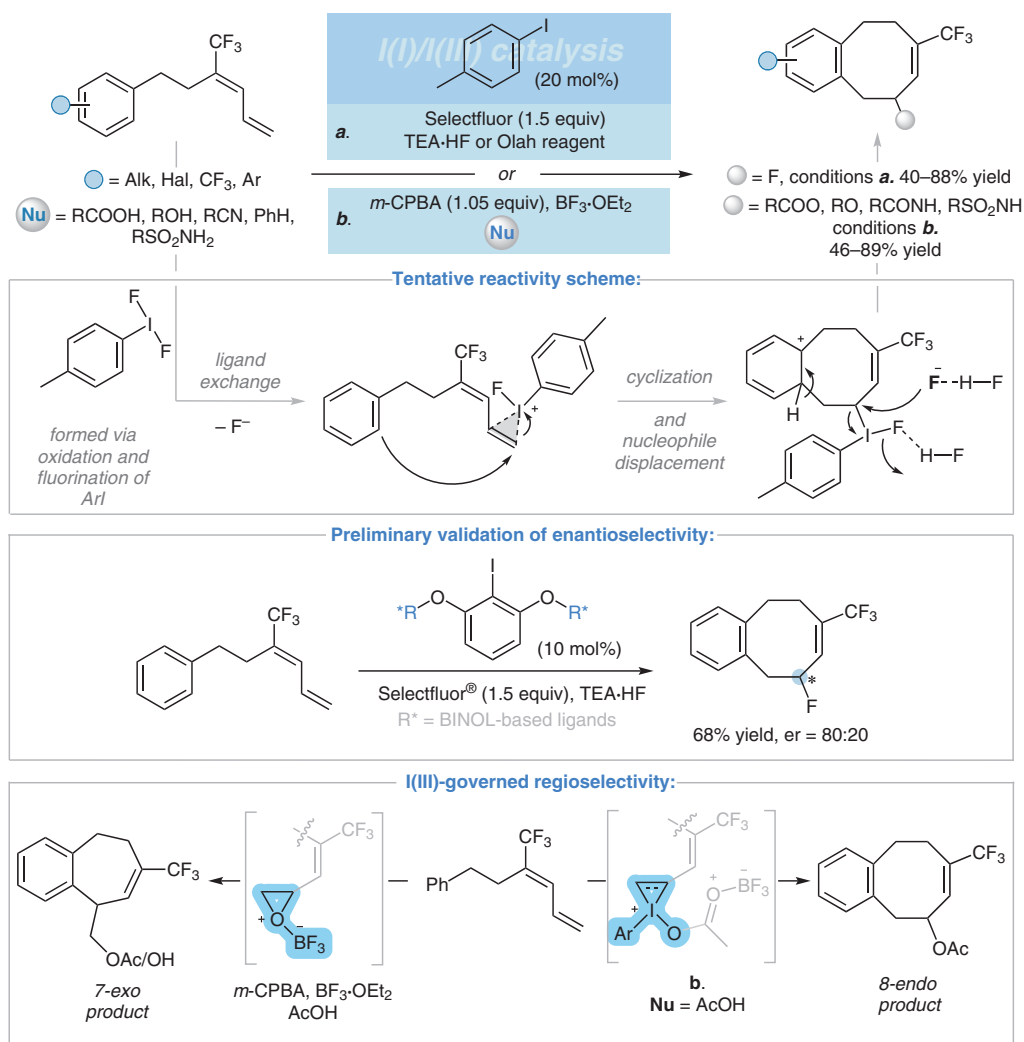


Synthesis of Eight-Membered Carbocycles by I(I)/I(III)-Catalyzed Diene Cyclization



Significance: Gilmour and co-workers report a synthetic approach to obtain densely functionalized benzocyclooctenes from 1,3-dienes using hypervalent iodine catalysis. The cyclization is followed by subsequent fluorination or carbofunctionalization. This approach allows a wide range of substituents and nucleophiles giving products in moderate to good yields. Wide possibilities of synthetic modification of the obtained products as well as the possibility of an enantioselective version are also presented.

Comment: Although compounds containing an eight-membered ring are widespread among bioactive natural products, fragrances, and even catalysts, methods for their formation are still few and approaches based on transition-metal catalysis predominate. The I(I)/I(III)-catalytic platform demonstrated here is one of the few examples of element-organocatalytic cyclization capable of overcoming entropic factors and transannular interactions, the main challenges in the synthesis of eight-membered rings.