal dysplasia 4 614974   | CYP26C1  |
| 511 | Focal segmental glomerulosclerosis 8 616032  | ANLN     |
| 511 | Focal segmental glomerulosclerosis 9 616220  | CRB2     |
| 512 | Folate malabsorption hereditary 229050   | SLC46A1  |
| 513 | Foveal hypoplasia 1 136520   | PAX6     |
| 513 | Foveal hypoplasia 2 with or without optic nerve misrouting and or anterior segment dysgenesis 609218 | SLC38A8  |
| 514 | Fragile X syndrome 300624  | FMR1     |
| 514 | Fragile X tremor or ataxia syndrome 300623   | FMR1     |
| 515 | Frank-ter Haar syndrome 249420   | SH3PXD2B |
| 516 | Fraser syndrome 1 219000   | FRAS1    |
| 516 | Fraser syndrome 2 617666   | FREM2    |
| 516 | Fraser syndrome 3 617667   | GRIP1    |
| 517 | Frasier syndrome 136680  | WT1      |
| 518 | Friedreich ataxia 229300   | FXN      |
| 518 | Friedreich ataxia with retained reflexes 229300  | FXN      |
| 519 | Frontometaphyseal dysplasia 1 305620   | FLNA     |
| 519 | Frontometaphyseal dysplasia 2 617137   | MAP3K7   |
| 520 | Frontonasal dysplasia 1 136760   | ALX3     |
| 520 | Frontonasal dysplasia 2 613451   | ALX4     |
| 521 | Frontotemporal dementia and or amyotrophic lateral sclerosis 1 105550                                | C9orf72  |
| 521 | Frontotemporal dementia and or amyotrophic lateral sclerosis 2 615911                                | CHCHD10  |
| 521 | Frontotemporal dementia and or amyotrophic lateral sclerosis 3 616437                                | SQSTM1   |
| 521 | Frontotemporal dementia and or amyotrophic lateral sclerosis 4 616439                                | TBK1     |
| 522 | Frontotemporal lobar degeneration TARDBP-related 612069  | TARDBP   |
| 522 | Frontotemporal lobar degeneration with ubiquitin-positive inclusions 607485                          | GRN      |
| 522 | Aphasia primary progressive 607485   | GRN      |
| 523 | Fructose intolerance hereditary 229600   | ALDOB    |
| 523 | Fructose-16-bisphosphatase deficiency 229700   | FBP1     |
| 524 | Fucosidosis 230000   | FUCA1    |
| 525 | Fucosyltransferase 6 deficiency 613852   | FUT6     |
| 526 | Fuhrmann syndrome 228930   | WNT7A    |
| 527 | Fumarase deficiency 606812   | FH       |
| 528 | Fundus albipunctatus 136880  | RDH5     |
| 528 | Fundus albipunctatus 136880  | RLBP1    |
| 528 | Fundus flavimaculatus 248200   | ABCA4    |
| 529 | GABA-transaminase deficiency 613163  | ABAT     |
| 530 | GAP0 syndrome 230740   | ANTXR1   |
| 531 | GLUT1 deficiency syndrome 1 infantile onset severe 606777  | SLC2A1   |
| 531 | GLUT1 deficiency syndrome 2 childhood onset 612126   | SLC2A1   |

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| 532 | GM1-gangliosidosis type I 230500   | GLB1   |
| 532 | GM1-gangliosidosis type II 230600  | GLB1   |
| 532 | GM1-gangliosidosis type III 230650   | GLB1   |
| 532 | GM2-gangliosidosis AB variant 272750   | GM2A   |
| 532 | GM2-gangliosidosis several forms 272800  | HEXA   |
| 532 | Tay-Sachs disease 272800   | HEXA   |
| 533 | GRACILE syndrome 603358  | BCS1L  |
| 534 | Gabriele-de Vries syndrome 617557  | YY1    |
| 535 | Galactokinase deficiency with cataracts 230200                                 | GALK1  |
| 536 | Galactose epimerase deficiency 230350  | GALE   |
| 537 | Galactosemia 230400  | GALT   |
| 538 | Galactosialidosis 256540   | CTSA   |
| 539 | Gallbladder disease 1 600803   | ABCB4  |
| 539 | {Gallbladder disease 4} 611465   | ABCG8  |
| 540 | Galloway-Mowat syndrome 1 251300   | WDR73  |
| 540 | Galloway-Mowat syndrome 2 X-linked 301006                                      | LAGE3  |
| 540 | Galloway-Mowat syndrome 3 617729   | OSGEP  |
| 540 | Galloway-Mowat syndrome 4 617730   | TP53RK |
| 540 | Galloway-Mowat syndrome 5 617731   | TPRKB  |
| 541 | Gastric cancer familial diffuse with or without cleft lip and or palate 137215 | CDH1   |
| 541 | Gastric cancer somatic 137215  | KRAS   |
| 541 | Gastric cancer somatic 613659  | APC    |
| 541 | Gastric cancer somatic 613659  | CASP10 |
| 541 | Gastric cancer somatic 613659  | ERBB2  |
| 541 | Gastric cancer somatic 613659  | FGFR2  |
| 541 | Gastric cancer somatic 613659  | IRF1   |
| 541 | Gastric cancer somatic 613659  | KLF6   |
| 541 | Gastric cancer somatic 613659  | MUTYH  |
| 541 | Gastric cancer somatic 613659  | PIK3CA |
| 541 | {Gastric cancer risk after H. pylori infection} 137215                         | IL1B   |
| 541 | {Gastric cancer risk after H. pylori infection} 137215                         | IL1RN  |
| 542 | Gastrointestinal defects and immunodeficiency syndrome 243150                  | TTC7A  |
| 543 | Gastrointestinal stromal tumor 606764  | SDHB   |
| 543 | Gastrointestinal stromal tumor 606764  | SDHC   |
| 543 | Gastrointestinal stromal tumor familial 606764                                 | KIT    |
| 543 | Gastrointestinal stromal tumor somatic 606764                                  | PDGFRA |
| 544 | Gaucher disease atypical 610539  | PSAP   |
| 544 | Gaucher disease perinatal lethal 608013  | GBA    |
| 544 | Gaucher disease type I 230800  | GBA    |
| 544 | Gaucher disease type II 230900   | GBA    |
| 544 | Gaucher disease type III 231000  | GBA    |
| 544 | Gaucher disease type IIIC 231005   | GBA    |
| 545 | Gaze palsy familial horizontal with progressive scoliosis 1 607313             | ROBO3  |
| 545 | Gaze palsy familial horizontal with progressive scoliosis 2 617542             | DCC    |

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| 546 | Geleophysic dysplasia 1 231050  | ADAMTSL2 |
| 546 | Geleophysic dysplasia 2 614185  | FBN1     |
| 547 | Generalized epilepsy with febrile seizures plus type 9 616172                                 | STX1B    |
| 548 | Genitopatellar syndrome 606170  | KAT6B    |
| 549 | Geroderma osteodysplasticum 231070  | GORAB    |
| 550 | Ghosal hematodiaphyseal syndrome 231095   | TBXAS1   |
| 551 | Giant axonal neuropathy-1 256850  | GAN      |
| 552 | Gillespie syndrome 206700   | ITPR1    |
| 553 | Gillessen-Kaesbach-Nishimura syndrome 263210  | ALG9     |
| 554 | Gitelman syndrome 263800  | SLC12A3  |
| 555 | Glanzmann thrombasthenia 273800   | ITGA2B   |
| 555 | Glanzmann thrombasthenia 273800   | ITGB3    |
| 556 | Glass syndrome 612313   | SATB2    |
| 557 | Glaucoma 1 open angle 1O 613100   | NTF4     |
| 557 | Glaucoma 1 open angle E 137760  | OPTN     |
| 557 | Glaucoma 1 open angle F 603383  | ASB10    |
| 557 | Glaucoma 1 open angle G 609887  | WDR36    |
| 557 | Glaucoma 1A primary open angle 137750   | MYOC     |
| 557 | Glaucoma 3 primary congenital D 613086  | LTBP2    |
| 557 | Glaucoma 3 primary congenital E 617272  | TEK      |
| 557 | Glaucoma 3A primary open angle congenital juvenile or adult onset 231300                      | CYP1B1   |
| 558 | Glioblastoma somatic 137800   | ERBB2    |
| 558 | {Glioblastoma 3} 613029   | BRCA2    |
| 558 | {Glioma susceptibility 1} 137800  | TP53     |
| 558 | {Glioma susceptibility to somatic} 137800   | IDH1     |
| 558 | {Glioma susceptibility 2} 613028  | PTEN     |
| 558 | {Glioma susceptibility 9} 616568  | POT1     |
| 559 | Global developmental delay absent or hypoplastic corpus callosum and dysmorphic facies 617260 | ZNF148   |
| 560 | Glomerulocystic kidney disease with hyperuricemia and isosthenuria 609886                     | UMOD     |
| 561 | Glomerulopathy with fibronectin deposits 2 601894   | FN1      |
| 562 | Glomerulosclerosis focal segmental 1 603278   | ACTN4    |
| 562 | Glomerulosclerosis focal segmental 2 603965   | TRPC6    |
| 562 | Glomerulosclerosis focal segmental 3 607832   | CD2AP    |
| 562 | Glomerulosclerosis focal segmental 5 613237   | INF2     |
| 562 | Glomerulosclerosis focal segmental 6 614131   | MYO1E    |
| 562 | Glomerulosclerosis focal segmental 7 616002   | PAX2     |
| 562 | {Glomerulosclerosis focal segmental 4 susceptibility to} 612551                               | APOL1    |
| 562 | {End-stage renal disease nondiabetic susceptibility to} 612551                                | APOL1    |
| 563 | Glomuvenous malformations 138000  | GLML     |
| 564 | Glucocorticoid deficiency 2 607398  | MRAP     |
| 564 | Glucocorticoid deficiency 4 with or without mineralocorticoid deficiency 614736               | NNT      |

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| 564 | Glucocorticoid deficiency due to ACTH unresponsiveness 202200           | MC2R     |
| 564 | Glucocorticoid resistance 615962  | NR3C1    |
| 565 | Glucose or galactose malabsorption 606824                               | SLC5A1   |
| 566 | Glutamate formiminotransferase deficiency 229100                        | FTCD     |
| 567 | Glutamine deficiency congenital 610015                                  | GLUL     |
| 568 | Glutaric acidemia IIA 231680  | ETFA     |
| 568 | Glutaric acidemia IIB 231680  | ETFB     |
| 568 | Glutaric acidemia IIC 231680  | ETFDH    |
| 568 | Glutaric aciduria III 231690  | SUGCT    |
| 568 | Glutaric aciduria type I 231670   | GCDH     |
| 569 | Glutathione synthetase deficiency 266130                                | GSS      |
| 570 | Glycerol kinase deficiency 307030                                       | GK       |
| 571 | Glycine N-methyltransferase deficiency 606664                           | GNMT     |
| 571 | Glycine encephalopathy 605899   | AMT      |
| 571 | Glycine encephalopathy 605899   | GCSH     |
| 571 | Glycine encephalopathy 605899   | GLDC     |
| 571 | Glycine encephalopathy with normal serum glycine 617301                 | SLC6A9   |
| 572 | Glycogen storage disease 0 liver 240600                                 | GYS2     |
| 572 | Glycogen storage disease 0 muscle 611556                                | GYS1     |
| 572 | Glycogen storage disease II 232300                                      | GAA      |
| 572 | Glycogen storage disease IIIa 232400                                    | AGL      |
| 572 | Glycogen storage disease IIIb 232400                                    | AGL      |
| 572 | Glycogen storage disease IV 232500                                      | GBE1     |
| 572 | Glycogen storage disease IXc 613027                                     | PHKG2    |
| 572 | Glycogen storage disease Ia 232200                                      | G6PC     |
| 572 | Glycogen storage disease Ib 232220                                      | SLC37A4  |
| 572 | Glycogen storage disease Ic 232240                                      | SLC37A4  |
| 572 | Glycogen storage disease VI 232700                                      | PYGL     |
| 572 | Glycogen storage disease VII 232800                                     | PFKM     |
| 572 | Glycogen storage disease X 261670                                       | PGAM2    |
| 572 | Glycogen storage disease XI 612933                                      | LDHA     |
| 572 | Glycogen storage disease XII 611881                                     | ALDOA    |
| 572 | Glycogen storage disease of heart lethal congenital 261740              | PRKAG2   |
| 572 | Glycogen storage disease type IXa1 306000                               | PHKA2    |
| 572 | Glycogen storage disease type IXa2 306000                               | PHKA2    |
| 573 | Glycosylphosphatidylinositol deficiency 610293                          | PIGM     |
| 574 | Gnathodiaphyseal dysplasia 166260                                       | ANO5     |
| 575 | Goiter multinodular 1 with or without Sertoli-Leydig cell tumors 138800 | DICER1   |
| 576 | Goldberg-Shprintzen megacolon syndrome 609460                           | KIAA1279 |
| 577 | Gracile bone dysplasia 602361   | FAM111A  |
| 578 | Grange syndrome 602531  | YY1AP1   |
| 579 | Gray platelet syndrome 139090   | NBEAL2   |
| 580 | Greenberg skeletal dysplasia 215140                                     | LBR      |
| 581 | Greig cephalopolysyndactyly syndrome 175700                             | GLI3     |

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| 582 | Griscelli syndrome type 1 214450  | MYO5A    |
| 582 | Griscelli syndrome type 2 607624  | RAB27A   |
| 582 | Griscelli syndrome type 3 609227  | MLPH     |
| 583 | Growth hormone deficiency isolated partial 615925                                       | GHSR     |
| 583 | Growth hormone deficiency isolated type IA 262400                                       | GH1      |
| 583 | Growth hormone deficiency isolated type IB 612781                                       | GH1      |
| 583 | Growth hormone deficiency isolated type IB 612781                                       | GHRHR    |
| 583 | Growth hormone deficiency isolated type II 173100                                       | GH1      |
| 583 | Growth hormone deficiency with pituitary anomalies 182230                               | HESX1    |
| 583 | Septooptic dysplasia 182230   | HESX1    |
| 583 | Growth hormone insensitivity partial 604271   | GHR      |
| 583 | Growth hormone insensitivity with immunodeficiency 245590                               | STAT5B   |
| 583 | Increased responsiveness to growth hormone  | GHR      |
| 584 | Growth retardation developmental delay facial dysmorphism 612938                        | FTO      |
| 584 | Growth retardation intellectual developmental disorder hypotonia and hepatopathy 617093 | IARS     |
| 584 | Growth retardation with deafness and mental retardation due to IGF1 deficiency 608747   | IGF1     |
| 585 | Guttmacher syndrome 176305  | HOXA13   |
| 586 | Gyrate atrophy of choroid and retina with or without ornithinemia 258870                | OAT      |
| 587 | HARP syndrome 607236  | PANK2    |
| 588 | HDL deficiency type 2 604091  | ABCA1    |
| 588 | {HDL response to hormone replacement, augmented}  | ESR1     |
| 589 | HELIX syndrome 617671   | CLDN10   |
| 590 | HELLP syndrome maternal of pregnancy 609016   | HADHA    |
| 591 | HMG-CoA lyase deficiency 246450   | HMGCL    |
| 591 | HMG-CoA synthase-2 deficiency 605911  | HMGCS2   |
| 592 | HPRT-related gout 300323  | HPRT1    |
| 593 | HSD10 mitochondrial disease 300438  | HSD17B10 |
| 594 | Hailey-Hailey disease 169600  | ATP2C1   |
| 595 | Haim-Munk syndrome 245010   | CTSC     |
| 596 | Hajdu-Cheney syndrome 102500  | NOTCH2   |
| 597 | Hamamy syndrome 611174  | IRX5     |
| 598 | Hand-foot-uterus syndrome 140000  | HOXA13   |
| 599 | Coproporphyrinuria 121300   | CPOX     |
| 599 | Harderoporphyria 121300   | CPOX     |
| 600 | Harel-Yoon syndrome 617183  | ATAD3A   |
| 601 | Hartnup disorder 234500   | SLC6A19  |
| 602 | Hartsfield syndrome 615465  | FGFR1    |
| 603 | Hawkinsinuria 140350  | HPD      |
| 604 | Hay-Wells syndrome 106260   | TP63     |
| 605 | Heart and brain malformation syndrome 616920  | C19orf61 |
| 606 | Heart block nonprogressive 113900   | SCN5A    |

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| 606 | Heart block progressive type IA 113900   | SCN5A   |
| 607 | Heart-hand syndrome Slovenian type 610140  | LMNA    |
| 608 | Heimler syndrome 1 234580  | PEX1    |
| 608 | Heimler syndrome 2 616617  | PEX6    |
| 609 | Heinz body anemia 140700   | HBA2    |
| 609 | Heinz body anemias alpha- 140700   | HBA1    |
| 609 | Heinz body anemias beta- 140700  | HBB     |
| 610 | Helsmoortel-van der Aa syndrome 615873   | ADNP    |
| 611 | Hemangioma capillary infantile somatic 602089  | FLT4    |
| 611 | Hemangioma capillary infantile somatic 602089  | KDR     |
| 611 | {Hemangioma capillary infantile susceptibility to} 602089                            | KDR     |
| 612 | Hematuria benign familial 141200   | COL4A3  |
| 613 | Heme oxygenase-1 deficiency 614034   | HMOX1   |
| 614 | Hemochromatosis 235200   | HFE     |
| 614 | {HFE hemochromatosis modifier of} 235200   | BMP2    |
| 614 | Hemochromatosis type 2A 602390   | HJV     |
| 614 | Hemochromatosis type 2B 613313   | HAMP    |
| 614 | Hemochromatosis type 3 604250  | TFR2    |
| 614 | Hemochromatosis type 4 606069  | SLC40A1 |
| 615 | Hemoglobin H disease nondeletional 613978  | HBA1    |
| 615 | Hemoglobin H disease nondeletional 613978  | HBA2    |
| 616 | Hemolytic anemia CD59-mediated with or without immune-mediated polyneuropathy 612300 | CD59    |
| 616 | Hemolytic anemia due to G6PD deficiency 300908                                       | G6PD    |
| 616 | Hemolytic anemia due to adenylate kinase deficiency 612631                           | AK1     |
| 616 | Hemolytic anemia due to gamma-glutamylcysteine synthetase deficiency 230450          | GCLC    |
| 616 | Hemolytic anemia due to glutathione synthetase deficiency 231900                     | GSS     |
| 616 | Hemolytic anemia due to hexokinase deficiency 235700                                 | HK1     |
| 616 | Hemolytic anemia due to triosephosphate isomerase deficiency 615512                  | TPI1    |
| 616 | Hemolytic anemia nonspherocytic due to glucose phosphate isomerase deficiency 613470 | GPI     |
| 617 | Hemophagocytic lymphohistiocytosis familial 2 603553                                 | PRF1    |
| 617 | Hemophagocytic lymphohistiocytosis familial 3 608898                                 | UNC13D  |
| 617 | Hemophagocytic lymphohistiocytosis familial 4 603552                                 | STX11   |
| 617 | Hemophagocytic lymphohistiocytosis familial 5 613101                                 | STXBP2  |
| 618 | Hemophilia A 306700  | F8      |
| 618 | Hemophilia B 306900  | F9      |
| 619 | Hemorrhagic destruction of the brain subependymal calcification and cataracts 613730 | JAM3    |
| 620 | Hennekam lymphangiectasia-lymphedema syndrome 1 235510                               | CCBE1   |
| 620 | Hennekam lymphangiectasia-lymphedema syndrome 2 616006                               | FAT4    |
| 621 | Hepatic lipase deficiency 614025   | LIPC    |

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| 622 | Hepatic venoocclusive disease with immunodeficiency 235550  | SP110   |
| 623 | Hepatic adenoma somatic 142330                              | HNF1A   |
| 623 | Hepatoblastoma somatic 114550                               | APC     |
| 623 | Hepatocellular cancer somatic 114550                        | PDGFRL  |
| 623 | Hepatocellular carcinoma 114550                             | TP53    |
| 623 | Hepatocellular carcinoma childhood type somatic 114550      | MET     |
| 623 | Hepatocellular carcinoma somatic 114550                     | AXIN1   |
| 623 | Hepatocellular carcinoma somatic 114550                     | CASP8   |
| 623 | Hepatocellular carcinoma somatic 114550                     | CTNNB1  |
| 623 | Hepatocellular carcinoma somatic 114550                     | IGF2R   |
| 623 | Hepatocellular carcinoma somatic 114550                     | PIK3CA  |
| 624 | Hereditary motor and sensory neuropathy Okinawa type 604484 | TFG     |
| 624 | Hereditary motor and sensory neuropathy VIA 601152          | MFN2    |
| 624 | Hereditary motor and sensory neuropathy type IIc 606071     | TRPV4   |
| 625 | Hermansky-Pudlak syndrome 1 203300                          | HPS1    |
| 625 | Hermansky-Pudlak syndrome 2 608233                          | AP3B1   |
| 625 | Hermansky-Pudlak syndrome 3 614072                          | HPS3    |
| 625 | Hermansky-Pudlak syndrome 4 614073                          | HPS4    |
| 625 | Hermansky-Pudlak syndrome 5 614074                          | HPS5    |
| 625 | Hermansky-Pudlak syndrome 6 614075                          | HPS6    |
| 625 | Hermansky-Pudlak syndrome 7 614076                          | DTNBP1  |
| 625 | Hermansky-Pudlak syndrome 8 614077                          | BLOC1S3 |
| 626 | Heterotaxy visceral 1 X-linked 306955                       | ZIC3    |
| 626 | Heterotaxy visceral 2 autosomal 605376                      | CFC1    |
| 626 | Heterotaxy visceral 4 autosomal 613751                      | ACVR2B  |
| 626 | Heterotaxy visceral 5 270100                                | NODAL   |
| 626 | Heterotaxy visceral 6 autosomal recessive 614779            | CFAP53  |
| 626 | Heterotaxy visceral 7 autosomal 616749                      | MMP21   |
| 626 | Heterotaxy visceral 8 autosomal 617205                      | PKD1L1  |
| 627 | Heterotopia periventricular 300049                          | FLNA    |
| 628 | Histiocytoma angiomatoid fibrous somatic 612160             | CREB1   |
| 629 | Histiocytosis-lymphadenopathy plus syndrome 602782          | SLC39A5 |
| 629 | Histiocytosis-lymphadenopathy plus syndrome 602782          | SLC29A3 |
| 630 | Holocarboxylase synthetase deficiency 253270                | HLCS    |
| 631 | Holoprosencephaly 11 614226                                 | CDON    |
| 631 | Holoprosencephaly 2 157170                                  | SIX3    |
| 631 | Holoprosencephaly 3 142945                                  | SHH     |
| 631 | Holoprosencephaly 4 142946                                  | TGIF1   |
| 631 | Holoprosencephaly 5 609637                                  | ZIC2    |
| 631 | Holoprosencephaly 7 610828                                  | PTCH1   |
| 631 | Holoprosencephaly 9 610829                                  | GLI2    |
| 632 | Holt-Oram syndrome 142900                                   | TBX5    |
| 633 | Homocystinuria B6-responsive and nonresponsive types 236200 | CBS     |
| 633 | Thrombosis hyperhomocysteinemic 236200                      | CBS     |
| 633 | Homocystinuria cbID type variant 1 277410                   | MMADHC  |

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| 633 | Homocystinuria due to MTHFR deficiency 236250                                | MTHFR   |
| 633 | Homocystinuria-megaloblastic anemia cbl E type 236270                        | MTRR    |
| 633 | Homocystinuria-megaloblastic anemia cblG complementation type 250940         | MTR     |
| 634 | Huntington disease 143100  | HTT     |
| 634 | Huntington disease-like 1 603218   | PRNP    |
| 635 | Hutchinson-Gilford progeria 176670   | LMNA    |
| 636 | Hyaline fibromatosis syndrome 228600   | ANTXR2  |
| 637 | Hydatidiform mole recurrent 1 231090   | NLRP7   |
| 637 | Hydatidiform mole recurrent 2 614293   | KHDC3L  |
| 638 | Hydrocephalus due to aqueductal stenosis 307000                              | L1CAM   |
| 638 | Hydrocephalus nonsyndromic autosomal recessive 2 615219                      | MPDZ    |
| 638 | Hydrocephalus nonsyndromic autosomal recessive 236600                        | CCDC88C |
| 638 | Hydrocephalus with Hirschsprung disease 307000                               | L1CAM   |
| 638 | Hydrocephalus with congenital idiopathic intestinal pseudoobstruction 307000 | L1CAM   |
| 639 | Hydroletharus syndrome 236680  | HYLS1   |
| 640 | Hyper-IgD syndrome 260920  | MVK     |
| 641 | Hyper-IgE recurrent infection syndrome 147060                                | STAT3   |
| 641 | Hyper-IgE recurrent infection syndrome autosomal recessive 243700            | DOCK8   |
| 642 | Hyperaldosteronism familial type III 613677                                  | KCNJ5   |
| 642 | Hyperaldosteronism familial type IV 617027                                   | CACNA1H |
| 643 | Hyperalphalipoproteinemia 143470   | CETP    |
| 644 | Hyperammonemia due to carbonic anhydrase VA deficiency 615751                | CA5A    |
| 645 | Hyperbilirubinemia Rotor type digenic 237450                                 | SLCO1B1 |
| 645 | Hyperbilirubinemia Rotor type digenic 237450                                 | SLCO1B3 |
| 645 | Hyperbilirubinemia familial transient neonatal 237900                        | UGT1A1  |
| 646 | Hyperbiliverdinemia 614156   | BLVRA   |
| 647 | Hypercalcemia infantile 1 143880   | CYP24A1 |
| 647 | Hypercalcemia infantile 2 616963   | SLC34A1 |
| 648 | Hypercarotenemia and vitamin A deficiency autosomal dominant 115300          | BCMO1   |
| 649 | Hyperchlorhidrosis isolated 143860   | CA12    |
| 650 | Hypercholanemia familial 607748  | BAAT    |
| 650 | Hypercholanemia familial 607748  | EPHX1   |
| 650 | Hypercholanemia familial 607748  | TJP2    |
| 651 | Hypercholesterolemia due to ligand-defective apo B 144010                    | APOB    |
| 651 | Hypercholesterolemia familial 143890   | LDLR    |
| 651 | Hypercholesterolemia familial 3 603776                                       | PCSK9   |
| 651 | {Low density lipoprotein cholesterol level QTL 1} 603776                     | PCSK9   |
| 651 | Hypercholesterolemia familial autosomal recessive 603813                     | LDLRAP1 |
| 651 | {Hypercholesterolemia familial due to LDLR defect modifier of} 143890        | EPHX2   |



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| 651 | {Hypercholesterolemia familial modifier of} 143890  | APOA2    |
| 651 | {Hypercholesterolemia familial modifier of} 143890  | GHR      |
| 651 | {Hypercholesterolemia susceptibility to} 143890   | PPP1R17  |
| 651 | {Hypercholesterolemia susceptibility to} 143890   | ITIH4    |
| 652 | Hyperchylomicronemia late-onset 144650  | APOA5    |
| 653 | Hyperekplexia 2 autosomal recessive 614619  | GLRB     |
| 653 | Hyperekplexia 3 614618  | SLC6A5   |
| 653 | Hyperekplexia hereditary 1 autosomal dominant or recessive 149400   | GLRA1    |
| 654 | Hyper eosinophilic syndrome idiopathic resistant to imatinib 607685   | PDGFRA   |
| 655 | Hyperferritinemia-cataract syndrome 600886  | FTL      |
| 656 | Hyperglycinemia lactic acidosis and seizures 614462   | LIAS     |
| 656 | Hyperglycinuria 138500  | SLC36A2  |
| 656 | Hyperglycinuria 138500  | SLC6A19  |
| 656 | Hyperglycinuria 138500  | SLC6A20  |
| 657 | Hyperinsulinemic hypoglycemia familial 1 256450   | ABCC8    |
| 657 | Hyperinsulinemic hypoglycemia familial 2 601820   | KCNJ11   |
| 657 | Hyperinsulinemic hypoglycemia familial 3 602485   | GCK      |
| 657 | Hyperinsulinemic hypoglycemia familial 4 609975   | HADH     |
| 657 | Hyperinsulinemic hypoglycemia familial 5 609968   | INSR     |
| 657 | Hyperinsulinemic hypoglycemia familial 7 610021   | SLC16A1  |
| 658 | Hyperinsulinism-hyperammonemia syndrome 606762  | GLUD1    |
| 659 | Hyperkalemic periodic paralysis type 2 170500   | SCN4A    |
| 659 | Hypokalemic periodic paralysis type 1 170400  | CACNA1S  |
| 659 | Hypokalemic periodic paralysis type 2 613345  | SCN4A    |
| 660 | Hyperlipoproteinemia type 1D 615947   | GPIHBP1  |
| 660 | Hyperlipoproteinemia type III 617347  | APOE     |
| 660 | Hyperlipoproteinemia type Ib 207750   | APOC2    |
| 661 | Hyperlysinemia 238700   | AASS     |
| 662 | Hypermanganesemia with dystonia 1 613280  | SLC30A10 |
| 662 | Hypermanganesemia with dystonia 2 617013  | SLC39A14 |
| 663 | Hypermethioninemia due to adenosine kinase deficiency 614300  | ADK      |
| 663 | Hypermethioninemia persistent autosomal dominant due to methionine adenosyltransferase I or III deficiency 250850 | MAT1A    |
| 663 | Hypermethioninemia with deficiency of S-adenosylhomocysteine hydrolase 613752                                     | AHCY     |
| 663 | Methionine adenosyltransferase deficiency autosomal recessive 250850  | MAT1A    |
| 664 | Hyperornithinemia-hyperammonemia-homocitrullinemia syndrome 238970  | SLC25A15 |
| 665 | Hyperoxaluria primary type I 259900   | AGXT     |
| 665 | Hyperoxaluria primary type II 260000  | GRHPR    |
| 665 | Hyperoxaluria primary type III 613616   | HOGA1    |
| 666 | Hyperparathyroidism 4 617343  | GCM2     |

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| 666 | Hyperparathyroidism familial primary 145000                                       | CDC73   |
| 666 | Hyperparathyroidism neonatal 239200   | CASR    |
| 666 | Hyperparathyroidism-jaw tumor syndrome 145001                                     | CDC73   |
| 667 | Hyperphenylalaninemia BH4-deficient A 261640                                      | PTS     |
| 667 | Hyperphenylalaninemia BH4-deficient B 233910                                      | GCH1    |
| 667 | Hyperphenylalaninemia BH4-deficient C 261630                                      | QDPR    |
| 667 | Hyperphenylalaninemia BH4-deficient D 264070                                      | PCBD1   |
| 667 | Hyperphenylalaninemia mild non-BH4-deficient 617384                               | DNAJC12 |
| 668 | Hyperphosphatasia with mental retardation syndrome 1 239300                       | PIGV    |
| 668 | Hyperphosphatasia with mental retardation syndrome 2 614749                       | PIGO    |
| 668 | Hyperphosphatasia with mental retardation syndrome 3 614207                       | PGAP2   |
| 668 | Hyperphosphatasia with mental retardation syndrome 4 615716                       | PGAP3   |
| 668 | Hyperphosphatasia with mental retardation syndrome 6 616809                       | PIGY    |
| 669 | Hyperpigmentation with or without hypopigmentation 145250                         | KITLG   |
| 670 | Hyperproinsulinemia 616214  | INS     |
| 671 | Hyperprolinemia type I 239500   | PRODH   |
| 671 | Hyperprolinemia type II 239510  | ALDH4A1 |
| 672 | Hypertension and brachydactyly syndrome 112410                                    | PDE3A   |
| 672 | Hypertension early-onset autosomal dominant with exacerbation in pregnancy 605115 | NR3C2   |
| 672 | Hypertension essential 145500   | PTGIS   |
| 672 | {Hypertension essential salt-sensitive} 145500                                    | ADD1    |
| 672 | {Hypertension essential susceptibility to} 145500                                 | AGT     |
| 672 | {Hypertension essential susceptibility to} 145500                                 | ECE1    |
| 672 | {Hypertension essential susceptibility to} 145500                                 | GNB3    |
| 672 | {Hypertension essential} 145500   | AGTR1   |
| 672 | {Hypertension salt-sensitive essential susceptibility to} 145500                  | CYP3A5  |
| 672 | {Hypertension susceptibility to} 145500   | NOS3    |
| 672 | {Hypertension diastolic resistance to} 608622                                     | KCNMB1  |
| 672 | {Hypertension insulin resistance-related susceptibility to} 125853                | RETN    |
| 672 | {Hypertension pregnancy-induced} 189800   | NOS3    |
| 673 | Hyperthyroidism familial gestational 603373                                       | TSHR    |
| 673 | Hyperthyroidism nonautoimmune 609152  | TSHR    |
| 674 | Hypertrichotic osteochondrodysplasia 239850                                       | ABCC9   |
| 675 | Hypertriglyceridemia transient infantile 614480                                   | GPD1    |
| 675 | {Hypertriglyceridemia susceptibility to} 145750                                   | APOA5   |
| 675 | {Hypertriglyceridemia susceptibility to} 145750                                   | LIPI    |
| 676 | Cranioosteoarthropathy 259100   | HPGD    |
| 676 | Hypertrophic osteoarthropathy primary autosomal recessive 1 259100                | HPGD    |
| 676 | Hypertrophic osteoarthropathy primary autosomal recessive 2 614441                | SLCO2A1 |
| 677 | Hyperuricemia pulmonary hypertension renal failure and alkalosis 613845           | SARS2   |
| 678 | Hyperuricemic nephropathy familial juvenile 1 162000                              | UMOD    |

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| 678 | Hyperuricemic nephropathy familial juvenile 2 613092                                 | REN     |
| 678 | Hyperuricemic nephropathy familial juvenile 4 617056                                 | SEC61A1 |
| 679 | Hypoaldosteronism congenital due to CMO I deficiency 203400                          | CYP11B2 |
| 679 | Hypoaldosteronism congenital due to CMO II deficiency 610600                         | CYP11B2 |
| 680 | Hypoalphalipoproteinemia 604091  | APOA1   |
| 680 | Hypoalphalipoproteinemia 604091  | ABCA1   |
| 681 | Hypobetalipoproteinemia 615558   | APOB    |
| 681 | Hypobetalipoproteinemia familial 2 605019  | ANGPTL3 |
| 682 | Hypocalcemia autosomal dominant 2 615361   | GNA11   |
| 682 | Hypocalcemia autosomal dominant 601198   | CASR    |
| 682 | Hypocalcemia autosomal dominant with Bartter syndrome 601198                         | CASR    |
| 683 | Hypocalciuric hypercalcemia type I 145980  | CASR    |
| 683 | Hypocalciuric hypercalcemia type II 145981   | GNA11   |
| 683 | Hypocalciuric hypercalcemia type III 600740  | AP2S1   |
| 684 | Hypochondroplasia 146000   | FGFR3   |
| 685 | Hypoglycemia of infancy leucine-sensitive 240800                                     | ABCC8   |
| 686 | Hypogonadotropic hypogonadism 1 with or without anosmia (Kallmann syndrome 1) 308700 | ANOS1   |
| 686 | Hypogonadotropic hypogonadism 10 with or without anosmia 614839                      | TAC3    |
| 686 | Hypogonadotropic hypogonadism 11 with or without anosmia 614840                      | TACR3   |
| 686 | Hypogonadotropic hypogonadism 14 with or without anosmia 614858                      | WDR11   |
| 686 | Hypogonadotropic hypogonadism 17 with or without anosmia 615266                      | SPRY4   |
| 686 | Hypogonadotropic hypogonadism 18 with or without anosmia 615267                      | IL17RD  |
| 686 | Hypogonadotropic hypogonadism 19 with or without anosmia 615269                      | DUSP6   |
| 686 | Hypogonadotropic hypogonadism 2 with or without anosmia 147950                       | FGFR1   |
| 686 | Hypogonadotropic hypogonadism 20 with or without anosmia 615270                      | FGF17   |
| 686 | Hypogonadotropic hypogonadism 21 with anosmia 615271                                 | FLRT3   |
| 686 | Hypogonadotropic hypogonadism 22 with or without anosmia 616030                      | FEZF1   |
| 686 | Hypogonadotropic hypogonadism 23 with or without anosmia 228300                      | LHB     |
| 686 | Hypogonadotropic hypogonadism 24 without anosmia 229070                              | FSHB    |
| 686 | Hypogonadotropic hypogonadism 3 with or without anosmia 244200                       | PROKR2  |
| 686 | Hypogonadotropic hypogonadism 4 with or without anosmia 610628                       | PROK2   |

