



Showcasing research from Professor Robert Vícha's laboratory, Department of Chemistry, Faculty of Technology, Tomas Bata University in Zlín, Czech Republic.

Allosteric release of cucurbit[6]uril from a rotaxane using a molecular signal

Rotaxanes can be viewed as a reservoir for their macrocyclic components. However, to achieve this, it is necessary to find a way to release the previously mechanically bound macrocycle, ideally in a manner that preserves the molecular integrity of all components of the original rotaxane. We have discovered a way to exploit the repulsive electrostatic interactions between the portals of cucurbit[*n*]urils for this function. The surprising finding is that the repulsive inter-portal interactions are strong enough to enable the macrocyclic component of the original rotaxane to overcome the barrier of mechanical binding.

Artwork by Anna Mráčková.

As featured in:



See Robert Vícha *et al.*,
Chem. Sci., 2025, **16**, 83.