

BIOINFORMATICS ANALYSIS OF TROPOMYOSIN 1 IN THE BLUNT-SNOUDED CLINGFISH (GOUANIA WILLDENOWI)

Submitted by: Sayeda Zahra Batool

Reg No: 040322133005

Department: Biochemistry BS 7th Morning

Submitted to: Dr. Samina Shakeel

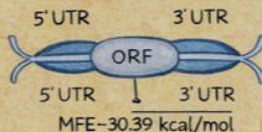
1. INTRODUCTION

- Tropomyosin 1 (TPM1) is an important muscle contractile protein.
- TPM1 plays a crucial role in muscle contraction by regulating the interaction between actin and myosin.



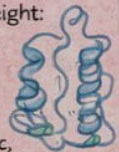
2. DNA & RNA ANALYSIS

- DNA sequence confirms E-value 0.0
- GC content: 60.2%
- RNA secondary structure energy: -10.69 kcal/mol
- MFE: -30.39 kcal/mol



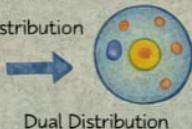
3. PROTEIN ANALYSIS

- Length: 284 amino acids
- Molecular weight: 31,229.1 Da
- GRAVY index: -0.663
- Protein is acidic, unstable, and hydrophilic



4. SUBCELLULAR LOCALIZATION

- PSORT prediction: Nuclear localization
- Dual Distribution



Dual Distribution

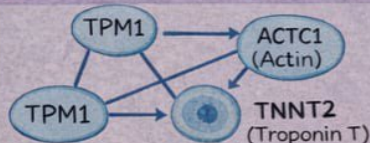
5. SUBCELLULAR LOCALIZATION (CONFIRMATION)

- PSORT; 73% Nuclear
- DeepLoc: Cytoplasmic / Nuclear



Dual Distribution

6. PROTEIN-PROTEIN INTERACTION NETWORK



- TPM1 plays a key role in muscle contraction.
- Protein is acidic, hydrophilic, & localized in nucleus/cytoplasm.

REFERENCES:

- NCBI BLAST
- EXPASY Translate & ProtParam tools
- RNAfold Web Server
- PSORT & DeepLoc
- STRING Database