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Fluorocarbonylation Via Palladium/Phosphine Synergistic Catalysis
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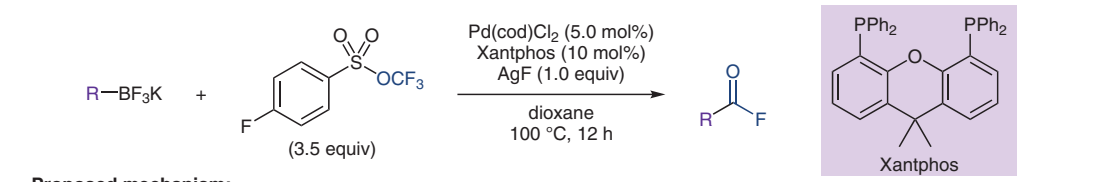
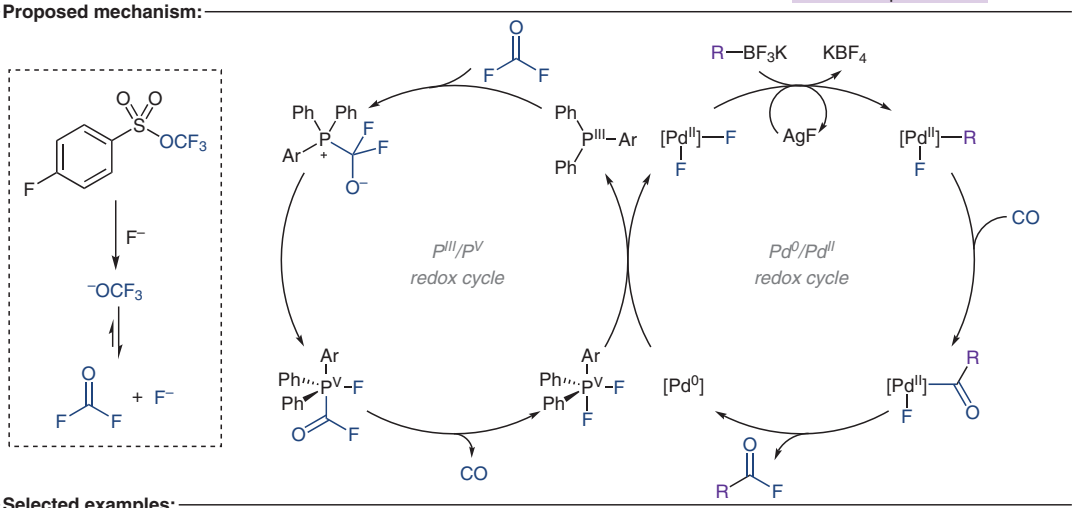
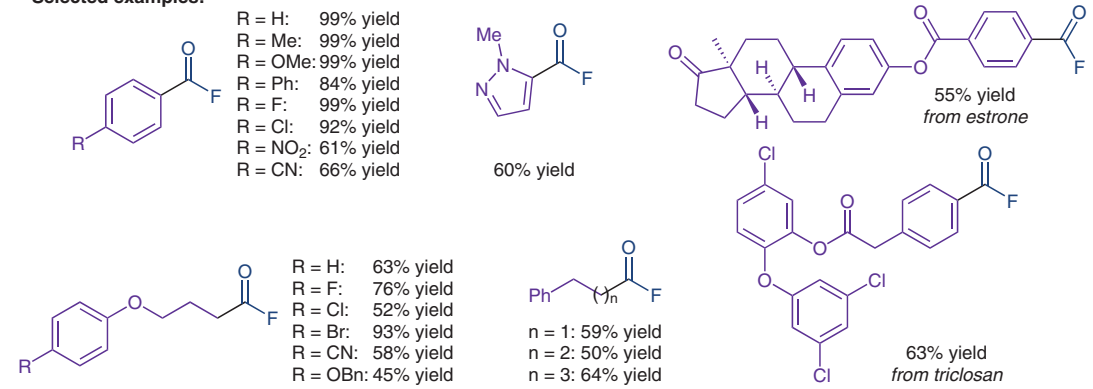
Making Acyl Fluorides by Synergistic Palladium/Phosphine-Catalyzed Fluorocarbonylation



Proposed mechanism:



Selected examples:



Significance: A novel method for the synthesis of acyl fluorides from potassium (het)aryl/alkyl trifluoroborates is reported. The trifluoromethyl arylsulfonate (TFMS) serves as source of the in situ generated hazardous COF_2 gas.

Comment: Detailed mechanistic studies including DFT calculations support the proposed mechanism. The dual role of the phosphine is noteworthy, acting as both organocatalyst and ligand of the palladium redox cycle.

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Category
Metals in Synthesis

Key words
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fluorocarbonylation
palladium catalysis
phosphine catalysis
synergistic catalysis

Synfact of the Month