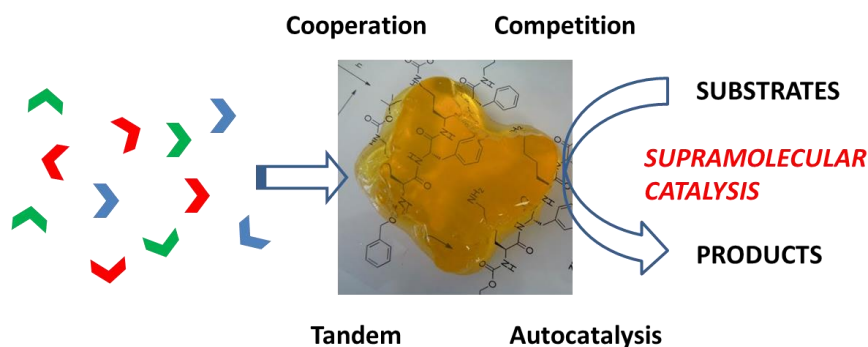


## Multicomponent peptide-based molecular gels for biomimetic catalysis

Nishant Singh, Marco Araújo, Rafael Miravet, Rosa Martí-Centelles, Beatriu Escuder  
Departament de Química Inorgànica i Orgànica, Universitat Jaume I, 12071 Castelló, Spain  
[escuder@uji.es](mailto:escuder@uji.es)

Molecular gels are attractive soft materials formed by the self-assembly of low molecular weight compounds by non-covalent interactions. They constitute an example of the autonomous bottom-up construction of a material from small molecular components programmed at the molecular level with functional information. In this sense, synthetically simple molecules can be prepared bearing active functional groups that will provide a functional material after self-assembly. The newly formed materials not only could retain the properties of their single components but could develop new features arising from the cooperation of arrays of functional groups.<sup>1,2</sup>

Taking nature as inspiration, short peptides and pseudopeptides have been used to construct multicomponent ‘enzyme-like’ catalytic gels that are active for reactions of different complexity (single substrate, tandem, autocatalytic, organocatalysis, metallocatalysis, etc...). Several examples reported by the group will be presented.<sup>3</sup>



1. B. Escuder, J. F. Miravet in *Functional Molecular Gels*, (Eds.: B. Escuder, J. F. Miravet), RSC Soft Matter Series, Cambridge, **2014**, pp. 117-156.
2. N. Singh, M. Kumar, J. F. Miravet, R. V. Ulijn, B. Escuder, *Chem. Eur. J.*, **2017**, *23*, 981-993
3. a) N. Singh, K. Zhang, C. A. Angulo-Pachón, E. Mendes, J. H. van Esch, B. Escuder, *Chem. Sci.*, **2016**, *7*, 5568-5572. b) M. Araújo, S. Díaz-Oltra, B. Escuder, *Chem. Eur. J.*, **2016**, *22*, 8676-8684. c) N. Singh, B. Escuder, *Chem. Eur. J.*, **2017**, *23*, 9946-9951.