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Cyclic *N*-substituted aminomethyl benzamide oligomers: from shape-persistent macrocycle to molecular cage

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Arylopeptoids – i.e. *N*-alkylated aminomethyl-benzamide oligomers – is a class of peptoid-inspired oligoamides with an aromatic backbone.^[1] By contrast with most aromatic foldamers, these *N*-alkylated aromatic oligoamides do not capitalize on intramolecular hydrogen-bonding networks to stabilize their tri-dimensional structures and their conformational preferences are partly governed by the *cis/trans* isomerism of the backbone *N,N*-disubstituted amides. Previous studies on the foldameric properties of linear arylopeptoids have shown that well-defined conformations are only formed under limited circumstances. This backbone flexibility may, however, be turned into an advantage since it facilitates efficient head-to-tail macrocyclization, whereby constructs with well-defined structures may be formed. The tunability of *ortho*-, *meta*- and *para*-arylopeptoids was exploited to access a large panel of topologically diverse shape-persistent macrocycles.^[2] From these well-defined macrocycles, a double CuAAC reaction, using a copper-*N*-heterocyclic carbene as stable source of Cu (I),^[3] was exploited to access cage-like bis-triazolium structures with high level of organization. A preliminary study revealed the potential of these novel bis-triazolium cages for oxoanion recognition.^[4]

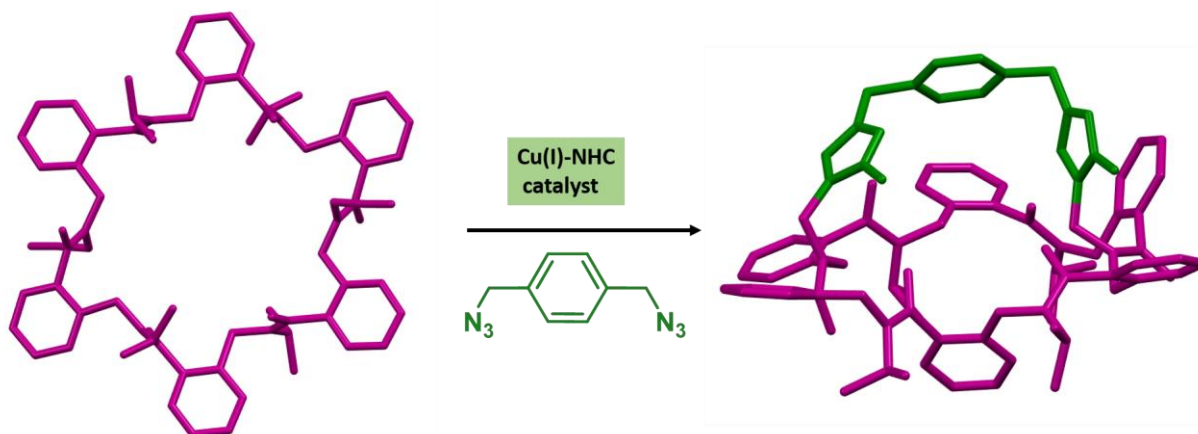


Figure 1. Cage-like bis-triazolium structure from *ortho*-arylopeptoid macrocycle via CuAAC

References

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- [3] A. Akhdar, S. Faure, A. Gautier *Org. Biomol. Chem.* **2022**, *20*, 2402-2406.
- [4] *Unpublished results*