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| 686 | Hypogonadotropic hypogonadism 5 with or without anosmia 612370                       | CHD7    |
| 686 | Hypogonadotropic hypogonadism 6 with or without anosmia 612702                       | FGF8    |
| 686 | Hypogonadotropic hypogonadism 7 without anosmia 146110                               | GNRHR   |
| 686 | Hypogonadotropic hypogonadism 8 with or without anosmia 614837                       | KISS1R  |
| 686 | Hypogonadotropic hypogonadism 9 with or without anosmia 614838                       | NSMF    |
| 686 | {Hypogonadotropic hypogonadism 15 with or without anosmia} 614880                    | HS6ST1  |
| 686 | {Hypogonadotropic hypogonadism 16 with or without anosmia} 614897                    | SEMA3A  |
| 687 | Hypoinsulinemic hypoglycemia with hemihypertrophy 240900                             | AKT2    |
| 688 | Hypomagnesemia 1 intestinal 602014   | TRPM6   |
| 688 | Hypomagnesemia 2 renal 154020  | FXYD2   |
| 688 | Hypomagnesemia 3 renal 248250  | CLDN16  |
| 688 | Hypomagnesemia 4 renal 611718  | EGF     |
| 688 | Hypomagnesemia 5 renal with ocular involvement 248190                                | CLDN19  |
| 688 | Hypomagnesemia 6 renal 613882  | CNNM2   |
| 688 | Hypomagnesemia seizures and mental retardation 616418                                | CNNM2   |
| 689 | Hypomyelination with brainstem and spinal cord involvement and leg spasticity 615281 | DARS    |
| 690 | Hypoparathyroidism autosomal dominant 146200   | PTH     |
| 690 | Hypoparathyroidism autosomal recessive 146200  | PTH     |
| 690 | Hypoparathyroidism familial isolated 146200  | GCM2    |
| 690 | Hypoparathyroidism sensorineural deafness and renal dysplasia 146255                 | GATA3   |
| 691 | Hypoparathyroidism-retardation-dysmorphism syndrome 241410                           | TBCE    |
| 692 | Hypophosphatasia adult 146300  | ALPL    |
| 692 | Odontohypophosphatasia 146300  | ALPL    |
| 692 | Hypophosphatasia childhood 241510  | ALPL    |
| 692 | Hypophosphatasia infantile 241500  | ALPL    |
| 693 | Hypophosphatemic rickets 300554  | CLCN5   |
| 693 | Hypophosphatemic rickets AR 241520   | DMP1    |
| 693 | Hypophosphatemic rickets X-linked dominant 307800                                    | PHEX    |
| 693 | Hypophosphatemic rickets autosomal dominant 193100                                   | FGF23   |
| 693 | Hypophosphatemic rickets autosomal recessive 2 613312                                | ENPP1   |
| 693 | Hypophosphatemic rickets with hypercalciuria 241530                                  | SLC34A3 |
| 694 | Hypoplastic left heart syndrome 1 241550   | GJA1    |
| 694 | Hypoplastic left heart syndrome 2 614435   | NKX2-5  |
| 695 | Hypoplastic or aplastic tibia with polydactyly 188740                                | LMBR1   |
| 696 | Hypoprothrombinemia 613679   | F2      |
| 696 | Dysprothrombinemia 613679  | F2      |
| 697 | Hypospadias 1 X-linked 300633  | AR      |

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| 697 | Hypospadias 2 X-linked 300758   | MAMLD1   |
| 698 | Hypothyroidism central and testicular enlargement 300888                            | IGSF1    |
| 698 | Hypothyroidism congenital due to thyroid dysgenesis or hypoplasia 218700            | PAX8     |
| 698 | Hypothyroidism congenital nongoitrous 1 275200                                      | TSHR     |
| 698 | Hypothyroidism congenital nongoitrous 4 275100                                      | TSHB     |
| 698 | Hypothyroidism congenital nongoitrous 5 225250                                      | NKX2-5   |
| 698 | Hypothyroidism congenital nongoitrous 6 614450                                      | THRA     |
| 699 | Hypotonia ataxia and delayed development syndrome 617330                            | EBF3     |
| 700 | Hypotonia infantile with psychomotor retardation 616816                             | CCDC174  |
| 700 | Hypotonia infantile with psychomotor retardation and characteristic facies 1 615419 | NALCN    |
| 700 | Hypotonia infantile with psychomotor retardation and characteristic facies 2 616801 | UNC80    |
| 700 | Hypotonia infantile with psychomotor retardation and characteristic facies 3 616900 | TBCK     |
| 701 | Hypotrichosis 1 605389  | APCDD1   |
| 701 | Hypotrichosis 11 615059   | SNRPE    |
| 701 | Hypotrichosis 12 615885   | RPL21    |
| 701 | Hypotrichosis 2 146520  | CDSN     |
| 701 | Hypotrichosis 4 146550  | HR       |
| 701 | Hypotrichosis 6 607903  | DSG4     |
| 701 | Hypotrichosis 7 604379  | LIPH     |
| 701 | Hypotrichosis 8 278150  | LPAR6    |
| 701 | Hypotrichosis congenital with juvenile macular dystrophy 601553                     | CDH3     |
| 701 | Hypotrichosis-lymphedema-telangiectasia syndrome 607823                             | SOX18    |
| 701 | Hypotrichosis-lymphedema-telangiectasia-renal defect syndrome 137940                | SOX18    |
| 702 | Hypouricemia renal 2 612076   | SLC2A9   |
| 702 | {Uric acid concentration serum QTL 2} 612076  | SLC2A9   |
| 702 | Hypouricemia renal 220150   | SLC22A12 |
| 703 | Hystrix-like ichthyosis with deafness 602540  | GJB2     |
| 704 | IFAP syndrome with or without BRESHECK syndrome 308205                              | MBTPS2   |
| 705 | IMAGE syndrome 614732   | CDKN1C   |
| 706 | IRAK4 deficiency 607676   | IRAK4    |
| 707 | IVIC syndrome 147750  | SALL4    |
| 708 | Ichthyosis X-linked 308100  | STS      |
| 708 | Ichthyosis bullosa of Siemens 146800  | KRT2     |
| 708 | Ichthyosis congenital autosomal recessive 1 242300                                  | TGM1     |
| 708 | Ichthyosis congenital autosomal recessive 10 615024                                 | PNPLA1   |
| 708 | Ichthyosis congenital autosomal recessive 11 602400                                 | ST14     |
| 708 | Ichthyosis congenital autosomal recessive 12 617320                                 | CASP14   |
| 708 | Ichthyosis congenital autosomal recessive 13 617574                                 | SDR9C7   |
| 708 | Ichthyosis congenital autosomal recessive 14 617571                                 | SULT2B1  |
| 708 | Ichthyosis congenital autosomal recessive 2 242100                                  | ALOX12B  |

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| 708 | Ichthyosis congenital autosomal recessive 3 606545                                 | ALOXE3  |
| 708 | Ichthyosis congenital autosomal recessive 4A 601277                                | ABCA12  |
| 708 | Ichthyosis congenital autosomal recessive 4B (harlequin) 242500                    | ABCA12  |
| 708 | Ichthyosis congenital autosomal recessive 5 604777                                 | CYP4F22 |
| 708 | Ichthyosis congenital autosomal recessive 6 612281                                 | NIPAL4  |
| 708 | Ichthyosis congenital autosomal recessive 8 613943                                 | LIPN    |
| 708 | Ichthyosis congenital autosomal recessive 9 615023                                 | CERS3   |
| 708 | Ichthyosis cyclic with epidermolytic hyperkeratosis 607602                         | KRT1    |
| 708 | Ichthyosis cyclic with epidermolytic hyperkeratosis 607602                         | KRT10   |
| 708 | Ichthyosis histrix Curth-Macklin type 146590                                       | KRT1    |
| 708 | Ichthyosis leukocyte vacuoles alopecia and sclerosing cholangitis 607626           | CLDN1   |
| 708 | Ichthyosis prematurity syndrome 608649   | SLC27A4 |
| 708 | Ichthyosis spastic quadriplegia and mental retardation 614457                      | ELOVL4  |
| 708 | Ichthyosis vulgaris 146700   | FLG     |
| 708 | Ichthyosis with confetti 609165  | KRT10   |
| 709 | Iminoglycinuria digenic 242600   | SLC36A2 |
| 709 | Iminoglycinuria digenic 242600   | SLC6A19 |
| 709 | Iminoglycinuria digenic 242600   | SLC6A20 |
| 710 | Immunodeficiency 10 612783   | STIM1   |
| 710 | Immunodeficiency 11A 615206  | CARD11  |
| 710 | Immunodeficiency 11B with atopic dermatitis 617638                                 | CARD11  |
| 710 | Immunodeficiency 12 615468   | MALT1   |
| 710 | Immunodeficiency 14 615513   | PIK3CD  |
| 710 | Immunodeficiency 15 615592   | IKBKB   |
| 710 | Immunodeficiency 17 CD3 gamma deficient 615607                                     | CD3G    |
| 710 | Immunodeficiency 18 615615   | CD3E    |
| 710 | Immunodeficiency 18 SCID variant 615615  | CD3E    |
| 710 | Immunodeficiency 19 615617   | CD3D    |
| 710 | Immunodeficiency 20 615707   | FCGR3A  |
| 710 | Immunodeficiency 21 614172   | GATA2   |
| 710 | Immunodeficiency 23 615816   | PGM3    |
| 710 | Immunodeficiency 24 615897   | CTPS1   |
| 710 | Immunodeficiency 26 with or without neurologic abnormalities 615966                | PRKDC   |
| 710 | Immunodeficiency 27A mycobacteriosis AR 209950                                     | IFNGR1  |
| 710 | Immunodeficiency 27B mycobacteriosis AD 615978                                     | IFNGR1  |
| 710 | Immunodeficiency 28 mycobacteriosis 614889   | IFNGR2  |
| 710 | Immunodeficiency 29 mycobacteriosis 614890   | IL12B   |
| 710 | Immunodeficiency 30 614891   | IL12RB1 |
| 710 | Immunodeficiency 31A mycobacteriosis autosomal dominant 614892                     | STAT1   |
| 710 | Immunodeficiency 31B mycobacterial and viral infections autosomal recessive 613796 | STAT1   |
| 710 | Immunodeficiency 31C autosomal dominant 614162                                     | STAT1   |

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| 710 | Immunodeficiency 32A mycobacteriosis autosomal dominant 614893                                    | IRF8      |
| 710 | Immunodeficiency 32B monocyte and dendritic cell deficiency autosomal recessive 614894            | IRF8      |
| 710 | Immunodeficiency 33 300636  | IKBKG     |
| 710 | Immunodeficiency 34 mycobacteriosis X-linked 300645   | CYBB      |
| 710 | Immunodeficiency 35 611521  | TYK2      |
| 710 | Immunodeficiency 36 616005  | PIK3R1    |
| 710 | Immunodeficiency 38 616126  | ISG15     |
| 710 | Immunodeficiency 40 616433  | DOCK2     |
| 710 | Immunodeficiency 41 with lymphoproliferation and autoimmunity 606367                              | IL2RA     |
| 710 | Immunodeficiency 42 616622  | RORC      |
| 710 | Immunodeficiency 43 241600  | B2M       |
| 710 | Immunodeficiency 44 616636  | STAT2     |
| 710 | Immunodeficiency 46 616740  | TFRC      |
| 710 | Immunodeficiency 47 300972  | ATP6AP1   |
| 710 | Immunodeficiency 48 269840  | ZAP70     |
| 710 | Immunodeficiency 50 300988  | MSN       |
| 710 | Immunodeficiency 51 613953  | IL17RA    |
| 710 | Immunodeficiency 52 617514  | LAT       |
| 710 | Immunodeficiency 7 TCR-alpha or beta deficient 615387   | TRAC      |
| 710 | Immunodeficiency 8 615401   | CORO1A    |
| 710 | Immunodeficiency 9 612782   | ORAI1     |
| 710 | Immunodeficiency X-linked with hyper-IgM 308230   | CD40LG    |
| 710 | Immunodeficiency X-linked with magnesium defect Epstein-Barr virus infection and neoplasia 300853 | MAGT1     |
| 710 | Immunodeficiency common variable 1 607594   | ICOS      |
| 710 | Immunodeficiency common variable 10 615577  | NFKB2     |
| 710 | Immunodeficiency common variable 12 616576  | NFKB1     |
| 710 | Immunodeficiency common variable 13 616873  | IKZF1     |
| 710 | Immunodeficiency common variable 2 240500   | TNFRSF13B |
| 710 | Immunodeficiency common variable 3 613493   | CD19      |
| 710 | Immunodeficiency common variable 4 613494   | TNFRSF13C |
| 710 | Immunodeficiency common variable 5 613495   | MS4A1     |
| 710 | Immunodeficiency common variable 6 613496   | CD81      |
| 710 | Immunodeficiency common variable 7 614699   | CR2       |
| 710 | Immunodeficiency common variable 8 with autoimmunity 614700                                       | LRBA      |
| 710 | Immunodeficiency developmental delay and hypohomocysteinemia 617744                               | NFE2L2    |
| 710 | Immunodeficiency due to defect in MAPBP-interacting protein 610798                                | LAMTOR2   |
| 710 | Immunodeficiency due to ficolin 3 deficiency 613860   | FCN3      |

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| 710 | Immunodeficiency due to purine nucleoside phosphorylase deficiency 613179                            | PNP       |
| 710 | Immunodeficiency isolated 300584   | IKBKG     |
| 710 | Immunodeficiency primary autosomal recessive IL21R-related 615207                                    | IL21R     |
| 710 | Immunodeficiency with hyper IgM type 5 608106  | UNG       |
| 710 | Immunodeficiency with hyper-IgM type 2 605258  | AICDA     |
| 710 | Immunodeficiency with hyper-IgM type 3 606843  | CD40      |
| 711 | Immunodeficiency-centromeric instability-facial anomalies syndrome 1 242860                          | DNMT3B    |
| 711 | Immunodeficiency-centromeric instability-facial anomalies syndrome 3 616910                          | CDCA7     |
| 711 | Immunodeficiency-centromeric instability-facial anomalies syndrome 4 616911                          | HELLS     |
| 711 | Immunodeficiency-centromeric instability-facial anomalies syndrome-2 614069                          | ZBTB24    |
| 712 | Immunodysregulation polyendocrinopathy and enteropathy X-linked 304790                               | FOXP3     |
| 713 | Immunoglobulin A deficiency 2 609529   | TNFRSF13B |
| 714 | Immunoskeletal dysplasia with neurodevelopmental abnormalities 617425                                | EXTL3     |
| 715 | Inclusion body myopathy with early-onset Paget disease and frontotemporal dementia 1 167320          | VCP       |
| 716 | Incontinentia pigmenti 308300  | IKBKG     |
| 717 | Infantile cerebellar-retinal degeneration 614559   | ACO2      |
| 718 | Infantile liver failure syndrome 2 616483  | NBAS      |
| 719 | Infantile neuroaxonal dystrophy 1 256600   | PLA2G6    |
| 720 | Infantile-onset multisystem neurologic endocrine and pancreatic disease 616263                       | PTRH2     |
| 721 | Infections recurrent with encephalopathy hepatic dysfunction and cardiovascular malformations 613759 | FADD      |
| 722 | Inflammatory bowel disease 25 early onset autosomal recessive 612567                                 | IL10RB    |
| 722 | Inflammatory bowel disease 28 early onset autosomal recessive 613148                                 | IL10RA    |
| 722 | {Inflammatory bowel disease (Crohn disease) 10} 611081   | ATG16L1   |
| 722 | {Inflammatory bowel disease (Crohn disease) 19} 612278   | IRGM      |
| 722 | {Crohn disease-associated growth failure} 266600   | IL6       |
| 722 | {Inflammatory bowel disease 1 Crohn disease} 266600  | NOD2      |
| 722 | {Inflammatory bowel disease 13} 612244   | ABCB1     |
| 722 | {Inflammatory bowel disease 14} 612245   | IRF5      |
| 722 | {Inflammatory bowel disease 17 protection against} 612261  | IL23R     |
| 723 | Insensitivity to pain congenital 243000  | SCN9A     |
| 723 | Insensitivity to pain congenital with anhidrosis 256800  | NTRK1     |
| 723 | HSAN2D autosomal recessive 243000  | SCN9A     |



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| 724 | Insomnia fatal familial 600072  | PRNP    |
| 725 | Insulin-like growth factor I resistance to 270450   | IGF1R   |
| 726 | Intellectual developmental disorder with cardiac arrhythmia 617173                                    | GNB5    |
| 726 | Intellectual developmental disorder with dysmorphic facies and ptosis 617333                          | BRPF1   |
| 726 | Intellectual developmental disorder with dysmorphic facies seizures and distal limb anomalies 617452  | OTUD6B  |
| 726 | Intellectual developmental disorder with gastrointestinal difficulties and high pain threshold 617450 | PPM1D   |
| 726 | Intellectual developmental disorder with neuropsychiatric features 617532                             | SLC45A1 |
| 727 | Interleukin 1 receptor antagonist deficiency 612852   | IL1RN   |
| 728 | Interstitial lung and liver disease 615486  | MARS    |
| 728 | Interstitial lung disease nephrotic syndrome and epidermolysis bullosa congenital 614748              | ITGA3   |
| 729 | Interstitial nephritis karyomegalic 614817  | FAN1    |
| 730 | Intrinsic factor deficiency 261000  | GIF     |
| 731 | Invasive pneumococcal disease recurrent isolated 1 610799   | IRAK4   |
| 731 | {Pneumococcal disease invasive protection against} 610799   | TIRAP   |
| 731 | Invasive pneumococcal disease recurrent isolated 2 300640   | IKBKG   |
| 732 | Iron-refractory iron deficiency anemia 206200   | TMPRSS6 |
| 733 | Ischiocoxopodopatellar syndrome 147891  | TBX4    |
| 734 | Isobutyryl-CoA dehydrogenase deficiency 611283  | ACAD8   |
| 735 | Isovaleric acidemia 243500  | IVD     |
| 736 | Jackson-Weiss syndrome 123150   | FGFR1   |
| 736 | Jackson-Weiss syndrome 123150   | FGFR2   |
| 737 | Jalili syndrome 217080  | CNNM4   |
| 738 | Jawad syndrome 251255   | RBBP8   |
| 739 | Jervell and Lange-Nielsen syndrome 2 612347   | KCNE1   |
| 739 | Jervell and Lange-Nielsen syndrome 220400   | KCNQ1   |
| 740 | Johanson-Blizzard syndrome 243800   | UBR1    |
| 741 | Joint laxity short stature and myopia 617662  | GZF1    |
| 742 | Joubert syndrome 1 213300   | INPP5E  |
| 742 | Joubert syndrome 10 300804  | OFD1    |
| 742 | Joubert syndrome 12 200990  | KIF7    |
| 742 | Acrocallosal syndrome 200990  | KIF7    |
| 742 | Joubert syndrome 13 614173  | TCTN1   |
| 742 | Joubert syndrome 14 614424  | TMEM237 |
| 742 | Joubert syndrome 15 614464  | CEP41   |
| 742 | Joubert syndrome 16 614465  | TMEM138 |
| 742 | Joubert syndrome 17 614615  | C5orf42 |
| 742 | Joubert syndrome 18 614815  | TCTN3   |
| 742 | Joubert syndrome 19 614844  | ZNF423  |
| 742 | Joubert syndrome 2 608091   | TMEM216 |

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| 742 | Joubert syndrome 20 614970   | TMEM231  |
| 742 | Joubert syndrome 21 615636   | CSPP1    |
| 742 | Joubert syndrome 23 616490   | KIAA0586 |
| 742 | Joubert syndrome 24 616654   | TCTN2    |
| 742 | Joubert syndrome 25 616781   | CEP104   |
| 742 | Joubert syndrome 27 617120   | B9D1     |
| 742 | Joubert syndrome 28 617121   | MKS1     |
| 742 | Joubert syndrome 3 608629  | AHI1     |
| 742 | Joubert syndrome 30 617622   | ARMC9    |
| 742 | Joubert syndrome 31 617761   | CEP120   |
| 742 | Joubert syndrome 32 617757   | SUFU     |
| 742 | Joubert syndrome 33 617767   | PIBF1    |
| 742 | Joubert syndrome 34 614175   | B9D2     |
| 742 | Joubert syndrome 4 609583  | NPHP1    |
| 742 | Joubert syndrome 5 610188  | CEP290   |
| 742 | Joubert syndrome 6 610688  | TMEM67   |
| 742 | Joubert syndrome 7 611560  | RPGRIP1L |
| 742 | Joubert syndrome 8 612291  | ARL13B   |
| 742 | Joubert syndrome 9 612285  | CC2D2A   |
| 743 | Juvenile polyposis syndrome infantile form 174900                              | BMPR1A   |
| 743 | Juvenile polyposis or hereditary hemorrhagic telangiectasia syndrome 175050    | SMAD4    |
| 743 | Polyposis juvenile intestinal 174900   | BMPR1A   |
| 743 | Polyposis juvenile intestinal 174900   | SMAD4    |
| 743 | Polyposis syndrome hereditary mixed 2 610069                                   | BMPR1A   |
| 744 | KBG syndrome 148050  | ANKRD11  |
| 745 | Kabuki syndrome 1 147920   | KMT2D    |
| 745 | Kabuki syndrome 2 300867   | KDM6A    |
| 746 | Kahrizi syndrome 612713  | SRD5A3   |
| 747 | Kanzaki disease 609242   | NAGA     |
| 748 | Kappa light chain deficiency 614102  | IGKC     |
| 749 | Kaufman oculocerebrofacial syndrome 244450                                     | UBE3B    |
| 750 | Kenny-Caffey syndrome type 1 244460  | TBCE     |
| 750 | Kenny-Caffey syndrome type 2 127000  | FAM111A  |
| 751 | Keppen-Lubinsky syndrome 614098  | KCNJ6    |
| 752 | Keratitits 148190  | PAX6     |
| 753 | Keratitits-ichthyosis-deafness syndrome 148210                                 | GJB2     |
| 754 | Keratoconus 1 148300   | VSX1     |
| 755 | Keratoderma palmoplantar punctate type IA 148600                               | AAGAB    |
| 755 | Keratoderma palmoplantar with deafness 148350                                  | GJB2     |
| 756 | Keratosis follicularis spinulosa decalvans X-linked 308800                     | MBTPS2   |
| 756 | Keratosis linearis with ichthyosis congenita and sclerosing keratoderma 601952 | POMP     |
| 756 | Keratosis palmoplantaris striata I AD 148700                                   | DSG1     |
| 756 | Keratosis palmoplantaris striata II 612908                                     | DSP      |

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| 756 | Keratosis palmoplantaris striata III 607654   | KRT1    |
| 756 | Keratosis seborrheic somatic 182000   | PIK3CA  |
| 757 | Keutel syndrome 245150  | MGP     |
| 758 | Kindler syndrome 173650   | KIND1   |
| 759 | King-Denborough syndrome 145600   | RYR1    |
| 759 | {Malignant hyperthermia susceptibility 1} 145600  | RYR1    |
| 759 | {Malignant hyperthermia susceptibility 5} 601887  | CACNA1S |
| 760 | Kleefstra syndrome 1 610253   | EHMT1   |
| 760 | Kleefstra syndrome 2 617768   | KMT2C   |
| 761 | Klippel-Feil syndrome 1 autosomal dominant 118100   | GDF6    |
| 761 | Klippel-Feil syndrome 2 214300  | MEOX1   |
| 761 | Klippel-Feil syndrome 3 autosomal dominant 613702   | GDF3    |
| 761 | Klippel-Feil syndrome 4 autosomal recessive with myopathy and facial dysmorphism 616549   | MYO18B  |
| 762 | Kniest dysplasia 156550   | COL2A1  |
| 763 | Knobloch syndrome type 1 267750   | COL18A1 |
| 764 | Kohlschutter-Tonz syndrome 226750   | ROGDI   |
| 765 | Koolen-De Vries syndrome 610443   | KANSL1  |
| 766 | Kosaki overgrowth syndrome 616592   | PDGFRB  |
| 767 | Kowarski syndrome 262650  | GH1     |
| 768 | Krabbe disease 245200   | GALC    |
| 768 | Krabbe disease atypical 611722  | PSAP    |
| 769 | Kufor-Rakeb syndrome 606693   | ATP13A2 |
| 770 | L-2-hydroxyglutaric aciduria 236792   | L2HGDH  |
| 771 | L-ferritin deficiency dominant and recessive 615604                                       | FTL     |
| 772 | LADD syndrome 149730  | FGF10   |
| 772 | LADD syndrome 149730  | FGFR2   |
| 772 | LADD syndrome 149730  | FGFR3   |
| 773 | LDL cholesterol level QTL2 143890   | LDLR    |
| 774 | LEOPARD syndrome 1 151100   | PTPN11  |
| 774 | LEOPARD syndrome 2 611554   | RAF1    |
| 774 | LEOPARD syndrome 3 613707   | BRAF    |
| 775 | LIG4 syndrome 606593  | LIG4    |
| 776 | Lactase deficiency congenital 223000  | LCT     |
| 776 | Lactase persistence or nonpersistence 223100  | MCM6    |
| 777 | Lacticacidemia due to PDX1 deficiency 245349  | PDX1    |
| 778 | Laing distal myopathy 160500  | MYH7    |
| 779 | Lamb-Shaffer syndrome 616803  | SOX5    |
| 780 | Langer mesomelic dysplasia 249700   | SHOX    |
| 780 | Langer mesomelic dysplasia 249700   | SHOX    |
| 781 | Language delay and ADHD or cognitive impairment with or without cardiac arrhythmia 617182 | GNB5    |
| 782 | Laron dwarfism 262500   | GHR     |
| 783 | Larsen syndrome 150250  | FLNB    |
| 784 | Laryngoonychocutaneous syndrome 245660  | LAMA3   |

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| 785 | Lateral meningocele syndrome 130720  | NOTCH3  |
| 786 | Lathosterolosis 607330   | SC5DL   |
| 787 | Laurin-Sandrow syndrome 135750   | LMBR1   |
| 788 | Leber congenital amaurosis 1 204000  | GUCY2D  |
| 788 | Leber congenital amaurosis 10 611755   | CEP290  |
| 788 | Leber congenital amaurosis 11 613837   | IMPDH1  |
| 788 | Leber congenital amaurosis 12 610612   | RD3     |
| 788 | Leber congenital amaurosis 13 612712   | RDH12   |
| 788 | Leber congenital amaurosis 14 613341   | LRAT    |
| 788 | Leber congenital amaurosis 15 613843   | TULP1   |
| 788 | Leber congenital amaurosis 16 614186   | KCNJ13  |
| 788 | Leber congenital amaurosis 17 615360   | GDF6    |
| 788 | Leber congenital amaurosis 18 608133   | PRPH2   |
| 788 | Leber congenital amaurosis 2 204100  | RPE65   |
| 788 | Leber congenital amaurosis 3 604232  | SPATA7  |
| 788 | Leber congenital amaurosis 5 604537  | LCA5    |
| 788 | Leber congenital amaurosis 6 613826  | RPGRIP1 |
| 788 | Leber congenital amaurosis 7 613829  | CRX     |
| 788 | Leber congenital amaurosis 8 613835  | CRB1    |
| 788 | Leber congenital amaurosis 9 608553  | NMNAT1  |
| 789 | Left ventricular noncompaction 1 with or without congenital heart defects 604169 | DTNA    |
| 789 | Left ventricular noncompaction 10 615396   | MYBPC3  |
| 789 | Left ventricular noncompaction 3 601493  | LDB3    |
| 789 | Left ventricular noncompaction 4 613424  | ACTC1   |
| 789 | Left ventricular noncompaction 5 613426  | MYH7    |
| 789 | Left ventricular noncompaction 6 601494  | TNNT2   |
| 789 | Left ventricular noncompaction 7 615092  | MIB1    |
| 789 | Left ventricular noncompaction 8 615373  | PRDM16  |
| 789 | Left ventricular noncompaction 9 611878  | TPM1    |
| 790 | Legg-Calve-Perthes disease 150600  | COL2A1  |
| 791 | Legius syndrome 611431   | SPRED1  |
| 792 | Leigh syndrome 256000  | BCS1L   |
| 792 | Leigh syndrome 256000  | NDUFA10 |
| 792 | Leigh syndrome 256000  | NDUFAF2 |
| 792 | Leigh syndrome 256000  | NDUFS4  |
| 792 | Leigh syndrome 256000  | NDUFS7  |
| 792 | Leigh syndrome 256000  | SDHA    |
| 792 | Leigh syndrome French-Canadian type 220111                                       | LRPPRC  |
| 792 | Leigh syndrome due to COX IV deficiency 256000                                   | SURF1   |
| 792 | Leigh syndrome due to cytochrome c oxidase deficiency 256000                     | COX15   |
| 792 | Leigh syndrome due to mitochondrial COX4 deficiency 256000                       | COX10   |
| 792 | Leigh syndrome due to mitochondrial complex 1 deficiency 256000                  | NDUFA12 |

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| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | FOXRED1 |
| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | NDUFA2  |
| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | NDUFA9  |
| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | NDUFAF6 |
| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | NDUFS3  |
| 792 | Leigh syndrome due to mitochondrial complex I deficiency 256000 | NDUFS8  |
| 793 | Leiomyomatosis and renal cell cancer 150800                     | FH      |
| 794 | Lenz-Majewski hyperostotic dwarfism 151050                      | PTDSS1  |
| 795 | Leprechaunism 246200  | INSR    |
| 796 | Leri-Weill dyschondrosteosis 127300                             | SHOX    |
| 796 | Leri-Weill dyschondrosteosis 127300                             | SHOX    |
| 797 | Lesch-Nyhan syndrome 300322                                     | HPRT1   |
| 798 | Lethal congenital contractural syndrome 2 607598                | ERBB3   |
| 798 | Lethal congenital contractural syndrome 3 611369                | PIP5K1C |
| 798 | Lethal congenital contracture syndrome 1 253310                 | GLE1    |
| 798 | Lethal congenital contracture syndrome 10 617022                | NEK9    |
| 798 | Lethal congenital contracture syndrome 11 617194                | GLDN    |
| 798 | Lethal congenital contracture syndrome 4 614915                 | MYBPC1  |
| 798 | Lethal congenital contracture syndrome 5 615368                 | DNM2    |
| 798 | Lethal congenital contracture syndrome 7 616286                 | CNTNAP1 |
| 798 | Lethal congenital contracture syndrome 9 616503                 | ADGRG6  |
| 799 | T-cell acute lymphoblastic leukemia somatic 613065              | BAX     |
| 799 | Leukemia T-cell acute lymphoblastic somatic 613065              | NUP214  |
| 799 | Leukemia T-cell acute lymphocytic somatic 613065                | TAL1    |
| 799 | Leukemia T-cell acute lymphocytic somatic 613065                | TAL2    |
| 799 | Leukemia acute lymphoblastic 613065                             | NBN     |
| 799 | Leukemia acute lymphoblastic somatic 613065                     | FLT3    |
| 799 | Leukemia acute lymphoblastic somatic 613065                     | GNB1    |
| 799 | {Leukemia acute lymphoblastic susceptibility to 3} 615545       | PAX5    |
| 799 | Leukemia acute lymphocytic somatic 613065                       | BCR     |
| 799 | Leukemia acute myeloid 601626                                   | MLLT10  |
| 799 | Leukemia acute myeloid 601626                                   | KIT     |
| 799 | Leukemia acute myeloid 601626                                   | KRAS    |
| 799 | Leukemia acute myeloid 601626                                   | LPP     |
| 799 | Leukemia acute myeloid 601626                                   | NSD3    |
| 799 | Leukemia acute myeloid 601626                                   | RUNX1   |
| 799 | Leukemia acute myeloid reduced survival in somatic 601626       | FLT3    |
| 799 | Leukemia acute myeloid somatic 601626                           | CEBPA   |
| 799 | Leukemia acute myeloid somatic 601626                           | ETV6    |
| 799 | Leukemia acute myeloid somatic 601626                           | FLT3    |

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| 799 | Leukemia acute myeloid somatic 601626  | JAK2     |
| 799 | Leukemia acute myeloid somatic 601626  | NPM1     |
| 799 | Leukemia acute myeloid somatic 601626  | NUP214   |
| 799 | Leukemia acute myeloid somatic 601626  | PICALM   |
| 799 | {Leukemia acute myeloid susceptibility to} 601626  | GATA2    |
| 799 | {Leukemia acute myeloid} 601626  | CHIC2    |
| 799 | {Leukemia acute myeloid} 601626  | TERT     |
| 799 | Leukemia acute promyelocytic somatic 102578  | STAT5B   |
| 799 | Leukemia acute promyelocytic somatic 612376  | NUMA1    |
| 799 | Leukemia chronic myeloid somatic 608232  | BCR      |
| 799 | Leukemia juvenile myelomonocytic 607785  | NF1      |
| 799 | Leukemia juvenile myelomonocytic somatic 607785  | ARHGAP26 |
| 799 | Leukemia juvenile myelomonocytic somatic 607785  | PTPN11   |
| 799 | Leukemia megakaryoblastic with or without Down syndrome somatic 190685                                   | GATA1    |
| 799 | Leukemia or lymphoma B-cell 2  | BCL2     |
| 799 | Leukemia Philadelphia chromosome-positive resistant to imatinib  | ABL1     |
| 799 | Leukemia acute promyelocytic PL2F/RARA type  | ZBTB16   |
| 799 | Leukemia acute promyelocytic PML/RARA type   | PML      |
| 799 | Lymphocytic leukemia, acute T-cell   | RAP1GDS1 |
| 799 | Megakaryoblastic leukemia, acute   | MKL1     |
| 799 | Myelogenous leukemia, acute  | ACSL6    |
| 799 | Myelogenous leukemia, acute  | IRF1     |
| 799 | T-cell prolymphocytic leukemia, somatic  | ATM      |
| 799 | {Leukemia, post-chemotherapy, susceptibility to}   | NQO1     |
| 799 | {T-cell acute lymphoblastic leukemia}  | MYB      |
| 800 | Leukocyte adhesion deficiency 116920   | ITGB2    |
| 800 | Leukocyte adhesion deficiency type III 612840  | FERMT3   |
| 801 | Leukodystrophy adult-onset autosomal dominant 169500   | LMNB1    |
| 801 | Leukodystrophy and acquired microcephaly with or without dystonia 616763                                 | PLEKHG2  |
| 801 | Leukodystrophy hypomyelinating 10 616420   | PYCR2    |
| 801 | Leukodystrophy hypomyelinating 11 616494   | POLR1C   |
| 801 | Leukodystrophy hypomyelinating 12 616683   | VPS11    |
| 801 | Leukodystrophy hypomyelinating 13 616881   | HIKESHI  |
| 801 | Leukodystrophy hypomyelinating 2 608804  | GJC2     |
| 801 | Leukodystrophy hypomyelinating 3 260600  | AIMP1    |
| 801 | Leukodystrophy hypomyelinating 4 612233  | HSPD1    |
| 801 | Leukodystrophy hypomyelinating 5 610532  | FAM126A  |
| 801 | Leukodystrophy hypomyelinating 6 612438  | TUBB4A   |
| 801 | Leukodystrophy hypomyelinating 7 with or without oligodontia and or hypogonadotropic hypogonadism 607694 | POLR3A   |
| 801 | Leukodystrophy hypomyelinating 8 with or without oligodontia and or hypogonadotropic hypogonadism 614381 | POLR3B   |

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| 801 | Leukodystrophy hypomyelinating 9 616140  | RARS     |
| 802 | Leukoencephalopathy brain calcifications and cysts 614561                                    | SNORD118 |
| 802 | Leukoencephalopathy cystic without megalencephaly 612951                                     | RNASF2   |
| 802 | Leukoencephalopathy diffuse hereditary with spheroids 221820                                 | CSF1R    |
| 802 | Leukoencephalopathy progressive with ovarian failure 615889                                  | AARS2    |
| 802 | Leukoencephalopathy with ataxia 615651   | CLCN2    |
| 802 | Leukoencephalopathy with brain stem and spinal cord involvement and lactate elevation 611105 | DARS2    |
| 802 | Leukoencephalopathy with vanishing white matter 603896                                       | EIF2B1   |
| 802 | Leukoencephalopathy with vanishing white matter 603896                                       | EIF2B2   |
| 802 | Leukoencephalopathy with vanishing white matter 603896                                       | EIF2B3   |
| 802 | Leukoencephalopathy with vanishing white matter 603896                                       | EIF2B4   |
| 802 | Leukoencephalopathy with vanishing white matter 603896                                       | EIF2B5   |
| 803 | Leydig cell hypoplasia with hypergonadotropic hypogonadism 238320                            | LHCGR    |
| 803 | Leydig cell hypoplasia with pseudohermaphroditism 238320                                     | LHCGR    |
| 803 | Luteinizing hormone resistance female 238320   | LHCGR    |
| 804 | Li-Fraumeni syndrome 151623  | TP53     |
| 804 | Li-Fraumeni syndrome 609265  | CHEK2    |
| 805 | Liddle syndrome 177200   | SCNN1B   |
| 805 | Liddle syndrome 177200   | SCNN1G   |
| 806 | Limb-mammary syndrome 603543   | TP63     |
| 807 | Linear skin defects with multiple congenital anomalies 1 309801                              | HCCS     |
| 807 | Linear skin defects with multiple congenital anomalies 2 300887                              | COX7B    |
| 807 | Linear skin defects with multiple congenital anomalies 3 300952                              | NDUFB11  |
| 808 | Lipase deficiency combined 246650  | LMF1     |
| 809 | Lipid storage myopathy due to flavin adenine dinucleotide synthetase deficiency 255100       | FLAD1    |
| 810 | Lipodystrophy congenital generalized type 1 608594   | AGPAT2   |
| 810 | Lipodystrophy congenital generalized type 2 269700   | BSCL2    |
| 810 | Lipodystrophy congenital generalized type 4 613327   | CAVIN1   |
| 810 | Lipodystrophy familial partial type 2 151660   | LMNA     |
| 810 | Lipodystrophy familial partial type 3 604367   | PPARG    |
| 810 | Lipodystrophy familial partial type 4 613877   | PLIN1    |
| 810 | Lipodystrophy familial partial type 6 615980   | LIPE     |
| 810 | {Lipodystrophy partial acquired susceptibility to} 608709                                    | LMNB2    |
| 811 | Insulin resistance severe digenic 125853   | PPP1R3A  |
| 811 | {Insulin resistance susceptibility to} 125853  | PTPN1    |
| 811 | Insulin resistance severe digenic 604367   | PPARG    |
| 812 | Lipoid adrenal hyperplasia 201710  | STAR     |
| 813 | Lipoprotein glomerulopathy 611771  | APOE     |
| 814 | Lipoprotein lipase deficiency 238600   | LPL      |
| 815 | Lipoyltransferase 1 deficiency 616299  | LIPT1    |
| 816 | Lissencephaly 1 607432   | PAFAH1B1 |
| 816 | Subcortical laminar heterotopia 607432   | PAFAH1B1 |

