

Bioinformatics Project

Submitted to: Dr. Samina Shakeel

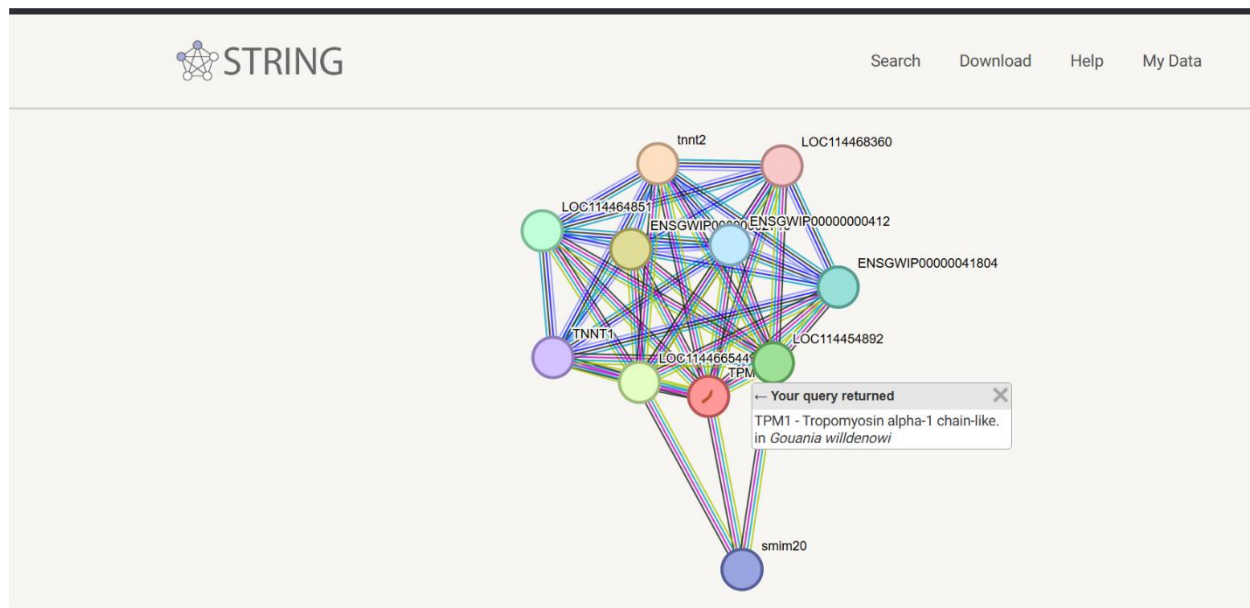
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Department: Biochemistry Bs 7th Morning

Task No: 6

Protein – Protein Interaction Analysis:

SRING:



Biological Significance of Protein Interaction Network:

The STRING analysis reveals the functional neighborhood of the Tropomyosin 1 protein. It shows that Tropomyosin does not work alone instead, it forms a structural complex with Actin (ACTC1) and Troponin (TNNT2/TNNI3). This network is biologically significant as it represents the fundamental 'Thin Filament' machinery of the muscle.

1. Regulation of Muscle Contraction:

The interaction with the Troponin complex is biologically vital because, in the presence of Calcium ions, Tropomyosin shifts its position on the Actin filament. This movement allows Myosin heads to bind to Actin, leading to muscle contraction. The network confirms that this protein is a key regulator of this switch.

2. Evolutionary Conservation:

The high confidence scores (represented by thick lines in the network) indicate that these protein-protein interactions have been evolutionary conserved. This means that the mechanism of movement in *Gouania willdenowi* is similar to other higher vertebrates, ensuring the survival and motility of the fish.