Building A Receptor Database

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Abstract

We have developed a database of receptors, which gather data from information sources on the Internet. The source of this database is a variety of genomic and biological information on the internet; PIR, Swiss Prot, PDB, GenBank, EMBL, GDB, etc... The system provides the detail structure and functional information on receptors, such as ligand binding site and DNA binding site, which were picked up from the references, and the three dimensional structures. The system was implemented on the unix workstation (IRIS, INDIGO 2), using an object oriented database management system ACEDB (A Caenorhabditis elegans Data Base).

ACEDB is an object oriented database management system, which has been developed as part of the Caenorhabditis elegans genome research. This database is a generalized genome database, and can be used to create new database without the need for any reprogramming or in fact any sophisticated computer skills.

The system provides various viewing tools that effectively display different types of receptor data; DNA sequences, amino acids sequences, DNA binding sites, ligand binding sites, gene and disease information, and the protein structural information. It can also display three dimensional structure of molecules using a freeware molecular graphics RASMOL. The detail information for ligand and signal transduction, which are picked up from references, are also included. The system has also a browser interface so that database can be accessed via World Wide Web. The information regarding the sites of action on the receptor are highly interesting in biologically, medically and pharmacologically. The database may be useful for quick reference for ligand-membrane receptors and signal transduction in the drug design. We may use the database for the functional and structural analyses of receptors.

Database: Receptor DB

[*Receptor Database*]

Class Group :(plain)

- alpha-Thrombin receptor
- androgen receptor
- aspartate chemoreceptor protein
- ear-2 protein
- estrogen receptor
- estrogen receptor precursor (clone 24)
- glucocorticoid receptor
- glucocorticoid receptor alpha form
- glucocorticoid receptor beta form
- glutamate (NMDA) receptor subunit e
- glutamate (NMDA) receptor subunit e
- glutamate (NMDA) receptor subunit e
- growth hormone receptor precursor
- Ig-alpha receptor
- Ig-beta Ag receptor
- Ig-beta receptor
- Ig-polymeric receptor
- IgA Fc receptor precursor
- IgA receptor Fc alpha precursor
- IgA receptor p
- IgE Fc receptor
- IgE Fc receptor
- IgE FC receptor
- IgE receptor al
- IgE receptor, b
- IgG Fc receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- IgG FC receptor
- kninp protein
- LDL receptor

growth hormone receptor

Database: Receptor DB

[*Receptor Database*]

Receptor : growth hormone receptor precursor (human)

```
PIR S04530 [PIR ref|PIR seq] AC     S04530
                                Seq_No 638
SP GHR_HUMAN [SP ref|SP seq] AC     P10912
                                Seq_No 638
PDB 3HHR [3D-image|PDB ref] PDB_Seq 3HHR-B,C Seq_No   203
                                Ovl_Site 1-203 PIR S04530    50-252
                                               A33991       50-252
                                           SP  GHR_HUMAN 50-252
GB HSGHR [GB ref|GB seq] AC     X06562
                                Seq_No 4414
EMBL HSGHR [EMBL ref|EMBL seq] AC     X06562
                                Seq_No 4414
Homolog PIR A33991 [PIR ref|PIR seq] AC     A33991
                                Seq_No 638
```

Database: pir
Entry: S04530
Sequence Data:

Amino Acids Number:	638
DNA-binding:	
Ligand-binding:	61-184
PDB-Matching:	50-252 3HHR-B,C

Sequence:

```
            5         10        15        20        25        30
  1 M D L W Q  L L L T L  A L A G S  S D A F S  G S E A T  A A I L S
 31 R A P W S  L Q S V H  P G L K T  N S S K E  P K F T K  C R S P E
 61 R E T F S  C H W T D  E F H H G  T K N L G  P I Q L F  Y T R R N
 91 T Q H W T  Q E W K E  C P D Y V  S A G E N  S C Y F N  S S F T S
121 I W I P Y  C I K L T  S N G G T  F D E K C  F S F D E  I V Q P D
151 P P I A L  N W T L L  N V S L T  G I H A D  I Q V R W  E A P R N
181 A D I Q K  G W M F L  E Y E L Q  Y K E F N  E T K W K  M M D P I
211 L T T S F  P V F S L  K V D K E  Y E V R V  R S K Q R  N S G N Y
241 G E F S E  F L Y F T  L P Q M S  Q F T C E  E D F Y F  P W L L I
271 I I F G I  F G L T V  M L F V F  L F S K O  O R I K M  L I L P P
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