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| 816 | Lissencephaly 2 (Norman-Roberts type) 257320                           | RELN    |
| 816 | Lissencephaly 3 611603   | TUBA1A  |
| 816 | Lissencephaly 4 (with microcephaly) 614019                             | NDE1    |
| 816 | Lissencephaly 5 615191   | LAMB1   |
| 816 | Lissencephaly 6 with microcephaly 616212                               | KATNB1  |
| 816 | Lissencephaly 8 617255   | TMTC3   |
| 816 | Lissencephaly X-linked 2 300215  | ARX     |
| 816 | Hydranencephaly with abnormal genitalia 300215                         | ARX     |
| 816 | Lissencephaly X-linked 300067  | DCX     |
| 816 | Subcortical laminal heterotopia X-linked 300067                        | DCX     |
| 817 | Liver failure transient infantile 613070                               | TRMU    |
| 818 | Loeys-Dietz syndrome 1 609192  | TGFBR1  |
| 818 | Loeys-Dietz syndrome 2 610168  | TGFBR2  |
| 818 | Loeys-Dietz syndrome 3 613795  | SMAD3   |
| 818 | Loeys-Dietz syndrome 4 614816  | TGFB2   |
| 818 | Loeys-Dietz syndrome 5 615582  | TGFB3   |
| 819 | Long QT syndrome 1 192500  | KCNQ1   |
| 819 | {Long QT syndrome 1 acquired susceptibility to} 192500                 | KCNQ1   |
| 819 | Long QT syndrome 12 612955   | SNTA1   |
| 819 | Long QT syndrome 13 613485   | KCNJ5   |
| 819 | Long QT syndrome 14 616247   | CALM1   |
| 819 | Long QT syndrome 15 616249   | CALM2   |
| 819 | Long QT syndrome 2 613688  | KCNH2   |
| 819 | {Long QT syndrome 2 acquired susceptibility to} 613688                 | KCNH2   |
| 819 | {Long QT syndrome acquired reduced susceptibility to} 613688           | ALG10   |
| 819 | Long QT syndrome 4 600919  | ANK2    |
| 819 | Long QT syndrome 5 613695  | KCNE1   |
| 819 | Long QT syndrome 6 613693  | KCNE2   |
| 819 | Long QT syndrome 9 611818  | CAV3    |
| 819 | Long QT syndrome-10 611819   | SCN4B   |
| 819 | Long QT syndrome-3 603830  | SCN5A   |
| 819 | Cardiac arrhythmia ankyrin-B-related 600919                            | ANK2    |
| 820 | Lopes-Maciel-Rodan syndrome 617435                                     | HTT     |
| 821 | Lowe syndrome 309000   | OCRL    |
| 822 | Lujan-Fryns syndrome 309520  | MED12   |
| 823 | Lung cancer 211980   | PPP2R1B |
| 823 | Lung cancer somatic 211980   | KRAS    |
| 823 | Lung cancer somatic 211980   | MAP3K8  |
| 823 | Lung cancer somatic 211980   | SLC22A1 |
| 823 | {Lung cancer protection against} 211980                                | CASP8   |
| 823 | {Lung cancer resistance to} 211980                                     | CYP2A6  |
| 823 | {Lung cancer susceptibility to} 211980                                 | ERCC6   |
| 823 | {Lung cancer susceptibility to} 211980                                 | FASLG   |
| 823 | Adenocarcinoma of lung response to tyrosine kinase inhibitor in 211980 | EGFR    |



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| 823 | Adenocarcinoma of lung somatic 211980  | BRAF    |
| 823 | Adenocarcinoma of lung somatic 211980  | ERBB2   |
| 823 | Adenocarcinoma of lung somatic 211980  | PRKN    |
| 823 | Nonsmall cell lung cancer response to tyrosine kinase inhibitor in 211980        | EGFR    |
| 823 | Nonsmall cell lung cancer somatic 211980   | IRF1    |
| 823 | Nonsmall cell lung cancer somatic 211980   | PIK3CA  |
| 823 | {Nonsmall cell lung cancer susceptibility to} 211980                             | EGFR    |
| 823 | Small cell cancer of the lung somatic 182280                                     | RB1     |
| 823 | Nonsmall cell lung cancer, somatic   | BRAF    |
| 823 | {Lung cancer, protection against, in smokers}                                    | MPO     |
| 824 | Lung disease immunodeficiency and chromosome breakage syndrome 617241            | NSMCE3  |
| 825 | Luscan-Lumish syndrome 616831  | SETD2   |
| 826 | Lymphangioliomyomatosis 606690   | TSC1    |
| 826 | Lymphangioliomyomatosis somatic 606690   | TSC2    |
| 827 | Lymphedema hereditary IA 153100  | FLT4    |
| 827 | Lymphedema hereditary IC 613480  | GJC2    |
| 827 | Lymphedema hereditary ID 615907  | VEGFC   |
| 827 | Lymphedema hereditary III 616843   | PIEZO1  |
| 827 | Lymphedema-distichiasis syndrome 153400  | FOXC2   |
| 827 | Lymphedema-distichiasis syndrome with renal disease and diabetes mellitus 153400 | FOXC2   |
| 828 | Lymphoma MALT somatic 137245   | BCL10   |
| 828 | Lymphoma non-Hodgkin 605027  | PRF1    |
| 828 | Lymphoma non-Hodgkin somatic 605027  | CASP10  |
| 828 | Lymphoma non-Hodgkin somatic 605027  | RAD54B  |
| 828 | Lymphoma non-Hodgkin somatic 605027  | RAD54L  |
| 828 | {Lymphoma follicular somatic} 605027   | BCL10   |
| 828 | Lymphoma, B-cell non-Hodgkin, somatic  | ATM     |
| 828 | Lymphoma, mantle cell, somatic   | ATM     |
| 828 | Lymphoma, somatic  | MAD1L1  |
| 828 | {Hodgkin lymphoma susceptibility to} 236000                                      | KLHDC8B |
| 828 | B-cell non-Hodgkin lymphoma high-grade   | BCL7A   |
| 828 | Burkitt lymphoma 113970  | MYC     |
| 829 | Lymphoproliferative syndrome 1 613011  | ITK     |
| 829 | Lymphoproliferative syndrome 2 615122  | CD27    |
| 829 | Lymphoproliferative syndrome X-linked 1 308240                                   | SH2D1A  |
| 829 | Lymphoproliferative syndrome X-linked 2 300635                                   | XIAP    |
| 830 | Lysinuric protein intolerance 222700   | SLC7A7  |
| 831 | Lysyl hydroxylase 3 deficiency 612394  | PLOD3   |
| 832 | MASA syndrome 303350   | L1CAM   |
| 832 | CRASH syndrome 303350  | L1CAM   |
| 833 | MASP2 deficiency 613791  | MASP2   |
| 834 | MASS syndrome 604308   | FBN1    |

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| 835 | MEDNIK syndrome 609313  | AP1S1  |
| 836 | MEND syndrome 300960  | EBP    |
| 837 | MIRAGE syndrome 617053  | SAMD9  |
| 838 | MODY type I 125850  | HNF4A  |
| 838 | MODY type II 125851   | GCK    |
| 838 | MODY type III 600496  | HNF1A  |
| 838 | MODY type IV 606392   | PDX1   |
| 839 | Machado-Joseph disease 109150                                       | ATXN3  |
| 840 | Macrocephaly alopecia cutis laxa and scoliosis 613075               | RIN2   |
| 840 | Macrocephaly dysmorphic facies and psychomotor retardation 617011   | HERC1  |
| 840 | Macrocephaly macrosomia facial dysmorphism syndrome 614192          | RNF135 |
| 840 | Macrocephaly or autism syndrome 605309                              | PTEN   |
| 840 | Macrocephaly or megalencephaly syndrome autosomal recessive 248000  | TBC1D7 |
| 841 | Macrocytic anemia refractory due to 5q deletion somatic 153550      | RPS14  |
| 842 | Macroglobulinemia Waldenstrom somatic 153600                        | MYD88  |
| 843 | Macrothrombocytopenia and progressive sensorineural deafness 600208 | MYH9   |
| 843 | Macrothrombocytopenia autosomal dominant TUBB1-related 613112       | TUBB1  |
| 844 | Macular degeneration X-linked atrophic 300834                       | RPGR   |
| 844 | Macular degeneration age-related 3 608895                           | FBLN5  |
| 844 | Macular degeneration early-onset 616118                             | FBN2   |
| 844 | Macular degeneration juvenile 248200                                | CNGB3  |
| 844 | {Macular degeneration age-related 11} 611953                        | CST3   |
| 844 | {Macular degeneration age-related 12} 613784                        | CX3CR1 |
| 844 | {Macular degeneration age-related 13 susceptibility to} 615439      | CFI    |
| 844 | {Macular degeneration age-related 14 reduced risk of} 615489        | C2     |
| 844 | {Macular degeneration age-related 14 reduced risk of} 615489        | CFB    |
| 844 | {Macular degeneration age-related 15 susceptibility to} 615591      | C9     |
| 844 | {Macular degeneration age-related 1} 603075                         | HMCN1  |
| 844 | {Macular degeneration age-related 2} 153800                         | ABCA4  |
| 844 | {Macular degeneration age-related 4} 610698                         | CFH    |
| 844 | {Macular degeneration age-related 7} 610149                         | HTRA1  |
| 844 | {Macular degeneration age-related 8} 613778                         | ARMS2  |
| 844 | {Macular degeneration age-related 9} 611378                         | C3     |
| 844 | {Macular degeneration age-related neovascular type} 610149          | HTRA1  |
| 844 | {Macular degeneration age-related reduced risk of} 603075           | CFHR1  |
| 844 | {Macular degeneration age-related reduced risk of} 603075           | CFHR3  |
| 844 | {Macular degeneration age-related susceptibility to 5} 613761       | ERCC6  |
| 845 | Macular corneal dystrophy 217800                                    | CHST6  |
| 845 | Macular dystrophy North Carolina type 136550                        | DHS6S1 |
| 845 | Macular dystrophy patterned 1 169150                                | PRPH2  |
| 845 | Macular dystrophy patterned 2 608970                                | CTNNA1 |

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| 845 | Macular dystrophy retinal 2 608051  | PROM1    |
| 845 | Macular dystrophy vitelliform 2 153700  | BEST1    |
| 845 | Macular dystrophy vitelliform 3 608161  | PRPH2    |
| 845 | Macular dystrophy vitelliform 4 616151  | IMPG1    |
| 845 | Macular dystrophy vitelliform 5 616152  | IMPG2    |
| 845 | Macular dystrophy with central cone involvement 616170                              | MFSD8    |
| 846 | Majeed syndrome 609628  | LPIN2    |
| 847 | Malignant melanoma somatic 155600   | PTEN     |
| 847 | {Melanoma cutaneous malignant 2} 155601   | CDKN2A   |
| 847 | {Melanoma cutaneous malignant 3} 609048   | CDK4     |
| 847 | {Melanoma cutaneous malignant 5} 613099   | MC1R     |
| 847 | {Melanoma cutaneous malignant 6} 613972   | XRCC3    |
| 847 | {Melanoma cutaneous malignant 9} 615134   | TERT     |
| 847 | {Melanoma cutaneous malignant susceptibility to 10} 615848                          | POT1     |
| 847 | {Melanoma cutaneous malignant susceptibility to 8} 601800                           | TYR      |
| 847 | {Melanoma cutaneous malignant susceptibility to 8} 614456                           | MITF     |
| 847 | Melanoma and neural system tumor syndrome 155755                                    | CDKN2A   |
| 847 | Melanoma, malignant, somatic  | BRAF     |
| 847 | Melanoma, malignant, somatic  | STK11    |
| 848 | Malonyl-CoA decarboxylase deficiency 248360   | MLYCD    |
| 849 | Malouf syndrome 212112  | LMNA     |
| 850 | Mandibular hypoplasia deafness progeroid features and lipodystrophy syndrome 615381 | POLD1    |
| 851 | Mandibuloacral dysplasia 248370   | LMNA     |
| 851 | Mandibuloacral dysplasia with type B lipodystrophy 608612                           | ZMPSTE24 |
| 852 | Mandibulofacial dysostosis Guion-Almeida type 610536                                | EFTUD2   |
| 852 | Mandibulofacial dysostosis with alopecia 616367                                     | EDNRA    |
| 853 | Manitoba oculotrichoanal syndrome 248450  | FREM1    |
| 854 | Mannosidosis alpha- types I and II 248500   | MAN2B1   |
| 854 | Mannosidosis beta 248510  | MANBA    |
| 855 | Maple syrup urine disease type II 248600  | DBT      |
| 855 | Maple syrup urine disease type Ia 248600  | BCKDHA   |
| 855 | Maple syrup urine disease type Ib 248600  | BCKDHB   |
| 856 | Marfan lipodystrophy syndrome 616914  | FBN1     |
| 856 | Marfan syndrome 154700  | FBN1     |
| 857 | Marinesco-Sjogren syndrome 248800   | SIL1     |
| 858 | Marshall syndrome 154780  | COL11A1  |
| 859 | Marshall-Smith syndrome 602535  | NFIX     |
| 860 | Martsof syndrome 212720   | RAB3GAP2 |
| 861 | Mast cell disease 154800  | KIT      |
| 862 | Mast syndrome 248900  | ACP33    |
| 863 | May-Hegglin anomaly 155100  | MYH9     |
| 864 | McArdle disease 232600  | PYGM     |
| 865 | McCune-Albright syndrome somatic mosaic 174800                                      | GNAS     |
| 866 | McKusick-Kaufman syndrome 236700  | MKKS     |

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| 867 | McLeod syndrome with or without chronic granulomatous disease 300842  | XK       |
| 868 | Meacham syndrome 608978   | WT1      |
| 869 | Meckel syndrome 1 249000  | MKS1     |
| 869 | Meckel syndrome 11 615397   | TMEM231  |
| 869 | Meckel syndrome 13 617562   | TMEM107  |
| 869 | Meckel syndrome 2 603194  | TMEM216  |
| 869 | Meckel syndrome 3 607361  | TMEM67   |
| 869 | Meckel syndrome 4 611134  | CEP290   |
| 869 | Meckel syndrome 5 611561  | RPGRIP1L |
| 869 | Meckel syndrome 6 612284  | CC2D2A   |
| 869 | Meckel syndrome 7 267010  | NPHP3    |
| 870 | Meconium ileus 614665   | GUCY2C   |
| 871 | Medullary cystic kidney disease 1 174000  | MUC1     |
| 871 | Medullary cystic kidney disease 2 603860  | UMOD     |
| 872 | Medulloblastoma desmoplastic 155255   | SUFU     |
| 872 | Medulloblastoma somatic 155255  | CTNNB1   |
| 872 | Medulloblastoma somatic 155255  | PTCH2    |
| 872 | {Medulloblastoma} 155255  | BRCA2    |
| 873 | Meesmann corneal dystrophy 122100   | KRT12    |
| 873 | Meesmann corneal dystrophy 122100   | KRT3     |
| 874 | Meester-Loeys syndrome 300989   | BGN      |
| 875 | Megalencephalic leukoencephalopathy with subcortical cysts 2A 613925  | HEPACAM  |
| 875 | Megalencephalic leukoencephalopathy with subcortical cysts 2B remitting with or without mental retardation 613926 | HEPACAM  |
| 875 | Megalencephalic leukoencephalopathy with subcortical cysts 604004   | MLC1     |
| 876 | Megalencephaly-capillary malformation-polymicrogyria syndrome somatic 602501                                      | PIK3CA   |
| 877 | Megalencephaly-polymicrogyria-polydactyly-hydrocephalus syndrome 1 603387   | PIK3R2   |
| 877 | Megalencephaly-polymicrogyria-polydactyly-hydrocephalus syndrome 2 615937   | AKT3     |
| 877 | Megalencephaly-polymicrogyria-polydactyly-hydrocephalus syndrome 3 615938   | CCND2    |
| 878 | Megaloblastic anemia due to dihydrofolate reductase deficiency 613839   | DHFR     |
| 878 | Megaloblastic anemia-1 Finnish type 261100  | CUBN     |
| 878 | Megaloblastic anemia-1 Norwegian type 261100  | AMN      |
| 879 | Megalocornea 1 X-linked 309300  | CHRD1    |
| 880 | Meier-Gorlin syndrome 1 224690  | ORC1     |
| 880 | Meier-Gorlin syndrome 2 613800  | ORC4     |
| 880 | Meier-Gorlin syndrome 3 613803  | ORC6     |
| 880 | Meier-Gorlin syndrome 4 613804  | CDT1     |

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| 880 | Meier-Gorlin syndrome 6 616835   | GMNN     |
| 880 | Meier-Gorlin syndrome 7 617063   | CDC45    |
| 881 | Melanocytic nevus syndrome congenital somatic 137550   | NRAS     |
| 881 | {Spitz nevus or nevus spilus somatic} 137550   | HRAS     |
| 882 | Meleda disease 248300  | SLURP1   |
| 883 | Melnick-Needles syndrome 309350  | FLNA     |
| 884 | Meningioma 607174  | MN1      |
| 884 | Meningioma NF2-related somatic 607174  | NF2      |
| 884 | Meningioma SIS-related 607174  | PDGFB    |
| 884 | {Meningioma familial susceptibility to} 607174   | SMARCE1  |
| 884 | {Meningioma familial susceptibility to} 607174   | SUFU     |
| 884 | {Meningioma} 607174  | PTEN     |
| 885 | Menkes disease 309400  | ATP7A    |
| 886 | Mental retardation 105 300984  | USP27X   |
| 886 | Mental retardation FRA12A type 136630  | DIP2B    |
| 886 | Mental retardation X-linked 1 or 78 309530   | IQSEC2   |
| 886 | Mental retardation X-linked 102 300958   | DDX3X    |
| 886 | Mental retardation X-linked 103 300982   | KLHL15   |
| 886 | Mental retardation X-linked 104 300983   | FRMPD4   |
| 886 | Mental retardation X-linked 106 300997   | OGT      |
| 886 | Mental retardation X-linked 12 or 35 300957  | THOC2    |
| 886 | Mental retardation X-linked 19 300844  | RPS6KA3  |
| 886 | Mental retardation X-linked 21 or 34 300143  | IL1RAPL1 |
| 886 | Mental retardation X-linked 29 and others 300419   | ARX      |
| 886 | Mental retardation X-linked 3 (methylmalonic acidemia and homocysteinemia cblX type ) 309541 | HCFC1    |
| 886 | Mental retardation X-linked 30 or 47 300558  | PAK3     |
| 886 | Mental retardation X-linked 300495   | NLGN4X   |
| 886 | Mental retardation X-linked 41 300849  | GDI1     |
| 886 | Mental retardation X-linked 46 300436  | ARHGEF6  |
| 886 | Mental retardation X-linked 49 or 15 300114  | CLCN4    |
| 886 | Mental retardation X-linked 58 300210  | TSPAN7   |
| 886 | Mental retardation X-linked 61 300978  | RLIM     |
| 886 | Mental retardation X-linked 63 300387  | ACSL4    |
| 886 | Mental retardation X-linked 72 300271  | RAB39B   |
| 886 | Mental retardation X-linked 9 or 44 309549   | FTSJ1    |
| 886 | Mental retardation X-linked 90 300850  | DLG3     |
| 886 | Mental retardation X-linked 93 300659  | BRWD3    |
| 886 | Mental retardation X-linked 94 300699  | GRIA3    |
| 886 | Mental retardation X-linked 96 300802  | SYP      |
| 886 | Mental retardation X-linked 97 300803  | ZNF711   |
| 886 | Mental retardation X-linked 98 300912  | NEXMIF   |
| 886 | Mental retardation X-linked 99 300919  | USP9X    |
| 886 | Mental retardation X-linked 99 syndromic female-restricted 300968                            | USP9X    |

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| 886 | Mental retardation X-linked FRAXE type 309548   | AFF2    |
| 886 | Mental retardation X-linked Snyder-Robinson type 309583   | SMS     |
| 886 | Mental retardation X-linked syndromic 13 300055   | MECP2   |
| 886 | Mental retardation X-linked syndromic 14 300676   | UPF3B   |
| 886 | Mental retardation X-linked syndromic 15 (Cabezas type) 300354                                  | CUL4B   |
| 886 | Mental retardation X-linked syndromic 16 305400   | FGD1    |
| 886 | Aarskog-Scott syndrome 305400   | FGD1    |
| 886 | Mental retardation X-linked syndromic 33 300966   | TAF1    |
| 886 | Mental retardation X-linked syndromic 34 300967   | NONO    |
| 886 | Mental retardation X-linked syndromic 35 300998   | RPL10   |
| 886 | Mental retardation X-linked syndromic 5 304340  | AP1S2   |
| 886 | Mental retardation X-linked syndromic Bain type 300986  | HNRNPH2 |
| 886 | Mental retardation X-linked syndromic Borck type 300987   | EIF2S3  |
| 886 | Mental retardation X-linked syndromic Christianson type 300243                                  | SLC9A6  |
| 886 | Mental retardation X-linked syndromic Claes-Jensen type 300534                                  | KDM5C   |
| 886 | Mental retardation X-linked syndromic Hedera type 300423  | ATP6AP2 |
| 886 | Mental retardation X-linked syndromic Lubs type 300260  | MECP2   |
| 886 | Mental retardation X-linked syndromic Nascimento-type 300860                                    | UBE2A   |
| 886 | Mental retardation X-linked syndromic Raymond type 300799                                       | ZDHHC9  |
| 886 | Mental retardation X-linked syndromic Turner type 300706  | HUWE1   |
| 886 | Mental retardation X-linked with cerebellar hypoplasia and distinctive facial appearance 300486 | OPHN1   |
| 886 | Mental retardation X-linked with isolated growth hormone deficiency 300123                      | SOX3    |
| 886 | Mental retardation and distinctive facial features with or without cardiac defects 616789       | MED13L  |
| 886 | Mental retardation and microcephaly with pontine and cerebellar hypoplasia 300749               | CASK    |
| 886 | Mental retardation anterior maxillary protrusion and strabismus 613671                          | SOBP    |
| 886 | Mental retardation autosomal dominant 1 156200  | MBD5    |
| 886 | Mental retardation autosomal dominant 13 614563   | DYNC1H1 |
| 886 | Mental retardation autosomal dominant 18 615074   | GATAD2B |
| 886 | Mental retardation autosomal dominant 19 615075   | CTNNB1  |
| 886 | Mental retardation autosomal dominant 21 615502   | CTCF    |
| 886 | Mental retardation autosomal dominant 22 612337   | ZBTB18  |
| 886 | Mental retardation autosomal dominant 23 615761   | SETD5   |
| 886 | Mental retardation autosomal dominant 24 615828   | DEAF1   |
| 886 | Mental retardation autosomal dominant 26 615834   | AUTS2   |
| 886 | Mental retardation autosomal dominant 27 615866   | SOX11   |
| 886 | Mental retardation autosomal dominant 29 616078   | SETBP1  |
| 886 | Mental retardation autosomal dominant 3 612580  | CDH15   |
| 886 | Mental retardation autosomal dominant 30 616083   | ZMYND11 |
| 886 | Mental retardation autosomal dominant 31 616158   | PURA    |
| 886 | Mental retardation autosomal dominant 32 616268   | KAT6A   |

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| 886 | Mental retardation autosomal dominant 33 616311                             | DPP6     |
| 886 | Mental retardation autosomal dominant 34 616351                             | COL4A3BP |
| 886 | Mental retardation autosomal dominant 35 616355                             | PPP2R5D  |
| 886 | Mental retardation autosomal dominant 36 616362                             | PPP2R1A  |
| 886 | Mental retardation autosomal dominant 38 616393                             | EEF1A2   |
| 886 | Mental retardation autosomal dominant 39 616521                             | MYT1L    |
| 886 | Mental retardation autosomal dominant 4 612581                              | KIRREL3  |
| 886 | Mental retardation autosomal dominant 40 616579                             | CHAMP1   |
| 886 | Mental retardation autosomal dominant 41 616944                             | TBL1XR1  |
| 886 | Mental retardation autosomal dominant 42 616973                             | GNB1     |
| 886 | Mental retardation autosomal dominant 43 616977                             | HIVEP2   |
| 886 | Mental retardation autosomal dominant 44 617061                             | TRIO     |
| 886 | Mental retardation autosomal dominant 45 617600                             | CIC      |
| 886 | Mental retardation autosomal dominant 46 617601                             | KCNQ5    |
| 886 | Mental retardation autosomal dominant 47 617635                             | STAG1    |
| 886 | Mental retardation autosomal dominant 48 617751                             | RAC1     |
| 886 | Mental retardation autosomal dominant 49 617752                             | TRIP12   |
| 886 | Mental retardation autosomal dominant 5 612621                              | SYNGAP1  |
| 886 | Mental retardation autosomal dominant 6 613970                              | GRIN2B   |
| 886 | Mental retardation autosomal dominant 7 614104                              | DYRK1A   |
| 886 | Mental retardation autosomal dominant 8 614254                              | GRIN1    |
| 886 | Mental retardation autosomal dominant 9 614255                              | KIF1A    |
| 886 | Mental retardation autosomal recessive 1 249500                             | PRSS12   |
| 886 | Mental retardation autosomal recessive 12 611090                            | ST3GAL3  |
| 886 | Mental retardation autosomal recessive 13 613192                            | TRAPPC9  |
| 886 | Mental retardation autosomal recessive 14 614020                            | TECR     |
| 886 | Mental retardation autosomal recessive 15 614202                            | MAN1B1   |
| 886 | Mental retardation autosomal recessive 18 614249                            | MED23    |
| 886 | Mental retardation autosomal recessive 2 607417                             | CRBN     |
| 886 | Mental retardation autosomal recessive 27 614340                            | LINS1    |
| 886 | Mental retardation autosomal recessive 3 608443                             | CC2D1A   |
| 886 | Mental retardation autosomal recessive 34 with variant lissencephaly 614499 | CRADD    |
| 886 | Mental retardation autosomal recessive 36 615286                            | ADAT3    |
| 886 | Mental retardation autosomal recessive 38 615516                            | HERC2    |
| 886 | Mental retardation autosomal recessive 39 615541                            | TTI2     |
| 886 | Mental retardation autosomal recessive 40 615599                            | TAF2     |
| 886 | Mental retardation autosomal recessive 41 615637                            | KPTN     |
| 886 | Mental retardation autosomal recessive 42 615802                            | PGAP1    |
| 886 | Mental retardation autosomal recessive 44 615942                            | METTL23  |
| 886 | Mental retardation autosomal recessive 46 616116                            | NDST1    |
| 886 | Mental retardation autosomal recessive 47 616193                            | FMN2     |
| 886 | Mental retardation autosomal recessive 48 616269                            | SLC6A17  |
| 886 | Mental retardation autosomal recessive 49 616281                            | GPT2     |
| 886 | Mental retardation autosomal recessive 5 611091                             | NSUN2    |

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| 886 | Mental retardation autosomal recessive 51 616739   | HNMT    |
| 886 | Mental retardation autosomal recessive 53 616917   | PIGG    |
| 886 | Mental retardation autosomal recessive 54 617028   | TNIK    |
| 886 | Mental retardation autosomal recessive 56 617125   | ZC3H14  |
| 886 | Mental retardation autosomal recessive 57 617188   | MBOAT7  |
| 886 | Mental retardation autosomal recessive 58 617270   | ELP2    |
| 886 | Mental retardation autosomal recessive 59 617323   | IMPA1   |
| 886 | Mental retardation autosomal recessive 6 611092  | GRIK2   |
| 886 | Mental retardation autosomal recessive 60 617432   | TAF13   |
| 886 | Mental retardation autosomal recessive 61 617773   | RUSC2   |
| 886 | Mental retardation autosomal recessive 7 611093  | TUSC3   |
| 886 | Mental retardation stereotypic movements epilepsy and or cerebral malformations 613443                             | MEF2C   |
| 886 | Mental retardation syndrome X-linked Siderius type 300263  | PHF8    |
| 886 | Mental retardation truncal obesity retinal dystrophy and micropenis 610156   | INPP5E  |
| 886 | Mental retardation with language impairment and with or without autistic features 613670                           | FOXP1   |
| 886 | Mental retardation with or without nystagmus 300422  | CASK    |
| 886 | Mental retardation-hypotonic facies syndrome X-linked 309580   | ATRX    |
| 887 | Mephenytoin poor metabolizer 609535  | CYP2C19 |
| 888 | Mesothelioma somatic 156240  | WT1     |
| 888 | {Mesothelioma somatic} 156240  | BCL10   |
| 889 | Metabolic encephalomyopathic crises recurrent with rhabdomyolysis cardiac arrhythmias and neurodegeneration 616878 | TANGO2  |
| 890 | Metacarpal 4-5 fusion 309630   | FGF16   |
| 891 | Metachondromatosis 156250  | PTPN11  |
| 892 | Metachromatic leukodystrophy 250100  | ARSA    |
| 892 | Metachromatic leukodystrophy due to SAP-b deficiency 249900  | PSAP    |
| 893 | Metaphyseal anadysplasia 1 602111  | MMP13   |
| 893 | Metaphyseal anadysplasia 2 613073  | MMP9    |
| 893 | Metaphyseal chondrodysplasia Murk Jansen type 156400   | PTH1R   |
| 893 | Metaphyseal chondrodysplasia Schmid type 156500  | COL10A1 |
| 893 | Metaphyseal dysplasia Spahr type 250400  | MMP13   |
| 893 | Metaphyseal dysplasia with maxillary hypoplasia with or without brachydactyly 156510                               | RUNX2   |
| 893 | Metaphyseal dysplasia without hypotrichosis 250460   | RMRP    |
| 893 | Metatropic dysplasia 156530  | TRPV4   |
| 894 | Methemoglobinemia type I 250800  | CYB5R3  |
| 894 | Methemoglobinemia type II 250800   | CYB5R3  |
| 894 | Methemoglobinemias, alpha-   | HBA1    |
| 894 | Methemoglobinemias, beta-  | HBB     |
| 895 | Methylmalonate semialdehyde dehydrogenase deficiency 614105  | ALDH6A1 |
| 896 | Methylmalonic aciduria and homocystinuria cblC type 277400   | MMACHC  |



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| 896 | Methylmalonic aciduria and homocystinuria cblD type 277410   | MMADHC   |
| 896 | Methylmalonic aciduria and homocystinuria cblF type 277380   | LMBRD1   |
| 896 | Methylmalonic aciduria and homocystinuria cblJ type 614857   | ABCD4    |
| 896 | Methylmalonic aciduria cblD type variant 2 277410  | MMADHC   |
| 896 | Methylmalonic aciduria mut(0) type 251000  | MUT      |
| 896 | Methylmalonic aciduria transient due to transcobalamin receptor defect 613646  | CD320    |
| 896 | Methylmalonic aciduria vitamin B12-responsive 251100   | MMAA     |
| 896 | Methylmalonic aciduria vitamin B12-responsive due to defect in synthesis of adenosylcobalamin cblB complementation type 251110 | MMAB     |
| 897 | Methylmalonyl-CoA epimerase deficiency 251120  | MCEE     |
| 898 | Mevalonic aciduria 610377  | MVK      |
| 899 | Microcephalic osteodysplastic primordial dwarfism type I 210710  | RNU4ATAC |
| 899 | Microcephalic osteodysplastic primordial dwarfism type II 210720   | PCNT     |
| 900 | Microcephaly 1 primary autosomal recessive 251200  | MCPH1    |
| 900 | Microcephaly 15 primary autosomal recessive 616486   | MFSD2A   |
| 900 | Microcephaly 17 primary autosomal recessive 617090   | CIT      |
| 900 | Microcephaly 2 primary autosomal recessive with or without cortical malformations 604317                                       | WDR62    |
| 900 | Microcephaly 3 primary autosomal recessive 604804  | CDK5RAP2 |
| 900 | Microcephaly 4 primary autosomal recessive 604321  | KNL1     |
| 900 | Microcephaly 5 primary autosomal recessive 608716  | ASPM     |
| 900 | Microcephaly 6 primary autosomal recessive 608393  | CENPJ    |
| 900 | Microcephaly 7 primary autosomal recessive 612703  | STIL     |
| 900 | Microcephaly 8 primary autosomal recessive 614673  | CEP135   |
| 900 | Microcephaly 9 primary autosomal recessive 614852  | CEP152   |
| 900 | Microcephaly Amish type 607196   | SLC25A19 |
| 900 | Microcephaly and chorioretinopathy autosomal recessive 1 251270  | TUBGCP6  |
| 900 | Microcephaly and chorioretinopathy autosomal recessive 2 616171  | PLK4     |
| 900 | Microcephaly and chorioretinopathy autosomal recessive 3 616335  | TUBGCP4  |
| 900 | Microcephaly congenital cataract and psoriasiform dermatitis 616834  | MSMO1    |
| 900 | Microcephaly epilepsy and diabetes syndrome 614231   | IER3IP1  |
| 900 | Microcephaly postnatal progressive with seizures and brain atrophy 613668  | MED17    |
| 900 | Microcephaly progressive seizures and cerebral and cerebellar atrophy 615760   | QARS     |
| 900 | Microcephaly seizures and developmental delay 613402   | PNKP     |
| 900 | Microcephaly seizures spasticity and brain calcification 605622  | PCDH12   |
| 900 | Microcephaly short stature and impaired glucose metabolism 1 616033  | TRMT10A  |

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| 900 | Microcephaly short stature and impaired glucose metabolism 2 616817                                     | PPP1R15B |
| 900 | Microcephaly short stature and limb abnormalities 617604  | DONSON   |
| 900 | Microcephaly short stature and polymicrogyria with seizures 614833                                      | RTTN     |
| 900 | Microcephaly with or without chorioretinopathy lymphedema or mental retardation 152950                  | KIF11    |
| 900 | Microcephaly-capillary malformation syndrome 614261   | STAMPB   |
| 900 | Microcephaly-micromelia syndrome 251230   | DONSON   |
| 901 | Microcornea myopic chorioretinal atrophy and telecanthus 615458   | ADAMTS18 |
| 901 | Microcornea rod-cone dystrophy cataract and posterior staphyloma 193220                                 | BEST1    |
| 901 | Vitreoretinchoroidopathy 193220   | BEST1    |
| 902 | Microphthalmia isolated 2 610093  | CHX10    |
| 902 | Microphthalmia isolated 3 611038  | RAX      |
| 902 | Microphthalmia isolated 4 613094  | GDF6     |
| 902 | Microphthalmia isolated 5 611040  | MFRP     |
| 902 | Microphthalmia isolated 6 613517  | PRSS56   |
| 902 | Microphthalmia isolated 7 613704  | GDF3     |
| 902 | Microphthalmia isolated 8 615113  | ALDH1A3  |
| 902 | Microphthalmia isolated with coloboma 10 616428   | RBP4     |
| 902 | Microphthalmia isolated with coloboma 7 614497  | ABCB6    |
| 902 | Microphthalmia isolated with coloboma 8 601186  | STRA6    |
| 902 | Microphthalmia isolated with coloboma 9 615145  | TENM3    |
| 902 | Microphthalmia syndromic 12 615524  | RARB     |
| 902 | Microphthalmia syndromic 2 300166   | BCOR     |
| 902 | Microphthalmia syndromic 3 206900   | SOX2     |
| 902 | Microphthalmia syndromic 5 610125   | OTX2     |
| 902 | Microphthalmia syndromic 6 607932   | BMP4     |
| 902 | Microphthalmia syndromic 9 601186   | STRA6    |
| 902 | Microphthalmia with coloboma 3 610092   | CHX10    |
| 902 | Microphthalmia with coloboma 5 611638   | SHH      |
| 902 | Microphthalmia with coloboma 6 613703   | GDF3     |
| 902 | Microphthalmia with coloboma 6 digenic 613703   | GDF6     |
| 902 | Microphthalmia with limb anomalies 206920   | SMOC1    |
| 902 | Microphthalmia or coloboma and skeletal dysplasia syndrome 615877                                       | MAB21L2  |
| 902 | Optic nerve hypoplasia and abnormalities of the central nervous system 206900                           | SOX2     |
| 903 | Microspherophakia and or megalocornea with ectopia lentis and with or without secondary glaucoma 251750 | LTBP2    |
| 904 | Microvillus inclusion disease 251850  | MYO5B    |
| 905 | Midface hypoplasia hearing impairment elliptocytosis and nephrocalcinosis 300990                        | AMMECR1  |

