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The study of organogel formation with cyclo(leucyl-leucine) by the AFM method

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Physical organogels, which are self-assembled from simple *cyclo*(dipeptide)s, are a novel biocompatible class of soft material with promising applications in materials engineering fields. The present study is devoted to the efficiently gelation of a wide variety of organic solvents using a representative model of the *cyclo*(dipeptide)s family by example of *cyclo*(leucyl-leucine). We propose that the water as co-solvent, might have a potential implication in controllable molecular self-assembly, due formation of hydrogen bond bridge between molecules of organic solvents and dipeptide.

Atomic force microscopy is an amazing technique for study of the interactions of biological molecules. In the present work, the ability *cyclo*(leucyl-leucine) to formation of gel structures from polar and non-polar solvent was studied using atomic force microscopy. This method was also used for demonstration the change in morphology of the surface dipeptide's films of *cyclo*(leucyl-leucine) obtained from different solutions as a result of interaction with different compounds of binary solvents. A mechanism for organic solvent-water binding to *cyclo*(dipeptide)s is proposed, based on results from this experiment.

The results of present work can be used for further development of techniques for the preparation of nanomaterials based on *cyclo*(dipeptide)s.

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