1. Search for EGF receptor by typing "EGFR"
2. Select the "EGFR" record

<table>
<thead>
<tr>
<th>Receptor Family</th>
<th>Gene</th>
<th>Receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family 1</td>
<td>EGFR</td>
<td>Receptor: Epidermal growth factor receptor precursor</td>
</tr>
<tr>
<td>Family 2</td>
<td>PLT1</td>
<td>Receptor: Vascular endothelial growth factor receptor 1 precursor</td>
</tr>
<tr>
<td>Family 3</td>
<td>PLT4</td>
<td>Receptor: Vascular endothelial growth factor receptor 3 precursor</td>
</tr>
<tr>
<td>Family 4</td>
<td>KDR</td>
<td>Receptor: Vascular endothelial growth factor receptor 2 precursor</td>
</tr>
</tbody>
</table>
3. EGFR interacts with six ligands and one co-receptor

EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR  Family: RTK|ERBB|EGF

SYNONYMS: egf, epidermal growth factor receptor precursor, egf receptor  EXTERNAL LINKS: Entrez Gene, Omim

Receptor EGFR interacts with:

- **Ligand**: EGF - EPIDERMAL GROWTH FACTOR  
  
  Carrin CR, and Knowles BB. (Proc Natl Acad Sci U S A. 1982) presented evidence that SA-7 is the human receptor for epidermal growth factor (EGF).

- **Ligand**: TGF-α - TRANSFORMING GROWTH FACTOR, ALPHA  
  
  Ignatowska R, et al. (Proc Natl Acad Sci U S A. 1988) demonstrated that TGF-α binds to epidermal growth factor/TGF-alpha receptors and activates the receptor-associated tyrosine kinase activity in intact cells.

- **Ligand**: EREG - EPIREGULIN  [read more...]

- **Ligand**: NRG-1 - AMPHIREGULIN (SCHWANNOMA-DERIVED GROWTH FACTOR 1)  
  
  Shibahara M, et al. (Science, 1989) studied the structure and function of human ampiregulin and found that ampiregulin is a member of EGF family. It binds to and activates EGFR receptor.

- **Ligand**: BTC - BETACELLULIN  [read more...]

- **Ligand**: BBG - HEPARIN-BINDING EGF-LIKE GROWTH FACTOR  [read more...]

- **Receptor**: CD44 ANTIGEN (HOMING FUNCTION AND INDIAN BLA...  [read more...]

All interactions in Receptor family (RTK|ERBB|EGF)

DNA microarray data (beta)
4. Click on PubMed literature link to verify Interaction information

**EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR**

Synonyms: egfr, epidermal growth factor receptor precursor, egf receptor

External links: Entrez Gene, Ortho

Receptor EGFR interacts with:

- **Ligand EGF - EPIDERMAL GROWTH FACTOR**
  
  *Cell C and Knowles BB.* (Proc Natl Acad Sci U S A. 1985) presented evidence that SA-7 is the human receptor for epidermal growth factor (EGF).

- **Ligand TGFα - TRANSFORMING GROWTH FACTOR, ALPHA**
  
  *Ignatiadis N et al.* (Proc Natl Acad Sci U S A. 1985) demonstrated that the TGFB-alpha precursor binds to epidermal growth factor/TGF-alpha receptors and activates the receptor-associated tyrosine kinase activity in intact cells.

- **Ligand FGF - EPICRINULIN** [read more...]

- **Ligand AREG - AMPHIREGULIN (SONYANNOMA-DERIVED GROWTH FACTOR)**
  
  *Shoyab M et al.* (Science, 1990) studied the structure and function of human amphiregulin and found that amphiregulin is a member of EGF family. It binds to and activates EGF receptor.

- **Ligand BTC - BETACELLULLIN** [read more...]

- **Ligand HBEGF - HEPARIN-BINDING EGF-LIKE GROWTH FACTOR** [read more...]

- **Receptor CDH - CDH-ANTIGEN (HOMEOMORPH FUNCTION AND INDIAN BLEND)** [read more...]

All Interactions in Receptor family (RTK/ERBB/EGF)

DNA microarray data (beta)
Identity of human epidermal growth factor (EGF) receptor with glycoprotein SA-7: evidence for differential phosphorylation of the two components of the EGF receptor from A431 cells.