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| 906 | Migraine familial basilar 602481  | ATP1A2  |
| 906 | Migraine familial hemiplegic 1 141500   | CACNA1A |
| 906 | Migraine familial hemiplegic 1 with progressive cerebellar ataxia 141500                                  | CACNA1A |
| 906 | Migraine familial hemiplegic 2 602481   | ATP1A2  |
| 906 | Migraine familial hemiplegic 3 609634   | SCN1A   |
| 906 | {Migraine resistance to} 157300   | EDNRA   |
| 906 | {Migraine susceptibility to} 157300   | ESR1    |
| 906 | {Migraine with or without aura susceptibility to 13} 613656   | KCNK18  |
| 906 | {Migraine without aura susceptibility to} 157300  | TNF     |
| 907 | Miller syndrome 263750  | DHODH   |
| 908 | Minicore myopathy with external ophthalmoplegia 255320  | RYR1    |
| 909 | Mirror movements 1 and or agenesis of the corpus callosum 157600  | DCC     |
| 909 | Mirror movements 2 614508   | RAD51   |
| 910 | Mismatch repair cancer syndrome 276300  | MLH1    |
| 910 | Mismatch repair cancer syndrome 276300  | MSH2    |
| 910 | Mismatch repair cancer syndrome 276300  | MSH6    |
| 910 | Mismatch repair cancer syndrome 276300  | PMS2    |
| 911 | Mitchell-Riley syndrome 615710  | RFX6    |
| 912 | Mitochondrial DNA depletion syndrome 1 (MNGIE type) 603041  | TYMP    |
| 912 | Mitochondrial DNA depletion syndrome 11 615084  | MGME1   |
| 912 | Mitochondrial DNA depletion syndrome 12A (cardiomyopathic type) AD 617184                                 | SLC25A4 |
| 912 | Mitochondrial DNA depletion syndrome 12B (cardiomyopathic type) AR 615418                                 | SLC25A4 |
| 912 | Mitochondrial DNA depletion syndrome 13 (encephalomyopathic type) 615471                                  | FBXL4   |
| 912 | Mitochondrial DNA depletion syndrome 2 (myopathic type) 609560  | TK2     |
| 912 | Mitochondrial DNA depletion syndrome 3 (hepatocerebral type) 251880                                       | DGUOK   |
| 912 | Mitochondrial DNA depletion syndrome 4A (Alpers type) 203700  | POLG    |
| 912 | Mitochondrial DNA depletion syndrome 4B (MNGIE type) 613662   | POLG    |
| 912 | Mitochondrial DNA depletion syndrome 5 (encephalomyopathic with or without methylmalonic aciduria) 612073 | SUCLA2  |
| 912 | Mitochondrial DNA depletion syndrome 6 (hepatocerebral type) 256810                                       | MPV17   |
| 912 | Mitochondrial DNA depletion syndrome 7 (hepatocerebral type) 271245                                       | TWNK    |
| 912 | Mitochondrial DNA depletion syndrome 8A (encephalomyopathic type with renal tubulopathy) 612075           | RRM2B   |
| 912 | Mitochondrial DNA depletion syndrome 8B (MNGIE type) 612075   | RRM2B   |
| 912 | Mitochondrial DNA depletion syndrome 9 (encephalomyopathic type with methylmalonic aciduria) 245400       | SUCLG1  |

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| 913 | Mitochondrial complex 1 deficiency 252010                                | NDUFAF5  |
| 913 | Mitochondrial complex I deficiency 252010                                | FOXRED1  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFA1   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFA11  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFAF1  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFAF2  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFAF3  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFAF4  |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFB3   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFS1   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFS2   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFS3   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFS4   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFS6   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFV1   |
| 913 | Mitochondrial complex I deficiency 252010                                | NDUFV2   |
| 913 | Mitochondrial complex I deficiency 252010                                | NUBPL    |
| 913 | Mitochondrial complex I deficiency 252010                                | TIMMDC1  |
| 913 | Mitochondrial complex I deficiency 252010                                | TMEM126B |
| 913 | Mitochondrial complex I deficiency due to ACAD9 deficiency 611126        | ACAD9    |
| 913 | Mitochondrial complex II deficiency 252011                               | SDHAF1   |
| 913 | Mitochondrial complex II deficiency 252011                               | SDHD     |
| 913 | Mitochondrial respiratory chain complex II deficiency 252011             | SDHA     |
| 913 | Mitochondrial complex III deficiency nuclear type 1 124000               | BCS1L    |
| 913 | Mitochondrial complex III deficiency nuclear type 2 615157               | TTC19    |
| 913 | Mitochondrial complex III deficiency nuclear type 3 615158               | UQCRB    |
| 913 | Mitochondrial complex III deficiency nuclear type 4 615159               | UQCRCQ   |
| 913 | Mitochondrial complex III deficiency nuclear type 5 615160               | UQCRC2   |
| 913 | Mitochondrial complex III deficiency nuclear type 6 615453               | CYC1     |
| 913 | Mitochondrial complex III deficiency nuclear type 8 615838               | LYRM7    |
| 913 | Mitochondrial complex IV deficiency 220110                               | APOPT1   |
| 913 | Mitochondrial complex IV deficiency 220110                               | COX10    |
| 913 | Mitochondrial complex IV deficiency 220110                               | COX20    |
| 913 | Mitochondrial complex IV deficiency 220110                               | COX6B1   |
| 913 | Mitochondrial complex IV deficiency 220110                               | PET100   |
| 913 | Mitochondrial complex IV deficiency 220110                               | SCO1     |
| 913 | Mitochondrial complex IV deficiency 220110                               | TACO1    |
| 913 | Mitochondrial complex V (ATP synthase) deficiency nuclear type 2 614052  | TMEM70   |
| 914 | Mitochondrial phosphate carrier deficiency 610773                        | SLC25A3  |
| 915 | Mitochondrial pyruvate carrier deficiency 614741                         | BRP44L   |
| 916 | Mitochondrial recessive ataxia syndrome (includes SANDO and SCAE) 607459 | POLG     |

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| 917 | Mitochondrial short-chain enoyl-CoA hydratase 1 deficiency 616277 | ECHS1   |
| 918 | Mitral valve prolapse 2 607829                                    | DCHS1   |
| 919 | Miyoshi muscular dystrophy 1 254130                               | DYSF    |
| 919 | Miyoshi muscular dystrophy 3 613319                               | ANOS    |
| 920 | Mohr-Tranebjaerg syndrome 304700                                  | TIMM8A  |
| 921 | Molybdenum cofactor deficiency A 252150                           | MOCS1   |
| 921 | Molybdenum cofactor deficiency B 252160                           | MOCS2   |
| 921 | Molybdenum cofactor deficiency C 615501                           | GPHN    |
| 922 | Monilethrix 158000  | KRT81   |
| 922 | Monilethrix 158000  | KRT83   |
| 922 | Monilethrix 158000  | KRT86   |
| 923 | Monocarboxylate transporter 1 deficiency 616095                   | SLC16A1 |
| 924 | Mononeuropathy of the median nerve mild 613353                    | SH3TC2  |
| 925 | Morbid obesity and spermatogenic failure 615703                   | CEP19   |
| 926 | Mosaic variegated aneuploidy syndrome 1 257300                    | BUB1B   |
| 926 | Mosaic variegated aneuploidy syndrome 2 614114                    | CEP57   |
| 926 | Mosaic variegated aneuploidy syndrome 3 617598                    | TRIP13  |
| 927 | Mowat-Wilson syndrome 235730                                      | ZEB2    |
| 928 | Moyamoya 6 with achalasia 615750                                  | GUCY1A3 |
| 928 | Moyamoya disease 5 614042   | ACTA2   |
| 928 | {Moyamoya disease 2 susceptibility to} 607151                     | RNF213  |
| 929 | Muckle-Wells syndrome 191900                                      | NLRP3   |
| 930 | Mucopolipidosis II alpha or beta 252500                           | GNPTAB  |
| 930 | Mucopolipidosis III alpha or beta 252600                          | GNPTAB  |
| 930 | Mucopolipidosis III gamma 252605                                  | GNPTG   |
| 930 | Mucopolipidosis IV 252650   | MCOLN1  |
| 931 | Mucopolysaccharidosis II 309900                                   | IDS     |
| 931 | Mucopolysaccharidosis IVA 253000                                  | GALNS   |
| 931 | Mucopolysaccharidosis Ih 607014                                   | IDUA    |
| 931 | Mucopolysaccharidosis Ih or s 607015                              | IDUA    |
| 931 | Mucopolysaccharidosis Is 607016                                   | IDUA    |
| 931 | Mucopolysaccharidosis VII 253220                                  | GUSB    |
| 931 | Mucopolysaccharidosis type IIIA (Sanfilippo A) 252900             | SGSH    |
| 931 | Mucopolysaccharidosis type IIIB (Sanfilippo B) 252920             | NAGLU   |
| 931 | Mucopolysaccharidosis type IIIC (Sanfilippo C) 252930             | HGSNAT  |
| 931 | Mucopolysaccharidosis type IIID 252940                            | GNS     |
| 931 | Mucopolysaccharidosis type IVB (Morquio) 253010                   | GLB1    |
| 931 | Mucopolysaccharidosis type VI (Maroteaux-Lamy) 253200             | ARSB    |
| 931 | Mucopolysaccharidosis-plus syndrome 617303                        | VPS33A  |
| 932 | Muenke syndrome 602849  | FGFR3   |
| 933 | Muir-Torre syndrome 158320  | MLH1    |
| 933 | Muir-Torre syndrome 158320  | MSH2    |
| 934 | Mulchandani-Bhoj-Conlin syndrome 617352                           | MBCS    |
| 935 | Mulibrey nanism 253250  | TRIM37  |

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| 936 | Mullerian aplasia and hyperandrogenism 158330  | WNT4   |
| 937 | Multicentric carpotarsal osteolysis syndrome 166300  | MAFB   |
| 938 | Multicentric osteolysis nodulosis and arthropathy 259600   | MMP2   |
| 939 | Multinucleated neurons anhydramnios renal dysplasia cerebellar hypoplasia and hydranencephaly 236500               | CEP55  |
| 940 | Multiple congenital anomalies-hypotonia-seizures syndrome 1 614080   | PIGN   |
| 940 | Multiple congenital anomalies-hypotonia-seizures syndrome 2 300868   | PIGA   |
| 940 | Multiple congenital anomalies-hypotonia-seizures syndrome 3 615398   | PIGT   |
| 941 | Multiple endocrine neoplasia 1 131100  | MEN1   |
| 941 | Multiple endocrine neoplasia IIA 171400  | RET    |
| 941 | Multiple endocrine neoplasia IIB 162300  | RET    |
| 941 | Multiple endocrine neoplasia type IV 610755  | CDKN1B |
| 942 | Multiple fibroadenomas of the breast 615554  | PRLR   |
| 943 | Multiple joint dislocations short stature craniofacial dysmorphism with or without congenital heart defects 245600 | B3GAT3 |
| 944 | Multiple mitochondrial dysfunctions syndrome 1 605711  | NFU1   |
| 944 | Multiple mitochondrial dysfunctions syndrome 2 with hyperglycinemia 614299   | BOLA3  |
| 944 | Multiple mitochondrial dysfunctions syndrome 4 616370  | ISCA2  |
| 944 | Multiple mitochondrial dysfunctions syndrome 5 617613  | ISCA1  |
| 945 | Multiple pterygium syndrome lethal type 253290   | CHRNA1 |
| 945 | Multiple pterygium syndrome lethal type 253290   | CHRND  |
| 945 | Multiple pterygium syndrome lethal type 253290   | CHRNA1 |
| 946 | Multiple sulfatase deficiency 272200   | SUMF1  |
| 947 | Multiple synostoses syndrome 1 186500  | NOG    |
| 947 | Multiple synostoses syndrome 2 610017  | GDF5   |
| 947 | Multiple synostoses syndrome 3 612961  | FGF9   |
| 948 | Multisystemic smooth muscle dysfunction syndrome 613834  | ACTA2  |
| 949 | Muscle glycogenosis 300559   | PHKA1  |
| 949 | Muscle hypertrophy 614160  | MSTN   |
| 950 | Muscular dystrophy congenital 613205   | LMNA   |
| 950 | Muscular dystrophy congenital due to ITGA7 deficiency 613204   | ITGA7  |
| 950 | Muscular dystrophy congenital due to partial LAMA2 deficiency 607855   | LAMA2  |
| 950 | Muscular dystrophy congenital megaconial type 602541   | CHKB   |
| 950 | Muscular dystrophy congenital merosin-deficient 607855   | LAMA2  |
| 950 | Muscular dystrophy congenital with cataracts and intellectual disability 617404                                    | INPP5K |
| 950 | Muscular dystrophy limb-girdle type 1A 159000  | MYOT   |
| 950 | Muscular dystrophy limb-girdle type 1B 159001  | LMNA   |
| 950 | Muscular dystrophy limb-girdle type 1E 603511  | DNAJB6 |
| 950 | Muscular dystrophy limb-girdle type 1F 608423  | TNPO3  |

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| 950 | Muscular dystrophy limb-girdle type 1G 609115  | HNRNPDL  |
| 950 | Muscular dystrophy limb-girdle type 2A 253600  | CAPN3    |
| 950 | Muscular dystrophy limb-girdle type 2B 253601  | DYSF     |
| 950 | Muscular dystrophy limb-girdle type 2C 253700  | SGCG     |
| 950 | Muscular dystrophy limb-girdle type 2D 608099  | SGCA     |
| 950 | Muscular dystrophy limb-girdle type 2E 604286  | SGCB     |
| 950 | Muscular dystrophy limb-girdle type 2F 601287  | SGCD     |
| 950 | Muscular dystrophy limb-girdle type 2G 601954  | TCAP     |
| 950 | Muscular dystrophy limb-girdle type 2H 254110  | TRIM32   |
| 950 | Muscular dystrophy limb-girdle type 2J 608807  | TTN      |
| 950 | Muscular dystrophy limb-girdle type 2L 611307  | ANO5     |
| 950 | Muscular dystrophy limb-girdle type 2Q 613723  | PLEC     |
| 950 | Muscular dystrophy limb-girdle type 2S 615356  | TRAPPC11 |
| 950 | Muscular dystrophy limb-girdle type 2W 616827  | LIMS2    |
| 950 | Muscular dystrophy limb-girdle type IC 607801  | CAV3     |
| 950 | Muscular dystrophy rigid spine 1 602771  | SELENON  |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies type A 11 615181  | B3GALNT2 |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies type A 8 614830   | POMGNT2  |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 1 236670  | POMT1    |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 10 615041 | TMEM5    |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 12 615249 | POMK     |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 13 615287 | B3GNT2   |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 14 615350 | GMPPB    |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 2 613150  | POMT2    |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 3 253280  | POMGNT1  |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 4 253800  | FKTN     |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 5 613153  | FKRP     |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 6 613154  | LARGE1   |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 7 614643  | ISPD     |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with brain and eye anomalies) type A 9 616538  | DAG1     |

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| 950 | Muscular dystrophy-dystroglycanopathy (congenital with mental retardation) type B 1 613155            | POMT1   |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with mental retardation) type B 14 615351           | GMPPB   |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with mental retardation) type B 2 613156            | POMT2   |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with mental retardation) type B 3 613151            | POMGNT1 |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with mental retardation) type B 6 608840            | LARGE1  |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital with or without mental retardation) type B 5 606612 | FKRP    |
| 950 | Muscular dystrophy-dystroglycanopathy (congenital without mental retardation) type B 4 613152         | FKTN    |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 1 609308                                   | POMT1   |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 14 615352                                  | GMPPB   |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 2 613158                                   | POMT2   |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 3 613157                                   | POMGNT1 |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 4 611588                                   | FKTN    |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 5 607155                                   | FKRP    |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 7 616052                                   | ISPD    |
| 950 | Muscular dystrophy-dystroglycanopathy (limb-girdle) type C 9 613818                                   | DAG1    |
| 951 | Myasthenia congenital 12 with tubular aggregates 610542   | GFPT1   |
| 952 | Myasthenic syndrome congenital 10 254300  | DOK7    |
| 952 | Myasthenic syndrome congenital 11 associated with acetylcholine receptor deficiency 616326            | RAPSN   |
| 952 | Myasthenic syndrome congenital 13 with tubular aggregates 614750                                      | DPAGT1  |
| 952 | Myasthenic syndrome congenital 14 with tubular aggregates 616228                                      | ALG2    |
| 952 | Myasthenic syndrome congenital 16 614198  | SCN4A   |
| 952 | Myasthenic syndrome congenital 19 616720  | COL13A1 |
| 952 | Myasthenic syndrome congenital 1A slow-channel 601462   | CHRNA1  |
| 952 | Myasthenic syndrome congenital 1B fast-channel 608930   | CHRNA1  |
| 952 | Myasthenic syndrome congenital 20 presynaptic 617143  | SLC5A7  |
| 952 | Myasthenic syndrome congenital 21 presynaptic 617239  | SLC18A3 |
| 952 | Myasthenic syndrome congenital 2A slow-channel 616313   | CHRNA1  |



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| 952 | Myasthenic syndrome congenital 3B fast-channel 616322                                      | CHRND   |
| 952 | Myasthenic syndrome congenital 4A slow-channel 605809                                      | CHRNE   |
| 952 | Myasthenic syndrome congenital 4B fast-channel 616324                                      | CHRNE   |
| 952 | Myasthenic syndrome congenital 4C associated with acetylcholine receptor deficiency 608931 | CHRNE   |
| 952 | Myasthenic syndrome congenital 5 603034  | COLQ    |
| 952 | Myasthenic syndrome congenital 6 presynaptic 254210  | CHAT    |
| 952 | Myasthenic syndrome congenital 7 presynaptic 616040  | SYT2    |
| 952 | Myasthenic syndrome congenital 8 with pre- and postsynaptic defects 615120                 | AGRN    |
| 952 | Myasthenic syndrome congenital 9 associated with acetylcholine receptor deficiency 616325  | MUSK    |
| 953 | Myelodysplastic syndrome somatic 614286  | ASXL1   |
| 953 | Myelodysplastic syndrome somatic 614286  | SF3B1   |
| 953 | Myelodysplastic syndrome somatic 614286  | TET2    |
| 953 | {Myelodysplastic syndrome susceptibility to} 614286  | GATA2   |
| 954 | Myelofibrosis somatic 254450   | CALR    |
| 954 | Myelofibrosis somatic 254450   | JAK2    |
| 954 | Myelofibrosis somatic 254450   | SH2B3   |
| 954 | Myelofibrosis with myeloid metaplasia somatic 254450                                       | MPL     |
| 955 | Myeloperoxidase deficiency 254600  | MPO     |
| 956 | Myhre syndrome 139210  | SMAD4   |
| 957 | Myoclonic epilepsy infantile familial 605021   | TBC1D24 |
| 957 | Myoclonic-atonic epilepsy 616421   | SLC6A1  |
| 957 | {Myoclonic epilepsy juvenile susceptibility to 1} 254770                                   | EFHC1   |
| 958 | Myoclonus familial cortical 614937   | NOL3    |
| 958 | Myoclonus intractable neonatal 617235  | KIF5A   |
| 959 | Myofibromatosis infantile 1 228550   | PDGFRB  |
| 960 | Myoglobinuria acute recurrent autosomal recessive 268200                                   | LPIN1   |
| 961 | Myopathy X-linked with excessive autophagy 310440  | VMA21   |
| 961 | Myopathy areflexia respiratory distress and dysphagia early-onset 614399                   | MEGF10  |
| 961 | Myopathy areflexia respiratory distress and dysphagia early-onset mild variant 614399      | MEGF10  |
| 961 | Myopathy congenital with fiber-type disproportion 1 255310                                 | ACTA1   |
| 961 | Myopathy congenital with fiber-type disproportion 255310                                   | SELENON |
| 961 | Myopathy congenital with fiber-type disproportion 255310                                   | TPM3    |
| 961 | Myopathy distal 4 614065   | FLNC    |
| 961 | Myopathy distal 5 617030   | ADSL    |
| 961 | Myopathy distal Tateyama type 614321   | CAV3    |
| 961 | Myopathy distal with anterior tibial onset 606768  | DYSF    |
| 961 | Myopathy distal with rimmed vacuoles 617158  | SQSTM1  |
| 961 | Myopathy due to myoadenylate deaminase deficiency 615511                                   | AMPD1   |
| 961 | Myopathy lactic acidosis and sideroblastic anemia 1 600462                                 | PUS1    |
| 961 | Myopathy lactic acidosis and sideroblastic anemia 2 613561                                 | YARS2   |

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| 961 | Myopathy mitochondrial and ataxia 617675  | MSTO1   |
| 961 | Myopathy mitochondrial progressive with congenital cataract hearing loss and developmental delay 613076 | GFER    |
| 961 | Myopathy myofibrillar 1 601419  | DES     |
| 961 | Myopathy myofibrillar 2 608810  | CRYAB   |
| 961 | Myopathy myofibrillar 3 609200  | MYOT    |
| 961 | Myopathy myofibrillar 4 609452  | LDB3    |
| 961 | Myopathy myofibrillar 5 609524  | FLNC    |
| 961 | Myopathy myofibrillar 6 612954  | BAG3    |
| 961 | Myopathy myofibrillar 7 617114  | KY      |
| 961 | Myopathy myofibrillar 8 617258  | PYROXD1 |
| 961 | Myopathy myofibrillar fatal infantile hypertonic alpha-B crystallin-related 613869                      | CRYAB   |
| 961 | Myopathy myosin storage autosomal dominant 608358   | MYH7    |
| 961 | Myopathy myosin storage autosomal recessive 255160  | MYH7    |
| 961 | Myopathy proximal with early respiratory muscle involvement 603689                                      | TTN     |
| 961 | Myopathy spheroid body 182920   | MYOT    |
| 961 | Myopathy tubular aggregate 1 160565   | STIM1   |
| 961 | Myopathy tubular aggregate 2 615883   | ORAI1   |
| 961 | Myopathy vacuolar with CASQ1 aggregates 616231  | CASQ1   |
| 961 | Myopathy with extrapyramidal signs 615673   | MICU1   |
| 961 | Myopathy with lactic acidosis hereditary 255125   | ISCU    |
| 962 | Nemaline myopathy 1 autosomal dominant or recessive 609284  | TPM3    |
| 962 | Nemaline myopathy 10 616165   | LMOD3   |
| 962 | Nemaline myopathy 11 autosomal recessive 617336   | MYPN    |
| 962 | Nemaline myopathy 2 autosomal recessive 256030  | NEB     |
| 962 | Nemaline myopathy 3 autosomal dominant or recessive 161800  | ACTA1   |
| 962 | Nemaline myopathy 4 autosomal dominant 609285   | TPM2    |
| 962 | Nemaline myopathy 5 Amish type 605355   | TNNT1   |
| 962 | Nemaline myopathy 6 autosomal dominant 609273   | KBTBD13 |
| 962 | Nemaline myopathy 7 autosomal recessive 610687  | CFL2    |
| 962 | Nemaline myopathy 8 autosomal recessive 615348  | KLHL40  |
| 962 | Nemaline myopathy 9 615731  | KLHL41  |
| 962 | Myopathy actin congenital with cores 161800   | ACTA1   |
| 962 | Myopathy actin congenital with excess of thin myofilaments 161800                                       | ACTA1   |
| 963 | Myopia 21 autosomal dominant 614167   | ZNF644  |
| 963 | Myopia 22 autosomal dominant 615420   | PRIMPOL |
| 963 | Myopia 23 autosomal recessive 615431  | LRPAP1  |
| 963 | Myopia 24 autosomal dominant 615946   | SLC39A5 |
| 963 | Myopia 25 autosomal dominant 617238   | P4HA2   |
| 963 | Myopia 6 608908   | SCO2    |
| 963 | Myopia high with cataract and vitreoretinal degeneration 614292   | P3H2    |
| 964 | Myotonia congenita atypical acetazolamide-responsive 608390   | SCN4A   |

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| 964 | Myotonia congenita dominant 160800  | CLCN1    |
| 964 | Myotonia congenita recessive 255700   | CLCN1    |
| 964 | Myotonic dystrophy 1 160900   | DMPK     |
| 964 | Myotonic dystrophy 2 602668   | CNBP     |
| 964 | Myotonia levior, recessive  | CLCN1    |
| 965 | Myotubular myopathy X-linked 310400   | MTM1     |
| 966 | Myxoma intracardiac 255960  | PRKAR1A  |
| 967 | N-acetylglutamate synthase deficiency 237310                                    | NAGS     |
| 968 | NOR polyagglutination syndrome 111400   | A4GALT   |
| 969 | Naegeli-Franceschetti-Jadassohn syndrome 161000                                 | KRT14    |
| 970 | Nail disorder nonsyndromic congenital 10 (claw-shaped nails) 614157             | FZD6     |
| 970 | Nail disorder nonsyndromic congenital 3 (leukonychia) 151600                    | PLCD1    |
| 971 | Nail-patella syndrome 161200  | LMX1B    |
| 972 | Nance-Horan syndrome 302350   | NHS      |
| 973 | Nanophthalmos 2 609549  | MFRP     |
| 973 | Nanophthalmos 4 615972  | TMEM98   |
| 974 | Nasopharyngeal carcinoma 607107   | TP53     |
| 974 | {Nasopharyngeal carcinoma susceptibility to 3} 617075                           | MST1R    |
| 975 | Nasu-Hakola disease 221770  | TREM2    |
| 975 | Nasu-Hakola disease 221770  | TYROBP   |
| 976 | Native American myopathy 255995   | STAC3    |
| 977 | Natural killer cell and glucocorticoid deficiency with DNA repair defect 609981 | MCM4     |
| 978 | Naxos disease 601214  | JUP      |
| 979 | CAP myopathy 1 609284   | TPM3     |
| 979 | CAP myopathy 2 609285   | TPM2     |
| 980 | Nephrogenic syndrome of inappropriate antidiuresis 300539                       | AVPR2    |
| 981 | Nephrolithiasis type I 310468   | CLCN5    |
| 981 | Nephrolithiasis or osteoporosis hypophosphatemic 1 612286                       | SLC34A1  |
| 981 | Nephrolithiasis or osteoporosis hypophosphatemic 2 612287                       | SLC9A3R1 |
| 981 | {Nephrolithiasis uric acid susceptibility to} 605990                            | ZNF365   |
| 982 | Nephronophthisis 1 juvenile 256100  | NPHP1    |
| 982 | Nephronophthisis 11 613550  | TMEM67   |
| 982 | Nephronophthisis 12 613820  | TTC21B   |
| 982 | Nephronophthisis 13 614377  | WDR19    |
| 982 | Nephronophthisis 14 614844  | ZNF423   |
| 982 | Nephronophthisis 15 614845  | CEP164   |
| 982 | Nephronophthisis 16 615382  | ANKS6    |
| 982 | Nephronophthisis 18 615862  | CEP83    |
| 982 | Nephronophthisis 19 616217  | DCDC2    |
| 982 | Nephronophthisis 2 infantile 602088   | INVS     |
| 982 | Nephronophthisis 20 617271  | MAPKBP1  |
| 982 | Nephronophthisis 3 604387   | NPHP3    |
| 982 | Nephronophthisis 4 606966   | NPHP4    |

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| 982 | Nephronophthisis 7 611498   | GLIS2   |
| 982 | Nephronophthisis-like nephropathy 1 613159                            | XPNPEP3 |
| 982 | Nephropathy due to CFHR5 deficiency 614809                            | CFHR5   |
| 982 | Nephropathy with pretibial epidermolysis bullosa and deafness 609057  | CD151   |
| 982 | Nephrotic syndrome 14 617575  | SGPL1   |
| 982 | Nephrotic syndrome 15 617609  | MAGI2   |
| 982 | Nephrotic syndrome 16 617783  | KANK2   |
| 982 | Nephrotic syndrome type 1 256300                                      | NPHS1   |
| 982 | Nephrotic syndrome type 10 615861                                     | EMP2    |
| 982 | Nephrotic syndrome type 11 616730                                     | NUP107  |
| 982 | Nephrotic syndrome type 12 616892                                     | NUP93   |
| 982 | Nephrotic syndrome type 2 600995                                      | NPHS2   |
| 982 | Nephrotic syndrome type 3 610725                                      | PLCE1   |
| 982 | Nephrotic syndrome type 4 256370                                      | WT1     |
| 982 | Nephrotic syndrome type 5 with or without ocular abnormalities 614199 | LAMB2   |
| 982 | Nephrotic syndrome type 6 614196                                      | PTPRO   |
| 982 | Nephrotic syndrome type 7 615008                                      | DGKE    |
| 982 | Nephrotic syndrome type 8 615244                                      | ARHGDI1 |
| 982 | Nephrotic syndrome type 9 615573                                      | COQ8B   |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 1} 235400       | CFH     |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 2} 612922       | MCP     |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 3} 612923       | CFI     |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 4} 612924       | CFB     |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 5} 612925       | C3      |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 6} 612926       | THBD    |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to} 235400         | CFHR1   |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to} 235400         | CFHR3   |
| 983 | {Hemolytic uremic syndrome atypical susceptibility to 7} 615008       | DGKE    |
| 984 | Nestor-Guillermo progeria syndrome 614008                             | BANF1   |
| 985 | Netherton syndrome 256500   | SPINK5  |
| 986 | Neu-Laxova syndrome 1 256520  | PHGDH   |
| 986 | Neu-Laxova syndrome 2 616038  | PSAT1   |
| 987 | Neural tube defects 182940  | FUZ     |
| 987 | Neural tube defects 182940  | VANGL2  |
| 987 | {Neural tube defects susceptibility to} 182940                        | T       |
| 987 | {Neural tube defects susceptibility to} 182940                        | VANGL1  |
| 987 | {Spina bifida susceptibility to} 182940                               | CCL2    |
| 987 | {Neural tube defects folate-sensitive susceptibility to} 601634       | MTHFD1  |
| 987 | {Neural tube defects folate-sensitive susceptibility to} 601634       | MTR     |
| 987 | {Neural tube defects folate-sensitive susceptibility to} 601634       | MTRR    |
| 987 | {Neural tube defects susceptibility to} 601634                        | MTHFR   |
| 988 | Neuroblastoma 256700  | NME1    |
| 988 | {Neuroblastoma susceptibility to 1} 256700                            | KIF1B   |

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| 988 | Neuroblastoma with Hirschsprung disease 613013  | PHOX2B   |
| 988 | {Neuroblastoma susceptibility to 2} 613013  | PHOX2B   |
| 988 | {Neuroblastoma susceptibility to 3} 613014  | ALK      |
| 989 | Neurocutaneous melanosis somatic 249400   | NRAS     |
| 990 | Neurodegeneration childhood-onset with brain atrophy 617672   | UBTF     |
| 990 | Neurodegeneration due to cerebral folate transport deficiency 613068  | FOLR1    |
| 990 | Neurodegeneration with ataxia dystonia and gaze palsy childhood-onset 617145  | SQSTM1   |
| 990 | Neurodegeneration with brain iron accumulation 1 234200   | PANK2    |
| 990 | Neurodegeneration with brain iron accumulation 2B 610217  | PLA2G6   |
| 990 | Neurodegeneration with brain iron accumulation 3 606159   | FTL      |
| 990 | Neurodegeneration with brain iron accumulation 4 614298   | C19orf12 |
| 990 | Neurodegeneration with brain iron accumulation 5 300894   | WDR45    |
| 990 | Neurodegeneration with brain iron accumulation 6 615643   | COASY    |
| 991 | Neurodevelopmental disorder mitochondrial with abnormal movements and lactic acidosis with or without seizures 617710 | WARS2    |
| 991 | Neurodevelopmental disorder with dysmorphic facies and distal limb anomalies 617755                                   | BPTF     |
| 991 | Neurodevelopmental disorder with epilepsy cataracts feeding difficulties and delayed brain myelination 617393         | NACC1    |
| 991 | Neurodevelopmental disorder with hypotonia seizures and absent language 617268  | HECW2    |
| 991 | Neurodevelopmental disorder with involuntary movements 617493   | GNAO1    |
| 991 | Neurodevelopmental disorder with microcephaly hypotonia and variable brain anomalies 617481                           | PRUNE1   |
| 991 | Neurodevelopmental disorder with or without anomalies of the brain eye or heart 616975                                | RERE     |
| 991 | Neurodevelopmental disorder with progressive microcephaly spasticity and brain anomalies 617527                       | PLAA     |
| 992 | Neurofibromatosis familial spinal 162210  | NF1      |
| 992 | Neurofibromatosis type 1 162200   | NF1      |
| 992 | Neurofibromatosis type 2 101000   | NF2      |
| 992 | Neurofibromatosis-Noonan syndrome 601321  | NF1      |
| 993 | Neuromyotonia and axonal neuropathy autosomal recessive 137200  | HINT1    |
| 994 | Neuronopathy distal hereditary motor type IID 615575  | FBXO38   |
| 994 | Neuronopathy distal hereditary motor type IX 617721   | WARS     |
| 994 | Neuronopathy distal hereditary motor type VI 604320   | IGHMBP2  |
| 994 | Neuronopathy distal hereditary motor type VIIA 158580   | SLC5A7   |
| 995 | Neuropathy congenital hypomyelinating 1 605253  | EGR2     |
| 995 | Neuropathy congenital hypomyelinating 605253  | MPZ      |
| 995 | Neuropathy distal hereditary motor type IIA 158590  | HSPB8    |
| 995 | Neuropathy distal hereditary motor type IIB 608634  | HSPB1    |

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| 995  | Neuropathy distal hereditary motor type VA 600794                             | BSCL2    |
| 995  | Neuropathy distal hereditary motor type VA 600794                             | GARS     |
| 995  | Neuropathy distal hereditary motor type VIIB 607641                           | DCTN1    |
| 995  | Neuropathy hereditary motor and sensory Russe type 605285                     | HK1      |
| 995  | Neuropathy hereditary motor and sensory type VIB 616505                       | SLC25A46 |
| 995  | Neuropathy hereditary sensory and autonomic type IA 162400                    | SPTLC1   |
| 995  | Neuropathy hereditary sensory and autonomic type IC 613640                    | SPTLC2   |
| 995  | Neuropathy hereditary sensory and autonomic type II 201300                    | WNK1     |
| 995  | Neuropathy hereditary sensory and autonomic type IIB 613115                   | FAM134B  |
| 995  | Neuropathy hereditary sensory and autonomic type V 608654                     | NGF      |
| 995  | Neuropathy hereditary sensory and autonomic type VII 615548                   | SCN11A   |
| 995  | Neuropathy hereditary sensory and autonomic type VIII 616488                  | PRDM12   |
| 995  | Neuropathy hereditary sensory type ID 613708                                  | ATL1     |
| 995  | Neuropathy hereditary sensory type IE 614116                                  | DNMT1    |
| 995  | Neuropathy hereditary sensory type IF 615632                                  | ATL3     |
| 995  | Neuropathy hereditary sensory type IIC 614213                                 | KIF1A    |
| 995  | Neuropathy hereditary sensory with spastic paraplegia 256840                  | CCT5     |
| 995  | Neuropathy hereditary with or without age-related macular degeneration 608895 | FBLN5    |
| 995  | Neuropathy recurrent with pressure palsies 162500                             | PMP22    |
| 996  | Neutral lipid storage disease with myopathy 610717                            | PNPLA2   |
| 997  | Neutropenia cyclic 162800   | ELANE    |
| 997  | Neutropenia severe congenital 1 autosomal dominant 202700                     | ELANE    |
| 997  | Neutropenia severe congenital 3 autosomal recessive 610738                    | HAX1     |
| 997  | Neutropenia severe congenital 4 autosomal recessive 612541                    | G6PC3    |
| 997  | Neutropenia severe congenital 5 autosomal recessive 615285                    | VPS45    |
| 997  | Neutropenia severe congenital 6 autosomal recessive 616022                    | JAGN1    |
| 997  | Neutropenia severe congenital 7 autosomal recessive 617014                    | CSF3R    |
| 997  | Neutropenia severe congenital X-linked 300299                                 | WAS      |
| 997  | Neutropenia, alloimmune neonatal  | FCGR3B   |
| 997  | Dursun syndrome 612541  | G6PC3    |
| 998  | Neutrophil immunodeficiency syndrome 608203                                   | RAC2     |
| 999  | Nevus comedonicus somatic 617025  | NEK9     |
| 1000 | Nevus epidermal somatic 162900  | FGFR3    |
| 1000 | Nevus epidermal somatic 162900  | PIK3CA   |
| 1000 | {Nevus sebaceous or woolly hair nevus somatic} 162900                         | HRAS     |
| 1000 | Epidermal nevus somatic 162900  | NRAS     |
| 1001 | Newfoundland rod-cone dystrophy 607476  | RLBP1    |
| 1002 | Nicolaides-Baraitser syndrome 601358  | SMARCA2  |
| 1003 | Niemann-Pick disease type A 257200  | SMPD1    |
| 1003 | Niemann-Pick disease type B 607616  | SMPD1    |
| 1003 | Niemann-Pick disease type C1 257220   | NPC1     |
| 1003 | Niemann-Pick disease type D 257220  | NPC1     |
| 1003 | Niemann-pick disease type C2 607625   | NPC2     |

