

Secondary Structure Prediction

The *Secondary Structure Prediction* plugin provides a set of algorithms for the protein secondary structure (alpha-helix, beta-sheet) prediction from a raw sequence.

Currently, available algorithms are:

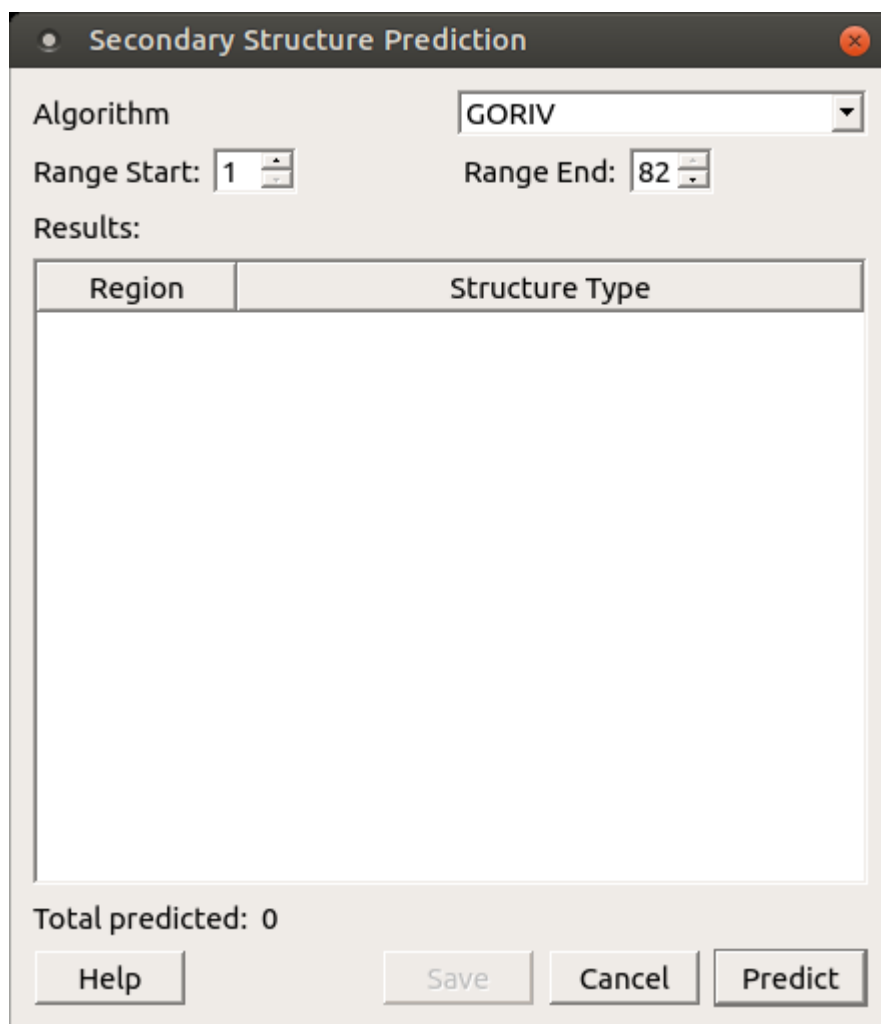
- **GORIV** Jean Garnier, Jean-Francois Gibrat, and Barry Robson, "GOR Method for Predicting Protein Secondary Structure from Amino Acid Sequence", in *Methods in Enzymology*, vol.266, pp. 540 - 553, (1996).

The improved version of the GOR method in J. Garnier, D. Osguthorpe, and B. Robson, *J. Mol. Biol.*, vol. 120, p. 97 (1978).

- **PsiPred** Bryson K, McGuffin LJ, Marsden RL, Ward JJ, Sodhi JS. & Jones DT. (2005) Protein structure prediction servers at University College London. *Nucl. Acids Res.* 33(Web Server issue): W36-38.

Jones DT. (1999) Protein secondary structure prediction based on position-specific scoring matrices. *J. Mol. Biol.* 292: 195-202.

You can access these analysis capabilities for a protein sequence using the *Analyze Predict secondary structure...* context menu item. The dialog will appear:



The dialog box titled "Secondary Structure Prediction" features a dark header bar with a close button. Below the header, the "Algorithm" is set to "GORIV" in a dropdown menu. The "Range Start" is 1 and the "Range End" is 82, both in spinner boxes. A "Results:" label is above a large empty table with two columns: "Region" and "Structure Type". At the bottom, it shows "Total predicted: 0" and four buttons: "Help", "Save", "Cancel", and "Predict".

Region	Structure Type
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It supports the following options:

Algorithm — you can choose the preferred algorithm. Currently, "GORIV" and "PsiPred" algorithms are available.

Range start / Range end — select the sequence range for prediction.

Results — the visual representation of the prediction results, for example:

Secondary Structure Prediction

Algorithm

GORIV

Range Start:

1

Range End:

82

Results:

	Region	Structure Type
1	[5..7]	beta_strand
2	[9..15]	beta_strand
3	[24..32]	alpha_helix
4	[39..75]	alpha_helix
5	[75..81]	beta_strand

Total predicted: 5

Help

Save

Cancel

Predict

Save as annotation — select this button to save the results as annotations of the current protein sequence.