

Abstract Submitted
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Molecular dynamics simulation study of multimerization of the Mms6 protein from Magnetospirillum magneticum strain AMB-1 MONICA LAMM, RASTKO SKNEPNEK, LIJUN WANG, MARIT NILSEN-HAMILTON, Iowa State University and Ames Laboratory — In order to optimize their search for nutrients, magnetotactic bacteria have developed an ability to align themselves to Earth's magnetic field. This is achieved by forming a chain of vesicles containing magnetite superparamagnetic nanoparticles with sizes of the order of 50nm. The presence of the small protein Mms6 plays an important role in the successful in vitro growth of magnetite nanoparticles, although the mechanism of this process is not understood. Preliminary experiments on Mms6 in solution indicate that the protein forms multimers of variable sizes, depending on the salt concentration. Using an intermediate level coarse grained model for Mms6 we investigated the formation of these multimers as a function of temperature and salt concentration.

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