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| 1004 | Night blindness congenital stationary (complete) 1A X-linked 310500                   | NYX     |
| 1004 | Night blindness congenital stationary (complete) 1B autosomal recessive 257270        | GRM6    |
| 1004 | Night blindness congenital stationary (complete) 1C autosomal recessive 613216        | TRPM1   |
| 1004 | Night blindness congenital stationary (complete) 1D autosomal recessive 613830        | SLC24A1 |
| 1004 | Night blindness congenital stationary (complete) 1E autosomal recessive 614565        | GPR179  |
| 1004 | Night blindness congenital stationary (complete) 1F autosomal recessive 615058        | LRIT3   |
| 1004 | Night blindness congenital stationary (incomplete) 2A X-linked 300071                 | CACNA1F |
| 1004 | Night blindness congenital stationary autosomal dominant 1 610445                     | RHO     |
| 1004 | Night blindness congenital stationary autosomal dominant 2 163500                     | PDE6B   |
| 1004 | Night blindness congenital stationary autosomal dominant 3 610444                     | GNAT1   |
| 1004 | Night blindness congenital stationary type 1H 617024                                  | GNB3    |
| 1005 | Nijmegen breakage syndrome 251260   | NBN     |
| 1005 | Nijmegen breakage syndrome-like disorder 613078                                       | RAD50   |
| 1006 | Nonaka myopathy 605820  | GENE    |
| 1007 | Noonan syndrome 1 163950  | PTPN11  |
| 1007 | Noonan syndrome 10 616564   | LZTR1   |
| 1007 | Noonan syndrome 3 609942  | KRAS    |
| 1007 | Noonan syndrome 4 610733  | SOS1    |
| 1007 | Noonan syndrome 5 611553  | RAF1    |
| 1007 | Noonan syndrome 6 613224  | NRAS    |
| 1007 | Noonan syndrome 7 613706  | BRAF    |
| 1007 | Noonan syndrome 8 615355  | RIT1    |
| 1007 | Noonan syndrome 9 616559  | SOS2    |
| 1007 | Noonan syndrome-like disorder with loose anagen hair 2 617506                         | PPP1CB  |
| 1007 | Noonan syndrome-like disorder with or without juvenile myelomonocytic leukemia 613563 | CBL     |
| 1007 | Noonan-like syndrome with loose anagen hair 607721                                    | SHOC2   |
| 1008 | Norrie disease 310600   | NDP     |
| 1009 | Norum disease 245900  | LCAT    |
| 1010 | Nystagmus 1 congenital X-linked 310700  | FRMD7   |
| 1010 | Nystagmus 6 congenital X-linked 300814  | GPR143  |
| 1010 | Nystagmus infantile periodic alternating X-linked 310700                              | FRMD7   |
| 1011 | OKT4 epitope deficiency 613949  | CD4     |
| 1012 | Obesity adrenal insufficiency and red hair due to POMC deficiency 609734              | POMC    |

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| 1012 | Obesity autosomal dominant 601665                       | MC4R     |
| 1012 | Obesity hyperphagia and developmental delay 613886      | NTRK2    |
| 1012 | Obesity mild early-onset 601665                         | NROB2    |
| 1012 | Obesity morbid due to leptin deficiency 614962          | LEP      |
| 1012 | Obesity morbid due to leptin receptor deficiency 614963 | LEPR     |
| 1012 | Obesity severe 601665                                   | PPARG    |
| 1012 | Obesity severe 601665                                   | SIM1     |
| 1012 | Obesity with impaired prohormone processing 600955      | PCSK1    |
| 1012 | {Obesity association with} 601665                       | SDC3     |
| 1012 | {Obesity early-onset susceptibility to} 601665          | POMC     |
| 1012 | {Obesity late-onset} 601665                             | AGRP     |
| 1012 | {Obesity severe and type II diabetes} 601665            | UCP3     |
| 1012 | {Obesity susceptibility to} 601665                      | ADRB2    |
| 1012 | {Obesity susceptibility to} 601665                      | ADRB3    |
| 1012 | {Obesity susceptibility to} 601665                      | ENPP1    |
| 1012 | {Obesity susceptibility to} 601665                      | GHRL     |
| 1012 | {Obesity susceptibility to} 601665                      | UCP1     |
| 1012 | {Obesity variation in} 601665                           | PPARGC1B |
| 1012 | {Obesity severe susceptibility to BMIQ9} 602025         | MC3R     |
| 1012 | {Obesity susceptibility to BMIQ11} 300306               | SLC6A14  |
| 1012 | {Obesity susceptibility to BMIQ12} 612362               | PCSK1    |
| 1012 | {Obesity susceptibility to BMIQ14} 612460               | FTO      |
| 1012 | {Obesity susceptibility to BMIQ4} 607447                | UCP2     |
| 1012 | {Obesity susceptibility to} 607514                      | FFAR4    |
| 1012 | Obesity, hyperphagia, and developmental delay           | AKR1C2   |
| 1013 | Occipital horn syndrome 304150                          | ATP7A    |
| 1014 | Occult macular dystrophy 613587                         | RP1L1    |
| 1015 | Ocular albinism type I Nettleship-Falls type 300500     | GPR143   |
| 1016 | Oculoauricular syndrome 612109                          | HMX1     |
| 1017 | Oculodentodigital dysplasia 164200                      | GJA1     |
| 1017 | Oculodentodigital dysplasia autosomal recessive 257850  | GJA1     |
| 1018 | Oculopharyngeal muscular dystrophy 164300               | PABPN1   |
| 1019 | Odontoonychodermal dysplasia 257980                     | WNT10A   |
| 1020 | Ogden syndrome 300855                                   | NAA10    |
| 1021 | Oguchi disease-1 258100                                 | SAG      |
| 1021 | Oguchi disease-2 613411                                 | GRK1     |
| 1022 | Ohdo syndrome X-linked 300895                           | MED12    |
| 1023 | Okur-Chung neurodevelopmental syndrome 617062           | CSNK2A1  |
| 1024 | Oligodontia-colorectal cancer syndrome 608615           | AXIN2    |
| 1025 | Oliver-McFarlane syndrome 275400                        | PNPLA6   |
| 1026 | Olmsted syndrome 614594                                 | TRPV3    |
| 1027 | Omenn syndrome 603554                                   | DCLRE1C  |
| 1027 | Omenn syndrome 603554                                   | RAG1     |
| 1027 | Omenn syndrome 603554                                   | RAG2     |
| 1028 | Omeprazole poor metabolizer 609535                      | CYP2C19  |



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| 1029 | Omodysplasia 1 258315  | GPC6     |
| 1030 | Oocyte maturation defect 1 615774  | ZP1      |
| 1030 | Oocyte maturation defect 2 616780  | TUBB8    |
| 1030 | Oocyte maturation defect 3 617712  | ZP3      |
| 1030 | Oocyte maturation defect 4 617743  | PATL2    |
| 1031 | Opitz GBBB syndrome type I 300000  | MID1     |
| 1031 | Opitz GBBB syndrome type II 145410   | SPECC1L  |
| 1032 | Opitz-Kaveggia syndrome 305450   | MED12    |
| 1033 | Opsismodysplasia 258480  | INPPL1   |
| 1034 | Optic atrophy 1 165500   | OPA1     |
| 1034 | Optic atrophy 10 with or without ataxia mental retardation and seizures 616732 | RTN4IP1  |
| 1034 | Optic atrophy 3 with cataract 165300   | OPA3     |
| 1034 | Optic atrophy 5 610708   | DNM1L    |
| 1034 | Optic atrophy 7 612989   | TMEM126A |
| 1034 | Optic atrophy plus syndrome 125250   | OPA1     |
| 1035 | Optic disc anomalies with retinal and or macular dystrophy 212550              | SIX6     |
| 1036 | Optic nerve hypoplasia 165550  | PAX6     |
| 1037 | Ornithine transcarbamylase deficiency 311250                                   | OTC      |
| 1038 | Orofacial cleft 10 613705  | SUMO1    |
| 1038 | Orofacial cleft 11 600625  | BMP4     |
| 1038 | Orofacial cleft 5 608874   | MSX1     |
| 1038 | Orofacial cleft 7 225060   | NECTIN1  |
| 1038 | Orofacial cleft 8 129400   | TP63     |
| 1038 | {Orofacial cleft 6} 608864   | IRF6     |
| 1038 | Rapp-Hodgkin syndrome 129400   | TP63     |
| 1039 | Orofaciodigital syndrome I 311200  | OFD1     |
| 1039 | Orofaciodigital syndrome IV 258860   | TCTN3    |
| 1039 | Orofaciodigital syndrome V 174300  | DDX59    |
| 1039 | Orofaciodigital syndrome VI 277170   | C5orf42  |
| 1039 | Orofaciodigital syndrome XVI 617563  | TMEM107  |
| 1040 | Orotic aciduria 258900   | UMPS     |
| 1041 | Orthostatic intolerance 604715   | SLC6A2   |
| 1042 | Osseous heteroplasia progressive 166350  | GNAS     |
| 1043 | Osteoarthritis with mild chondrodysplasia 604864                               | COL2A1   |
| 1043 | {Osteoarthritis susceptibility 1} 165720                                       | FRZB     |
| 1043 | {Osteoarthritis susceptibility 2} 140600                                       | MATN3    |
| 1043 | {Osteoarthritis susceptibility 3} 607850                                       | ASPN     |
| 1043 | {Osteoarthritis-5} 612400  | GDF5     |
| 1044 | Osteochondrodysplasia complex lethal Symoens-Barnes-Gistelinc type 616897      | TAPT1    |
| 1045 | Osteogenesis imperfecta type I 166200  | COL1A1   |
| 1045 | Osteogenesis imperfecta type II 166210   | COL1A1   |
| 1045 | Osteogenesis imperfecta type II 166210   | COL1A2   |

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| 1045 | Osteogenesis imperfecta type III 259420                                | COL1A1    |
| 1045 | Osteogenesis imperfecta type III 259420                                | COL1A2    |
| 1045 | Osteogenesis imperfecta type IV 166220                                 | COL1A1    |
| 1045 | Osteogenesis imperfecta type IV 166220                                 | COL1A2    |
| 1045 | Osteogenesis imperfecta type IX 259440                                 | PPIB      |
| 1045 | Osteogenesis imperfecta type V 610967                                  | IFITM5    |
| 1045 | Osteogenesis imperfecta type VI 613982                                 | SERPINF1  |
| 1045 | Osteogenesis imperfecta type VII 610682                                | CRTAP     |
| 1045 | Osteogenesis imperfecta type VIII 610915                               | P3H1      |
| 1045 | Osteogenesis imperfecta type X 613848                                  | SERPINH1  |
| 1045 | Osteogenesis imperfecta type XI 610968                                 | FKBP10    |
| 1045 | Osteogenesis imperfecta type XIII 614856                               | BMP1      |
| 1045 | Osteogenesis imperfecta type XIV 615066                                | TMEM38B   |
| 1045 | Osteogenesis imperfecta type XV 615220                                 | WNT1      |
| 1045 | Osteogenesis imperfecta type XVII 616507                               | SPARC     |
| 1046 | Osteoglophonic dysplasia 166250  | FGFR1     |
| 1047 | Osteolysis familial expansile 174810                                   | TNFRSF11A |
| 1048 | Osteopathia striata with cranial sclerosis 300373                      | AMER1     |
| 1049 | Osteopetrosis autosomal dominant 1 607634                              | LRP5      |
| 1049 | Osteopetrosis autosomal dominant 2 166600                              | CLCN7     |
| 1049 | Osteopetrosis autosomal recessive 1 259700                             | TCIRG1    |
| 1049 | Osteopetrosis autosomal recessive 2 259710                             | TNFSF11   |
| 1049 | Osteopetrosis autosomal recessive 3 with renal tubular acidosis 259730 | CA2       |
| 1049 | Osteopetrosis autosomal recessive 4 611490                             | CLCN7     |
| 1049 | Osteopetrosis autosomal recessive 5 259720                             | OSTM1     |
| 1049 | Osteopetrosis autosomal recessive 6 611497                             | PLEKHM1   |
| 1049 | Osteopetrosis autosomal recessive 7 612301                             | TNFRSF11A |
| 1049 | Osteopetrosis autosomal recessive 8 615085                             | SNX10     |
| 1050 | Osteopoikilosis with or without melorheostosis 166700                  | LEMD3     |
| 1050 | Buschke-Ollendorff syndrome 166700                                     | LEMD3     |
| 1051 | Osteosclerosis 144750  | LRP5      |
| 1051 | Hyperostosis endosteal 144750  | LRP5      |
| 1052 | Osteoporosis-pseudoglioma syndrome 259770                              | LRP5      |
| 1053 | Osteosarcoma 259500  | TP53      |
| 1053 | Osteosarcoma somatic 259500  | CHEK2     |
| 1053 | Osteosarcoma somatic 259500  | RB1       |
| 1054 | Otopalatodigital syndrome type I 311300                                | FLNA      |
| 1054 | Otopalatodigital syndrome type II 304120                               | FLNA      |
| 1055 | Otospondylomegaepiphyseal dysplasia autosomal dominant 184840          | COL11A2   |
| 1055 | Otospondylomegaepiphyseal dysplasia autosomal recessive 215150         | COL11A2   |
| 1056 | Ovalocytosis SA type 166900  | SLC4A1    |
| 1057 | Ovarian cancer somatic 167000  | AKT1      |

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| 1057 | Ovarian cancer somatic 167000  | CTNNB1    |
| 1057 | Ovarian cancer somatic 167000  | PIK3CA    |
| 1057 | Ovarian carcinoma somatic 167000   | CDH1      |
| 1057 | Adenocarcinoma ovarian somatic 167000  | PRKN      |
| 1057 | {Ovarian cancer somatic} 167000  | OPCML     |
| 1057 | {Breast-ovarian cancer familial 1} 604370  | BRCA1     |
| 1057 | {Breast-ovarian cancer familial 2} 612555  | BRCA2     |
| 1057 | {Breast-ovarian cancer familial susceptibility to 3} 613399                              | RAD51C    |
| 1057 | {Breast-ovarian cancer familial susceptibility to 4} 614291                              | RAD51D    |
| 1057 | Ovarian cancer, somatic  | ERBB2     |
| 1057 | Ovarian carcinoma  | RRAS2     |
| 1058 | Ovarian dysgenesis 1 233300  | FSHR      |
| 1058 | Ovarian dysgenesis 2 300510  | BMP15     |
| 1058 | Ovarian dysgenesis 3 614324  | PSMC3IP   |
| 1058 | Ovarian dysgenesis 4 616185  | MCM9      |
| 1058 | Ovarian dysgenesis 5 617690  | SOHLH1    |
| 1059 | Ovarian hyperstimulation syndrome 608115   | FSHR      |
| 1060 | Ovarian response to FSH stimulation 276400   | FSHR      |
| 1061 | Ovarioleukodystrophy 603896  | EIF2B2    |
| 1061 | Ovarioleukodystrophy 603896  | EIF2B4    |
| 1061 | Ovarioleukodystrophy 603896  | EIF2B5    |
| 1062 | Overhydrated hereditary stomatocytosis 185000  | RHAG      |
| 1063 | PCWH syndrome 609136   | SOX10     |
| 1064 | PEHO syndrome 260565   | ZNHIT3    |
| 1065 | Pachyonychia congenita 1 167200  | KRT16     |
| 1065 | Pachyonychia congenita 2 167210  | KRT17     |
| 1065 | Pachyonychia congenita 3 615726  | KRT6A     |
| 1065 | Pachyonychia congenita 4 615728  | KRT6B     |
| 1066 | Paget disease of bone 3 167250   | SQSTM1    |
| 1066 | Paget disease of bone 5 juvenile-onset 239000  | TNFRSF11B |
| 1066 | Paget disease of bone 6 616833   | ZNF687    |
| 1067 | Pallister-Hall syndrome 146510   | GLI3      |
| 1068 | Palmoplantar carcinoma multiple self-healing 615255                                      | NLRP1     |
| 1069 | Palmoplantar hyperkeratosis and true hermaphroditism 610644                              | RSPO1     |
| 1069 | Palmoplantar hyperkeratosis with squamous cell carcinoma of skin and sex reversal 610644 | RSPO1     |
| 1070 | Palmoplantar keratoderma Bothnian type 600231  | AQP5      |
| 1070 | Palmoplantar keratoderma Nagashima type 615598   | SERPINB7  |
| 1070 | Palmoplantar keratoderma and woolly hair 616099  | KANK2     |
| 1070 | Palmoplantar keratoderma epidermolytic 144200  | KRT1      |
| 1070 | Palmoplantar keratoderma epidermolytic 144200  | KRT9      |
| 1070 | Palmoplantar keratoderma nonepidermolytic 600962   | KRT1      |
| 1070 | Palmoplantar keratoderma nonepidermolytic focal 613000                                   | KRT16     |
| 1070 | Palmoplantar keratoderma nonepidermolytic focal or diffuse 615735                        | KRT6C     |

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| 1070 | Palmoplantar keratoderma with congenital alopecia 104100 | GJA1   |
| 1071 | Pancreatic agenesis 1 260370                             | PDX1   |
| 1071 | Pancreatic agenesis 2 615935                             | PTF1A  |
| 1071 | Pancreatic agenesis and congenital heart defects 600001  | GATA6  |
| 1071 | Pancreatic and cerebellar agenesis 609069                | PTF1A  |
| 1072 | Pancreatic cancer 260350                                 | STK11  |
| 1072 | Pancreatic cancer 260350                                 | TP53   |
| 1072 | Pancreatic cancer somatic 260350                         | SMAD4  |
| 1072 | Pancreatic cancer or melanoma syndrome 606719            | CDKN2A |
| 1072 | Pancreatic carcinoma somatic 260350                      | KRAS   |
| 1072 | {Pancreatic cancer 2} 613347                             | BRCA2  |
| 1072 | {Pancreatic cancer susceptibility to 1} 606856           | PALLD  |
| 1072 | {Pancreatic cancer susceptibility to 3} 613348           | PALB2  |
| 1072 | {Pancreatic cancer susceptibility to 4} 614320           | BRCA1  |
| 1072 | Pancreatic cancer, somatic                               | ACVR1B |
| 1072 | Pancreatic carcinoma, somatic                            | RBBP8  |
| 1073 | Pancreatitis hereditary 167800                           | PRSS1  |
| 1073 | Pancreatitis hereditary 167800                           | SPINK1 |
| 1073 | {Pancreatitis chronic protection against} 167800         | PRSS2  |
| 1073 | {Pancreatitis chronic susceptibility to} 167800          | CTRC   |
| 1073 | {Pancreatitis idiopathic} 167800                         | CFTR   |
| 1074 | Panhypopituitarism X-linked 312000                       | SOX3   |
| 1075 | Papillon-Lefevre syndrome 245000                         | CTSC   |
| 1076 | Papillorenal syndrome 120330                             | PAX2   |
| 1077 | Paraganglioma and gastric stromal sarcoma 606864         | SDHB   |
| 1077 | Paraganglioma and gastric stromal sarcoma 606864         | SDHC   |
| 1077 | Paraganglioma and gastric stromal sarcoma 606864         | SDHD   |
| 1077 | Paragangliomas 1 with or without deafness 168000         | SDHD   |
| 1077 | Paragangliomas 2 601650                                  | SDHAF2 |
| 1077 | Paragangliomas 3 605373                                  | SDHC   |
| 1077 | Paragangliomas 4 115310                                  | SDHB   |
| 1077 | Paragangliomas 5 614165                                  | SDHA   |
| 1078 | Paramyotonia congenita 168300                            | SCN4A  |
| 1079 | Parastremmatic dwarfism 168400                           | TRPV4  |
| 1080 | Parietal foramina 1 168500                               | MSX2   |
| 1080 | Parietal foramina 2 609597                               | ALX4   |
| 1080 | Parietal foramina with cleidocranial dysplasia 168550    | MSX2   |
| 1081 | Parkes Weber syndrome 608355                             | RASA1  |
| 1082 | Parkinson disease 1 168601                               | SNCA   |
| 1082 | Parkinson disease 14 autosomal recessive 612953          | PLA2G6 |
| 1082 | Parkinson disease 15 autosomal recessive 260300          | FBXO7  |
| 1082 | Parkinson disease 19a juvenile-onset 615528              | DNAJC6 |
| 1082 | Parkinson disease 19b early-onset 615528                 | DNAJC6 |
| 1082 | Parkinson disease 20 early-onset 615530                  | SYNJ1  |
| 1082 | Parkinson disease 22 autosomal dominant 616710           | CHCHD2 |

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| 1082 | Parkinson disease 23 autosomal recessive early onset 616840                              | VPS13C   |
| 1082 | Parkinson disease 4 605543   | SNCA     |
| 1082 | Parkinson disease 6 early onset 605909   | PINK1    |
| 1082 | Parkinson disease 7 autosomal recessive early-onset 606324                               | PARK7    |
| 1082 | Parkinson disease juvenile type 2 600116   | PRKN     |
| 1082 | Parkinsonism-dystonia infantile 613135   | SLC6A3   |
| 1082 | {Parkinson disease 11} 607688  | GIGYF2   |
| 1082 | {Parkinson disease 13} 610297  | HTRA2    |
| 1082 | {Parkinson disease 17} 614203  | VPS35    |
| 1082 | {Parkinson disease 18} 614251  | EIF4G1   |
| 1082 | {Parkinson disease 8} 607060   | LRRK2    |
| 1082 | {Parkinson disease age of onset modifier} 168600   | GLUD2    |
| 1082 | {Parkinson disease late-onset susceptibility to} 168600                                  | ATXN2    |
| 1082 | {Parkinson disease late-onset susceptibility to} 168600                                  | GBA      |
| 1082 | {Parkinson disease susceptibility to} 168600   | ADH1C    |
| 1082 | {Parkinson disease susceptibility to} 168600   | MAPT     |
| 1082 | {Parkinson disease susceptibility to} 168600   | TBP      |
| 1083 | Paroxysmal nocturnal hemoglobinuria somatic 300818                                       | PIGA     |
| 1084 | Paroxysmal nonkinesigenic dyskinesia 1 118800  | MR1      |
| 1084 | Paroxysmal nonkinesigenic dyskinesia 3 with or without generalized epilepsy 609446       | KCNMA1   |
| 1085 | Partington syndrome 309510   | ARX      |
| 1086 | Patent ductus arteriosus 2 617035  | TFAP2B   |
| 1086 | Patent ductus arteriosus 3 617039  | PRDM6    |
| 1087 | Peeling skin syndrome 1 270300   | CDSN     |
| 1087 | Peeling skin syndrome 2 609796   | TGM5     |
| 1087 | Peeling skin syndrome 4 607936   | CSTA     |
| 1087 | Peeling skin syndrome 5 617115   | SERPINB8 |
| 1087 | Peeling skin with leukonychia acral punctate keratoses cheilitis and knuckle pads 616295 | CAST     |
| 1088 | Pelger-Huet anomaly 169400   | LBR      |
| 1089 | Pelizaeus-Merzbacher disease 312080  | PLP1     |
| 1090 | Pendred syndrome 274600  | SLC26A4  |
| 1091 | Periodic fever familial 142680   | TNFRSF1A |
| 1091 | Periodic fever menstrual cycle dependent 614674  | HTR1A    |
| 1092 | Periodontitis 1 juvenile 170650  | CTSC     |
| 1093 | Periapillary Adenoma somatic   | APC      |
| 1094 | Periventricular heterotopia with microcephaly 608097                                     | ARFGEF2  |
| 1095 | Periventricular nodular heterotopia 7 617201   | NEDD4L   |
| 1096 | Perlman syndrome 267000  | DIS3L2   |
| 1097 | Peroxisomal acyl-CoA oxidase deficiency 264470   | ACOX1    |
| 1098 | Peroxisomal fatty acyl-CoA reductase 1 disorder 616154                                   | FAR1     |
| 1099 | Peroxisome biogenesis disorder 10A (Zellweger) 614882                                    | PEX3     |
| 1099 | Peroxisome biogenesis disorder 11A (Zellweger) 614883                                    | PEX13    |
| 1099 | Peroxisome biogenesis disorder 11B 614885  | PEX13    |

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| 1099 | Peroxisome biogenesis disorder 12A (Zellweger) 614886               | PEX19   |
| 1099 | Peroxisome biogenesis disorder 13A (Zellweger) 614887               | PEX14   |
| 1099 | Peroxisome biogenesis disorder 1A (Zellweger) 214100                | PEX1    |
| 1099 | Peroxisome biogenesis disorder 1B (NALD or IRD) 601539              | PEX1    |
| 1099 | Peroxisome biogenesis disorder 2A (Zellweger) 214110                | PEX5    |
| 1099 | Peroxisome biogenesis disorder 2B 202370                            | PEX5    |
| 1099 | Peroxisome biogenesis disorder 3A (Zellweger) 614859                | PEX12   |
| 1099 | Peroxisome biogenesis disorder 3B 266510                            | PEX12   |
| 1099 | Peroxisome biogenesis disorder 4A (Zellweger) 614862                | PEX6    |
| 1099 | Peroxisome biogenesis disorder 4B 614863                            | PEX6    |
| 1099 | Peroxisome biogenesis disorder 5A (Zellweger) 614866                | PEX2    |
| 1099 | Peroxisome biogenesis disorder 5B 614867                            | PEX2    |
| 1099 | Peroxisome biogenesis disorder 6A (Zellweger) 614870                | PEX10   |
| 1099 | Peroxisome biogenesis disorder 6B 614871                            | PEX10   |
| 1099 | Peroxisome biogenesis disorder 7A (Zellweger) 614872                | PEX26   |
| 1099 | Peroxisome biogenesis disorder 7B 614873                            | PEX26   |
| 1099 | Peroxisome biogenesis disorder 8A (Zellweger) 614876                | PEX16   |
| 1099 | Peroxisome biogenesis disorder 8B 614877                            | PEX16   |
| 1099 | Peroxisome biogenesis disorder 9B 614879                            | PEX7    |
| 1100 | Perrault syndrome 1 233400  | HSD17B4 |
| 1100 | Perrault syndrome 3 614129  | CLPP    |
| 1100 | Perrault syndrome 4 615300  | LARS2   |
| 1100 | Perrault syndrome 5 616138  | TWNK    |
| 1100 | Perrault syndrome 6 617565  | ERAL1   |
| 1101 | Perry syndrome 168605   | DCTN1   |
| 1102 | Persistent Mullerian duct syndrome type I 261550                    | AMH     |
| 1102 | Persistent Mullerian duct syndrome type II 261550                   | AMHR2   |
| 1103 | Persistent hyperplastic primary vitreous autosomal recessive 221900 | ATOH7   |
| 1104 | Peters-plus syndrome 261540   | B3GLCT  |
| 1105 | Peutz-Jeghers syndrome 175200                                       | STK11   |
| 1106 | Pfeiffer syndrome 101600  | FGFR1   |
| 1106 | Pfeiffer syndrome 101600  | FGFR2   |
| 1106 | Craniofacial-skeletal-dermatologic dysplasia 101600                 | FGFR2   |
| 1107 | Phelan-McDermid syndrome 606232                                     | SHANK3  |
| 1108 | Phenylketonuria 261600  | PAH     |
| 1109 | Pheochromocytoma 171300   | KIF1B   |
| 1109 | Pheochromocytoma 171300   | RET     |
| 1109 | Pheochromocytoma 171300   | SDHB    |
| 1109 | Pheochromocytoma 171300   | SDHD    |
| 1109 | Pheochromocytoma 171300   | VHL     |
| 1109 | {Pheochromocytoma modifier of} 171300                               | GDNF    |
| 1109 | {Pheochromocytoma susceptibility to} 171300                         | MAX     |
| 1109 | {Pheochromocytoma susceptibility to} 171300                         | TMEM127 |
| 1110 | Phosphoglycerate dehydrogenase deficiency 601815                    | PHGDH   |

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| 1110 | Phosphoglycerate kinase 1 deficiency 300653  | PGK1     |
| 1111 | Phospholipid phosphatase 6 611666  | PLPP6    |
| 1112 | Phosphoribosylpyrophosphate synthetase superactivity 300661                              | PRPS1    |
| 1112 | Gout PRPS-related 300661   | PRPS1    |
| 1113 | Phosphorylase kinase deficiency of liver and muscle autosomal recessive 261750           | PHKB     |
| 1114 | Phosphoserine phosphatase deficiency 614023  | PSPH     |
| 1115 | Pick disease 172700  | MAPT     |
| 1115 | Pick disease 172700  | PSEN1    |
| 1116 | Piebaldism 172800  | KIT      |
| 1116 | Piebaldism 172800  | SNAI2    |
| 1117 | Pierpont syndrome 602342   | TBL1XR1  |
| 1118 | Pierson syndrome 609049  | LAMB2    |
| 1119 | Pigmentary disorder reticulate with systemic manifestations X-linked 301220              | POLA1    |
| 1120 | Pigmented nodular adrenocortical disease primary 1 610489                                | PRKAR1A  |
| 1120 | Pigmented nodular adrenocortical disease primary 2 610475                                | PDE11A   |
| 1120 | Pigmented nodular adrenocortical disease primary 3 614190                                | PDE8B    |
| 1121 | Pigmented paravenous chorioretinal atrophy 172870  | CRB1     |
| 1122 | Pilarowski-Bjornsson syndrome 617682   | CHD1     |
| 1123 | Pitt-Hopkins like syndrome 1 610042  | CNTNAP2  |
| 1123 | Pitt-Hopkins syndrome 610954   | TCF4     |
| 1123 | Pitt-Hopkins-like syndrome 2 614325  | NRXN1    |
| 1124 | Pituitary adenoma 1 multiple types 102200  | AIP      |
| 1124 | Pituitary adenoma 2 GH-secreting 300943  | GPR101   |
| 1124 | Pituitary adenoma 3 multiple types somatic 617686  | GNAS     |
| 1124 | Pituitary adenoma 4 ACTH-secreting somatic 219090  | USP8     |
| 1124 | Pituitary adenoma predisposition 102000  | AIP      |
| 1124 | {Pituitary adenoma 5 multiple types} 617540  | CDH23    |
| 1124 | Pituitary ACTH-secreting adenoma   | GNAI2    |
| 1124 | Pituitary tumor, invasive  | PRKCA    |
| 1125 | Pituitary hormone deficiency combined 1 613038   | POU1F1   |
| 1125 | Pituitary hormone deficiency combined 2 262600   | PROP1    |
| 1125 | Pituitary hormone deficiency combined 3 221750   | LHX3     |
| 1125 | Pituitary hormone deficiency combined 4 262700   | LHX4     |
| 1125 | Pituitary hormone deficiency combined 5 182230   | HESX1    |
| 1125 | Pituitary hormone deficiency combined 6 613986   | OTX2     |
| 1126 | Pityriasis rubra pilaris 173200  | CARD14   |
| 1127 | Plasma triglyceride level QTL low 615881   | ANGPTL4  |
| 1128 | Plasminogen activator inhibitor-1 deficiency 613329                                      | SERPINE1 |
| 1129 | Plasminogen deficiency type I 217090   | PLG      |
| 1129 | Dysplasminogenemia 217090  | PLG      |
| 1130 | Platelet abnormalities with eosinophilia and immune-mediated inflammatory disease 617718 | ARPC1B   |

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| 1130 | Platelet disorder familial with associated myeloid malignancy 601399                              | RUNX1   |
| 1130 | Platelet glycoprotein IV deficiency 608404  | CD36    |
| 1130 | Platelet-activating factor acetylhydrolase deficiency 614278                                      | PLA2G7  |
| 1131 | Platyspondylic skeletal dysplasia Torrance type 151210  | COL2A1  |
| 1132 | Pleuropulmonary blastoma 601200   | DICER1  |
| 1133 | Pneumothorax primary spontaneous 173600   | FLCN    |
| 1134 | Poikiloderma hereditary fibrosing with tendon contractures myopathy and pulmonary fibrosis 615704 | FAM111B |
| 1134 | Poikiloderma with neutropenia 604173  | USB1    |
| 1135 | Polyarteritis nodosa childhood-onset 615688   | CECR1   |
| 1136 | Polycystic kidney disease 1 173900  | PKD1    |
| 1136 | Polycystic kidney disease 2 613095  | PKD2    |
| 1136 | Polycystic kidney disease 3 600666  | GANAB   |
| 1136 | Polycystic kidney disease 4 with or without hepatic disease 263200                                | PKHD1   |
| 1136 | Polycystic kidney disease 5 617610  | DZIP1L  |
| 1137 | Polycystic liver disease 1 174050   | PRKCSH  |
| 1137 | Polycystic liver disease 2 617004   | SEC63   |
| 1138 | Polycythemia vera somatic 263300  | JAK2    |
| 1139 | Polydactyly postaxial types A1 and B 174200   | GLI3    |
| 1139 | Polydactyly preaxial type II 174500   | LMBR1   |
| 1139 | Polydactyly preaxial type IV 174700   | GLI3    |
| 1140 | Polyglucosan body disease adult form 263570   | GBE1    |
| 1140 | Polyglucosan body myopathy 1 with or without immunodeficiency 615895                              | RBCK1   |
| 1140 | Polyglucosan body myopathy 2 616199   | GYG1    |
| 1141 | Polyhydramnios megalencephaly and symptomatic epilepsy 611087                                     | STRADA  |
| 1142 | Polymicrogyria bilateral frontoparietal 606854  | ADGRG1  |
| 1142 | Polymicrogyria bilateral perisylvian 615752   | ADGRG1  |
| 1142 | Polymicrogyria perisylvian with cerebellar hypoplasia and arthrogryposis 616531                   | PI4KA   |
| 1143 | Polyneuropathy hearing loss ataxia retinitis pigmentosa and cataract 612674                       | ABHD12  |
| 1144 | Pontocerebellar hypoplasia type 10 615803   | CLP1    |
| 1144 | Pontocerebellar hypoplasia type 11 617695   | TBC1D23 |
| 1144 | Pontocerebellar hypoplasia type 1A 607596   | VRK1    |
| 1144 | Pontocerebellar hypoplasia type 1B 614678   | EXOSC3  |
| 1144 | Pontocerebellar hypoplasia type 1C 616081   | EXOSC8  |
| 1144 | Pontocerebellar hypoplasia type 2A 277470   | TSEN54  |
| 1144 | Pontocerebellar hypoplasia type 2B 612389   | TSEN2   |
| 1144 | Pontocerebellar hypoplasia type 2D 613811   | SEPSECS |
| 1144 | Pontocerebellar hypoplasia type 2E 615851   | VPS53   |
| 1144 | Pontocerebellar hypoplasia type 2F 617026   | TSEN15  |



