SUPPLEMENTARY FIGURE LEGENDS

**Supplementary Table 1:** Sequence conservation blocks and gene synteny of 45 non-coding GWAS-SNPs conserved between human and zebrafish (last update: January 2017).

**Supplementary Table 2:** Epigenomics and genotype-tissue expression analysis related to 45 conserved GWAS-SNPs.

**Supplementary Table 3:** Sequence conservation blocks and gene synteny of 558 non-coding GWAS-SNPs conserved between human and chicken (last update: January 2017).

**Supplementary Table 4:** Computational predictions of transcription factor binding sites overlapping the GWAS-SNP in 45 conserved human CNEs.

**Supplementary Figure 1:** Functional validation of conserved CNEs enhancer activity and identification of the *cis*-regulated genes

(a) Whole-mount in situ hybridization against *miR*-9 in the adult zebrafish brain. (b, c) Confocal section of double *in situ* immunolabelling showing extensive overlap in the expression of endogenous *miR*-9 and EGFP protein in the hindbrain at 72 hpf (c) or in the ventricular zone of the adult zebrafish telencephalon (d) in the *Tg(CNE1:egfp)* line. (d) *Tg(CNE8:egfp)* expression is similar to *meis2a* endogenous expression at 24 hpf. (e) Confocal section of double *in situ* immunolabelling showing the co-localization of endogenous *meis2a* and EGFP protein in the *Tg(CNE8:egfp)* adult brain. (f) *Tg(CNE8:egfp)* expression is similar to *sox6* endogenous expression in the retina at 48 hpf. Confocal projection of double *in situ* immunolabelling showing extensive overlap in the expression of endogenous *sox6* gene and EGFP in *Tg(CNE18:egfp)* retina at 48 hpf. (g) *Tg(CNE8:egfp)* expression is similar to *sox6* endogenous expression in muscle at 24 hpf. Dorsal view of the brain with anterior up. Lateral view of the retina. Lateral view of the trunk. Scale bars: 100 µm.
CNE1
a Adult zebrafish brain

miR-9

b Developing hindbrain
c Ventricular zone of the adult telencephalon

72 hpf
CNE1:egfp
miR-9
CNE1:egfp
miR-9

CNE8
d Embryonic brain
e Adult brain

24 hpf
CNE8:egfp
CNE8:egfp
CNE8:egfp
meis2a

CNE18
f Retina
g Muscle

48 hpf
CNE18:egfp
sox6
CNE18:egfp
sox6

Figure S1