

Virus like Particles: Core-controlled polymorphism and assembly mechanisms through titration

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The T-number icosahedral configurations are considered to be given by a minimal mean-field thermodynamic model for the equilibrium structure of protein shells consisting of only pentamers and hexamers and correspond to the local free energy minima when the capsomers can switch freely between pentamer and hexamer. Brome mosaic virus is one of the simplest and most thoroughly studied plant viruses. The capsid of BMV has a T=3 structure composed of 180 identical protein molecules which are clustered into hexamers and pentamers on the surface. The capsids diameter is about 28 nm and has an 18 nm inner cavity.

These capsids can be used for specific and localized treatment; therefore, it is important to study the thermodynamics of their assembling processes. Thus, GNPs whose diameter can be controlled from the synthesis were used as a cargo model.

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