

Template induced sorting in dynamic combinatorial libraries

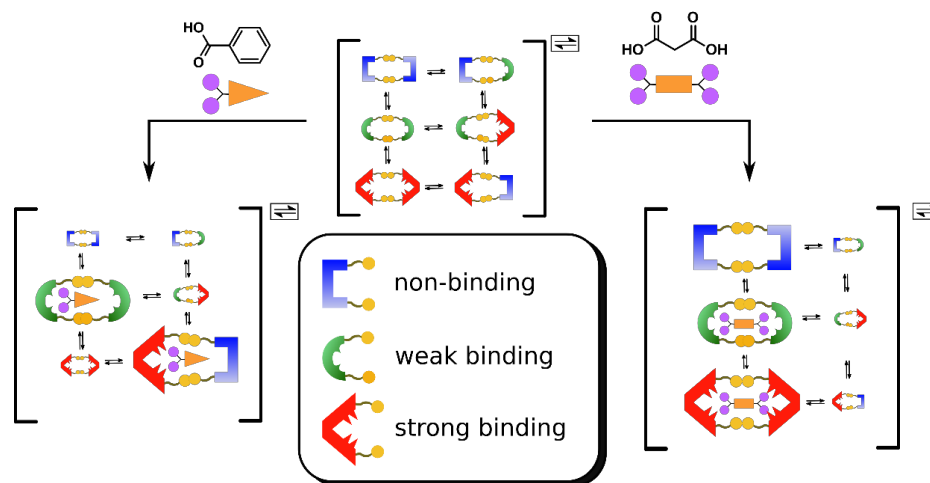
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In dynamic combinatorial libraries multiple compounds form from building blocks via reversible reactions and coexist in an equilibrium.^{1,2} Composition of library can be altered by introduction of a template. Interaction of selected library components with the template results in lower thermodynamic potential and thus amplification of these components. The level of amplification depends on the strength of interaction, concentration of the template and composition of the component.³

Previously, we studied a single library of macrocyclic anion receptors, which responds to carboxylates as templates.⁴⁻⁶ In this study we expanded the library with novel building blocks, which can be categorized as non-binding, weak binding and strong binding. We investigated the response of such libraries to introduction of various templates. Amplification profiles are quite complex and depend not only on affinities between the library members and the templates, but also on availability of building blocks.



1. Lehn, J.-M. *Chem. Soc. Rev.* **2007**, 36 (2), 151
2. S. Otto, R. L. E. Furlan and J. K. M. Sanders, *Science*, 2002, **297**, 590–3.
3. P. T. Corbett, J. K. M. Sanders and S. Otto, *J. Am. Chem. Soc.*, 2005, **127**, 9390–9392.
4. Ulatowski, F.; Sadowska-Kuzioła, A.; Jurczak, J. *J. Org. Chem.* **2014**, 79 (20), 9762.
5. Ulatowski, F.; Lichosyt, D.; Jurczak, J. *Org. Biomol. Chem.* **2015**, 13 (42), 10451.
6. Ulatowski, F.; Dąbrowa, K.; Jurczak, J. *Tetrahedron Lett.* **2016**, 57 (16), 1820.