Bioinformatics

Lab 9

Proteomics (continued)

1) Protein family and conserved domain database

Go over the following page:

https://www.ncbi.nlm.nih.gov/Structure/cdd/cdd.shtml
Then try search your project protein -
https://www.ncbi.nlm.nih.gov/Structure/cdd/wrpsb.cgi

2) Prosite scan – use your project protein sequence or any protein

https://prosite.expasy.org/scanprosite/

3) InterPro – use your project protein or any other proteins

https://www.ebi.ac.uk/interpro/search/sequence-search

4) Learn how to use cn3d software.

Go to MMDB
http://www.ncbi.nlm.nih.gov/Structure/MMDB/mmdb.shtml

using PDB id "4HHB" to retrieve information. Then view the 3D structure using cn3d. Read the faq page if you like to learn more about this software.

5) 3-D structure prediction:
AlphaFold 2 server: https://alphafold2.biodesign.ac.cn/
Database: https://alphafold.ebi.ac.uk/

Readings: AlphaFold tools
https://www.nature.com/articles/s41586-021-03819-2
https://www.nature.com/articles/s41592-022-01645-6.pdf

Database
https://academic.oup.com/nar/article/50/D1/D439/6430488

Biological Pathways

Search the following databases with the gene used in your project (or plant aldehyde oxidase)

(1) KEGG http://www.genome.jp/kegg/

(2) **String database** http://string-db.org/

(3) BioCyc http://biocyc.org/

(4) NCBI BioSystem: https://www.ncbi.nlm.nih.gov/biosystems/

https://www.ncbi.nlm.nih.gov/Structure/biosystems/docs/biosystems_about.html

Enzyme databases:

http://www.brenda-enzymes.org/

http://enzyme.expasy.org/

http://www.enzyme-database.org/