Intramolecular [4+2] Cycloaddition of ortho-Quinone Methides Generated In Situ

Significance: The List group has developed a catalytic, asymmetric, intramolecular [4+2] cycloadition of in situ generated ortho-quinone methide. A variety of salicylaldehydes were treated with dienols in the presence of a confined, chiral imidodiphosphoric acid catalyst to provide the desired furanochromanes with excellent enantioselectivities and good yields.

Comment: The chromane moiety is frequently found in natural products. The obtained furanochromane products have highly functionalized tricyclic frameworks. This acid-catalyzed reaction may be suitable for natural product synthesis, as two rings and three consecutive stereocenters are formed in a single step.