Title:	Nucleotide-Selective Templated Self-Assembly of Nanoreactors under Dissipative Conditions
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Keywords:	amphiphiles molecular recognition network reactivity self-assembly systems chemistry
Issue Date:	2020
Publisher:	Wiley-VCH Verlag
Citation:	Angewandte Chemie - International Edition, 59(49) pp. 22223-22229
Abstract:	Nature adopts complex chemical networks to finely tune biochemical processes. Indeed, small biomolecules play a key role in regulating the flux of metabolic pathways. Chemistry, which was traditionally focused on reactions in simple mixtures, is dedicating increasing attention to the network reactivity of highly complex synthetic systems, able to display new kinetic phenomena. Herein, we show that the addition of monophosphate nucleosides to a mixture of amphiphiles and reagents leads to the selective templated formation of self-assembled structures, which can accelerate a reaction between two hydrophobic reactants. The correct matching between nucleotide and the amphiphile head group is fundamental for the selective formation of the assemblies and for the consequent up-regulation of the chemical reaction. Transient stability of the nanoreactors is obtained under dissipative conditions, driven by enzymatic dephosphorylation of the templating nucleotides. These results show that small molecules can play a key role in modulating network reactivity, by selectively templating self-assembled structures that are able to up-regulate chemical reaction pathways
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