MechanosensorDB

Although cells do not have the ability to see or hear, they do possess sensory structures that allow them to detect and measure various environmental stimuli. Cells are constantly exposed to physical forces, either from their environment or from neighboring cells. Mechanical signals are needed for vital biological functions, including cell migration, growth and differentiation.

Mechanosensor is a protein which could sense the mechanical force and act accordingly. MechanosensorDB stores mechanosensor that mainly collected from UniprotDB.

The use of MechanosensorDB

MechanosensorDB is willing to integrate all knowledge of mechanosensors, and hope to broaden your knowledge in mechanobiology.

1. Browse all mechanosensor grouped by 'Protein name', 'GO cellular component', 'GO molecular function', 'GO biological pathway', and 'organism'.
2. Search gene name, protein name, and functions through top right search bar.
3. Protein information page contains not only functions, GO terms, etc., but also several selected articles which studies the mechanosensing aspect of the protein.

The design of MechanosensorDB

MechanosensorDB uses HTML, CSS, Javascript, Php, and mysql to support your research in mechanobiology.

1. The main page is 'index.html'.
2. All web page organization, event catch, sending and receiving data from server are done in Javascript.
3. Search mysql database use Php.
4. With AJAX, MechanosensorDB can update a web page, call php in server, and so on without reloading the page.

Statistics

Counts	Item
37521	Number of Proteins
36758	Number of Proteins Name with 'mechano'
763	Number of Proteins Name without 'mechano'
7990	Number of Proteins with Family Info
29531	Number of Proteins No Family Info (in uniprot)
10846	Number of Organisms
146	Number of Proteins with Tissue Specificity Info
19	Number of Proteins with Expression Inducer Info
35143	Number of Proteins with GO
258 / 4164(all)	Number of GO CC
259 / 11185(all)	Number of GO MF
930 / 29741(all)	Number of GO BP
10800	Number of Articles
829	Number of Articles with 'mechano' or 'force'
2763	Number of Articles with 'mechano'(Pubmed)

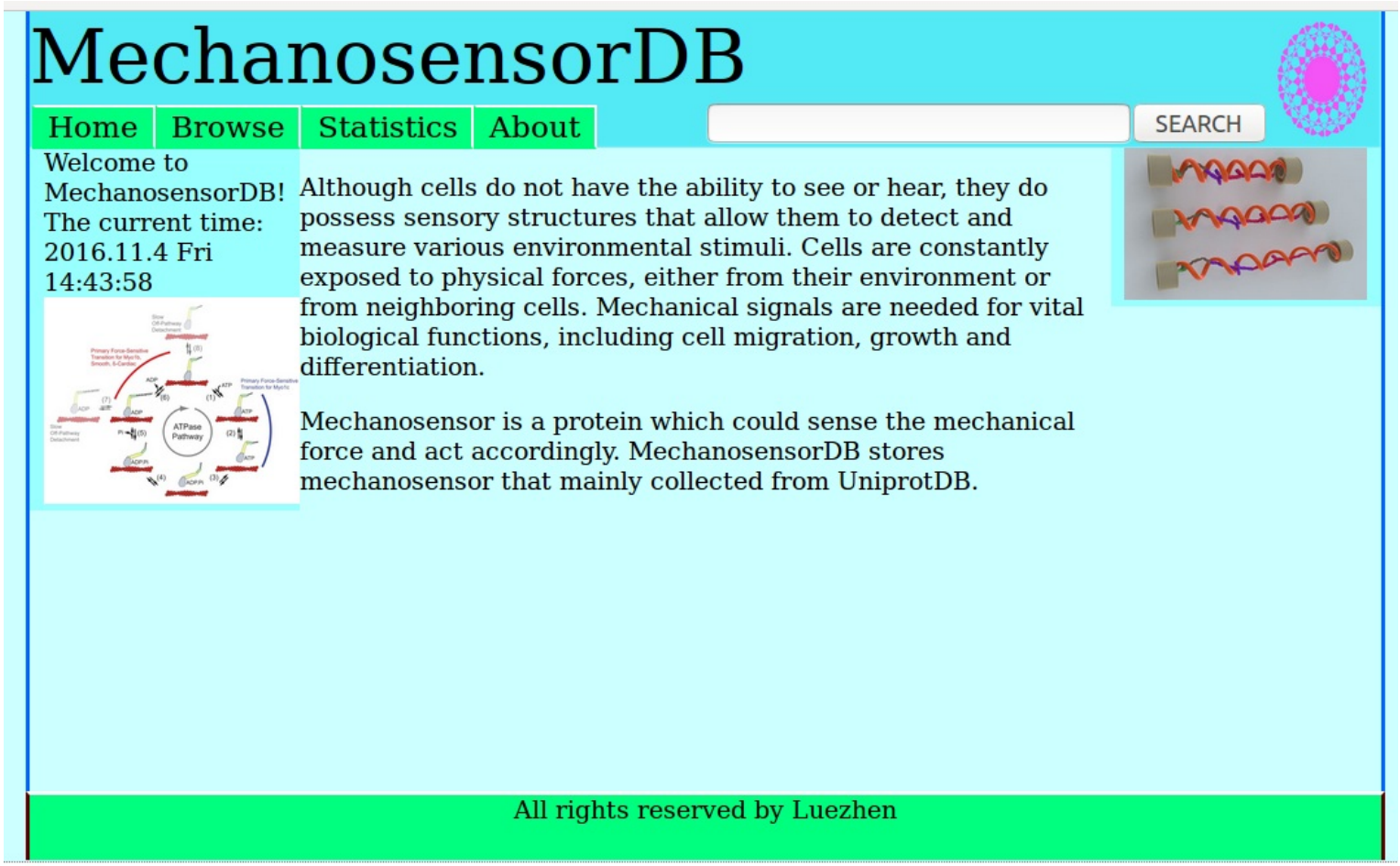
Enriched GO Terms

Counts	Item
33851	integral component of membrane(CC)
22375	transmembrane transport(BP)
8441	ion channel activity(MF)
7053	plasma membrane(CC)
2932	mechanically-gated ion channel activity(MF)
2320	cellular response to osmotic stress(BP)
711	membrane(CC)

