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Building Shape Surfactants: Creating rod-coil complexes using genetically engineered viruses PHIL HUANG, SETH FRADEN, Brandeis University — Complex self-assembled structures (micelles, lamellar phases) are often found in dispersions of amphiphilic molecules like surfactants. We genetically engineered M13 bacteriophage, a long filamentous particle that forms liquid crystalline phases, and coupled a 15 base pair oligonucleotide to one end of the virus. A plasmid DNA fragment was then ligated to the oligonucleotide to form a rod-coil particle. Based on the above complex conjugate, we are attempting to create supramolecular liquid crystalline structures.

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