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Cyclic peptides as platforms for supramolecular constructions

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The ability to construct complex functional materials using small number of components represents an efficient synthetic strategy for the rapid generation of novel shapes and functions. At this respect peptides are powerful tools for the preparation of novel nanobiomaterials because of their unique folding and self-assembly properties. Cyclic components have restricted conformational freedom that allows adopting kinetically stable structures that can be used in the supramolecular construction of a variety of structures and application. In the last few years our research group has been working with cyclic peptides that contain cyclic gamma-amino acids. These peptides allowed the construction of tubular structures of nanometric dimensions with tunable internal and external properties. Those peptides have been also used in the preparation of molecular capsules that entrap different components, such as metals or linear rigid molecules or as mimicking of ion channels. In this communications we will present our latest discoveries in topic.

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