

Synthesis and Reactivity of Stable Uracil-Iodonium(III) Salts

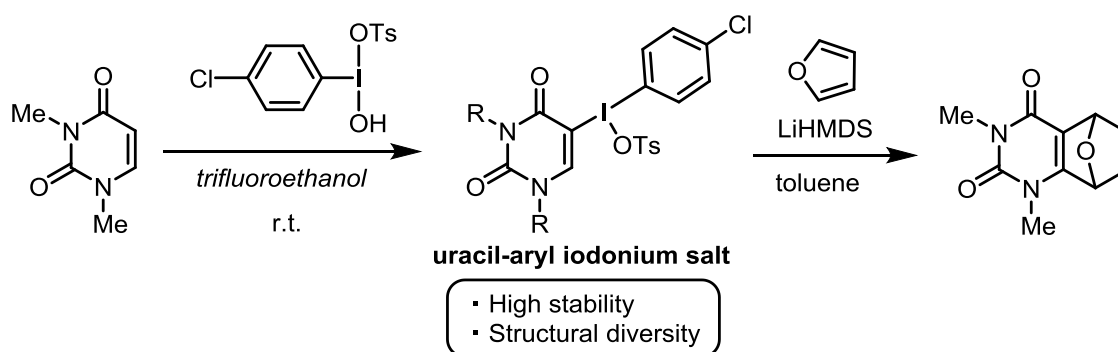
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The diaryliodonium(III) salts, ArI⁺Ar'⁻X⁻, which have two aryl groups bound to an iodine atom as ligand, represent one of the most useful classes of hypervalent iodine(III) compounds. They have been used in organic synthesis as arylating agents for couplings reactions as well as reactive precursor for generation of benzyne.¹⁾ We previously reported the direct and efficient synthesis of diaryliodonium salts from electron-rich aromatic substrates and iodine(III) reagents, such as PhI(OCOCF₃)₂ or PhI(OH)OTs, in fluoroalcohol solvents.²⁾

Herein, we have developed new stable uracil-iodonium(III) salts as the reactive synthetic modules for expanding the utility for coupling and other reactions.³⁾ Uracil is a nucleobase that exists in many biologically active compounds and thus the introduction of such a moiety in iodonium(III) salts would be of high utility in synthetic uses, but in previous study,⁴⁾ uracil-iodonium(III) salts are too hygroscopic to isolate and handle. Considering such backgrounds, we newly design uracil-iodonium(III) salts with more favorable physical characteristics for practical uses. As a result, a series of stable uracil-iodonium(III) salts having electron-withdrawing aryl moieties and various counterions have been successfully synthesized. Notably, these salts can be widely applied for coupling reactions and vicinal functionalizations by formation of novel uracilyne.



1) General review: B. Olofsson et al. *Angew. Chem., Int. Ed.* **2009**, 48, 9052.

2) T. Dohi, Y. Kita, et al. *Chem. Commun.* **2007**, 4152; *Tetrahedron* **2010**, 66, 5775.

3) N. Takenaga, T. Dohi, S. Kitagaki, et al. *Heterocycles* **2018**, in press.

4) Y. H. Kim, et al. *Chem. Lett.* **1998**, 27, 1095.