

InterPro Guidelines

URL

<http://www.ebi.ac.uk/interpro/>

Description

InterPro is a database of protein families, domains and functional sites in which identifiable features found in known proteins can be applied to unknown protein sequences.

Guidelines

To search for a protein in Interpro, you will be either be using the search bar at the top right portion of the screen, or clicking on an Interpro Unique ID (UID) that is cross-listed in another database. Using ERK as the example, this guideline will teach you:

- How to search for ERK using the search bar on the Interpro homepage.
- How to gather information from the ERK record page on Interpro to use in your Biomodel.

If you are clicking on a UID from another database, please skip the “searching” section.

Searching

Because Erk is a very general term, you probably won't receive viable results by inputting “Erk” into the search bar by itself. This is where you will need to do some research to find alternate names for the term, particularly if your paper doesn't differentiate between Erk1 and Erk2. According to the MAPK/ERK Wikipedia page, MAP(Mitogen-Activated Protein) Kinase is synonymous with ERK. If you input “Mitogen Activated Protein Kinase Erk1 Erk2”, you will come to the record for MAPK ERK1/2, which is the record for the ERK gene. You may use the term “IPR008349” to annotate in your BioModel.

Record Page

The record provides a description of the protein/gene, and a list of associated terms that are listed in other databases. You should click on these terms to analyze the relationship between this record and the MAPK/ERK record in Interpro, and then use the appropriate qualifiers to annotate in the BioModel. Please see the “BioModels Explanation” page for a breakdown of the qualifiers.

One database that might link to a record in InterPro is UniProt. The MAPK record from UniProt has a “Family & Domain Databases” section that lists all the related proteins (family proteins & domain proteins). If you scroll down to this section, you will see several InterPro records associated with the MAPK protein.

Family and domain databases

InterPro ⁱ	IPR011009 . Kinase-like_dom. IPR003527 . MAP_kinase_CS. IPR008349 . MAPK_ERK1/2. IPR000719 . Prot_kinase_dom. IPR017441 . Protein_kinase_ATP_BS. IPR008271 . Ser/Thr_kinase_AS. [Graphical view]
Pfam ⁱ	PF00069 . Pkinase. 1 hit. [Graphical view]
PRINTS ⁱ	PR01770 . ERK1ERK2MAPK.
SMART ⁱ	SM00220 . S_TKc. 1 hit. [Graphical view]
SUPFAM ⁱ	SSF56112 . SSF56112. 1 hit.
PROSITE ⁱ	PS01351 . MAPK. 1 hit. PS00107 . PROTEIN_KINASE_ATP. 1 hit. PS50011 . PROTEIN_KINASE_DOM. 1 hit. PS00108 . PROTEIN_KINASE_ST. 1 hit. [Graphical view]

If you click on the “Graphical view” link at the bottom of the InterPro records, you will see a screen that allows you to view the protein families and domains.

The “F” denotes membership in the same protein family, and the record that is most similar to the MAPK/ERK protein. This record is IRP008349.