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| 1144 | Pontocerebellar hypoplasia type 4 225753                     | TSEN54  |
| 1144 | Pontocerebellar hypoplasia type 6 611523                     | RARS2   |
| 1144 | Pontocerebellar hypoplasia type 7 614969                     | TOE1    |
| 1144 | Pontocerebellar hypoplasia type 8 614961                     | CHMP1A  |
| 1144 | Pontocerebellar hypoplasia type 9 615809                     | AMPD2   |
| 1145 | Popliteal pterygium syndrome 1 119500                        | IRF6    |
| 1145 | Popliteal pterygium syndrome Bartsocas-Papas type 263650     | RIPK4   |
| 1146 | Porencephaly 1 175780  | COL4A1  |
| 1146 | Porencephaly 2 614483  | COL4A2  |
| 1147 | Poretti-Boltshauser syndrome 615960                          | LAMA1   |
| 1148 | Porokeratosis 1 multiple types 175800                        | PMVK    |
| 1148 | Porokeratosis 3 multiple types 175900                        | MVK     |
| 1148 | Porokeratosis 7 multiple types 614714                        | MVD     |
| 1148 | Porokeratosis 8 disseminated superficial actinic type 616063 | SLC17A9 |
| 1148 | Porokeratosis 9 multiple types 616631                        | FDPS    |
| 1149 | Porphyria acute hepatic 612740                               | ALAD    |
| 1149 | Porphyria acute intermittent 176000                          | HMBS    |
| 1149 | Porphyria acute intermittent nonerythroid variant 176000     | HMBS    |
| 1149 | Porphyria congenital erythropoietic 263700                   | UROS    |
| 1149 | Porphyria cutanea tarda 176100                               | UROD    |
| 1149 | Porphyria hepatoerythropoietic 176100                        | UROD    |
| 1149 | Porphyria variegata 176200                                   | PPOX    |
| 1149 | {Porphyria cutanea tarda susceptibility to} 176100           | HFE     |
| 1149 | {Porphyria variegata susceptibility to} 176200               | HFE     |
| 1149 | {Lead poisoning susceptibility to} 612740                    | ALAD    |
| 1150 | Portal hypertension noncirrhotic 617068                      | DGUOK   |
| 1151 | Prader-Willi syndrome 176270                                 | NDN     |
| 1151 | Prader-Willi syndrome 176270                                 | SNRPN   |
| 1152 | Precocious puberty central 2 615346                          | MKRN3   |
| 1152 | Precocious puberty male 176410                               | LHCGR   |
| 1152 | Leydig cell adenoma somatic with precocious puberty 176410   | LHCGR   |
| 1153 | Preeclampsia or eclampsia 4 609404                           | STOX1   |
| 1153 | Preeclampsia or eclampsia 5 614595                           | CORIN   |
| 1153 | {Preeclampsia, susceptibility to}                            | AGT     |
| 1154 | Pregnancy loss recurrent 4 270960                            | SYCP3   |
| 1154 | {Pregnancy loss recurrent susceptibility to 1} 614389        | F5      |
| 1154 | {Pregnancy loss recurrent susceptibility to 2} 614390        | F2      |
| 1154 | {Pregnancy loss recurrent susceptibility to 3} 614391        | ANXA5   |
| 1155 | Preimplantation embryonic lethality 2 617234                 | PADI6   |
| 1155 | Preimplantation embryonic lethality 616814                   | TLE6    |
| 1156 | Premature aging syndrome Penttinen type 601812               | PDGFRB  |
| 1157 | Premature ovarian failure 1 311360                           | FMR1    |
| 1157 | Premature ovarian failure 11 616946                          | ERCC6   |
| 1157 | Premature ovarian failure 3 608996                           | FOXL2   |
| 1157 | Premature ovarian failure 4 300510                           | BMP15   |

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| 1157 | Premature ovarian failure 5 611548   | NOBOX   |
| 1157 | Premature ovarian failure 6 612310   | FIGLA   |
| 1157 | Premature ovarian failure 7 612964   | NR5A1   |
| 1157 | Premature ovarian failure 8 615723   | STAG3   |
| 1157 | Premature ovarian failure 9 615724   | HFM1    |
| 1157 | Adrenocortical insufficiency 612964  | NR5A1   |
| 1158 | Primary aldosteronism seizures and neurologic abnormalities 615474                                 | CACNA1D |
| 1159 | Primary lateral sclerosis juvenile 606353  | ALS2    |
| 1160 | Primrose syndrome 259050   | ZBTB20  |
| 1161 | Prion disease with protracted course 606688  | PRNP    |
| 1162 | Progressive external ophthalmoplegia autosomal dominant 1 157640                                   | POLG    |
| 1162 | Progressive external ophthalmoplegia autosomal recessive 1 258450                                  | POLG    |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant 2 609283  | SLC25A4 |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant 3 609286  | TWINK   |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant 4 610131  | POLG2   |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant 5 613077  | RRM2B   |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant 6 615156  | DNA2    |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal recessive 2 616479 | RNASEH1 |
| 1162 | Progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal recessive 4 617070 | DGUOK   |
| 1163 | Progressive familial heart block type IB 604559  | TRPM4   |
| 1164 | Prolidase deficiency 170100  | PEPD    |
| 1165 | Proliferative vasculopathy and hydranencephaly-hydrocephaly syndrome 225790                        | FLVCR2  |
| 1166 | Properdin deficiency X-linked 312060   | PFC     |
| 1167 | Propionicacidemia 606054   | PCCA    |
| 1167 | Propionicacidemia 606054   | PCCB    |
| 1168 | Prostate cancer 1 601518   | RNASEL  |
| 1168 | Prostate cancer hereditary 176807  | MSR1    |
| 1168 | Prostate cancer somatic 176807   | KLF6    |
| 1168 | Prostate cancer somatic 176807   | MAD1L1  |
| 1168 | {Prostate cancer familial susceptibility to} 176807  | CHEK2   |
| 1168 | {Prostate cancer somatic} 176807   | PTEN    |
| 1168 | {Prostate cancer susceptibility to somatic} 176807   | ZFXH3   |
| 1168 | {Prostate cancer susceptibility to} 176807   | AR      |
| 1168 | {Prostate cancer susceptibility to} 176807   | CDH1    |

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| 1168 | {Prostate cancer susceptibility to} 176807  | MXI1     |
| 1168 | {Prostate cancer} 176807  | BRCA2    |
| 1168 | {Prostate cancer hereditary 12} 611868  | EHBP1    |
| 1168 | {Prostate cancer hereditary 13} 611928  | MSMB     |
| 1168 | {Prostate cancer hereditary 2 susceptibility to} 614731                                   | ELAC2    |
| 1168 | {Prostate cancer or brain cancer susceptibility somatic} 603688                           | EPHB2    |
| 1169 | Proteinuria low molecular weight with hypercalciuric nephrocalcinosis 308990              | CLCN5    |
| 1170 | Proteus syndrome somatic 176920   | AKT1     |
| 1171 | Protoporphyrin erythropoietic X-linked 300752   | ALAS2    |
| 1171 | Protoporphyrin erythropoietic autosomal recessive 177000                                  | FECH     |
| 1172 | Proud syndrome 300004   | ARX      |
| 1173 | Proximal myopathy and ophthalmoplegia 605637  | MYH2     |
| 1174 | Pseudo-TORCH syndrome 1 251290  | OCLN     |
| 1174 | Pseudo-TORCH syndrome 2 617397  | USP18    |
| 1175 | Pseudoachondroplasia 177170   | COMP     |
| 1176 | Pseudohermaphroditism male with gynecomastia 264300                                       | HSD17B3  |
| 1177 | Pseudohyperkalemia familial 2 due to red cell leak 609153                                 | ABCB6    |
| 1178 | Pseudohypoaldosteronism type I 264350   | SCNN1A   |
| 1178 | Pseudohypoaldosteronism type I 264350   | SCNN1B   |
| 1178 | Pseudohypoaldosteronism type I 264350   | SCNN1G   |
| 1178 | Pseudohypoaldosteronism type I autosomal dominant 177735                                  | NR3C2    |
| 1178 | Pseudohypoaldosteronism type IIB 614491   | WNK4     |
| 1178 | Pseudohypoaldosteronism type IIC 614492   | WNK1     |
| 1178 | Pseudohypoaldosteronism type IID 614495   | KLHL3    |
| 1178 | Pseudohypoaldosteronism type IIE 614496   | CUL3     |
| 1179 | Pseudohypoparathyroidism Ia 103580  | GNAS     |
| 1179 | Pseudohypoparathyroidism Ib 603233  | GNAS     |
| 1179 | Pseudohypoparathyroidism Ic 612462  | GNAS     |
| 1179 | Pseudohypoparathyroidism type IB 603233   | GNAS-AS1 |
| 1179 | Pseudohypoparathyroidism type IB 603233   | STX16    |
| 1180 | Pseudopseudohypoparathyroidism 612463   | GNAS     |
| 1181 | Pseudovaginal perineoscrotal hypospadias 264600   | SRD5A2   |
| 1182 | Pseudoxanthoma elasticum 264800   | ABCC6    |
| 1182 | Pseudoxanthoma elasticum forme fruste 177850  | ABCC6    |
| 1182 | Pseudoxanthoma elasticum-like disorder with multiple coagulation factor deficiency 610842 | GGCX     |
| 1182 | {Pseudoxanthoma elasticum modifier of severity of} 264800                                 | XYLT1    |
| 1182 | {Pseudoxanthoma elasticum modifier of severity of} 264800                                 | XYLT2    |
| 1183 | Psoriasis 14 pustular 614204  | IL36RN   |
| 1183 | Psoriasis 2 602723  | CARD14   |
| 1183 | {Psoriasis 15 pustular susceptibility to} 616106  | AP1S3    |
| 1183 | {Psoriasis protection against} 605606   | IL23R    |
| 1183 | {Psoriasis susceptibility 13} 614070  | TRAF3IP2 |
| 1183 | {Psoriasis susceptibility 1} 177900   | HLA-C    |

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| 1184 | Psychomotor retardation epilepsy and craniofacial dysmorphism<br>614501             | SNIP1   |
| 1185 | Pulmonary alveolar microlithiasis 265100  | SLC34A2 |
| 1186 | Pulmonary fibrosis and or bone marrow failure telomere-related<br>3 616373          | RTEL1   |
| 1186 | Pulmonary fibrosis and or bone marrow failure telomere-related<br>4 616371          | PARN    |
| 1186 | {Pulmonary fibrosis and or bone marrow failure telomere-related<br>1} 614742        | TERT    |
| 1186 | Pulmonary fibrosis idiopathic 178500  | SFTPA2  |
| 1186 | {Pulmonary fibrosis idiopathic susceptibility to} 178500                            | MUC5B   |
| 1186 | {Pulmonary fibrosis idiopathic susceptibility to} 178500                            | SFTPA1  |
| 1186 | {Pulmonary fibrosis idiopathic susceptibility to} 614743                            | TERC    |
| 1187 | Aplastic anemia 609135  | NBN     |
| 1187 | Aplastic anemia 609135  | PRF1    |
| 1187 | {Aplastic anemia susceptibility to} 609135  | SBDS    |
| 1187 | {Aplastic anemia} 609135  | IFNG    |
| 1187 | {Aplastic anemia} 614743  | TERC    |
| 1188 | Pulmonary hypertension familial primary 1 with or without HHT<br>178600             | BMPR2   |
| 1188 | Pulmonary hypertension primary 2 615342   | SMAD9   |
| 1188 | Pulmonary hypertension primary 3 615343   | CAV1    |
| 1188 | Pulmonary hypertension primary 4 615344   | KCNK3   |
| 1188 | Pulmonary hypertension primary fenfluramine or<br>dexfenfluramine-associated 178600 | BMPR2   |
| 1188 | {Pulmonary hypertension neonatal susceptibility to} 615371                          | CPS1    |
| 1189 | Pulmonary venoocclusive disease 1 265450  | BMPR2   |
| 1189 | Pulmonary venoocclusive disease 2 234810  | EIF2AK4 |
| 1190 | Pycnodysostosis 265800  | CTSK    |
| 1191 | Pyle disease 265900   | SFRP4   |
| 1192 | Pyogenic bacterial infections recurrent due to MYD88 deficiency<br>612260           | MYD88   |
| 1193 | Pyogenic sterile arthritis pyoderma gangrenosum and acne<br>604416                  | PSTPIP1 |
| 1194 | Pyridoxamine 5'-phosphate oxidase deficiency 610090                                 | PNPO    |
| 1195 | Pyropoikilocytosis 266140   | SPTA1   |
| 1196 | Pyruvate carboxylase deficiency 266150  | PC      |
| 1196 | Pyruvate dehydrogenase E1-alpha deficiency 312170                                   | PDHA1   |
| 1196 | Pyruvate dehydrogenase E1-beta deficiency 614111                                    | PDHB    |
| 1196 | Pyruvate dehydrogenase E2 deficiency 245348   | DLAT    |
| 1196 | Pyruvate dehydrogenase phosphatase deficiency 608782                                | PDP1    |
| 1196 | Pyruvate kinase deficiency 266200   | PKLR    |
| 1197 | Quebec platelet disorder 601709   | PLAU    |
| 1198 | Question mark ears isolated 612798  | EDN1    |
| 1199 | RAPADILINO syndrome 266280  | RECQL4  |

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| 1200 | RAS-associated autoimmune leukoproliferative disorder 614470                        | KRAS     |
| 1201 | RIDDLE syndrome 611943  | RNF168   |
| 1202 | Rabson-Mendenhall syndrome 262190   | INSR     |
| 1203 | Radioulnar synostosis with amegakaryocytic thrombocytopenia 1 605432                | HOXA11   |
| 1203 | Radioulnar synostosis with amegakaryocytic thrombocytopenia 2 616738                | MECOM    |
| 1204 | Rahman syndrome 617537  | HIST1H1E |
| 1205 | Raine syndrome 259775   | FAM20C   |
| 1206 | Recombination rate QTL 1 612042   | RNF212   |
| 1207 | Reducing body myopathy X-linked 1a severe infantile or early childhood onset 300717 | FHL1     |
| 1207 | Reducing body myopathy X-linked 1b with late childhood or adult onset 300718        | FHL1     |
| 1208 | Refsum disease 266500   | PHYH     |
| 1209 | Renal carcinoma chromophobe somatic 144700  | FLCN     |
| 1209 | Renal cell carcinoma 144700   | HNF1A    |
| 1209 | Renal cell carcinoma 144700   | RNF139   |
| 1209 | Renal cell carcinoma clear cell somatic 144700                                      | OGG1     |
| 1209 | Renal cell carcinoma papillary 1 300854   | TFE3     |
| 1209 | Renal cell carcinoma papillary 1 familial and somatic 605074                        | MET      |
| 1209 | Renal cell carcinoma papillary 605074   | PRCC     |
| 1209 | Renal cell carcinoma somatic 144700   | VHL      |
| 1209 | {Renal cell carcinoma} 144700   | HNF1B    |
| 1210 | Renal cysts and diabetes syndrome 137920  | HNF1B    |
| 1211 | Renal glucosuria 233100   | SLC5A2   |
| 1212 | Renal hypodysplasia or aplasia 1 191830   | ITGA8    |
| 1212 | Renal-hepatic-pancreatic dysplasia 1 208540   | NPHP3    |
| 1212 | {Renal dysplasia cystic susceptibility to} 601331                                   | BICC1    |
| 1213 | Renal tubular acidosis distal AD 179800   | SLC4A1   |
| 1213 | Renal tubular acidosis distal AR 611590   | SLC4A1   |
| 1213 | Renal tubular acidosis distal autosomal recessive 602722                            | ATP6V0A4 |
| 1213 | Renal tubular acidosis proximal with ocular abnormalities 604278                    | SLC4A4   |
| 1213 | Renal tubular acidosis with deafness 267300   | ATP6V1B1 |
| 1214 | Renal tubular dysgenesis 267430   | ACE      |
| 1214 | Renal tubular dysgenesis 267430   | AGT      |
| 1214 | Renal tubular dysgenesis 267430   | AGTR1    |
| 1214 | Renal tubular dysgenesis 267430   | REN      |
| 1215 | Renpenning syndrome 309500  | PQBP1    |
| 1216 | Restrictive dermopathy lethal 275210  | LMNA     |
| 1216 | Restrictive dermopathy lethal 275210  | ZMPSTE24 |
| 1217 | Reticular dysgenesis 267500   | AK2      |
| 1218 | Reticulate acropigmentation of Kitamura 615537                                      | ADAM10   |
| 1219 | Retinal arterial macroaneurysm with supraaortic pulmonic stenosis 614224            | IGFBP7   |

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| 1220 | Retinal degeneration, autosomal recessive, clumped pigment type            | NRL      |
| 1220 | Retinal degeneration late-onset autosomal dominant 605670                  | C1QTNF5  |
| 1220 | Retinal cone dystrophy 3 610024  | PDE6H    |
| 1220 | Retinal cone dystrophy 3B 610356   | KCNV2    |
| 1220 | Retinal cone dystrophy 4 610478  | CACNA2D4 |
| 1220 | Retinal dystrophy early-onset severe 248200                                | ABCA4    |
| 1220 | Retinal dystrophy early-onset severe 613341                                | LRAT     |
| 1220 | Retinal dystrophy early-onset with or without pituitary dysfunction 610125 | OTX2     |
| 1220 | Retinal dystrophy iris coloboma and comedogenic acne syndrome 615147       | RBP4     |
| 1220 | Retinal dystrophy with macular staphyloma 617547                           | C21orf2  |
| 1220 | Retinal dystrophy with or without extraocular anomalies 617175             | RCBTB1   |
| 1221 | Retinitis pigmentosa 1 180100  | RP1      |
| 1221 | Retinitis pigmentosa 10 180105   | IMPDH1   |
| 1221 | Retinitis pigmentosa 11 600138   | PRPF31   |
| 1221 | Retinitis pigmentosa 13 600059   | PRPF8    |
| 1221 | Retinitis pigmentosa 14 600132   | TULP1    |
| 1221 | Retinitis pigmentosa 17 600852   | CA4      |
| 1221 | Retinitis pigmentosa 18 601414   | PRPF3    |
| 1221 | Retinitis pigmentosa 19 601718   | ABCA4    |
| 1221 | Retinitis pigmentosa 2 312600  | RP2      |
| 1221 | Retinitis pigmentosa 20 613794   | RPE65    |
| 1221 | Retinitis pigmentosa 25 602772   | EYS      |
| 1221 | Retinitis pigmentosa 26 608380   | CERKL    |
| 1221 | Retinitis pigmentosa 27 613750   | NRL      |
| 1221 | Retinitis pigmentosa 28 606068   | FAM161A  |
| 1221 | Retinitis pigmentosa 3 300029  | RPGR     |
| 1221 | Retinitis pigmentosa 30 607921   | FSCN2    |
| 1221 | Retinitis pigmentosa 31 609923   | TOPORS   |
| 1221 | Retinitis pigmentosa 33 610359   | SNRNP200 |
| 1221 | Retinitis pigmentosa 35 610282   | SEMA4A   |
| 1221 | Retinitis pigmentosa 36 610599   | PRCD     |
| 1221 | Retinitis pigmentosa 37 611131   | NR2E3    |
| 1221 | Retinitis pigmentosa 38 613862   | MERTK    |
| 1221 | Retinitis pigmentosa 39 613809   | USH2A    |
| 1221 | Retinitis pigmentosa 4 autosomal dominant or recessive 613731              | RHO      |
| 1221 | Retinitis pigmentosa 41 612095   | PROM1    |
| 1221 | Retinitis pigmentosa 42 612943   | KLHL7    |
| 1221 | Retinitis pigmentosa 43 613810   | PDE6A    |
| 1221 | Retinitis pigmentosa 44 613769   | RGR      |
| 1221 | Retinitis pigmentosa 45 613767   | CNGB1    |
| 1221 | Retinitis pigmentosa 46 612572   | IDH3B    |
| 1221 | Retinitis pigmentosa 47 613758   | SAG      |

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| 1221 | Retinitis pigmentosa 48 613827   | GUCA1B   |
| 1221 | Retinitis pigmentosa 49 613756   | CNGA1    |
| 1221 | Retinitis pigmentosa 54 613428   | C2orf71  |
| 1221 | Retinitis pigmentosa 56 613581   | IMPG2    |
| 1221 | Retinitis pigmentosa 57 613582   | PDE6G    |
| 1221 | Retinitis pigmentosa 59 613861   | DHDDS    |
| 1221 | Retinitis pigmentosa 60 613983   | PRPF6    |
| 1221 | Retinitis pigmentosa 61 614180   | CLRN1    |
| 1221 | Retinitis pigmentosa 62 614181   | MAK      |
| 1221 | Retinitis pigmentosa 64 614500   | C8orf37  |
| 1221 | Retinitis pigmentosa 65 613660   | CDHR1    |
| 1221 | Retinitis pigmentosa 68 615725   | SLC7A14  |
| 1221 | Retinitis pigmentosa 69 615780   | KIZ      |
| 1221 | Retinitis pigmentosa 7 and digenic 608133  | PRPH2    |
| 1221 | Retinitis pigmentosa 7 digenic 608133  | ROM1     |
| 1221 | Retinitis pigmentosa 70 615922   | PRPF4    |
| 1221 | Retinitis pigmentosa 71 616394   | IFT172   |
| 1221 | Retinitis pigmentosa 72 616469   | ZNF408   |
| 1221 | Retinitis pigmentosa 73 616544   | HGSNAT   |
| 1221 | Retinitis pigmentosa 74 616562   | BBS2     |
| 1221 | Retinitis pigmentosa 75 617023   | AGBL5    |
| 1221 | Retinitis pigmentosa 76 617123   | POMGNT1  |
| 1221 | Retinitis pigmentosa 77 617304   | REEP6    |
| 1221 | Retinitis pigmentosa 78 617433   | ARHGEF18 |
| 1221 | Retinitis pigmentosa 79 617460   | HK1      |
| 1221 | Retinitis pigmentosa 80 617781   | IFT140   |
| 1221 | Retinitis pigmentosa X-linked and sinorespiratory infections with or without deafness 300455 | RPGR     |
| 1221 | Retinitis pigmentosa and erythrocytic microcytosis 616959                                    | TRNT1    |
| 1221 | Retinitis pigmentosa concentric 613194   | BEST1    |
| 1221 | Retinitis pigmentosa juvenile 613341   | LRAT     |
| 1221 | Retinitis pigmentosa juvenile autosomal recessive 604232                                     | SPATA7   |
| 1221 | Retinitis pigmentosa with or without situs inversus 615434                                   | ARL2BP   |
| 1221 | Retinitis pigmentosa with or without skeletal anomalies 250410                               | CWC27    |
| 1221 | Retinitis pigmentosa-12 autosomal recessive 600105   | CRB1     |
| 1221 | Retinitis pigmentosa-40 613801   | PDE6B    |
| 1221 | Retinitis pigmentosa-50 613194   | BEST1    |
| 1221 | Retinitis punctata albescens 136880  | PRPH2    |
| 1221 | Retinitis punctata albescens 136880  | RHO      |
| 1221 | Retinitis punctata albescens 136880  | RLBP1    |
| 1222 | Retinoblastoma 180200  | RB1      |
| 1222 | Retinoblastoma trilateral 180200   | RB1      |
| 1223 | Retinoschisis 312700   | RS1      |
| 1224 | Rett syndrome 312750   | MECP2    |
| 1224 | Rett syndrome atypical 312750  | MECP2    |

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| 1224 | Rett syndrome congenital variant 613454                         | FOXG1    |
| 1224 | Rett syndrome preserved speech variant 312750                   | MECP2    |
| 1225 | Revesz syndrome 268130  | TINF2    |
| 1226 | Rhabdoid tumors somatic 609322                                  | SMARCB1  |
| 1226 | {Rhabdoid predisposition syndrome 1} 609322                     | SMARCB1  |
| 1226 | {Rhabdoid tumor predisposition syndrome 2} 613325               | SMARCA4  |
| 1227 | Rhabdomyosarcoma 2 alveolar 268220                              | PAX3     |
| 1227 | Rhabdomyosarcoma 2 alveolar 268220                              | PAX7     |
| 1227 | Rhabdomyosarcoma alveolar 268220                                | FOXO1    |
| 1227 | Rhabdomyosarcoma embryonal 2 180295                             | DICER1   |
| 1227 | Rhabdomyosarcoma somatic 268210                                 | SLC22A1  |
| 1228 | Rhizomelic chondrodysplasia punctata type 1 215100              | PEX7     |
| 1228 | Rhizomelic chondrodysplasia punctata type 2 222765              | GNPAT    |
| 1228 | Rhizomelic chondrodysplasia punctata type 3 600121              | AGPS     |
| 1228 | Rhizomelic chondrodysplasia punctata type 5 616716              | PEX5     |
| 1229 | Riboflavin deficiency 615026                                    | SLC52A1  |
| 1230 | Rickets due to defect in vitamin D 25-hydroxylation 600081      | CYP2R1   |
| 1230 | Rickets vitamin D-resistant type IIA 277440                     | VDR      |
| 1231 | Right atrial isomerism 208530                                   | GDF1     |
| 1232 | Rigidity and multifocal seizure syndrome lethal neonatal 614498 | BRAT1    |
| 1233 | Ring dermoid of cornea 180550                                   | PITX2    |
| 1234 | Rippling muscle disease 606072                                  | CAV3     |
| 1235 | Ritscher-Schinzel syndrome 1 220210                             | WSHC5    |
| 1235 | Ritscher-Schinzel syndrome 2 300963                             | CCDC22   |
| 1236 | Roberts syndrome 268300   | ESCO2    |
| 1237 | Robin sequence with cleft mandible and limb anomalies 268305    | DDX48    |
| 1238 | Robinow syndrome autosomal dominant 1 180700                    | WNT5A    |
| 1238 | Robinow syndrome autosomal dominant 2 616331                    | DVL1     |
| 1238 | Robinow syndrome autosomal dominant 3 616894                    | DVL3     |
| 1238 | Robinow syndrome autosomal recessive 268310                     | ROR2     |
| 1239 | Robinow-Sorauf syndrome 180750                                  | TWIST1   |
| 1240 | Roifman syndrome 616651   | RNU4ATAC |
| 1241 | Rothmund-Thomson syndrome 268400                                | RECQL4   |
| 1242 | Roussy-Levy syndrome 180800                                     | MPZ      |
| 1242 | Roussy-Levy syndrome 180800                                     | PMP22    |
| 1243 | Rubinstein-Taybi syndrome 1 180849                              | CREBBP   |
| 1243 | Rubinstein-Taybi syndrome 2 613684                              | EP300    |
| 1244 | Ruijs-Aalfs syndrome 616200                                     | SPRTN    |
| 1245 | SADDAN 616482   | FGFR3    |
| 1246 | SBBYSS syndrome 603736  | KAT6B    |
| 1247 | SC phocomelia syndrome 269000                                   | ESCO2    |
| 1248 | SCID autosomal recessive T-negative or B-positive type 600802   | JAK3     |
| 1249 | SED Maroteaux type 184095                                       | TRPV4    |
| 1249 | SED congenita 183900  | COL2A1   |
| 1250 | SESAME syndrome 612780  | KCNJ10   |



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| 1251 | SHORT syndrome 269880  | PIK3R1   |
| 1252 | SMED Strudwick type 184250                                       | COL2A1   |
| 1253 | STAR syndrome 300707   | FAM58A   |
| 1254 | STING-associated vasculopathy infantile-onset 615934             | TMEM173  |
| 1255 | Sacral agenesis with vertebral anomalies 615709                  | T        |
| 1256 | Saethre-Chotzen syndrome 101400                                  | FGFR2    |
| 1256 | Saethre-Chotzen syndrome with or without eyelid anomalies 101400 | TWIST1   |
| 1257 | Salih myopathy 611705  | TTN      |
| 1258 | Salla disease 604369   | SLC17A5  |
| 1259 | Salt and pepper developmental regression syndrome 609056         | SIAT9    |
| 1260 | Sandhoff disease infantile juvenile and adult forms 268800       | HEXB     |
| 1261 | Scalp-ear-nipple syndrome 181270                                 | KCTD1    |
| 1262 | Scaphocephaly maxillary retrusion and mental retardation 609579  | FGFR2    |
| 1263 | Scapulooperoneal myopathy X-linked dominant 300695               | FHL1     |
| 1263 | Scapulooperoneal spinal muscular atrophy 181405                  | TRPV4    |
| 1263 | Scapulooperoneal syndrome myopathic type 181430                  | MYH7     |
| 1263 | Scapulooperoneal syndrome neurogenic Kaeser type 181400          | DES      |
| 1264 | Schaaf-Yang syndrome 615547                                      | MAGEL2   |
| 1265 | Schimke immunosseous dysplasia 242900                            | SMARCAL1 |
| 1266 | Schimmelpenning-Feuerstein-Mims syndrome somatic mosaic 163200   | HRAS     |
| 1266 | Schimmelpenning-Feuerstein-Mims syndrome somatic mosaic 163200   | KRAS     |
| 1266 | Schimmelpenning-Feuerstein-Mims syndrome somatic mosaic 163200   | NRAS     |
| 1267 | Schindler disease type I 609241                                  | NAGA     |
| 1267 | Schindler disease type III 609241                                | NAGA     |
| 1268 | Schinz-Giedion midface retraction syndrome 269150                | SETBP1   |
| 1269 | Schizencephaly 269160  | COL4A1   |
| 1269 | Schizencephaly 269160  | EMX2     |
| 1269 | Schizencephaly 269160  | SHH      |
| 1269 | Schizencephaly 269160  | SIX3     |
| 1270 | Schneckenbecken dysplasia 269250                                 | SLC35D1  |
| 1271 | Schopf-Schulz-Passarge syndrome 224750                           | WNT10A   |
| 1272 | Schuurs-Hoeijmakers syndrome 615009                              | PACS1    |
| 1273 | Schwannomatosis 162091   | NF2      |
| 1273 | {Schwannomatosis-1 susceptibility to} 162091                     | SMARCB1  |
| 1273 | {Schwannomatosis-2 susceptibility to} 615670                     | LZTR1    |
| 1274 | Schwartz-Jampel syndrome type 1 255800                           | HSPG2    |
| 1275 | Sclerosing cholangitis neonatal 617394                           | DCDC2    |
| 1276 | Sclerosteosis 1 269500   | SOST     |
| 1276 | Sclerosteosis 2 614305   | LRP4     |
| 1277 | Scott syndrome 262890  | ANO6     |

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| 1278 | Sea-blue histiocyte disease 269600   | APOE     |
| 1279 | Sebastian syndrome 605249  | MYH9     |
| 1280 | Seborrhea-like dermatitis with psoriasiform elements 610227  | ZNF750   |
| 1281 | Seckel syndrome 1 210600   | ATR      |
| 1281 | Seckel syndrome 10 617253  | NSMCE2   |
| 1281 | Seckel syndrome 2 606744   | RBBP8    |
| 1281 | Seckel syndrome 5 613823   | CEP152   |
| 1281 | Seckel syndrome 9 616777   | TRAIP    |
| 1282 | Segawa syndrome recessive 605407   | TH       |
| 1283 | Seizures benign familial infantile 2 605751  | PRRT2    |
| 1283 | Seizures benign familial infantile 3 607745  | SCN2A    |
| 1283 | Seizures benign familial infantile 5 617080  | SCN8A    |
| 1283 | Seizures benign neonatal 1 121200  | KCNQ2    |
| 1283 | Myokymia 121200  | KCNQ2    |
| 1283 | Seizures benign neonatal type 2 121201   | KCNQ3    |
| 1283 | Seizures cortical blindness microcephaly syndrome 616632   | DIAPH1   |
| 1284 | Sengers syndrome 212350  | AGK      |
| 1285 | Senior-Loken syndrome 4 606996   | NPHP4    |
| 1285 | Senior-Loken syndrome 5 609254   | IQCB1    |
| 1285 | Senior-Loken syndrome 6 610189   | CEP290   |
| 1285 | Senior-Loken syndrome 7 613615   | SDCCAG8  |
| 1285 | Senior-Loken syndrome 8 616307   | WDR19    |
| 1285 | Senior-Loken syndrome 9 616629   | TRAF3IP1 |
| 1285 | Senior-Loken syndrome-1 266900   | NPHP1    |
| 1286 | Sessile serrated polyposis cancer syndrome 617108  | RNF43    |
| 1287 | Severe combined immunodeficiency Athabaskan type 602450  | DCLRE1C  |
| 1287 | Severe combined immunodeficiency B cell-negative 601457  | RAG1     |
| 1287 | Severe combined immunodeficiency B cell-negative 601457  | RAG2     |
| 1287 | Severe combined immunodeficiency T cell-negative B-cell or natural killer-cell positive 608971                         | PTPRC    |
| 1287 | Severe combined immunodeficiency T-cell negative B-cell or natural killer cell-positive type 608971                    | IL7R     |
| 1287 | Severe combined immunodeficiency X-linked 300400   | IL2RG    |
| 1287 | Severe combined immunodeficiency with microcephaly growth retardation and sensitivity to ionizing radiation 611291     | NHEJ1    |
| 1288 | Shaheen syndrome 615328  | COG6     |
| 1289 | Shashi-Pena syndrome 617190  | ASXL2    |
| 1290 | Short QT syndrome 1 609620   | KCNH2    |
| 1290 | Short QT syndrome 2 609621   | KCNQ1    |
| 1290 | Short QT syndrome 3 609622   | KCNJ2    |
| 1291 | Short stature and advanced bone age with or without early-onset osteoarthritis and or osteochondritis dissecans 165800 | ACAN     |
| 1291 | Short stature auditory canal atresia mandibular hypoplasia skeletal abnormalities 602471                               | GSC      |

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| 1291 | Short stature brachydactyly intellectual developmental disability and seizures 617157  | PRMT7    |
| 1291 | Short stature developmental delay and congenital heart defects 617044                  | TKT      |
| 1291 | Short stature hearing loss retinitis pigmentosa and distinctive facies 617763          | EXOSC2   |
| 1291 | Short stature idiopathic familial 300582   | SHOX     |
| 1291 | Short stature idiopathic familial 300582   | SHOX     |
| 1291 | Short stature microcephaly and endocrine dysfunction 616541                            | XRCC4    |
| 1291 | Short stature onychodysplasia facial dysmorphism and hypotrichosis 614813              | POC1A    |
| 1291 | Short stature optic nerve atrophy and Pelger-Huet anomaly 614800                       | NBAS     |
| 1291 | Short stature rhizomelic with microcephaly micrognathia and developmental delay 617164 | ARCN1    |
| 1291 | Short stature with microcephaly and distinctive facies 615789                          | CRIP1    |
| 1291 | Short stature with nonspecific skeletal abnormalities 616255                           | NPR2     |
| 1292 | Short-rib thoracic dysplasia 10 with or without polydactyly 615630                     | IFT172   |
| 1292 | Short-rib thoracic dysplasia 11 with or without polydactyly 615633                     | WDR34    |
| 1292 | Short-rib thoracic dysplasia 13 with or without polydactyly 616300                     | CEP120   |
| 1292 | Short-rib thoracic dysplasia 14 with polydactyly 616546                                | KIAA0586 |
| 1292 | Short-rib thoracic dysplasia 15 with polydactyly 617088                                | DYNC2LI1 |
| 1292 | Short-rib thoracic dysplasia 16 with or without polydactyly 617102                     | IFT52    |
| 1292 | Short-rib thoracic dysplasia 17 with or without polydactyly 617405                     | TCTEX1D2 |
| 1292 | Short-rib thoracic dysplasia 2 with or without polydactyly 611263                      | IFT80    |
| 1292 | Short-rib thoracic dysplasia 3 with or without polydactyly 613091                      | DYNC2H1  |
| 1292 | Short-rib thoracic dysplasia 4 with or without polydactyly 613819                      | TTC21B   |
| 1292 | Short-rib thoracic dysplasia 6 with or without polydactyly 263520                      | NEK1     |
| 1292 | Short-rib thoracic dysplasia 7 with or without polydactyly 614091                      | WDR35    |
| 1292 | Short-rib thoracic dysplasia 8 with or without polydactyly 615503                      | WDR60    |
| 1292 | Short-rib thoracic dysplasia 9 with or without polydactyly 266920                      | IFT140   |
| 1293 | Shprintzen-Goldberg syndrome 182212  | SKI      |
| 1294 | Shwachman-Diamond syndrome 260400  | SBDS     |
| 1295 | Sialic acid storage disorder infantile 269920  | SLC17A5  |
| 1295 | Sialidosis type I 256550   | NEU1     |
| 1295 | Sialidosis type II 256550  | NEU1     |
| 1296 | Sialuria 269921  | GNE      |
| 1297 | Sick sinus syndrome 1 608567   | SCN5A    |
| 1297 | Sick sinus syndrome 2 163800   | HCN4     |
| 1297 | {Sick sinus syndrome 3} 614090   | MYH6     |
| 1298 | Sickle cell anemia 603903  | HBB      |

