Biomimetic assemblies and catalysis using Cyclodextrins

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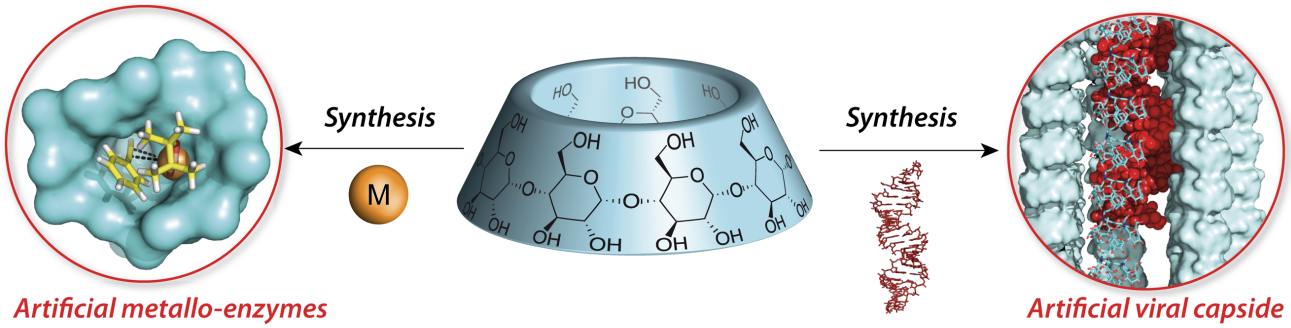
Cyclodextrins are cyclic oligosaccharides used in our daily life as deodorants or excipients. In these applications, they are unfunctionalized or randomly functionalized. The regioselective functionalization of cyclodextrins is a well-established bottle-neck for their use in more sophisticated applications. Over the years we delineated several strategies to access poly-hetero-functionalized cyclodextrins.[1] Based on this ability, we could synthesize modified cyclodextrins that imitate the function of a capsid protein to build an artificial virus.[2] Also inspired by Nature, we encapsulated metals inside the cavity as in metallo-enzymes and used these complexes in catalysis.[3]



References

[1] M. Sollogoub et al. *Angew. Chem., Int. Ed.* **2008**, *47*, 7060; *Angew. Chem., Int. Ed.* **2013**, *52*, 639; *Nature Commun.* **2014**, *5*, 5354.

[2] M. Sollogoub et al. *Angew. Chem. Int. Ed.* **2012**, *51*, 487; *Angew. Chem. Int. Ed.* **2014**, *53*, 7238; *Angew. Chem. Int. Ed.* **2018**, *57*, 7753.

[3] M. Sollogoub et al. *Angew. Chem. Int. Ed.* **2013**, *52*, 7213; *Chem* **2017**, *3*, 174; *Angew. Chem. Int. Ed.* **2017**, *56*, 10821; *Angew. Chem. Int. Ed.* **2020**, *59*, 10.1002/anie.202001733.