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Modeling of streptokinase protein

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ABSTRACT

Modeling of streptokinase protein was done using SWISS-MODEL software and valuable structural details were studied. The reacting sites in the protein could be visualised.

Key words: Modeling, streptokinase, protein

INTRODUCTION

Streptokinase protein derived from Streptococcus pyogenes plays an important role in dissolving clots/blockages in the blood vessels and thus is very useful from medicinalpont of view. Study of its structures could help in understanding it fully.

MATERIALS AND METHODS

Protein

Streptococcus pyogenes sk gene for streptokinase, isolate Indian was downloaded GenBank: AM903378.1 linear 1353 bp DNA and amino acid sequence was used for modelling.

Modelling software

https://swissmodel.expasy.org was reached to model the protein.

RESULTS AND DISCUSSION

Project summary

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MKNYLSFGMFALLFALTFGTVKPVQAIAGPEWLLDRPSVNNSQLVVSVAGTVEGTNQEISLKFFEIDLTSQPAHGGKTEQGLSPKSKP   12
FATNSSAMPHKLEKADLLKAIQEQLIANVHSN                                                            0

DGYFEVIDFASDATITDRNGKVYFADRDDSVTLPTQPVQEFLLSGHVRVRPYQPKAVHNSAERVNVNYEVSFVSETGNLDFTPSLKER   24
YHLTTLAVGDSLSSQELAAIAQFILSKEHPDY                                                            0

IITKRDSSIVTHDNDIFRTILPMDQEFTYHIKDREQAYKANSKTGIVEKTNNTDLISEKYYVLKKGEKPYDPFDRSHLKLFTINYVDV   36
NTKALLKSEQLLTASERNLDFRDLYDPRDKAK                                                            0

LLYNNLDAFGIMDYTLTGKVEDNHDDTNRIITVYMGKRPEGENASYHLAYDKDRYTEEEREVYSYLRYTGTPIPDNPKDK          44
                                                                                            0
```

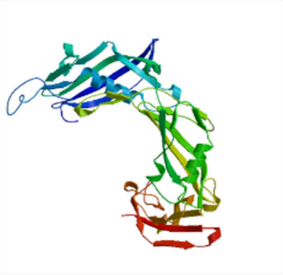
Template Results

A total of 44 templates were found to match the target sequence. This list was filtered by a heuristic down to 16. The top templates are:

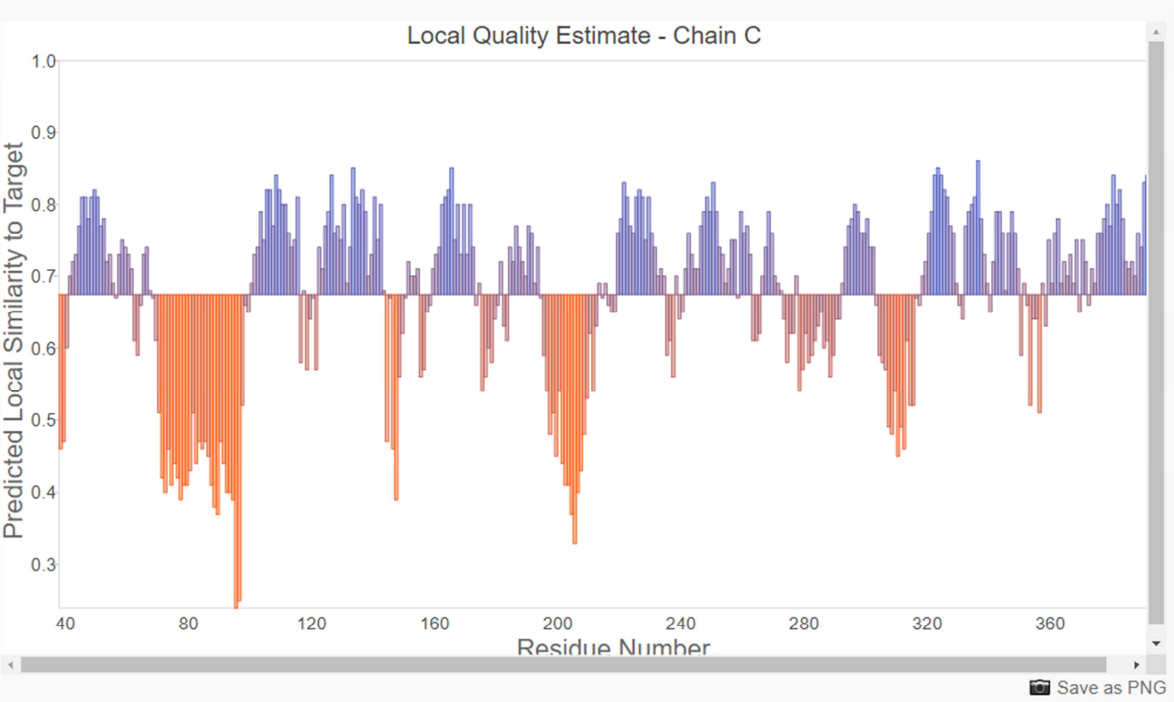
Sequence Identity	Biounit Oligo State	Description	
1bml.1	83.70	hetero-tetramer	STREPTOKINASE COMPLEX OF THE CATALYTIC DOMAIN OF HUMAN PLASMIN AND STREPTOKINASE

Sequence Identity	Biounit Oligo State	Description	
1l4z.1	93.33	hetero-dimer	Streptokinase X-RAY CRYSTAL STRUCTURE OF THE COMPLEX OF MICROPLASMINOGEN WITH ALPHA DOMAIN OF STREPTOKINASE IN THE PRESENCE CADMIUM IONS
1qqr.1	65.94	monomer	STREPTOKINASE DOMAIN B CRYSTAL STRUCTURE OF STREPTOKINASE DOMAIN B
1qqr.3	65.94	monomer	STREPTOKINASE DOMAIN B CRYSTAL STRUCTURE OF STREPTOKINASE DOMAIN B
1qqr.4	65.94	monomer	STREPTOKINASE DOMAIN B CRYSTAL STRUCTURE OF STREPTOKINASE DOMAIN B

Model Results

	Id	Template	GMQE	QMEANDisCo Global	Oligo State	Ligands
	01	1bml.1.C	0.57	0.67 ± 0.05	monomer	-
	02	5acp.1.A	0.00	± 0.12	monomer	-

Model Results



It may be seen that valuable models were constructed and the structural details and binding sites could be visualized.

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