



Softening Membrane by Proteins

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Membrane elasticity plays an essential role in functioning of biomembranes in cell, because it is a dominant factor in controlling membrane shapes, e.g. during membrane fusion and fission, which are two fundamental processes in intracellular trafficking, virus infection, etc. In those collective processes, proteins are recruited in order to regulate membrane topological transformations. Recently, it is found in experiments that membrane fusion and fission proteins can modify elastic properties of lipid membranes, i.e., adsorption and insertion of proteins lower bending rigidity of membrane. Successful explanation of this phenomenon will improve our understanding of protein's roles in regulating membrane topological changes.

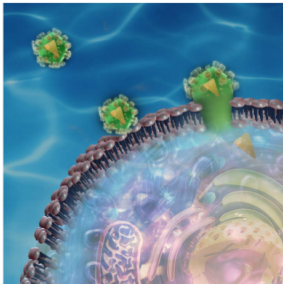


Figure 1 A schematic of the HIV fusion peptide softening a lipid bilayer membrane. [from *Scientific Reports*, **6**, 25412 (2016).]

What we offer for you:

- Attraction of smart soft matter in life.
- Rational design of suitable models for membrane and proteins.
- Computer simulation techniques: molecular dynamics, Monte Carlo, free-energy calculation, etc.

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