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The Catalytic Enantioselective Total Synthesis of (+)-Liphagal
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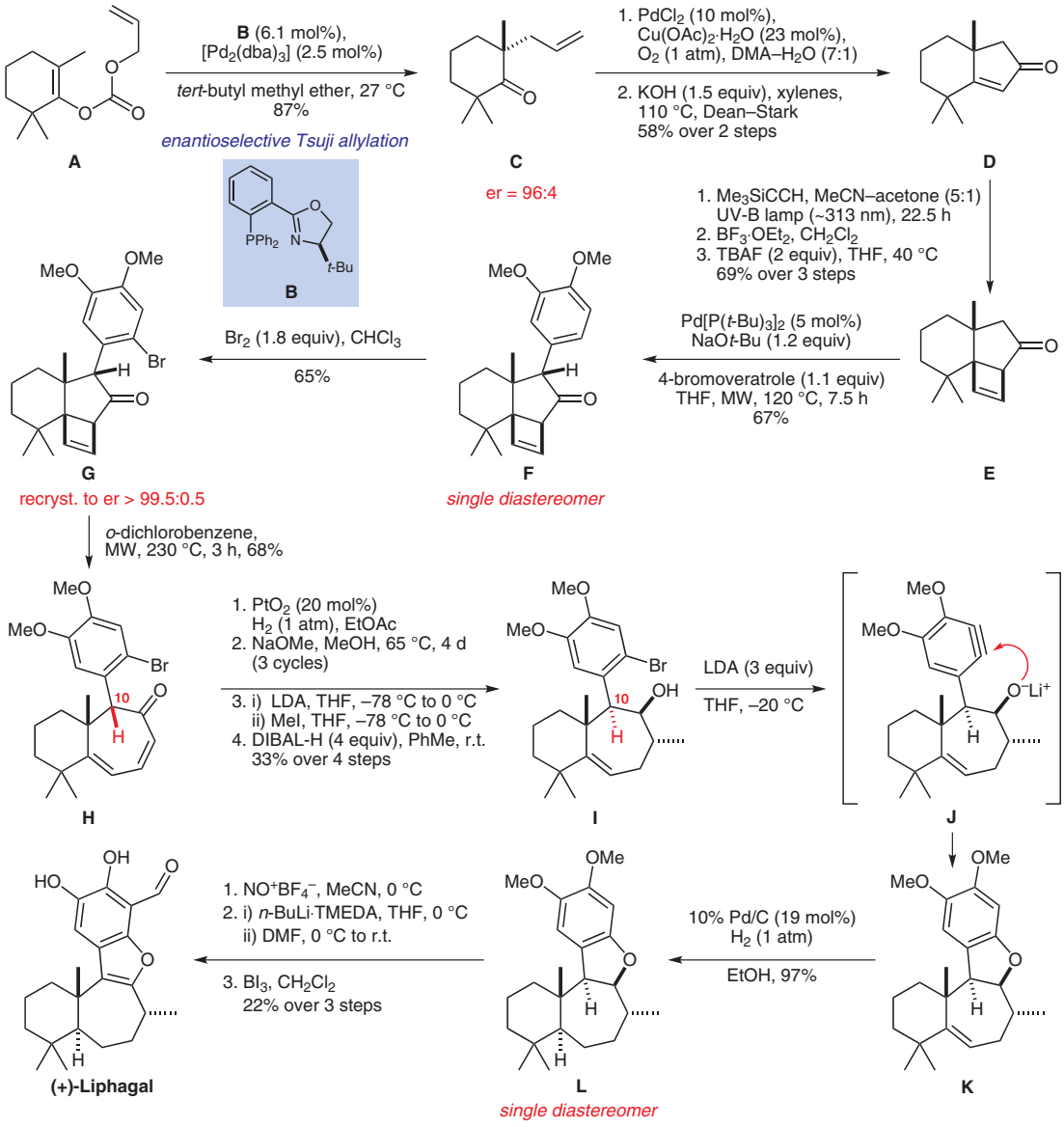
Synthesis of (+)-Liphagal



Significance: (+)-Liphagal was isolated in 2006 from the Caribbean sponge *Aka coralliphaga* and belongs to a family of phosphatidylinositol 3-kinase (PI3K) inhibitors. Structurally, (+)-liphagal consists of an unprecedented [6-7-5-6] tetracyclic motif. Herein, the first catalytic enantioselective approach is reported.

Comment: This synthesis utilizes an enantioselective Tsuji-type allylation developed within the Stoltz group and a two-step oxidation–cyclization procedure to yield previously reported enone **D** with good enantioselectivity. Epimerization at C10 followed by cyclization enables hydrogenation of the trisubstituted olefin, yielding the *trans*-fused ring as the only product.

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Category
Synthesis of Natural Products and Potential Drugs

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