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Modeling of rabies virus CVS glycoprotein

Manjusha Tyagi*
Sri Guru Ram Rai University, Dehradun
*manjushatyagi20008@gmail.com

ABSTRACT

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

Key words: Modeling, rabies, virus, CVS strain, glycoprotein

INTRODUCTION

Rabies virus is very important since it causes infection in animals and man and is fatal. Glycoprotein is responsible for its infectious property and is responsible for producing neutralizing antibodies and thus plays role in protection.

MATERIALS AND METHODS

Protein

Rabies virus CVS G gene for glycoprotein, genomic RNA, was downloaded GenBank: AJ506997.1
`linear 1585 bp RNA 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

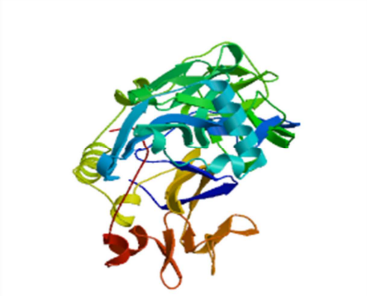
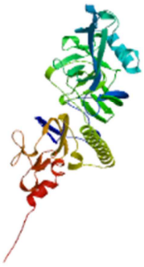
```
MVPQVLLFVLLLGFSLCFGKFPIYTIPDELGPWSPIDIHHLSCPNNLVVEDEGCTNLSEFSYMELKVGYISAIKVNGFTCTGVVTEAE  12
TYTNFVGYVTTTFKRKHFRPTPDACRAAYNWK                                                          0

MAGDPRYEESLHNPYPDYHWLRTVRTTIESLIIISPSVTDLDPYDKSLHSRVFPGGKCSGITVSSTYCSTNHDYTIWMPENPRPRTPC  24
DIFTNSRGKRESNGNKTCGFVDERGLYKSLKG                                                          0

ACRLKLCGVLGLRLMDGTWVATQTSDETKWCPPDQLVNLHDFRSDEIEHLVVEELVKKREECLDALESIMTTKSVSFRRLSHLRKLVP  36
GFGKAYTIFNKTLMEADAHYKSVRTWNEIIPS                                                          0

KGCLKVGGRCHPHVNGVFFNGLILGPDDHVLIPEMQSSLLQQHMELLESSVIPLMHPLADPSTVFKEGDEAEDFVEVHLPDVYKQISG  48
VDLGLPNWGKYVLMTAGAMIGLVLIFSLMTWC                                                          0

RRANRPESKQRSFGGTGGNVSVTSQSGKVIPSWESYKSGGETRL                                              52
                                                                                          4
```

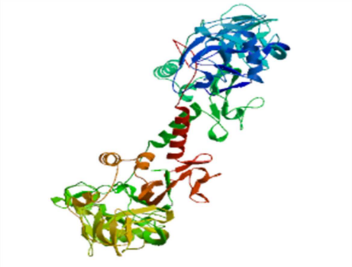
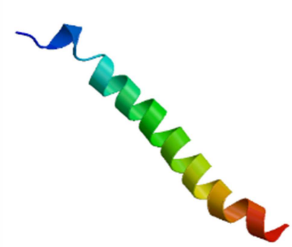
Template Results

A total of 138 templates were found to match the target sequence. This list was filtered by a heuristic down to 35. The top templates are:

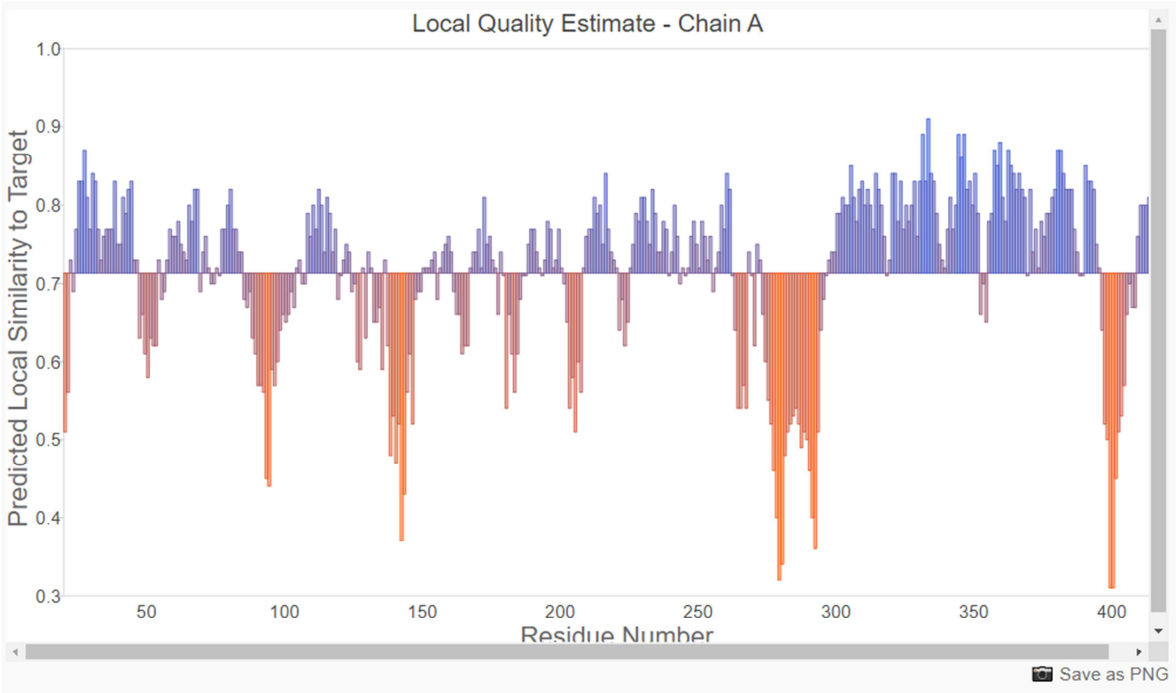
Template	Sequence Identity	Biounit Oligo State	Description
6lgx.1	94.69	homo-dimer	Glycoprotein,Glycoprotein,Glycoprotein Structure of Rabies virus glycoprotein at basic pH
6lgx.1	96.54	homo-dimer	Glycoprotein,Glycoprotein,Glycoprotein Structure of Rabies virus glycoprotein at basic pH
6lgx.1	96.54	homo-dimer	Glycoprotein,Glycoprotein,Glycoprotein Structure of Rabies virus glycoprotein at basic pH
6lgx.1	94.69	homo-dimer	Glycoprotein,Glycoprotein,Glycoprotein Structure of Rabies virus glycoprotein at basic pH
6lgw.2	94.24	hetero-trimer	Glycoprotein,Glycoprotein,Glycoprotein Structure of Rabies virus glycoprotein in complex with neutralizing antibody 523-11 at acidic pH

Model Results

	Id	Template	GMQE	QMEANDisCo Global	Oligo State	Ligands
	03	7u9g.1.A	0.68	± 0.05	monomer	-
	02	6lgw.2.C	0.65	± 0.05	monomer	-

	Id	Template	GMQE	QMEANDisCo Global	Oligo State	Ligands
	01	6lgx.1.A	0.63	0.65 ± 0.05	homo-dimer	-
	04	2knc.1.A	0.01	± 0.12	monomer	-

Model Results



It is evident that valuable protein structures could be visualised and reacting sites could be seen.

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