

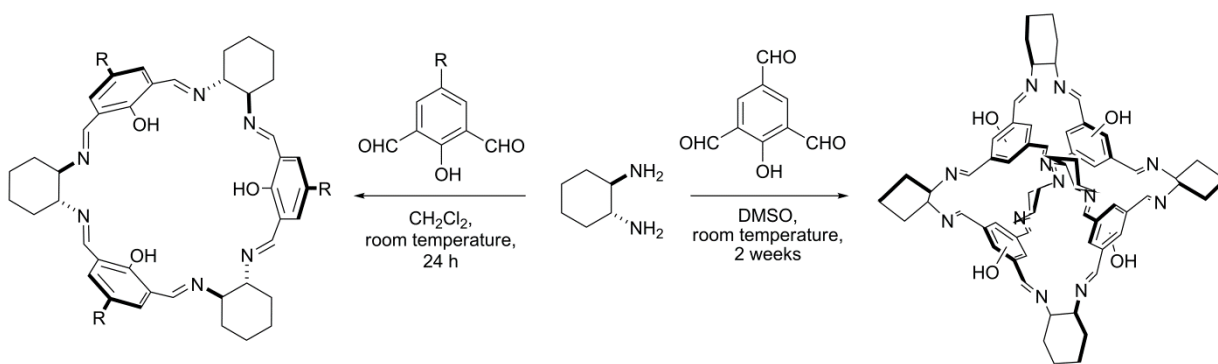
Chiral macrocycles and molecular cages based on *trans*-(1*R*,2*R*)-diaminocyclohexane. Synthesis, structure and their chiroptical properties.

Malgorzata Petryk, Agnieszka Janiak, Marcin Kwit
Faculty of Chemistry, Adam Mickiewicz University in Poznań, Poland
Malgorzata.Petryk@gmail.com

Reversible imination reaction based on Dynamic Covalent Chemistry is a useful method for macrocycle synthesis. Substrates have to be structurally predisposed and the other important factor that may determine the formation of cyclic compounds is the entropy of symmetry.

The synthesis method, developed in our Team, based on cyclocondensation of enantiomerically pure *trans*-(1*R*,2*R*)-diaminocyclohexane with various aromatic and aliphatic dialdehydes allows to obtain chiral macrocycles with 100% yields.[1,2] Recently, we also developed the method of synthesis of molecular cages with unusual *T* symmetry.[3] It is possible that compounds of this type may bond ions and small neutral molecules.

Reduction of symmetry of di- or trialdehyde by replacing one of the aromatic hydrogen with hydroxyl group or additional functionalization of the aromatic ring allows to obtain a new class of compounds which structure can be affected by hydroxyl group or large substituent (Scheme 1).



Scheme 1

The presentation will focus on the synthesis and structural investigations combined with chiroptical methods and DFT calculations of new *trans*-(1*R*,2*R*)-diaminocyclohexane derivatives shown on the Scheme 1.

1. J. Gawroński, H. Kołbon, M. Kwit, A. Katrusiak, *J. Org. Chem.*, 2000, 65, 5768.
2. N. E. Borisowa, M. D. Reshetkova, Y. A. Ustynyuk, *Chem. Rev.*, 2007, 107, 46.
3. P. Skowronek, J. Gawroński, *Org. Lett.*, 2008, 10, 4755.