Innovative DNA-based asymmetric catalysis

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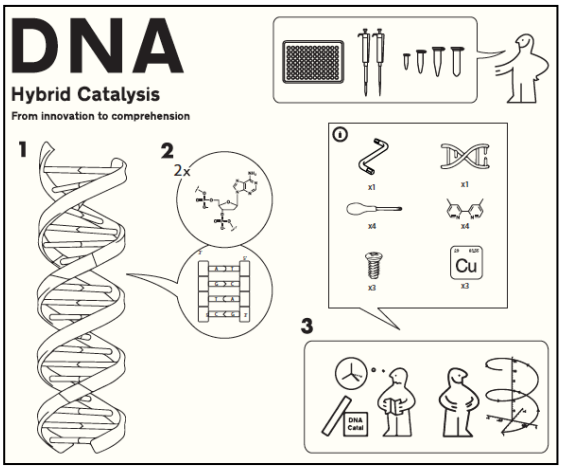
Abstract: DNA-based artificial metalloenzymes have recently drawn considerable attention because of their unique features that comprise a chemically stable chiral double helix associated with many programmable secondary structures. Since the pioneering work of Roelfes and Feringa,[1] the field of DNA-based asymmetric catalysis has been thriving resulting in the development of a handful of highly selective synthetic transformations by several groups[2] including ours.[3] The concept of DNA-based asymmetric catalysis lies in embedding an achiral transition metal catalyst within a DNA double helix that provides the necessary chiral microenvironment to induce enantioselectivity. The most recent efforts to unveil new reactivities have been accompanied with the willingness to understand the mechanisms by which the chirality is transferred. I'll present some of the group's most recent results.



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