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| 1299 | Sideroblastic anemia with B-cell immunodeficiency periodic fevers and developmental delay 616084 | TRNT1   |
| 1300 | Sifrim-Hitz-Weiss syndrome 617159  | CHD4    |
| 1301 | Silver spastic paraplegia syndrome 270685  | BSCL2   |
| 1302 | Silver-Russell syndrome 180860   | H19     |
| 1303 | Simpson-Golabi-Behmel syndrome type 1 312870   | GPC3    |
| 1303 | Simpson-Golabi-Behmel syndrome type 2 300209   | OFD1    |
| 1304 | Single median maxillary central incisor 147250   | SHH     |
| 1305 | Singleton-Merten syndrome 1 182250   | IFIH1   |
| 1305 | Singleton-Merten syndrome 2 616298   | DDX58   |
| 1306 | Sinoatrial node dysfunction and deafness 614896  | CACNA1D |
| 1307 | Sitosterolemia 210250  | ABCG5   |
| 1307 | Sitosterolemia 210250  | ABCG8   |
| 1308 | Sjogren-Larsson syndrome 270200  | ALDH3A2 |
| 1309 | Skeletal defects genital hypoplasia and mental retardation 612447                                | ZBTB16  |
| 1310 | Skin fragility-woolly hair syndrome 607655   | DSP     |
| 1311 | Skraban-Deardorff syndrome 617616  | WDR26   |
| 1312 | Small fiber neuropathy 133020  | SCN9A   |
| 1312 | Erythermalgia primary 133020   | SCN9A   |
| 1313 | Smith-Kingsmore syndrome 616638  | MTOR    |
| 1314 | Smith-Lemli-Opitz syndrome 270400  | DHCR7   |
| 1315 | Smith-Magenis syndrome 182290  | RAI1    |
| 1316 | Smith-McCort dysplasia 2 615222  | RAB33B  |
| 1316 | Smith-McCort dysplasia 607326  | DYM     |
| 1317 | Snowflake vitreoretinal degeneration 193230  | KCNJ13  |
| 1318 | Sorsby fundus dystrophy 136900   | TIMP3   |
| 1319 | Sotos syndrome 1 117550  | NSD1    |
| 1319 | Sotos syndrome 2 614753  | NFIX    |
| 1320 | Spastic ataxia 1 autosomal dominant 108600   | VAMP1   |
| 1320 | Spastic ataxia 2 autosomal recessive 611302  | KIF1C   |
| 1320 | Spastic ataxia 3 autosomal recessive 611390  | MARS2   |
| 1320 | Spastic ataxia 5 autosomal recessive 614487  | AFG3L2  |
| 1320 | Spastic ataxia 8 autosomal recessive with hypomyelinating leukodystrophy 617560                  | NKX6-2  |
| 1320 | Spastic ataxia Charlevoix-Saguenay type 270550   | SACS    |
| 1320 | Spastic paralysis infantile onset ascending 607225   | ALS2    |
| 1320 | Spastic paraplegia 10 autosomal dominant 604187  | KIF5A   |
| 1320 | Spastic paraplegia 11 autosomal recessive 604360   | SPG11   |
| 1320 | Spastic paraplegia 12 autosomal dominant 604805  | RTN2    |
| 1320 | Spastic paraplegia 13 autosomal dominant 605280  | HSPD1   |
| 1320 | Spastic paraplegia 15 autosomal recessive 270700   | ZFYVE26 |
| 1320 | Spastic paraplegia 18 autosomal recessive 611225   | ERLIN2  |
| 1320 | Spastic paraplegia 2 X-linked 312920   | PLP1    |
| 1320 | Spastic paraplegia 23 270750   | DSTYK   |

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| 1320 | Spastic paraplegia 26 autosomal recessive 609195                               | B4GALNT1  |
| 1320 | Spastic paraplegia 28 autosomal recessive 609340                               | DDHD1     |
| 1320 | Spastic paraplegia 30 autosomal recessive 610357                               | KIF1A     |
| 1320 | Spastic paraplegia 31 autosomal dominant 610250                                | REEP1     |
| 1320 | Spastic paraplegia 33 autosomal dominant 610244                                | ZFYVE27   |
| 1320 | Spastic paraplegia 35 autosomal recessive 612319                               | FA2H      |
| 1320 | Spastic paraplegia 39 autosomal recessive 612020                               | PNPLA6    |
| 1320 | Spastic paraplegia 3A autosomal dominant 182600                                | ATL1      |
| 1320 | Spastic paraplegia 4 autosomal dominant 182601                                 | SPAST     |
| 1320 | Spastic paraplegia 42 autosomal dominant 612539                                | SLC33A1   |
| 1320 | Spastic paraplegia 44 autosomal recessive 613206                               | GJC2      |
| 1320 | Spastic paraplegia 45 autosomal recessive 613162                               | NT5C2     |
| 1320 | Spastic paraplegia 46 autosomal recessive 614409                               | GBA2      |
| 1320 | Spastic paraplegia 47 autosomal recessive 614066                               | AP4B1     |
| 1320 | Spastic paraplegia 48 autosomal recessive 613647                               | AP5Z1     |
| 1320 | Spastic paraplegia 49 autosomal recessive 615031                               | TECPR2    |
| 1320 | Spastic paraplegia 50 autosomal recessive 612936                               | AP4M1     |
| 1320 | Spastic paraplegia 51 autosomal recessive 613744                               | AP4E1     |
| 1320 | Spastic paraplegia 52 autosomal recessive 614067                               | AP4S1     |
| 1320 | Spastic paraplegia 53 autosomal recessive 614898                               | VPS37A    |
| 1320 | Spastic paraplegia 54 autosomal recessive 615033                               | DDHD2     |
| 1320 | Spastic paraplegia 55 autosomal recessive 615035                               | C12orf65  |
| 1320 | Spastic paraplegia 56 autosomal recessive 615030                               | CYP2U1    |
| 1320 | Spastic paraplegia 5A autosomal recessive 270800                               | CYP7B1    |
| 1320 | Spastic paraplegia 6 autosomal dominant 600363                                 | NIPA1     |
| 1320 | Spastic paraplegia 62 615681   | ERLIN1    |
| 1320 | Spastic paraplegia 64 autosomal recessive 615683                               | ENTPD1    |
| 1320 | Spastic paraplegia 7 autosomal recessive 607259                                | PGLYRP1   |
| 1320 | Spastic paraplegia 75 autosomal recessive 616680                               | MAG       |
| 1320 | Spastic paraplegia 76 autosomal recessive 616907                               | CAPN1     |
| 1320 | Spastic paraplegia 78 autosomal recessive 617225                               | ATP13A2   |
| 1320 | Spastic paraplegia 79 autosomal recessive 615491                               | UCHL1     |
| 1320 | Spastic paraplegia 8 autosomal dominant 603563                                 | WSHC5     |
| 1320 | Spastic paraplegia 9A autosomal dominant 601162                                | ALDH18A1  |
| 1320 | Spastic paraplegia 9B autosomal recessive 616586                               | ALDH18A1  |
| 1320 | Spastic paraplegia and psychomotor retardation with or without seizures 616756 | HACE1     |
| 1320 | Spastic paraplegia intellectual disability nystagmus and obesity 617296        | KIDINS220 |
| 1320 | Spastic paraplegia optic atrophy and neuropathy 609541                         | KLC2      |
| 1320 | Spastic tetraplegia thin corpus callosum and progressive microcephaly 616657   | SLC1A4    |
| 1321 | Spasticity childhood-onset with hyperglycinemia 616859                         | GLRX5     |
| 1322 | Specific granule deficiency 2 617475   | SMARCD2   |
| 1322 | Specific granule deficiency 245480   | CEBPE     |

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| 1323 | Speech-language disorder-1 602081                                  | FOXP2    |
| 1324 | Spermatocytic seminoma somatic 273300                              | FGFR3    |
| 1324 | Germ cell tumors somatic 273300                                    | KIT      |
| 1324 | Testicular tumor somatic 273300                                    | STK11    |
| 1324 | {Male germ cell tumor, somatic} 273300                             | BCL10    |
| 1325 | Spermatogenic failure 10 614822                                    | 12-Sep   |
| 1325 | Spermatogenic failure 11 615081                                    | KLHL10   |
| 1325 | Spermatogenic failure 12 615413                                    | NANOS1   |
| 1325 | Spermatogenic failure 16 617187                                    | SUN5     |
| 1325 | Spermatogenic failure 18 617576                                    | DNAH1    |
| 1325 | Spermatogenic failure 19 617592                                    | CFAP43   |
| 1325 | Spermatogenic failure 3 606766                                     | SLC26A8  |
| 1325 | Spermatogenic failure 4 270960                                     | SYCP3    |
| 1325 | Spermatogenic failure 5 243060                                     | AURKC    |
| 1325 | Spermatogenic failure 7 612997                                     | CATSPER1 |
| 1325 | Spermatogenic failure 8 613957                                     | NR5A1    |
| 1325 | Spermatogenic failure 9 613958                                     | DPY19L2  |
| 1325 | Spermatogenic failure X-linked 2 309120                            | TEX11    |
| 1325 | Spermatogenic failure Y-linked 2 415000                            | USP9Y    |
| 1326 | Spherocytosis type 1 182900  | ANK1     |
| 1326 | Spherocytosis type 2 616649  | SPTB     |
| 1326 | Spherocytosis type 3 270970  | SPTA1    |
| 1326 | Spherocytosis type 4 612653  | SLC4A1   |
| 1326 | Spherocytosis type 5 612690  | EPB42    |
| 1327 | Spinal and bulbar muscular atrophy of Kennedy 313200               | AR       |
| 1327 | Spinal muscular atrophy Jokela type 615048                         | CHCHD10  |
| 1327 | Spinal muscular atrophy X-linked 2 infantile 301830                | UBA1     |
| 1327 | Spinal muscular atrophy distal X-linked 3 300489                   | ATP7A    |
| 1327 | Spinal muscular atrophy distal autosomal recessive 4 611067        | PLEKHG5  |
| 1327 | Spinal muscular atrophy distal autosomal recessive 5 614881        | DNAJB2   |
| 1327 | Spinal muscular atrophy distal congenital nonprogressive 600175    | TRPV4    |
| 1327 | Spinal muscular atrophy late-onset Finkel type 182980              | VAPB     |
| 1327 | Spinal muscular atrophy lower extremity-predominant 1 AD 158600    | DYNC1H1  |
| 1327 | Spinal muscular atrophy lower extremity-predominant 2 AD 615290    | BICD2    |
| 1327 | Spinal muscular atrophy with congenital bone fractures 1 616866    | TRIP4    |
| 1327 | Spinal muscular atrophy with progressive myoclonic epilepsy 159950 | ASAH1    |
| 1327 | Spinal muscular atrophy-1 253300                                   | SMN1     |
| 1327 | Spinal muscular atrophy-2 253550                                   | SMN1     |
| 1327 | Spinal muscular atrophy-3 253400                                   | SMN1     |
| 1327 | {Spinal muscular atrophy type III modifier of} 253400              | SMN2     |
| 1327 | Spinal muscular atrophy-4 271150                                   | SMN1     |
| 1328 | Spinocerebellar ataxia 1 164400                                    | ATXN1    |

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| 1328 | Spinocerebellar ataxia 10 603516   | ATXN10  |
| 1328 | Spinocerebellar ataxia 11 604432   | TTBK2   |
| 1328 | Spinocerebellar ataxia 12 604326   | PPP2R2B |
| 1328 | Spinocerebellar ataxia 13 605259   | KCNC3   |
| 1328 | Spinocerebellar ataxia 14 605361   | PRKCG   |
| 1328 | Spinocerebellar ataxia 15 606658   | ITPR1   |
| 1328 | Spinocerebellar ataxia 17 607136   | TBP     |
| 1328 | Spinocerebellar ataxia 19 607346   | KCND3   |
| 1328 | Spinocerebellar ataxia 2 183090  | ATXN2   |
| 1328 | Spinocerebellar ataxia 21 607454   | TMEM240 |
| 1328 | Spinocerebellar ataxia 23 610245   | PDYN    |
| 1328 | Spinocerebellar ataxia 27 609307   | FGF14   |
| 1328 | Spinocerebellar ataxia 28 610246   | AFG3L2  |
| 1328 | Spinocerebellar ataxia 29 congenital nonprogressive 117360               | ITPR1   |
| 1328 | Spinocerebellar ataxia 31 117210   | BEAN1   |
| 1328 | Spinocerebellar ataxia 34 133190   | ELOVL4  |
| 1328 | Spinocerebellar ataxia 35 613908   | TGM6    |
| 1328 | Spinocerebellar ataxia 36 614153   | NOP56   |
| 1328 | Spinocerebellar ataxia 37 615945   | DAB1    |
| 1328 | Spinocerebellar ataxia 38 615957   | ELOVL5  |
| 1328 | Spinocerebellar ataxia 42 616795   | CACNA1G |
| 1328 | Spinocerebellar ataxia 44 617691   | GRM1    |
| 1328 | Spinocerebellar ataxia 45 617769   | FAT2    |
| 1328 | Spinocerebellar ataxia 5 600224  | SPTBN2  |
| 1328 | Spinocerebellar ataxia 6 183086  | CACNA1A |
| 1328 | Spinocerebellar ataxia 7 164500  | ATXN7   |
| 1328 | Spinocerebellar ataxia 8 608768  | ATXN8   |
| 1328 | Spinocerebellar ataxia 8 608768  | ATXN8OS |
| 1328 | Spinocerebellar ataxia autosomal recessive 1 606002                      | SETX    |
| 1328 | Spinocerebellar ataxia autosomal recessive 10 613728                     | ANO10   |
| 1328 | Spinocerebellar ataxia autosomal recessive 11 614229                     | SYT14   |
| 1328 | Spinocerebellar ataxia autosomal recessive 12 614322                     | WWOX    |
| 1328 | Spinocerebellar ataxia autosomal recessive 13 614831                     | GRM1    |
| 1328 | Spinocerebellar ataxia autosomal recessive 14 615386                     | SPTBN2  |
| 1328 | Spinocerebellar ataxia autosomal recessive 16 615768                     | STUB1   |
| 1328 | Spinocerebellar ataxia autosomal recessive 17 616127                     | CWF19L1 |
| 1328 | Spinocerebellar ataxia autosomal recessive 18 616204                     | GRID2   |
| 1328 | Spinocerebellar ataxia autosomal recessive 2 213200                      | PMPCA   |
| 1328 | Spinocerebellar ataxia autosomal recessive 20 616354                     | SNX14   |
| 1328 | Spinocerebellar ataxia autosomal recessive 21 616719                     | SCYL1   |
| 1328 | Spinocerebellar ataxia autosomal recessive 23 616949                     | TDP2    |
| 1328 | Spinocerebellar ataxia autosomal recessive 7 609270                      | TPP1    |
| 1328 | Spinocerebellar ataxia autosomal recessive 8 610743                      | SYNE1   |
| 1328 | Spinocerebellar ataxia autosomal recessive with axonal neuropathy 607250 | TDP1    |

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| 1329 | Split-foot malformation with mesoaxial polydactyly 616890                                  | ZAK       |
| 1329 | Split-hand or foot malformation 4 605289   | TP63      |
| 1329 | Split-hand or foot malformation 6 225300   | WNT10B    |
| 1330 | Spondylo-megaepiphyseal-metaphyseal dysplasia 613330                                       | NKX3-2    |
| 1331 | Spondylocarpotarsal synostosis syndrome 272460   | FLNB      |
| 1332 | Spondylocheirodysplasia Ehlers-Danlos syndrome-like 612350                                 | SLC39A13  |
| 1333 | Spondylocostal dysostosis 1 autosomal recessive 277300                                     | DLL3      |
| 1333 | Spondylocostal dysostosis 2 autosomal recessive 608681                                     | MESP2     |
| 1333 | Spondylocostal dysostosis 4 autosomal recessive 613686                                     | HES7      |
| 1333 | Spondylocostal dysostosis 5 122600   | TBX6      |
| 1334 | Spondyloenchondrodysplasia with immune dysregulation 607944                                | ACP5      |
| 1335 | Spondyloepimetaphyseal dysplasia 608728  | MATN3     |
| 1335 | Spondyloepimetaphyseal dysplasia Camera-Genevieve type 610442                              | NANS      |
| 1335 | Spondyloepimetaphyseal dysplasia Faden-Alkuraya type 616723                                | RSPRY1    |
| 1335 | Spondyloepimetaphyseal dysplasia Missouri type 602111                                      | MMP13     |
| 1335 | Spondyloepimetaphyseal dysplasia X-linked 300106   | BGN       |
| 1335 | Spondyloepimetaphyseal dysplasia with joint laxity type 1 with or without fractures 271640 | B3GALT6   |
| 1335 | Spondyloepimetaphyseal dysplasia with joint laxity type 2 603546                           | KIF22     |
| 1335 | Spondyloepiphyseal dysplasia Stanescu type 616583  | COL2A1    |
| 1335 | Spondyloepiphyseal dysplasia tarda 313400  | TRAPPC2   |
| 1335 | Spondyloepiphyseal dysplasia tarda with progressive arthropathy 208230                     | WISP3     |
| 1335 | Spondyloepiphyseal dysplasia with congenital joint dislocations 143095                     | CHST3     |
| 1335 | Arthropathy progressive pseudorheumatoid of childhood 208230                               | WISP3     |
| 1336 | Spondylometaphyseal dysplasia short limb-hand type 271665                                  | DDR2      |
| 1337 | Spondylometaphyseal dysplasia Kozlowski type 184252  | TRPV4     |
| 1337 | Spondylometaphyseal dysplasia Megarbane-Dagher-Melike type 613320                          | PAM16     |
| 1337 | Spondylometaphyseal dysplasia Sedaghatian type 250220                                      | GPX4      |
| 1337 | Spondylometaphyseal dysplasia axial 602271   | C21orf2   |
| 1337 | Spondylometaphyseal dysplasia with cone-rod dystrophy 608940                               | PCYT1A    |
| 1338 | Spondyloocular syndrome 605822   | XYLT2     |
| 1339 | Spondyloperipheral dysplasia 271700  | COL2A1    |
| 1340 | Squamous cell carcinoma head and neck 275355   | TNFRSF10B |
| 1340 | Squamous cell carcinoma head and neck somatic 275355                                       | ING1      |
| 1340 | Squamous cell carcinoma head and neck somatic 275355                                       | PTEN      |
| 1341 | Squamous cell carcinoma, burn scar-related, somatic  | FAS       |
| 1342 | Stankiewicz-Isidor syndrome 617516   | PSMD12    |
| 1343 | Stapes ankylosis with broad thumb and toes 184460  | NOG       |
| 1344 | Stargardt disease 1 248200   | ABCA4     |
| 1344 | Stargardt disease 3 600110   | ELOVL4    |
| 1344 | Stargardt disease 4 603786   | PROM1     |



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| 1345 | Steatocystoma multiplex 184500                                     | KRT17   |
| 1346 | Stickler syndrome type I nonsyndromic ocular 609508                | COL2A1  |
| 1346 | Stickler syndrome type I 108300                                    | COL2A1  |
| 1346 | Stickler syndrome type II 604841                                   | COL11A1 |
| 1346 | Stickler syndrome type IV 614134                                   | COL9A1  |
| 1347 | Stiff skin syndrome 184900   | FBN1    |
| 1348 | Stocco dos Santos X-linked mental retardation syndrome 300434      | SHROOM4 |
| 1349 | Stomatin-deficient cryohydrocytosis with neurologic defects 608885 | SLC2A1  |
| 1350 | Stormorken syndrome 185070   | STIM1   |
| 1351 | Striatal degeneration autosomal dominant 609161                    | PDE8B   |
| 1351 | Striatal degeneration autosomal dominant 616922                    | PDE10A  |
| 1352 | Striatonigral degeneration childhood-onset 617054                  | VAC14   |
| 1352 | Striatonigral degeneration infantile 271930                        | NUP62   |
| 1353 | Stromme syndrome 243605  | CENPF   |
| 1354 | Structural heart defects and renal anomalies syndrome 617478       | TMEM260 |
| 1355 | Sturge-Weber syndrome somatic mosaicism 185300                     | GNAQ    |
| 1356 | Stuttering familial persistent 1 184450                            | AP4E1   |
| 1357 | Stuve-Wiedemann syndrome or Schwartz-Jampel type 2 syndrome 601559 | LIFR    |
| 1358 | Succinic semialdehyde dehydrogenase deficiency 271980              | ALDH5A1 |
| 1359 | Succinyl CoA:3-oxoacid CoA transferase deficiency 245050           | OXCT1   |
| 1360 | Sucrase-isomaltase deficiency congenital 222900                    | SI      |
| 1361 | Sudden cardiac failure infantile 617222                            | PPA2    |
| 1362 | Sudden infant death with dysgenesis of the testes syndrome 608800  | TSPYL1  |
| 1362 | {Sudden infant death syndrome susceptibility to} 272120            | SCN5A   |
| 1363 | Sulfite oxidase deficiency 272300                                  | SUOX    |
| 1364 | Supranuclear palsy progressive 601104                              | MAPT    |
| 1364 | Supranuclear palsy progressive atypical 260540                     | MAPT    |
| 1365 | Supravalvar aortic stenosis 185500                                 | ELN     |
| 1366 | Surfactant metabolism dysfunction pulmonary 1 265120               | SFTPB   |
| 1366 | Surfactant metabolism dysfunction pulmonary 2 610913               | SFTPC   |
| 1366 | Surfactant metabolism dysfunction pulmonary 3 610921               | ABCA3   |
| 1366 | Surfactant metabolism dysfunction pulmonary 4 300770               | CSF2RA  |
| 1366 | Surfactant metabolism dysfunction pulmonary 5 614370               | CSF2RB  |
| 1367 | Sveinsson chorioretinal atrophy 108985                             | TEAD1   |
| 1368 | Sweeney-Cox syndrome 617746  | TWIST1  |
| 1369 | Symmetric circumferential skin creases congenital 1 156610         | TUBB    |
| 1369 | Symmetric circumferential skin creases congenital 2 616734         | MAPRE2  |
| 1370 | Symphalangism proximal 1A 185800                                   | NOG     |
| 1370 | Symphalangism proximal 1B 615298                                   | GDF5    |
| 1371 | Syndactyly mesoaxial synostotic with phalangeal reduction 609432   | BHLHA9  |
| 1371 | Syndactyly type III 186100   | GJA1    |

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| 1371 | Syndactyly type IV 186200  | LMBR1    |
| 1371 | Syndactyly type V 186300   | HOXD13   |
| 1372 | Synpolydactyly 1 186000  | HOXD13   |
| 1373 | Systemic lupus erythematosus 16 614420   | DNASE1L3 |
| 1373 | {Systemic lupus erythematosus resistance to} 601744  | TLR5     |
| 1373 | {Systemic lupus erythematosus susceptibility to 10} 612251                                 | IRF5     |
| 1373 | {Systemic lupus erythematosus susceptibility to 11} 612253                                 | STAT4    |
| 1373 | {Systemic lupus erythematosus susceptibility to 1} 601744                                  | TLR5     |
| 1373 | {Systemic lupus erythematosus susceptibility to 2} 605218                                  | PDCD1    |
| 1373 | {Systemic lupus erythematosus susceptibility to 9} 610927                                  | CR2      |
| 1373 | {Systemic lupus erythematosus susceptibility to} 152700                                    | PTPN22   |
| 1373 | {Systemic lupus erythematosus susceptibility to} 152700                                    | CTLA4    |
| 1373 | {Systemic lupus erythematosus susceptibility to} 152700                                    | DNASE1   |
| 1373 | {Systemic lupus erythematosus susceptibility to} 152700                                    | FCGR2B   |
| 1373 | {Systemic lupus erythematosus susceptibility to} 152700                                    | TREX1    |
| 1373 | {Lupus nephritis susceptibility to} 152700   | FCGR2A   |
| 1373 | {Systemic lupus erythematosus association with susceptibility to 6} 609939                 | ITGAM    |
| 1374 | T-cell immunodeficiency congenital alopecia and nail dystrophy 601705                      | FOXN1    |
| 1374 | T-cell immunodeficiency recurrent infections autoimmunity and cardiac malformations 614868 | STK4     |
| 1375 | TARP syndrome 311900   | RBM10    |
| 1376 | Takenouchi-Kosaki syndrome 616737  | CDC42    |
| 1377 | Tangier disease 205400   | ABCA1    |
| 1378 | Tarsal-carpal coalition syndrome 186570  | NOG      |
| 1379 | Tatton-Brown-Rahman syndrome 615879  | DNMT3A   |
| 1380 | Telangiectasia hereditary hemorrhagic type 1 187300  | ENG      |
| 1380 | Telangiectasia hereditary hemorrhagic type 2 600376  | ACVRL1   |
| 1380 | Telangiectasia hereditary hemorrhagic type 5 615506  | GDF2     |
| 1381 | Temple-Baraitser syndrome 611816   | KCNH1    |
| 1382 | Temtamy preaxial brachydactyly syndrome 605282   | CHSY1    |
| 1383 | Temtamy syndrome 218340  | C12orf57 |
| 1384 | Tenorio syndrome 616260  | RNF125   |
| 1385 | Terminal osseous dysplasia 300244  | FLNA     |
| 1386 | Tetralogy of Fallot 187500   | GATA4    |
| 1386 | Tetralogy of Fallot 187500   | GATA6    |
| 1386 | Tetralogy of Fallot 187500   | GDF1     |
| 1386 | Tetralogy of Fallot 187500   | JAG1     |
| 1386 | Tetralogy of Fallot 187500   | NKX2-5   |
| 1386 | Tetralogy of Fallot 187500   | TBX1     |
| 1386 | Tetralogy of Fallot 187500   | ZFPM2    |
| 1387 | Thalassemia Hispanic gamma-delta-beta 613985   | HBB-LCR  |
| 1387 | Thalassemia alpha- 604131  | HBA2     |
| 1387 | Thalassemia-beta dominant inclusion-body 603902  | HBB      |

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| 1387 | Thalasseмии alpha- 604131  | HBA1     |
| 1387 | Thalasseмии beta- 613985   | HBB      |
| 1387 | Thalassemia due to Hb Lepore   | HBD      |
| 1387 | Thalassemia, delta-  | HBD      |
| 1387 | Delta-beta thalassemia 141749  | HBB      |
| 1388 | Thanatophoric dysplasia type I 187600  | FGFR3    |
| 1388 | Thanatophoric dysplasia type II 187601   | FGFR3    |
| 1389 | Thauvin-Robinet-Faivre syndrome 617107   | FIBP     |
| 1390 | Thiamine metabolism dysfunction syndrome 2 (biotin- or thiamine-responsive encephalopathy type 2) 607483 | SLC19A3  |
| 1390 | Thiamine metabolism dysfunction syndrome 4 (progressive polyneuropathy type) 613710                      | SLC25A19 |
| 1390 | Thiamine metabolism dysfunction syndrome 5 (episodic encephalopathy type) 614458                         | TPK1     |
| 1390 | Thiamine-responsive megaloblastic anemia syndrome 249270   | SLC19A2  |
| 1391 | Thrombocythemia 1 187950   | THPO     |
| 1391 | Thrombocythemia 2 601977   | MPL      |
| 1391 | Thrombocythemia 3 614521   | JAK2     |
| 1391 | Thrombocythemia somatic 187950   | CALR     |
| 1391 | Thrombocythemia somatic 187950   | SH2B3    |
| 1392 | Thrombocytopenia 2 188000  | ANKRD26  |
| 1392 | Thrombocytopenia 3 273900  | FYB      |
| 1392 | Thrombocytopenia 4 612004  | CYCS     |
| 1392 | Thrombocytopenia 5 616216  | ETV6     |
| 1392 | Thrombocytopenia X-linked 313900   | WAS      |
| 1392 | Thrombocytopenia X-linked intermittent 313900  | WAS      |
| 1392 | Thrombocytopenia X-linked with or without dyserythropoietic anemia 300367                                | GATA1    |
| 1392 | Thrombocytopenia congenital amegakaryocytic 604498   | MPL      |
| 1392 | Thrombocytopenia with beta-thalassemia X-linked 314050   | GATA1    |
| 1392 | Thrombocytopenia-absent radius syndrome 274000   | RBM8A    |
| 1392 | Thrombocytopenia, neonatal alloimmune  | ITGB3    |
| 1392 | Thrombocytopenia, neonatal alloimmune, BAK antigen related   | ITGA2B   |
| 1393 | {Deep venous thrombosis protection against} 300807   | F9       |
| 1393 | Thrombophilia X-linked due to factor IX defect 300807  | F9       |
| 1393 | Thrombophilia due to HRG deficiency 613116   | HRG      |
| 1393 | Thrombophilia due to activated protein C resistance 188055   | F5       |
| 1393 | {Thrombophilia susceptibility to due to factor V Leiden} 188055  | F5       |
| 1393 | Thrombophilia due to antithrombin III deficiency 613118  | SERPINC1 |
| 1393 | Thrombophilia due to heparin cofactor II deficiency 612356   | SERPIND1 |
| 1393 | Thrombophilia due to protein C deficiency autosomal dominant 176860                                      | PROC     |
| 1393 | Thrombophilia due to protein C deficiency autosomal recessive 612304                                     | PROC     |

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| 1393 | Thrombophilia due to protein S deficiency autosomal dominant 612336  | PROS1     |
| 1393 | Thrombophilia due to protein S deficiency autosomal recessive 614514 | PROS1     |
| 1393 | Thrombophilia due to thrombin defect 188050                          | F2        |
| 1393 | {Venous thromboembolism susceptibility to} 188050                    | HABP2     |
| 1393 | {Venous thrombosis protection against} 188050                        | F13A1     |
| 1393 | {Thromboembolism susceptibility to} 188050                           | MTHFR     |
| 1393 | Thrombophilia due to thrombomodulin defect 614486                    | THBD      |
| 1394 | Thrombotic thrombocytopenic purpura familial 274150                  | ADAMTS13  |
| 1394 | Purpura, posttransfusion   | ITGB3     |
| 1395 | Thyroid carcinoma follicular 188470                                  | MINPP1    |
| 1395 | Thyroid carcinoma follicular somatic 188470                          | NRAS      |
| 1395 | {Thyroid cancer nonmedullary 2} 188470                               | SRGAP1    |
| 1395 | {Thyroid carcinoma follicular somatic} 188470                        | HRAS      |
| 1395 | {Thyroid cancer nonmedullary 1} 188550                               | NKX2-1    |
| 1395 | {Thyroid cancer nonmedullary 4} 616534                               | FOXE1     |
| 1395 | {Thyroid carcinoma Hurthle cell} 607464                              | NDUFA13   |
| 1395 | Medullary thyroid carcinoma 155240                                   | RET       |
| 1395 | Medullary thyroid carcinoma familial 155240                          | NTRK1     |
| 1395 | Parathyroid adenoma with cystic changes 145001                       | CDC73     |
| 1395 | Parathyroid carcinoma 608266   | CDC73     |
| 1395 | Parathyroid adenoma, somatic   | MEN1      |
| 1395 | Thyroid adenoma, hyperfunctioning, somatic                           | TSHR      |
| 1395 | Thyroid carcinoma with thyrotoxicosis                                | TSHR      |
| 1396 | Thyroid dysmorphogenesis 1 274400                                    | SLC5A5    |
| 1396 | Thyroid dysmorphogenesis 2A 274500                                   | TPO       |
| 1396 | Thyroid dysmorphogenesis 3 274700                                    | TG        |
| 1396 | Thyroid dysmorphogenesis 4 274800                                    | IYD       |
| 1396 | Thyroid dysmorphogenesis 5 274900                                    | DUOXA2    |
| 1396 | Thyroid dysmorphogenesis 6 607200                                    | DUOX2     |
| 1397 | Thyroid hormone metabolism abnormal 609698                           | SECISBP2  |
| 1397 | Thyroid hormone resistance 188570                                    | THRB      |
| 1397 | Thyroid hormone resistance autosomal recessive 274300                | THRB      |
| 1397 | Thyroid hormone resistance selective pituitary 145650                | THRB      |
| 1398 | Tibial muscular dystrophy tardive 600334                             | TTN       |
| 1399 | Tietz albinism-deafness syndrome 103500                              | MITF      |
| 1400 | Timothy syndrome 601005  | CACNA1C   |
| 1401 | Tn polyagglutination syndrome somatic 300622                         | C1GALT1C1 |
| 1402 | Toenail dystrophy isolated 607523                                    | COL7A1    |
| 1403 | Tooth agenesis selective 1 with or without orofacial cleft 106600    | MSX1      |
| 1403 | Tooth agenesis selective 3 604625                                    | PAX9      |
| 1403 | Tooth agenesis selective 4 150400                                    | WNT10A    |
| 1403 | Tooth agenesis selective 7 616724                                    | LRP6      |
| 1403 | Tooth agenesis selective 8 617073                                    | WNT10B    |

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| 1403 | Tooth agenesis selective 9 617275                             | GREM2   |
| 1403 | Tooth agenesis selective X-linked 1 313500                    | EDA     |
| 1404 | Tourette syndrome 137580                                      | SLITRK1 |
| 1404 | {Gilles de la Tourette syndrome susceptibility to} 137580     | HDC     |
| 1405 | Townes-Brocks branchiootorenal-like syndrome 107480           | SALL1   |
| 1405 | Townes-Brocks syndrome 1 107480                               | SALL1   |
| 1406 | Traboulsi syndrome 601552                                     | ASPH    |
| 1407 | Transaldolase deficiency 606003                               | TALDO1  |
| 1408 | Transcobalamin II deficiency 275350                           | TCN2    |
| 1409 | Transient bullous of the newborn 131705                       | COL7A1  |
| 1410 | Transposition of great arteries dextro-looped 3 613854        | GDF1    |
| 1410 | Transposition of the great arteries dextro-looped 1 608808    | MED13L  |
| 1411 | Treacher Collins syndrome 1 154500                            | TCOF1   |
| 1411 | Treacher Collins syndrome 2 613717                            | POLR1D  |
| 1411 | Treacher Collins syndrome 3 248390                            | POLR1C  |
| 1412 | Trichodontoosseous syndrome 190320                            | DLX3    |
| 1413 | Trichoepithelioma multiple familial 1 601606                  | CYLD    |
| 1414 | Trichohepatoenteric syndrome 1 222470                         | TTC37   |
| 1414 | Trichohepatoenteric syndrome 2 614602                         | SKIV2L  |
| 1415 | Trichomegaly 190330   | FGF5    |
| 1416 | Trichorhinophalangeal syndrome type I 190350                  | TRPS1   |
| 1416 | Trichorhinophalangeal syndrome type III 190351                | TRPS1   |
| 1417 | Trichothiodystrophy 1 photosensitive 601675                   | ERCC2   |
| 1417 | Trichothiodystrophy 2 photosensitive 616390                   | ERCC3   |
| 1417 | Trichothiodystrophy 3 photosensitive 616395                   | GTF2H5  |
| 1417 | Trichothiodystrophy 4 nonphotosensitive 234050                | MPLKIP  |
| 1417 | Trichothiodystrophy 6 nonphotosensitive 616943                | GTF2E2  |
| 1418 | Trifunctional protein deficiency 609015                       | HADHA   |
| 1418 | Trifunctional protein deficiency 609015                       | HADHB   |
| 1419 | Trigonocephaly 1 190440                                       | FGFR1   |
| 1419 | Trigonocephaly 2 614485                                       | FREM1   |
| 1420 | Trimethylaminuria 602079                                      | FMO3    |
| 1421 | Triphalangeal thumb type I 174500                             | LMBR1   |
| 1421 | Triphalangeal thumb-polysyndactyly syndrome 174500            | LMBR1   |
| 1422 | Trismus-pseudocamptodactyly syndrome 158300                   | MYH8    |
| 1423 | Tropical calcific pancreatitis 608189                         | SPINK1  |
| 1423 | {Fibrocalculous pancreatic diabetes susceptibility to} 608189 | SPINK1  |
| 1424 | Troyer syndrome 275900  | SPG20   |
| 1425 | Tuberous sclerosis-1 191100                                   | TSC1    |
| 1425 | Tuberous sclerosis-2 613254                                   | TSC2    |
| 1425 | {TSC2 angiomyolipomas renal modifier of} 613254               | IFNG    |
| 1426 | Tumor predisposition syndrome 614327                          | BAP1    |
| 1427 | Tumoral calcinosis familial normophosphatemic 610455          | SAMD9   |
| 1427 | Tumoral calcinosis hyperphosphatemic 211900                   | KL      |
| 1427 | Tumoral calcinosis hyperphosphatemic familial 211900          | FGF23   |

