A Tubular Structural Analogue of Helicene

Significance: Helical molecular systems, both natural and unnatural, continue to capture the interests of chemists. Using an enantiomerically pure bicyclic moiety to appropriately place kinks into the system, Wärnmark and co-workers report the synthesis of helical structure 1, an orthogonal topological analogue of helicene.

Comment: The synthesis of 1 is accomplished by repeated employment of a two-step set of reactions consisting of (1) ring-opening hydrolysis in acid and (2) Friedländer condensation with a chiral bicyclic ketone. By this strategy, monomer 2 is converted into ring-opened trimer 3, which is converted into trimeric ketone 4. Condensation of 4 and 3 affords the helical target 1.