Carlin CB, Knowles BB

A 165-kilodalton (kDa) surface glycoprotein encoded by human chromosome 7 (SA-7) had been characterized by using antibodies raised against human chromosome 7-containing somatic cell hybrids. We now present evidence that SA-7 is the human receptor for epidermal growth factor (EGF) and that these antibodies recognize human-specific determinants. The gene coding for the human EGF receptor is localized to the p12 to p22 region of chromosome 7. We have characterized the 145-kDa/165-kDa EGF receptor doublet of A431 cells after immunoprecipitation of radiolabeled cell extracts with these antibodies. We find that a protein with endogenous kinase activity copurifies with the A431 receptor doublet and that both components of the doublet contain phosphotyrosine and phosphothreonine and the 165-kDa component contains phosphoserine as well. Further, although each component of the receptor doublet has an average pl of 7, both display charge heterogeneity and appear to have unique charge isomers. The relationship between the two components of the A431 EGF receptor is discussed.
6. Click on the plus sign to view All interactions in EGFR family

**EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR**  
Family: RTK|ERBB|EGF  
Synonyms: egrf, epidermal growth factor receptor precursor, egf receptor  
External links: Entrez Gene, Oninn

Receptor EGFR interacts with:

- **Ligand EGF - EPIDERMAL GROWTH FACTOR**
  - Carlin CR and Knowles BB. (Proc Natl Acad Sci U S A. 1982) presented evidence that SA-7 is the human receptor for epidermal growth factor (EGF).

- **Ligand TGFA - TRANSFORMING GROWTH FACTOR, ALPHA**

- **Ligand FREG - EPITHELIN**

- **Ligand ARFG - AMPHIREGULIN (SCHWANNOMA-DERIVED GROWTH FAC...**
  - Shoyab M, et al. (Science, 1989) studied the Structure and Function of human amphiregulin and found that amphiregulin is a member of EGF family. It binds to and activates EGF receptor.

- **Ligand BTC - BETACELLULIN**

- **Ligand HBEGF - HEPARIN-BINDING EGF-LIKE GROWTH FACTOR**

- **Receptor CD44 - CD44 ANTIGEN (HOMEING FUNCTION AND INDIAN BL...**

- **All Interactions in Receptor family (RTK|ERBB|EGF)**

- **DNA microarray data (beta)**
7. In the RTK|ERBB/EGF receptor family, 4 different receptors interact with 9 ligands

**Human Plasma Membrane Receptome**

**EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR**  
Family: RTK|ERBB/EGF

Synonyms: egfr, epidermal growth factor receptor precursor, egf receptor  
External links: Entrez Gene, Omm

Receptor EGFR interacts with:

All interactions in Receptor family (RTK|ERBB/EGF)

- EGFR
- ERBB3
- ERBB2
- ERBB1

9 Ligands:
- NGF
- NGF
- NRG1
- NRG2
- NRG3
- TOPA

No orphan Receptors.
8. Click on the plus sign to view DNA microarray data
9. EGFR on the Left and different interactants on the Right

EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR  Family: RTK/ERBB/EGF
Synonyms: egfr, epidermal growth factor receptor precursor, egf receptor  External Links: Entrez Gene, Omm

Receptor EGFR interacts with:

All interactions in Receptor family (RTK/ERBB/EGF)

DNA microarray data (beta)

Testis development
Testes of mice at days 0, 3, 6, 8, 10, 14, 18, 20, 30, 35, and 56 of age. read more..  see fields..
10. HBEGF is shown first. Select another interactant, for example EGF

Testis development
Testes of mice at days 0, 3, 6, 8, 10, 14, 18, 20, 30, 35, and 50 of age. read more.. see fields..

Pituitary adenoma subtypes
Normal pituitary, pituitary adenomas secreting GH, PRL, or ACTH, and non-functional. read more.. see fields..
11. On select, EGF data appear on the right plot slide

DNA microarray data

Testis development
Testes of mice at days 0, 3, 6, 8, 10, 14, 18, 20, 30, 35, and 55 of age. read more... see fields...

Pituitary adenoma subtypes
Normal pituitary, pituitary adenomas secreting GH, PRL, or ACTH, and non-functioning adenomas. read more... see fields...
12. Scroll down to view data from other microarray experiments

**Pituitary adenoma subtypes**
Normal pituitary, pituitary adenomas secreting GH, PRL, or ACTH, and non-functioning adenoma. read more.. see fields..

**Preimplantation mouse embryo**
Collected stages: GV, metaphase, 2-ygote, 2-cell, 4-cell, 8-cell, 16-cell and blastocyst. read more.. see fields..

