

演題: **Hypervalent Iodine Reagents for Perfluoroalkylation: Synthesis, Applications and Mechanistic Studies**

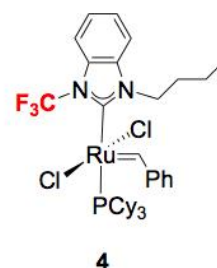
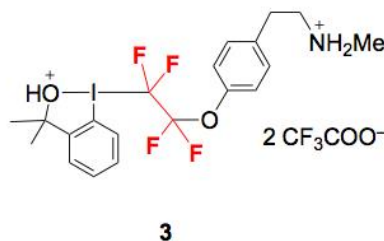
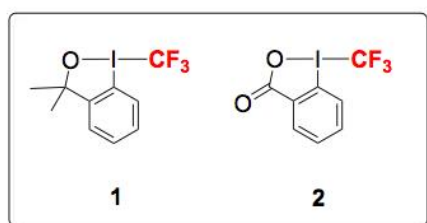
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場所: 工学部材料化学系棟 MC208 室

The iodanes 1-trifluoromethyl-1,3-dihydro-3,3-dimethyl-1,2-benziodoxole (**1**) and 1-trifluoromethyl-1,2-benziodoxol-3-(1*H*)-one (**2**), first reported in 2006 [1], have become widely used reagents for the trifluoromethylation of a large variety of substrates. Thus, not only disparate carbon nucleophiles will efficiently react, but also thiols, nitrogen-based heterocycles, primary and secondary phosphines, as well as selected oxygen functionalities, partly giving rise to rare and unexplored functional groups. The lecture will provide an overview of corresponding applications [2] and is going to include mechanistic considerations also based on quantum chemical studies [3]. Conceptually, these reagents can be extended to compounds able of transferring functionalized tetrafluoroethyl groups, such as e.g. **3** [4], with potential applications in bioconjugation. Finally, the trifluoromethylated Ru complex **4** (Grubbs II type catalyst) displays unexpected properties as ethenolysis catalyst [5].



References

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- [3] O. Sala, H. P. Lüthi, A. Togni, M. Iannuzzi, J. Hutter, *J. Comput. Chem.* **2015**, *36*, 785; O. Sala, N. Santschi, S. Jungen, H.P. Lüthi, M. Iannuzzi, N. Hauser, A. Togni, *Chem. Eur. J.* **2016**, *22*, 1704.
- [4] V. Matoušek, J. Václavík, P. Hájek, J. Charpentier, Z. E. Blastik, E. Pietrasiak, A. Budinská, A. Togni, P. Beier, *Chem. Eur. J.* **2016**, *22*, 417; J. Václavík, R. Zschoche, I. Klimánková, V. Matoušek, P. Beier, D. Hilvert, A. Togni, *Chem. Eur. J.* **2017**, *23*, 6490.
- [5] (a) P. S. Engl, R. Senn, E. Otth, A. Togni, *Organometallics* **2015**, *34*, 1384; (b) P. S. Engl, A. Fedorov, C. Copéret, A. Togni, *Organometallics* **2016**, *35*, 887.

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