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SYNFACTS Highlights in Chemical Synthesis

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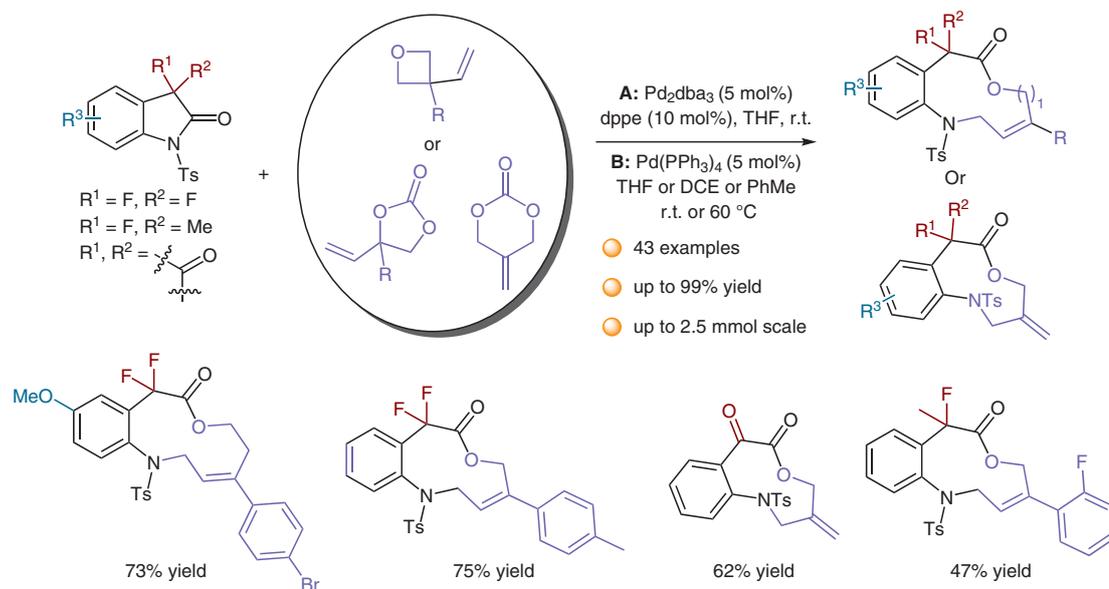
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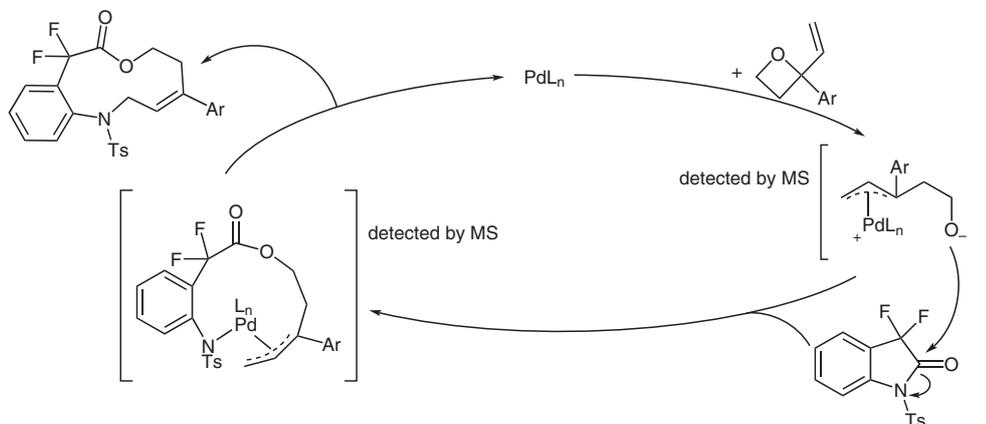
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 Modular Synthesis of Medium-Sized Fluorinated and Nonfluorinated Heterocyclic Lactones by Sequential C–N-Bond-Cleaving Ring Expansion under Pd Catalysis
ACS Catal. **2020**, *10*, 14117–14126, DOI: 10.1021/acscatal.0c03927.

C–N Cleavage and Ring Expansion of Oxindoles and Isatins Using Palladium Catalysis



Proposed mechanism:



Significance: A palladium-catalyzed approach to access fluorinated and non-fluorinated medium-sized heterocycles is reported. This method employs oxindoles or isatins that can undergo an annulation reaction with a vinyl oxetane or vinyl carbonate as the electrophile.

Comment: After oxidative addition of the palladium-catalyst to the vinyl oxetane, the resulting alkoxide adds to the amide carbonyl, cleaving the C–N bond. The aniline can then react with the palladium- π -allyl intermediate, yielding the product. The two proposed palladium- π -allyl species were detected by MS.

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Category

Metals in Synthesis

Key words

palladium catalysis

oxindoles

isatins

annulation

heterocycles