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Functionalized Peptoids: Conformational Control and Platform Design.

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Peptoids developed in the early 1990s are structurally related to α-peptides with the side chains located on the amide nitrogen rather than the α-carbon. This principle has been applied to β-peptides to create the β-peptoids and recently novel peptoid-type architectures were reported, such as the α,β-peptoids, arylopeptoids and *N*-hydroxy/alcoxy-peptoids.
Peptoids are inherently more flexible than peptides due to the absence of internal hydrogen bonding and achiral backbones but the primary cause is the presence of *N*,*N*-disubstituted amides in the backbone which can populate both *cis* and *trans* conformations. However peptoids still retain propensities to adopt stable secondary structures provided the *cis*/*trans* isomerism is optimally controlled. To meet this challenge, two strategies are currently developed in our group: backbone cyclization and the design of side chains that locally control the amide geometry.

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