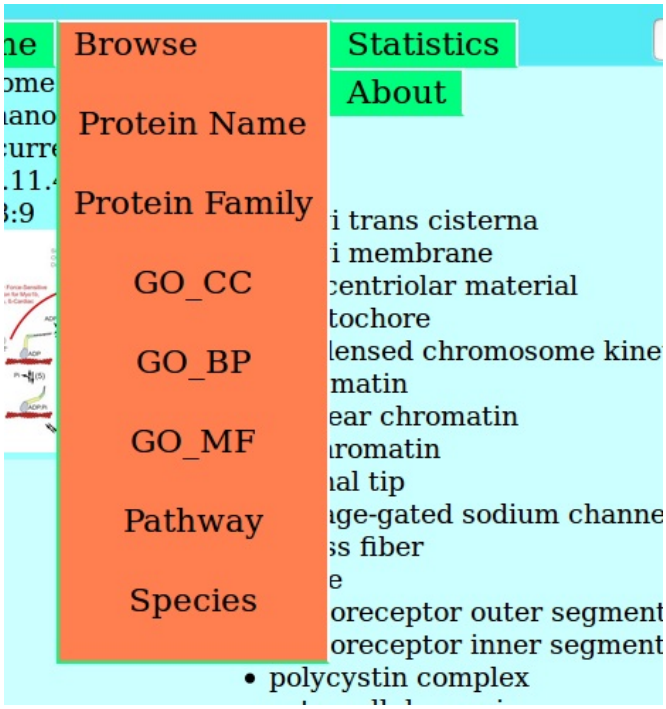
253 calcium ion binding(MF)
187 ATP binding(MF)
150 mechanosensory behavior(BP)
126 integral component of plasma membrane(CC)
124 cytoplasm(CC)
119 nucleus(CC)(CC)
118 mechanoreceptor differentiation(BP)
96 positive regulation of synapse assembly(BP)
95 receptor complex(CC)
94 circadian rhythm(BP)
67 positive regulation of neuron projection development(BP)
67 positive regulation of gene expression(BP)
67 cell volume homeostasis(BP)

Snapshots of MechanosensorDB

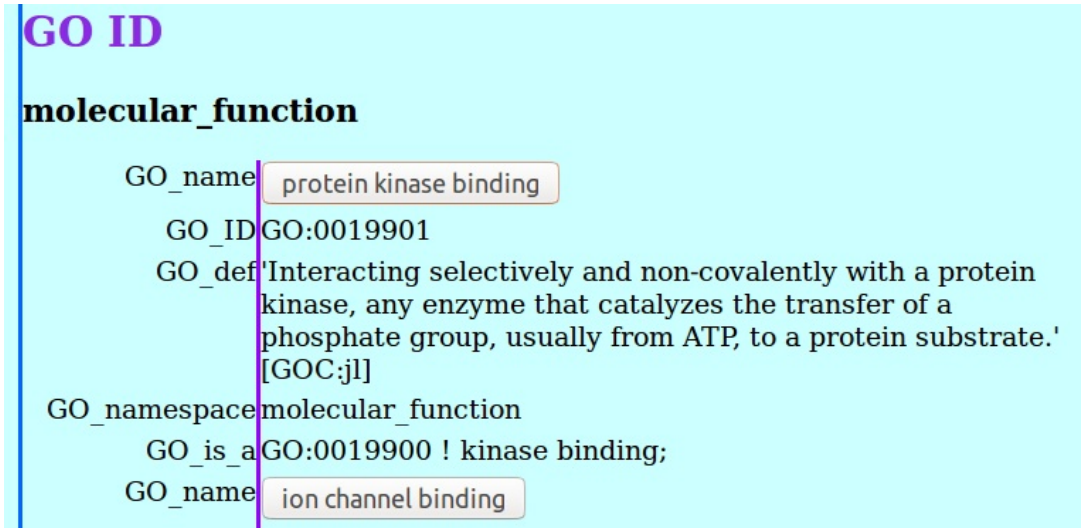
Home Page



Browse Page



GO ID Shown in Protein Information Page



Selected Publication in Protein Information Page

These articles study the mechanosensing aspect of the mechanosensor.

Search Results

Results

G3V9H8	Proto-oncogene tyrosine-protein kinase receptor Ret (EC 2.7.10.1) [Cleaved into: Soluble RET kinase fragment; Extracellular cell-membrane anchored RET cadherin 120 kDa fragment]	Rattus norvegicus (Rat)
O17581	Maternal uncoordinated protein 2 (Cohesin loading complex subunit SCC4 homolog)	Caenorhabditis elegans
O77469	Fibulin-1	Caenorhabditis elegans
P07949	Proto-oncogene tyrosine-protein kinase receptor Ret (EC 2.7.10.1) (Cadherin family member 12) (Proto-oncogene c-Ret) [Cleaved into: Soluble RET kinase fragment; Extracellular cell-membrane anchored RET cadherin 120 kDa fragment]	Homo sapiens (Human)