W. C. FU, T. F. JAMISON* (MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, USA)

Deuteriodifluoromethylation and *gem*-Difluoroalkenylation of Aldehydes Using $ClCF_2H$ in Continuous Flow
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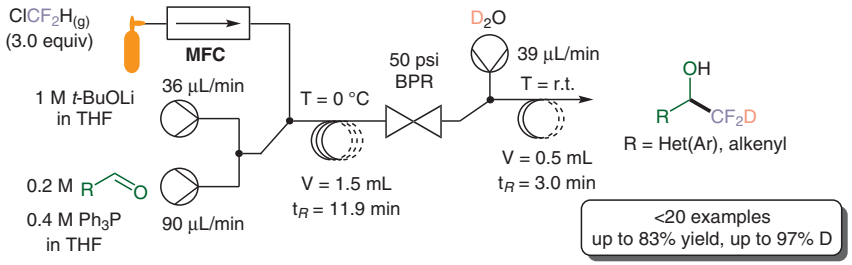
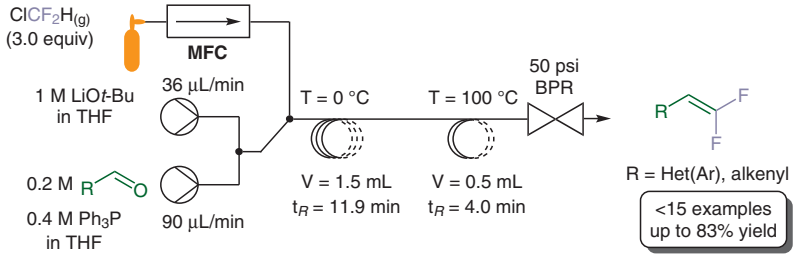
Synthesis of Deuterodifluoromethylated Alcohols and *gem*-Difluoroalkenes in Continuous Flow

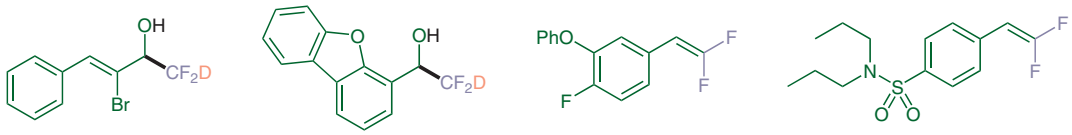
Preparation of deuterodifluoromethylated alcohols in continous flow:



Preparation of *gem*-difluoroalkenes in continous flow:



Selected examples:



Significance: Fu and Jamison report the utilization of chlorodifluoromethane gas in a continuous-flow setup for the preparation of α-deuteriodifluoromethylated benzyl alcohols and *gem*-difluoroalkenes from a range of aldehydes in good yields.

Comment: Interestingly, the authors performed NMR studies that led them to propose a plausible reaction mechanism involving an oxaphosphetane intermediate. Furthermore, the authors demonstrated the utility of this method by performing various derivatizations of the α-deuteriodifluoromethylated benzyl alcohol, affording the corresponding, bromide, tosylate or ketone.

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Category
Flow Chemistry

Key words
continuous flow
deuteration
difluoromethylation
***gem*-difluoroalkenes**

Synfact of the Month