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Role of RNA in the self-assembly of virus:A coarse-grained Brownian Dynamics study J.P. MAHALIK, MURUGAPPAN MUTHUKUMAR, University of Massachusetts — Assembly of a single viral capsid (Icosahedral T1 type) was studied in the absence and presence of RNA. A coarse-grained rigid body model was used to represent the capsomer units and a flexible polyelectrolyte model was used to represent RNA. Brownian Dynamics simulation was used to study the assembly process. The rate of assembly was found to be enhanced in the presence of RNA. The free energy contribution of the RNA in the self-assembly process was computed using weighted histogram analysis method.

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