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| 1427 | Tumoral calcinosis hyperphosphatemic familial 211900            | GALNT3 |
| 1428 | Tylosis with esophageal cancer 148500                           | RHBDF2 |
| 1429 | Tyrosinemia type I 276700                                       | FAH    |
| 1429 | Tyrosinemia type II 276600                                      | TAT    |
| 1429 | Tyrosinemia type III 276710                                     | HPD    |
| 1430 | UV-sensitive syndrome 1 600630                                  | ERCC6  |
| 1430 | UV-sensitive syndrome 2 614621                                  | ERCC8  |
| 1430 | UV-sensitive syndrome 3 614640                                  | UVSSA  |
| 1431 | Ullrich congenital muscular dystrophy 1 254090                  | COL6A1 |
| 1431 | Ullrich congenital muscular dystrophy 1 254090                  | COL6A2 |
| 1431 | Ullrich congenital muscular dystrophy 1 254090                  | COL6A3 |
| 1432 | Ulna and fibula absence of with severe limb deficiency 276820   | WNT7A  |
| 1433 | Ulnar-mammary syndrome 181450                                   | TBX3   |
| 1434 | Uncombable hair syndrome 191480                                 | PADI3  |
| 1435 | Urbach-Wiethe disease 247100                                    | ECM1   |
| 1436 | Urofacial syndrome 1 236730                                     | HPSE2  |
| 1436 | Urofacial syndrome 2 615112                                     | LRIG2  |
| 1437 | Usher syndrome type 1B 276900                                   | MYO7A  |
| 1437 | Usher syndrome type 1C 276904                                   | USH1C  |
| 1437 | Usher syndrome type 1D 601067                                   | CDH23  |
| 1437 | Usher syndrome type 1D or F digenic 601067                      | CDH23  |
| 1437 | Usher syndrome type 1D or F digenic 601067                      | PCDH15 |
| 1437 | Usher syndrome type 1F 602083                                   | PCDH15 |
| 1437 | Usher syndrome type 1G 606943                                   | USH1G  |
| 1437 | Usher syndrome type 2A 276901                                   | USH2A  |
| 1437 | {Retinal disease in Usher syndrome type IIA modifier of} 276901 | PDZD7  |
| 1437 | Usher syndrome type 2C 605472                                   | ADGRV1 |
| 1437 | Usher syndrome type 2C GPR98 or PDZD7 digenic 605472            | ADGRV1 |
| 1437 | Usher syndrome type 2D 611383                                   | WHRN   |
| 1437 | Usher syndrome type 3A 276902                                   | CLRN1  |
| 1437 | Usher syndrome type 3B 614504                                   | HARS   |
| 1437 | Usher syndrome type IIC GPR98 or PDZD7 digenic 605472           | PDZD7  |
| 1437 | Usher syndrome type IJ 614869                                   | CIB2   |
| 1438 | VACTERL association X-linked 314390                             | ZIC3   |
| 1439 | VATER association with macrocephaly and ventriculomegaly 276950 | PTEN   |
| 1440 | VLCAD deficiency 201475   | ACADVL |
| 1441 | Van Buchem disease 239100                                       | SOST   |
| 1442 | Van Maldergem syndrome 1 601390                                 | DCHS1  |
| 1442 | Van Maldergem syndrome 2 615546                                 | FAT4   |
| 1443 | Van den Ende-Gupta syndrome 600920                              | SCARF2 |
| 1444 | Van der Woude syndrome 2 606713                                 | GRHL3  |
| 1445 | Vas deferens congenital bilateral aplasia of X-linked 300985    | ADGRG2 |
| 1446 | Vascular malformation primary intraosseous 606893               | ELMO2  |
| 1447 | Vasculopathy retinal with cerebral leukodystrophy 192315        | TREX1  |

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| 1448 | Velocardiofacial syndrome 192430   | TBX1     |
| 1449 | Venous malformations multiple cutaneous and mucosal 600195                                     | TEK      |
| 1450 | Ventricular fibrillation familial 1 603829   | SCN5A    |
| 1450 | {Ventricular fibrillation paroxysmal familial 2} 612956  | DPP6     |
| 1451 | Ventricular septal defect 1 614429   | GATA4    |
| 1451 | Ventricular septal defect 2 614431   | CITED2   |
| 1451 | Ventricular septal defect 3 614432   | NKX2-5   |
| 1452 | Ventricular tachycardia catecholaminergic polymorphic 1 604772                                 | RYR2     |
| 1452 | Ventricular tachycardia catecholaminergic polymorphic 2 611938                                 | CASQ2    |
| 1452 | Ventricular tachycardia catecholaminergic polymorphic 3 614021                                 | TECRL    |
| 1452 | Ventricular tachycardia catecholaminergic polymorphic 4 614916                                 | CALM1    |
| 1452 | Ventricular tachycardia catecholaminergic polymorphic 5 with or without muscle weakness 615441 | TRDN     |
| 1452 | Ventricular tachycardia idiopathic 192605  | GNAI2    |
| 1453 | Ventriculomegaly with cystic kidney disease 219730   | CRB2     |
| 1454 | Verheij syndrome 615583  | PUF60    |
| 1455 | Vertebral cardiac renal and limb defects syndrome 1 617660                                     | HAAO     |
| 1455 | Vertebral cardiac renal and limb defects syndrome 2 617661                                     | KYNU     |
| 1456 | Vesicoureteral reflux 2 610878   | ROBO2    |
| 1456 | Vesicoureteral reflux 3 613674   | SOX17    |
| 1456 | Vesicoureteral reflux 8 615963   | TNXB     |
| 1457 | Vibratory urticaria 125630   | ADGRE2   |
| 1458 | Vici syndrome 242840   | EPG5     |
| 1459 | Visceral myopathy 155310   | ACTG2    |
| 1460 | Vitamin D-dependent rickets type I 264700  | CYP27B1  |
| 1461 | Vitamin K-dependent clotting factors combined deficiency of 1 277450                           | GGCX     |
| 1461 | Vitamin K-dependent clotting factors combined deficiency of 2 607473                           | VKORC1   |
| 1462 | Vohwinkel syndrome 124500  | GJB2     |
| 1462 | Vohwinkel syndrome with ichthyosis 604117  | LOR      |
| 1463 | WHIM syndrome 193670   | CXCR4    |
| 1464 | Waardenburg syndrome type 1 193500   | PAX3     |
| 1464 | Waardenburg syndrome type 2A 193510  | MITF     |
| 1464 | Waardenburg syndrome type 2D 608890  | SNAI2    |
| 1464 | Waardenburg syndrome type 2E with or without neurologic involvement 611584                     | SOX10    |
| 1464 | Waardenburg syndrome type 3 148820   | PAX3     |
| 1464 | Waardenburg syndrome type 4A 277580  | EDNRB    |
| 1464 | Waardenburg syndrome type 4B 613265  | EDN3     |
| 1464 | Waardenburg syndrome type 4C 613266  | SOX10    |
| 1464 | Waardenburg syndrome or albinism digenic 103470  | TYR      |
| 1464 | Waardenburg syndrome or ocular albinism digenic 103470   | MITF     |
| 1465 | Wagner syndrome 1 143200   | VCAN     |
| 1466 | Warburg micro syndrome 1 600118  | RAB3GAP1 |

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| 1466 | Warburg micro syndrome 2 614225  | RAB3GAP2 |
| 1466 | Warburg micro syndrome 3 614222  | RAB18    |
| 1466 | Warburg micro syndrome 4 615663  | TBC1D20  |
| 1467 | Warfarin resistance 122700   | VKORC1   |
| 1467 | Warfarin sensitivity 122700  | CYP2C9   |
| 1467 | {Warfarin sensitivity} 122700  | F9       |
| 1467 | Coumarin resistance 122700   | CYP2A6   |
| 1468 | Warsaw breakage syndrome 613398  | DDX11    |
| 1469 | Watson syndrome 193520   | NF1      |
| 1470 | Weaver syndrome 277590   | EZH2     |
| 1471 | Weill-Marchesani syndrome 1 recessive 277600                           | ADAMTS10 |
| 1471 | Weill-Marchesani syndrome 2 dominant 608328                            | FBN1     |
| 1471 | Weill-Marchesani-like syndrome 613195                                  | ADAMTS17 |
| 1472 | Welander distal myopathy 604454  | TIA1     |
| 1473 | Werner syndrome 277700   | RECQL2   |
| 1474 | Weyers acrofacial dysostosis 193530                                    | EVC2     |
| 1475 | White sponge nevus 1 193900  | KRT4     |
| 1475 | White sponge nevus 2 615785  | KRT13    |
| 1476 | White-Sutton syndrome 616364   | POGZ     |
| 1477 | Wieacker-Wolff syndrome 314580   | ZC4H2    |
| 1478 | Wiedemann-Steiner syndrome 605130                                      | KMT2A    |
| 1479 | Wilms tumor 194070   | BRCA2    |
| 1479 | Wilms tumor 2 194071   | H19      |
| 1479 | Wilms tumor somatic 194070   | GPC3     |
| 1479 | Wilms tumor type 1 194070  | WT1      |
| 1479 | {Wilms tumor 6 susceptibility to} 616806                               | REST     |
| 1479 | {Wilms tumor susceptibility-5} 601583                                  | POU6F2   |
| 1480 | Wilson disease 277900  | ATP7B    |
| 1481 | Wilson-Turner syndrome 309585  | LAS1L    |
| 1482 | Wiskott-Aldrich syndrome 301000  | WAS      |
| 1483 | Witteveen-Kolk syndrome 613406   | SIN3A    |
| 1484 | Wolcott-Rallison syndrome 226980                                       | EIF2AK3  |
| 1485 | Wolff-Parkinson-White syndrome 194200                                  | PRKAG2   |
| 1486 | Wolfram syndrome 1 222300  | WFS1     |
| 1486 | Wolfram syndrome 2 604928  | CISD2    |
| 1486 | Wolfram-like syndrome autosomal dominant 614296                        | WFS1     |
| 1487 | Wolman disease 278000  | LIPA     |
| 1487 | Cholesteryl ester storage disease 278000                               | LIPA     |
| 1488 | Woodhouse-Sakati syndrome 241080                                       | DCAF17   |
| 1489 | Woolly hair autosomal dominant 194300                                  | KRT74    |
| 1489 | Woolly hair autosomal recessive 1 with or without hypotrichosis 278150 | LPAR6    |
| 1489 | Woolly hair autosomal recessive 2 with or without hypotrichosis 604379 | LIPH     |
| 1489 | Woolly hair autosomal recessive 3 616760                               | KRT25    |



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| 1490 | Wrinkly skin syndrome 278250                              | ATP6V0A2 |
| 1491 | X-inactivation familial skewed 300087                     | XIC      |
| 1492 | Xanthinuria type I 278300                                 | XDH      |
| 1492 | Xanthinuria type II 603592                                | MOCOS    |
| 1493 | Xeroderma pigmentosum group A 278700                      | XPA      |
| 1493 | Xeroderma pigmentosum group B 610651                      | ERCC3    |
| 1493 | Xeroderma pigmentosum group C 278720                      | XPC      |
| 1493 | Xeroderma pigmentosum group D 278730                      | ERCC2    |
| 1493 | Xeroderma pigmentosum group E DDB-negative subtype 278740 | DDB2     |
| 1493 | Xeroderma pigmentosum group F 278760                      | ERCC4    |
| 1493 | Xeroderma pigmentosum group G 278780                      | ERCC5    |
| 1493 | Xeroderma pigmentosum group G or Cockayne syndrome 278780 | ERCC5    |
| 1493 | Xeroderma pigmentosum type F or Cockayne syndrome 278760  | ERCC4    |
| 1493 | Xeroderma pigmentosum variant type 278750                 | POLH     |
| 1494 | Xia-Gibbs syndrome 615829                                 | AHDC1    |
| 1495 | You-Hoover-Fong syndrome 616954                           | TELO2    |
| 1496 | Yunis-Varon syndrome 216340                               | FIG4     |
| 1497 | ZTTK syndrome 617140                                      | SON      |
| 1498 | Zimmermann-Laband syndrome 1 135500                       | KCNH1    |
| 1498 | Zimmermann-Laband syndrome 2 616455                       | ATP6V1B2 |
| 1499 | Zinc deficiency transient neonatal 608118                 | SLC30A2  |
| 1500 | van Buchem disease type 2 607636                          | LRP5     |
| 1501 | van der Woude syndrome 119300                             | IRF6     |
| 1502 | von Hippel-Lindau syndrome 193300                         | VHL      |
| 1502 | {von Hippel-Lindau syndrome modifier of} 193300           | CCND1    |
| 1503 | von Willebrand disease platelet-type 177820               | GP1BA    |
| 1503 | von Willebrand disease type 1 193400                      | VWF      |
| 1503 | von Willebrand disease types 2A 2B 2M and 2N 613554       | VWF      |
| 1503 | von Willibrand disease type 3 277480                      | VWF      |
| 1504 | {AIDS delayed or rapid progression to} 609423             | KIR3DL1  |
| 1504 | {AIDS rapid progression to} 609423                        | IFNG     |
| 1504 | {AIDS resistance to} 609423                               | CXCL12   |
| 1504 | {AIDS slow progression to} 609423                         | CXCR1    |
| 1504 | {AIDS slow progression to} 609423                         | IL4R     |
| 1504 | {HIV type 1 susceptibility to} 609423                     | CD209    |
| 1504 | {HIV-1 resistance to} 609423                              | CCL2     |
| 1504 | {HIV-1 susceptibility to} 609423                          | IL10     |
| 1504 | {HIV-1 viremia susceptibility to} 609423                  | HLA-C    |
| 1504 | {HIV or AIDS susceptibility to} 609423                    | CCL3L1   |
| 1504 | {HIV1 infection resistance to} 609423                     | TLR3     |
| 1504 | {HIV1 resistance to} 609423                               | CCL11    |
| 1504 | {Rapid progression to AIDS from HIV1 infection} 609423    | CX3CR1   |
| 1504 | {HIV infection, susceptibility/resistance to}             | CCR2     |
| 1504 | {HIV infection, susceptibility/resistance to}             | CCR5     |
| 1504 | {HIV-1 disease, delayed progression of}                   | CCL5     |

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| 1504 | {HIV-1 disease, rapid progression of}                                    | CCL5     |
| 1505 | {Accelerated tumor formation susceptibility to} 614401                   | MDM2     |
| 1506 | {Alcohol dependence protection against} 103780                           | ADH1B    |
| 1506 | {Alcohol dependence protection against} 103780                           | ADH1C    |
| 1506 | {Alcohol dependence susceptibility to} 103780                            | GABRA2   |
| 1506 | {Alcohol dependence susceptibility to} 103780                            | HTR2A    |
| 1506 | {Alcohol dependence susceptibility to} 103780                            | TAS2R16  |
| 1507 | {Allergic rhinitis susceptibility to} 607154                             | IL13     |
| 1508 | {Thiopurines poor metabolism of 1} 610460                                | TPMT     |
| 1508 | {Thiopurines poor metabolism of 2} 616903                                | NUDT15   |
| 1509 | {Anxiety-related personality traits} 607834                              | SLC6A4   |
| 1510 | {Anorexia nervosa susceptibility to} 606788                              | HTR2A    |
| 1510 | {Anorexia nervosa susceptibility to} 610269                              | BDNF     |
| 1511 | {Asperger syndrome susceptibility X-linked 1} 300494                     | NLGN3    |
| 1511 | {Asperger syndrome susceptibility X-linked 2} 300497                     | NLGN4X   |
| 1512 | {Aspergillosis susceptibility to} 614079                                 | CLEC7A   |
| 1513 | {Atopy susceptibility to} 147050   | IL4R     |
| 1513 | {Atopy susceptibility to} 147050   | MS4A2    |
| 1513 | {Atopy susceptibility to} 147050   | PLA2G7   |
| 1514 | {Attention deficit-hyperactivity disorder susceptibility to 7}<br>613003 | TPH2     |
| 1514 | {Attention deficit-hyperactivity disorder susceptibility to} 143465      | DRD5     |
| 1514 | {Attention deficit-hyperactivity disorder} 143465                        | DRD4     |
| 1515 | {Autism susceptibility 15} 612100  | CNTNAP2  |
| 1515 | {Autism susceptibility 17} 613436  | SHANK2   |
| 1515 | {Autism susceptibility X-linked 1} 300425                                | NLGN3    |
| 1515 | {Autism susceptibility X-linked 2} 300495                                | NLGN4X   |
| 1515 | {Autism susceptibility X-linked 3} 300496                                | MECP2    |
| 1515 | {Autism susceptibility to 18} 615032                                     | CHD8     |
| 1515 | {Autism susceptibility to 19} 615091                                     | EIF4E    |
| 1515 | {Autism susceptibility to X-linked 4} 300830                             | PTCHD1   |
| 1515 | {Autism susceptibility to X-linked 5} 300847                             | RPL10    |
| 1515 | {Autism susceptibility to X-linked 6} 300872                             | TMLHE    |
| 1516 | {Bacteremia protection against} 614382                                   | TIRAP    |
| 1516 | {Bacteremia susceptibility to} 614383                                    | CISH     |
| 1517 | {Blepharospasm primary benign} 606798                                    | DRD5     |
| 1518 | {Budd-Chiari syndrome somatic} 600880                                    | JAK2     |
| 1518 | {Budd-Chiari syndrome} 600880  | F5       |
| 1519 | {Bulimia nervosa age of onset of weight loss in} 607499                  | BDNF     |
| 1520 | {Buruli ulcer susceptibility to} 610446                                  | SLC11A1  |
| 1521 | {Celiac disease susceptibility to 3} 609755                              | CTLA4    |
| 1521 | {Celiac disease susceptibility to 4} 609753                              | MYO9B    |
| 1521 | {Celiac disease susceptibility to} 212750                                | HLA-DQA1 |
| 1521 | {Celiac disease susceptibility to} 212750                                | HLA-DQB1 |
| 1522 | {Chronic infections due to MBL deficiency} 614372                        | MBL2     |

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| 1523 | {Codeine sensitivity} 608902   | CYP2D6  |
| 1523 | {Debrisoquine sensitivity} 608902  | CYP2D6  |
| 1524 | {Colchicine resistance} 120080   | ABCB1   |
| 1525 | {Coronary artery disease autosomal dominant 1} 608320                                | MEF2A   |
| 1525 | {Coronary artery disease autosomal dominant 2} 610947                                | LRP6    |
| 1525 | {Coronary artery disease in familial hypercholesterolemia protection against} 143890 | ABCA1   |
| 1525 | {Coronary artery disease resistance to} 607339                                       | CX3CR1  |
| 1525 | {Coronary artery disease severe susceptibility to} 617347                            | APOE    |
| 1525 | {Coronary heart disease susceptibility to 5} 608901                                  | KALRN   |
| 1525 | {Coronary heart disease susceptibility to 6} 614466                                  | MMP3    |
| 1525 | {Coronary heart disease susceptibility to 7} 610938                                  | CD36    |
| 1525 | {Coronary artery disease, modifier of}   | CCL2    |
| 1525 | {Coronary artery disease, susceptibility to}   | IRS1    |
| 1525 | {Coronary artery disease, susceptibility to}   | KL      |
| 1525 | {Coronary artery disease, susceptibility to}   | PON1    |
| 1525 | {Coronary artery disease, susceptibility to}   | PON2    |
| 1525 | {Coronary artery spasm 1, susceptibility to}   | NOS3    |
| 1525 | {Coronary artery spasm 2, susceptibility to}   | PON1    |
| 1526 | {Dengue fever protection against} 614371   | CD209   |
| 1527 | {Dermatitis atopic susceptibility to 2} 605803                                       | FLG     |
| 1528 | {Drug addiction susceptibility to} 606581  | FAAH    |
| 1529 | {Dyslexia susceptibility to 1} 127700  | DNAAF4  |
| 1530 | {Encephalopathy acute infection-induced 3 susceptibility to} 608033                  | RANBP2  |
| 1530 | {Encephalopathy acute infection-induced 4 susceptibility to} 614212                  | CPT2    |
| 1531 | {Glaucoma normal tension susceptibility to} 606657                                   | OPA1    |
| 1531 | {Glaucoma normal tension susceptibility to} 606657                                   | OPTN    |
| 1532 | {Glucocorticoid therapy response to} 614400  | GLCC1   |
| 1533 | {Exfoliation syndrome susceptibility to} 177650                                      | LOXL1   |
| 1534 | {Gout susceptibility 4} 612671   | SLC17A3 |
| 1535 | {Graft-versus-host disease protection against} 614395                                | IL10    |
| 1536 | {H. pylori infection susceptibility to} 600263                                       | IFNGR1  |
| 1537 | {Hashimoto thyroiditis} 140300   | CTLA4   |
| 1538 | {Hemorrhage intracerebral susceptibility to} 614519                                  | COL4A1  |
| 1538 | {Hemorrhage intracerebral susceptibility to} 614519                                  | COL4A2  |
| 1538 | {Stroke hemorrhagic} 614519  | ACE     |
| 1539 | {Hepatitis B virus infection susceptibility to} 610424                               | IFNGR1  |
| 1539 | {Hepatitis B virus susceptibility to} 610424   | IL10RB  |
| 1539 | {Hepatitis B virus susceptibility to} 610424   | IFNAR2  |
| 1539 | {Hepatitis C virus infection response to therapy of} 609532                          | IFNL3   |
| 1539 | {Hepatitis C virus resistance to} 609532   | CCR5    |
| 1539 | {Hepatitis C virus response to therapy of} 609532                                    | IFNG    |
| 1539 | {Hepatitis C virus susceptibility to} 609532   | PTPRC   |

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| 1540 | {Herpes simplex encephalitic susceptibility to 6} 614850                                     | TICAM1  |
| 1540 | {Herpes simplex encephalitis susceptibility to 1} 610551                                     | UNC93B1 |
| 1540 | {Herpes simplex encephalitis susceptibility to 2} 613002                                     | TLR3    |
| 1541 | {Hirschsprung disease susceptibility to 1} 142623  | RET     |
| 1541 | {Hirschsprung disease susceptibility to 2} 600155  | EDNRB   |
| 1541 | {Hirschsprung disease susceptibility to 3} 613711  | GDNF    |
| 1541 | {Hirschsprung disease susceptibility to 4} 613712  | EDN3    |
| 1542 | {Hydrops fetalis nonimmune and or atrial septal defect} 617300                               | EPHB4   |
| 1543 | {Hypercalciuria absorptive susceptibility to} 143870   | ADCY10  |
| 1544 | {Hypersensitivity syndrome carbamazepine-induced susceptibility to} 608579                   | HLA-A   |
| 1544 | {Abacavir hypersensitivity, susceptibility to}   | HLA-B   |
| 1544 | {Stevens-Johnson syndrome susceptibility to} 608579  | HLA-B   |
| 1544 | {Toxic epidermal necrolysis susceptibility to} 608579  | HLA-B   |
| 1545 | {Hypothalamic hamartomas somatic} 241800   | GLI3    |
| 1546 | {Influenza severe susceptibility to} 614680  | IFITM3  |
| 1547 | {Intracranial hemorrhage in brain cerebrovascular malformations susceptibility to} 108010    | IL6     |
| 1548 | {Kaposi sarcoma susceptibility to} 148000  | IL6     |
| 1549 | {Kawasaki disease susceptibility to} 611775  | ITPKC   |
| 1550 | {Kuru susceptibility to} 245300  | PRNP    |
| 1551 | {Legionnaire disease susceptibility to} 608556   | TLR5    |
| 1552 | {Leprosy protection against} 613223  | TLR1    |
| 1552 | {Leprosy susceptibility to 4} 610988   | LTA     |
| 1552 | {Leprosy susceptibility to 5} 613223   | TLR1    |
| 1552 | {Leprosy susceptibility to} 246300   | TLR2    |
| 1552 | {Leprosy susceptibility to} 607572   | PRKN    |
| 1553 | {Lumbar disc degeneration} 603932  | ASPN    |
| 1553 | {Lumbar disc disease susceptibility to} 603932   | CILP    |
| 1553 | {Lumbar disc herniation susceptibility to} 603932  | COL11A1 |
| 1553 | {Lumbar disc herniation susceptibility to} 603932  | THBS2   |
| 1553 | {Intervertebral disc disease susceptibility to} 603932                                       | COL9A3  |
| 1554 | {Major affective disorder-7 susceptibility to} 612371  | XBP1    |
| 1554 | {Seasonal affective disorder susceptibility to} 608516                                       | HTR2A   |
| 1554 | {Major depressive disorder and accelerated response to antidepressant drug treatment} 608516 | FKBP5   |
| 1554 | {Major depressive disorder response to citalopram therapy in} 608516                         | HTR2A   |
| 1554 | {Unipolar depression susceptibility to} 608516   | TPH2    |
| 1555 | {Malaria cerebral reduced risk of} 611162  | CD36    |
| 1555 | {Malaria cerebral susceptibility to} 611162  | CD36    |
| 1555 | {Malaria cerebral susceptibility to} 611162  | ICAM1   |
| 1555 | {Malaria cerebral susceptibility to} 611162  | TNF     |
| 1555 | {Malaria mild susceptibility to} 609148  | NCR3    |
| 1555 | {Malaria protection against} 611162  | TIRAP   |

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| 1555 | {Malaria resistance to} 611162   | FCGR2B   |
| 1555 | {Malaria resistance to} 611162   | GYPA     |
| 1555 | {Malaria resistance to} 611162   | GYPB     |
| 1555 | {Malaria resistance to} 611162   | GYPC     |
| 1555 | {Malaria resistance to} 611162   | HBB      |
| 1555 | {Malaria resistance to} 611162   | NOS2     |
| 1555 | {Malaria severe resistance to} 611162  | CR1      |
| 1555 | {Malaria severe susceptibility to} 611162  | FCGR2A   |
| 1555 | {Malaria susceptibility to} 611162   | CISH     |
| 1555 | {Malaria vivax protection against} 611162  | ACKR1    |
| 1555 | {Resistance to malaria due to G6PD deficiency} 611162  | G6PD     |
| 1556 | {Meloidosis susceptibility to} 615557  | TLR5     |
| 1557 | {Microvascular complications of diabetes 1} 603933   | VEGFA    |
| 1557 | {Microvascular complications of diabetes 2} 612623   | EPO      |
| 1557 | {Microvascular complications of diabetes 3} 612624   | ACE      |
| 1557 | {Microvascular complications of diabetes 4} 612628   | IL1RN    |
| 1557 | {Microvascular complications of diabetes 5} 612633   | PON1     |
| 1557 | {Microvascular complications of diabetes 6} 612634   | SOD2     |
| 1557 | {Microvascular complications of diabetes 7} 612635   | HFE      |
| 1558 | {Multiple myeloma resistance to} 254500  | LIG4     |
| 1558 | {Multiple myeloma susceptibility to} 254500  | CCND1    |
| 1559 | {Multiple sclerosis disease progression modifier of} 126200  | PDCD1    |
| 1559 | {Multiple sclerosis susceptibility to 1} 126200  | HLA-DQB1 |
| 1559 | {Multiple sclerosis susceptibility to 1} 126200  | HLA-DRB1 |
| 1559 | {Multiple sclerosis susceptibility to 5} 614810  | TNFRSF1A |
| 1560 | {Multiple self-healing squamous epithelioma susceptibility to} 132800                                    | TGFBR1   |
| 1561 | {Multiple system atrophy susceptibility to} 146500   | COQ2     |
| 1562 | {Mycobacterium tuberculosis protection against} 607948   | IRGM     |
| 1562 | {Mycobacterium tuberculosis protection against} 607948   | MC3R     |
| 1562 | {Mycobacterium tuberculosis susceptibility to infection by} 607948                                       | SLC11A1  |
| 1562 | {Mycobacterium tuberculosis susceptibility to} 607948  | CCL2     |
| 1562 | {Mycobacterium tuberculosis susceptibility to} 607948  | CD209    |
| 1562 | {Mycobacterium tuberculosis susceptibility to} 607948  | SP110    |
| 1562 | {Mycobacterium tuberculosis susceptibility to} 607948  | TLR2     |
| 1562 | {Tuberculosis infection protection against} 607948   | IFNGR1   |
| 1562 | {Tuberculosis protection against} 607948   | IFNG     |
| 1562 | {Tuberculosis protection against} 607948   | TIRAP    |
| 1562 | {Tuberculosis susceptibility to} 607948  | CISH     |
| 1562 | {Tuberculosis susceptibility to} 607948  | IFNGR1   |
| 1563 | {Myeloproliferative or lymphoproliferative neoplasms familial (multiple types) susceptibility to} 616871 | DDX41    |
| 1564 | {Myocardial infarction decreased susceptibility to} 608446   | F7       |
| 1564 | {Myocardial infarction protection against} 608446  | F13A1    |

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| 1564 | {Myocardial infarction susceptibility to} 608446                           | ESR1      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | GCLC      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | GCLM      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | ITGB3     |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | LGALS2    |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | LRP8      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | LTA       |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | MIAT      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | OLR1      |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | PSMA6     |
| 1564 | {Myocardial infarction susceptibility to} 608446                           | TNFSF4    |
| 1564 | {Myocardial infarction, susceptibility to}                                 | ACE       |
| 1565 | {Nicotine addiction protection from} 188890                                | CYP2A6    |
| 1565 | {Nicotine addiction susceptibility to} 188890                              | CHRNA4    |
| 1565 | {Nicotine dependence protection against} 188890                            | GABBR2    |
| 1565 | {Nicotine dependence protection against} 188890                            | SLC6A3    |
| 1565 | {Nicotine dependence susceptibility to} 188890                             | GABBR2    |
| 1565 | {Nicotine dependence susceptibility to} 612052                             | CHRNA5    |
| 1565 | {Lung cancer susceptibility 2} 612052                                      | CHRNA3    |
| 1565 | {Lung cancer susceptibility 2} 612052                                      | CHRNA5    |
| 1566 | {Nonarteritic anterior ischemic optic neuropathy susceptibility to} 258660 | GP1BA     |
| 1567 | {Obsessive-compulsive disorder protection against} 164230                  | BDNF      |
| 1567 | {Obsessive-compulsive disorder susceptibility to} 164230                   | HTR2A     |
| 1567 | {Obsessive-compulsive disorder} 164230                                     | SLC6A4    |
| 1568 | {Osteofibrous dysplasia susceptibility to} 607278                          | MET       |
| 1569 | {Paget disease of bone 2 early-onset} 602080                               | TNFRSF11A |
| 1570 | {Panic disorder susceptibility to} 167870                                  | COMT      |
| 1571 | {Preterm premature rupture of the membranes susceptibility to} 610504      | SERPINH1  |
| 1572 | {Pseudofolliculitis barbae susceptibility to} 612318                       | KRT75     |
| 1573 | {Psoriatic arthritis susceptibility to} 607507                             | LTA       |
| 1574 | {Rheumatoid arthritis progression of} 180300                               | IL10      |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | CD244     |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | CIITA     |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | NFKBIL1   |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | PADI4     |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | PTPN22    |
| 1574 | {Rheumatoid arthritis susceptibility to} 180300                            | SLC22A4   |
| 1574 | {Rheumatoid arthritis systemic juvenile susceptibility to} 604302          | MIF       |
| 1574 | {Rheumatoid arthritis systemic juvenile} 604302                            | IL6       |
| 1575 | {Sarcoidosis susceptibility to 1} 181000                                   | HLA-DRB1  |
| 1575 | {Sarcoidosis susceptibility to 2} 612387                                   | BTNL2     |
| 1576 | {Schizophrenia 15} 613950  | SHANK3    |
| 1576 | {Schizophrenia 19 susceptibility to} 617629                                | RBM12     |

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| 1576 | {Schizophrenia 9 susceptibility to} 604906                                | DISC1    |
| 1576 | {Schizophrenia susceptibility to 17} 614332                               | NRXN1    |
| 1576 | {Schizophrenia susceptibility to 4} 600850                                | PRODH    |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | CHI3L1   |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | COMT     |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | DRD3     |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | HTR2A    |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | MTHFR    |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | RTN4R    |
| 1576 | {Schizophrenia susceptibility to} 181500                                  | SYN2     |
| 1577 | {Specific language impairment 5} 615432                                   | TM4SF20  |
| 1578 | {Spondyloarthritis susceptibility to 1} 106300                            | HLA-B    |
| 1579 | {Thyrotoxic periodic paralysis susceptibility to 1} 188580                | CACNA1S  |
| 1579 | {Thyrotoxic periodic paralysis susceptibility to 2} 613239                | KCNJ18   |
| 1580 | {UV-induced skin damage} 266300   | MC1R     |
| 1581 | {Vitamin B12 plasma level QTL1} 612542                                    | FUT2     |
| 1582 | {Vitiligo-associated multiple autoimmune disease susceptibility 1} 606579 | NLRP1    |
| 1583 | {West Nile virus susceptibility to} 610379                                | CCR5     |
| 1584 | {Yao syndrome} 617321   | NOD2     |
| 1585 | Adrenal adenoma somatic   | MEN1     |
| 1586 | Aldosterone to renin ratio raised   | CYP11B2  |
| 1587 | Alpha-1-antichymotrypsin deficiency                                       | SERPINA3 |
| 1588 | Angiofibroma somatic  | MEN1     |
| 1589 | Apnea postanesthetic  | BCHE     |
| 1590 | Autonomic nervous system dysfunction                                      | DRD4     |
| 1591 | Beta-2-adrenoreceptor agonist reduced response to                         | ADRB2    |
| 1592 | Carboxylesterase 1 deficiency   | CES1     |
| 1593 | Carcinoid tumor of lung   | MEN1     |
| 1594 | Cerebrovascular disease occlusive   | SERPINA3 |
| 1595 | Cirrhosis due to liver phosphorylase kinase deficiency                    | PHKG2    |
| 1596 | DNA ligase I deficiency   | LIG1     |
| 1597 | DNA topoisomerase I camptothecin-resistant                                | TOP1     |
| 1597 | DNA topoisomerase II resistance to inhibition of by amsacrine             | TOP2A    |
| 1598 | Dopamine receptor D2, reduced brain density of                            | ANKK1    |
| 1599 | Erythremias alpha   | HBA1     |
| 1599 | Erythremias beta  | HBB      |
| 1600 | Forebrain defects   | TDGF1    |
| 1601 | Hemangioblastoma cerebellar somatic                                       | VHL      |
| 1602 | Hematuria, familial benign  | COL4A4   |
| 1603 | Homocysteine total plasma elevated  | CTH      |
| 1604 | Hypercalciuric hypercalcemia  | CASR     |
| 1605 | Hypochromic microcytic anemia   | HBA2     |
| 1606 | IgG2 deficiency, selective  | IGHG2    |
| 1607 | Left-right axis malformations   | EBAF     |

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| 1608 | Merkel cell carcinoma, somatic   | SDHD     |
| 1609 | Mucoepidermoid salivary gland carcinoma  | CRTC1    |
| 1609 | Mucoepidermoid salivary gland carcinoma  | MAML2    |
| 1610 | Myelodysplasia syndrome-1  | MECOM    |
| 1610 | Myelodysplastic syndrome   | ACSL6    |
| 1610 | Myelodysplastic syndrome, preleukemic  | IRF1     |
| 1611 | Myelokathexis, isolated  | CXCR4    |
| 1612 | Neurofibrosarcoma  | MXI1     |
| 1613 | Orolaryngeal cancer, multiple  | CDKN2A   |
| 1614 | PTEN hamartoma tumor syndrome  | PTEN     |
| 1615 | Paroxysmal extreme pain disorder 167400  | SCN9A    |
| 1616 | Phospholipase A2, group IV A, deficiency of                                      | PLA2G4A  |
| 1617 | Rh-mod syndrome  | RHAG     |
| 1618 | Rh-null disease, amorph type   | RHCE     |
| 1619 | Rhabdomyolysis, cerivastatin-induced   | CYP2C8   |
| 1620 | Scaphocephaly and Axenfeld-Rieger anomaly  | FGFR2    |
| 1621 | Scurvy   | GULOP    |
| 1622 | Sebaceous tumors, somatic  | LEF1     |
| 1623 | {Congestive heart failure and beta-blocker response, modifier of}                | ADRA2C   |
| 1623 | {Congestive heart failure and beta-blocker response, modifier of}                | ADRB1    |
| 1624 | {Cancer progression/metastasis}  | FGFR4    |
| 1625 | {Atherosclerosis, susceptibility to}   | ALOX5    |
| 1625 | {Atherosclerosis, susceptibility to}   | ESR1     |
| 1626 | Somatostatin analog, resistance to   | SSTR5    |
| 1627 | Sweat chloride elevation without CF  | CFTR     |
| 1628 | Thyrotropin-releasing hormone resistance, generalized                            | TRHR     |
| 1629 | {Drug-induced liver injury due to flucloxacillin}                                | HLA-B    |
| 1630 | {High density lipoprotein cholesterol level QTL 7}                               | EDN1     |
| 1631 | Wegener-like granulomatosis  | TAP2     |
| 1632 | Tolbutamide poor metabolizer   | CYP2C9   |
| 1633 | {Aerodigestive tract cancer, squamous cell, alcohol-related, protection against} | ADH1B    |
| 1634 | {Benzene toxicity, susceptibility to}  | NQO1     |
| 1635 | {Beryllium disease, chronic, susceptibility to}                                  | HLA-DPB1 |
| 1636 | {SARS, progression of}   | ACE      |
| 1637 | {Norwalk virus infection, resistance to}   | FUT2     |
| 1638 | {Calcium, serum level of}  | CASR     |
| 1639 | {Hyperapobetalipoproteinemia, susceptibility to}                                 | PPARA    |
| 1640 | {Hypertrypsinemia, neonatal}   | CFTR     |
| 1641 | {Leanness, inherited}  | AGRP     |
| 1642 | {Low renin hypertension, susceptibility to}                                      | CYP11B2  |
| 1643 | {Memory impairment, susceptibility to}   | BDNF     |
| 1644 | {Organophosphate poisoning, sensitivity to}                                      | PON1     |
| 1645 | {Placental abruption}  | NOS3     |
| 1646 | {Sepsis, susceptibility to}  | CASP12   |



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| 1646 | {Septic shock, susceptibility to}                                | TNF      |
| 1647 | {Sezary syndrome, somatic}                                       | BCL10    |
| 1648 | {Spermatogenic failure, susceptibility to}                       | DAZL     |
| 1649 | {Sublingual nitroglycerin, susceptibility to poor response to}   | ALDH2    |
| 1650 | {Synovitis, chronic, susceptibility to}                          | HLA-B    |
| 1651 | {Transcription of plasminogen activator inhibitor, modulator of} | SERPINE1 |
| 1652 | {Vascular disease, susceptibility to}                            | MTHFR    |
| 1653 | {Venooclusive disease after bone marrow transplantation}         | CPS1     |
| 1654 | {Viral infection, susceptibility to}                             | OAS1     |