

Protein Interfaces: a networking story

mercredi 10 octobre 2012 10:40 (1 heure)

The assembly of subunits in protein oligomers is an important topic to study as a vast number of proteins exists as stable or transient oligomers.

Only a few of the amino acids that constitute a protein oligomer seem to regulate the capacity of the protein to assemble (to form interfaces), and some of these amino acids are localized at the interfaces that link the different chains.

We have developed a series of programs, under the common name of Gemini, that can select the subset of the residues that is involved in the interfaces of a protein oligomer, and generate a 2D interaction network (or graph) of the subset.

We have used these programs to investigate interfaces made of two adjacent beta strands (one on each side of the interface). The graphs show a peculiar presence of two subnetworks, one of the backbone-backbone interactions and one with side chain interactions. A differential use of the amino acids emerges.

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