Bioinformatics project

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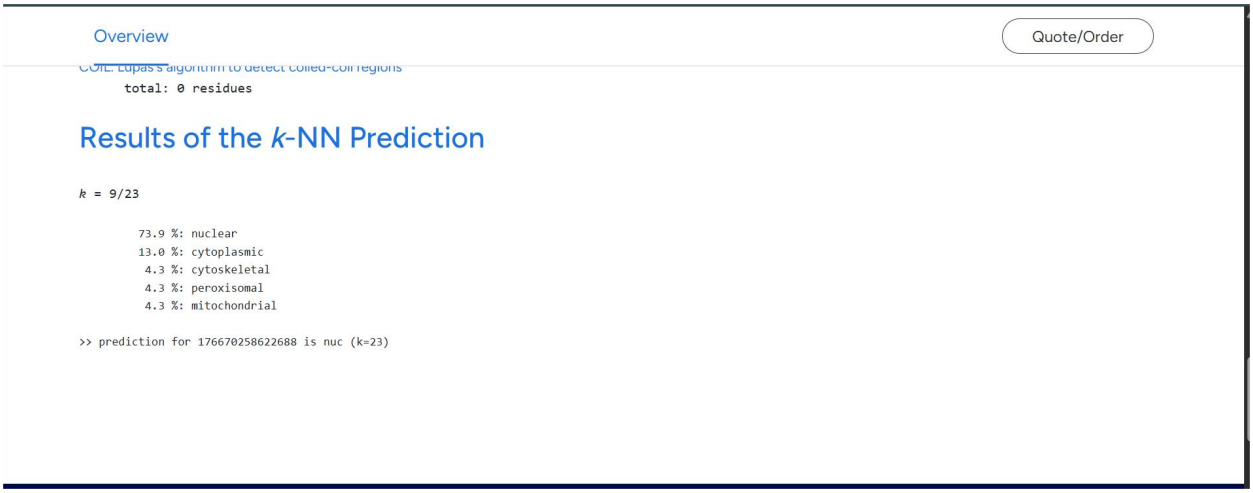
Department: Biochemistry Bs 7th Morning

Task No: 4

Subcellular Localization Prediction:

1. PSORT:



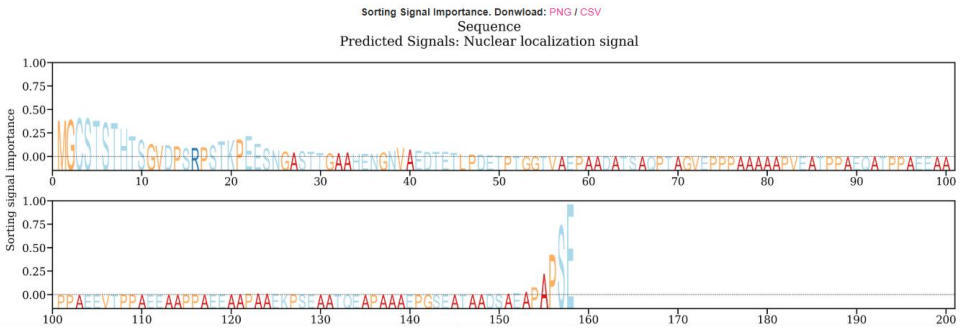
2. DeepLoc:

Summary of 1 predicted sequences

Table of predicted subcelullar localizations. Use the Instructions page for more detailed description of the output page.

Sequence
Predicted localizations: Cytoplasm
Predicted signals: Nuclear localization signal

Localization	Cytoplasm	Nucleus	Extracellular	Cell membrane	Mitochondrion	Plastid	Endoplasmic reticulum	Lysosome/Vacuole	Golgi apparatus	Peroxisome
Probability	0.5953	0.4791	0.2204	0.5268	0.2708	0.0044	0.1719	0.1192	0.5035	0.0238



Subcellular Localization Justification:

Results Summary:

Tool 1 (PSORT):

Predicted Localization in Nucleus (Score: 72%).

Tool 2 (DeepLoc):

Predicted Localization in Cytoplasm (Probability: 0.5953) and Nucleus (Probability: 0.4791).

Scientific Justification:

The subcellular localization analysis of Tropomyosin 1 shows a dual distribution between the Nucleus and Cytoplasm. While PSORT strongly predicts a nuclear localization, DeepLoc indicates a primary presence in the cytoplasm with a significant secondary probability for the nucleus. This is scientifically consistent with the known behavior of Tropomyosin 1 isoforms, which are primarily structural components of the cytoskeleton but are also known to shuttle into the nucleus to participate in processes like RNA processing and chromatin remodeling. Therefore, the protein likely localizes in both compartments depending on the cellular requirements.