

Constitutional Dynamic Self-Amplification in Double-Helix Imine Systems

Arie van der Lee, F. Dumitru, Y. -M. Legrand, M. Barboiu, *Institut Européen des Membranes, UMII-cc047, Montpellier, France*. E-mail: avderlee@univ-montp2.fr

Constitutional dynamic chemistry [1,2] expresses adaptative behaviour as its entities are in principle capable of responding to external effectors via reorganization/amplification of their constitution through reversible covalent bonds in order to generate a dynamic functional diversity.

We will present here the ability of a set of imine-metal complexes to undergo such a process in response to the effect of external factors which promote both ligand and imine exchange in order to drive to a constitutional evolution of dynamic mixture toward the selection and amplification of specific components.

From a conceptual point of view these results express a synergistic adaptative strategy for a evolutive generation of crystalline functional devices. Moreover, the self-assembling behaviour of these systems leads to tubular double-helix solid state structures [3]. Different superstructures of this type could be generated by selection and amplification and they will be discussed in detail.

[1] Lehn J.-M., *Proc. Natl. Acad. Sci.*, 2002, **99**, 4763-4768. [2] Barboiu M., Vaughan G., Graff R., Lehn J.-M., *J. Am. Chem. Soc.*, 2003, **125**, 10257-10265. [3] Dumitru F., Legrand Y.-M., Barboiu M., van der Lee A., 2005, *in press*.

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