Title: Extending the Structural Boundaries of Quasiracemate Formation by Shape Mimicry

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Functional materials and biological events require molecules to recognize each other. This molecular awareness often arises from a blend of both strong and weak forces that control the orientation of the component building blocks. While robust interactions have achieved considerable attention, no less important to the overall molecular recognition process are chemical features that produce less manageable motifs via ill-defined or weak contacts. Molecular shape is one such feature. Investigations from our research group over the last few years have focused on understanding the structural boundaries of molecular topology to crystal formation using the quasiracemate approach for constructing bimolecular compounds. Quasiracemates form due to the complementary molecular shapes of the building blocks, which has led us to ask whether the size of the molecular framework and the use of strong intermolecular contacts could help extend the boundary of known quasiracemic systems? We are exploring this question through the study of homologous families of chiral materials using crystallographic, calorimetric, and hot stage thermomicroscopy techniques.