(Rec) EGFR

Interacts With

(Lig) HBEGF

(Select Interactant)
13. Click on Family:RTK|ERBB/EGF to open Family page

EGFR - EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR
Synonyms: egfr, epidermal growth factor receptor precursor, egf receptor
External links: Ensembl Gene, Omim

Receptor EGFR interacts with:
- Ligand EGF - EPIDERMAL GROWTH FACTOR [read more...]
- Ligand TGFα - TRANSFORMING GROWTH FACTOR, ALPHA [read more...]
- Ligand EREG - EPIREGULIN [read more...]
- Ligand AREG - AMPHIREGULIN (Schwannoma-Derived Growth Fac... [read more...]
- Ligand BTC - BETACELLULIN [read more...]
- Ligand HEGF - HEPARIN-BINDING EGF-LIKE GROWTH FACTOR [read more...]
- Receptor CD44 - CD44 ANTIGEN (HOMING FUNCTION AND INDI... [read more...]

All interactions in Receptor family (RTK|ERBB/EGF)
DNA microarray data (beta)
### 14. Family general information

**Receptor Family**

| RTK | ERBB/EGF |

#### (Summary from Receptor Tyrosine Kinases (RTK))

This large and diverse family of receptors exemplifies several general principles of receptor-ligand and receptor-receptor interactions. All members of the large receptor tyrosine kinase (RTK) family have a similar cytoplasmic catalytic domain that is activated by conformational changes upon ligand engagement whereas members within each subfamily have homologous extracellular domains. RTKs may have been vital in establishing the first metazoans - no RTKs are found in yeasts or plants. In mammals, multicellular organization is highly dependent on the proper functioning of RTKs as many RTKs become oncogenic when their activity is altered. Although up to 20 RTK classes were suggested, five major classes, each of which has several orthologs in C. elegans and D. melanogaster, will be considered here.

#### Relevant reviews and publications:

- 10966463, 2158899, 8398110
15. Click on "DNA Microarray" to view data for all genes in the family.
16. You can also browse across the whole receptor family tree

Receptome genes have been matched with their ligands for surveying DNA microarray datasets! [read more]

We welcome suggestions and corrections, your input will be acknowledged in the individual gene page. Please contact research@stanford.edu.


724391 distinct user sessions since Jun, 2003 Best viewed using IE or Firefox.
17. HPMR Browse interface

- HPMR
  - Cytokine Type 1 receptors
  - Cytokine Type 2 receptors
  - GPI-anchored
  - Guanylyl Cyclase receptors
  - Interleukin-17 receptors
  - Integrons
  - Low-density lipoprotein (LDL) receptor and LDL receptor-related proteins
  - LINGO coreceptors for Ngly/7p75
  - LRR-Ig Receptors
  - Netrin receptors
  - Neurexins
  - Notch
  - Other receptor/family
  - Patched
  - Plekans
  - Roundabout
  - Receptor-like protein tyrosine phosphatases (RPTPs)
  - Receptor Tyrosine Kinases (RTK)
  - Seven transmembrane (TM) receptors
  - TGF-beta serine/threonine kinase receptors
  - Tetraspanins
  - TNF/NGF
  - Toll
    - Toll-like receptor 1 precursor
    - Toll-like receptor 10 precursor
    - Toll-like receptor 2 precursor
    - Toll-like receptor 4 precursor
    - Toll-like receptor 6 precursor
  - TLR9 (Toll)
TLR1 - TOLL-LIKE RECEPTOR 1 PRECURSOR  
Family: Toll/TL

Synonyms: toll/interleukin-1 receptor-like, t  
External links: Entrez Gene, Dmm

Summary: (from NCBI-Entrez)  
The protein encoded by this gene is a member of the Toll-like receptor (TLR) family which plays a fundamental role in pathogen recognition and activation of innate immunity. TLRs are highly conserved from Drosophila to humans and share structural and functional similarities. They recognize pathogen- ...[read more]

Receptor TLR1 interacts with:
- Receptor TLR2 - TOLL-LIKE RECEPTOR 2 PRECURSOR and Receptor TLR6 - TOLL-LIKE RECEPTOR 6 PRECURSOR and non-gene ligand: meningococcal_porin_PorB  [read more...]
- Receptor TLR10 - TOLL-LIKE RECEPTOR 10 PRECURSOR and Receptor TLR2 - TOLL-LIKE RECEPTOR 2 PRECURSOR  [read more...]

All Interactions in Receptor family (Toll/TL)

DNA microarray data (beta)