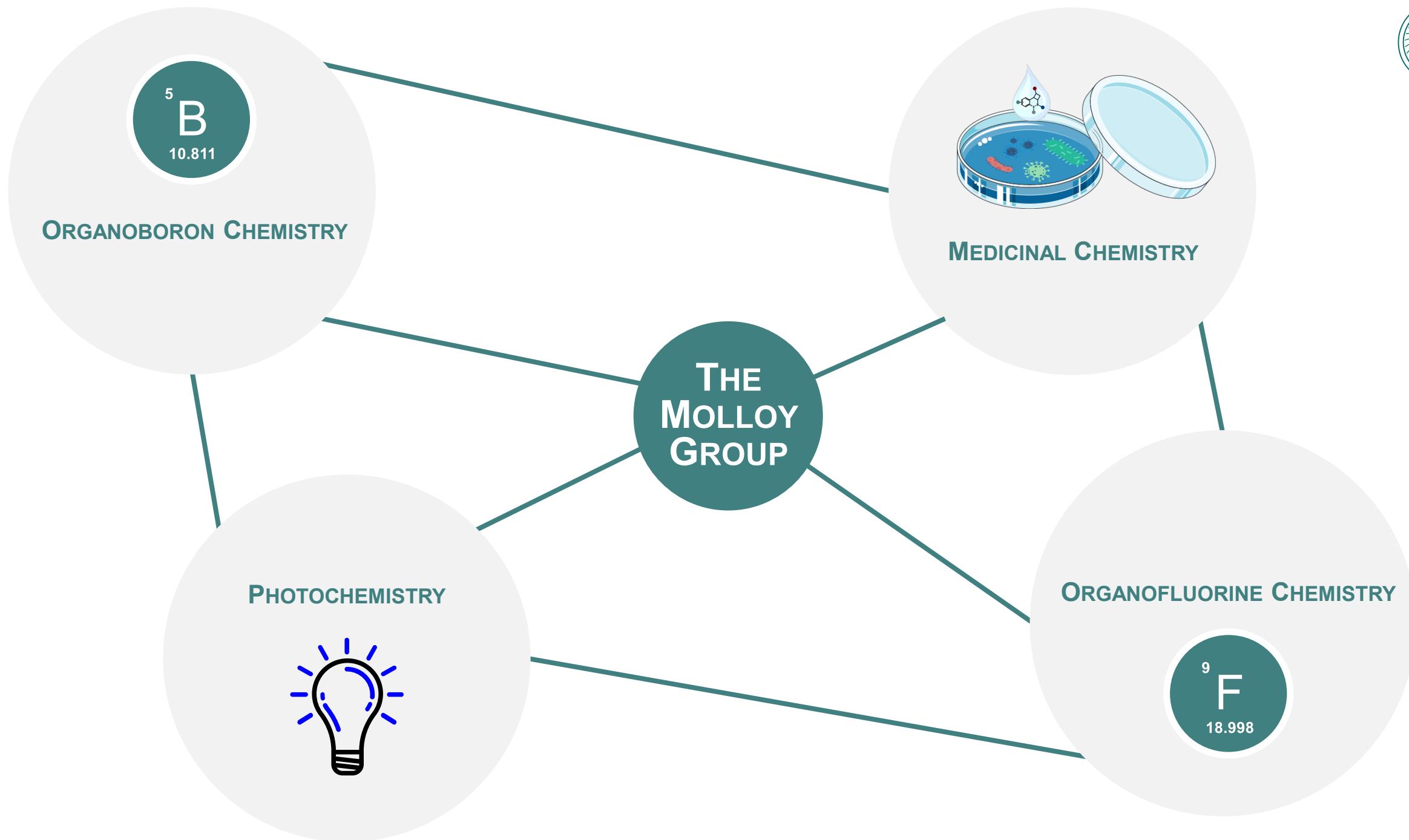




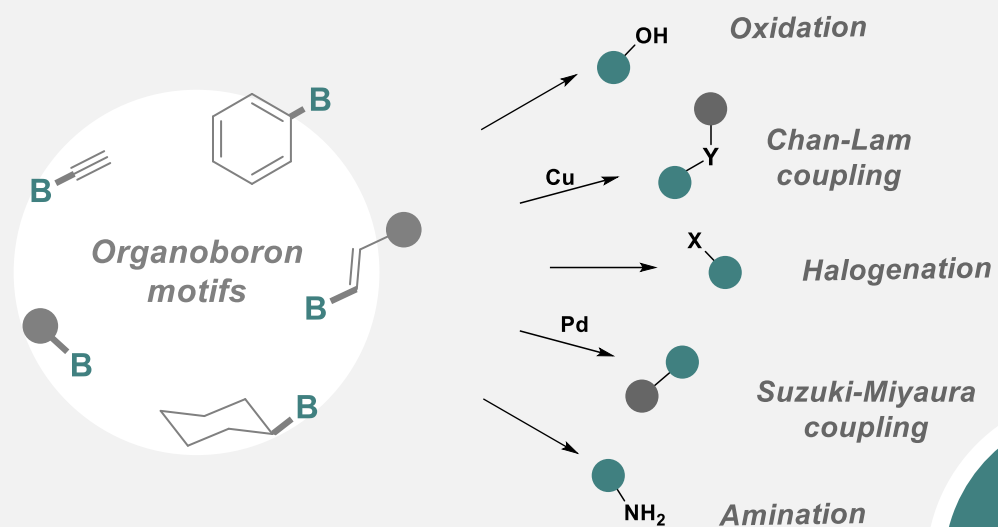
RESEARCH & DRINKS

**THE MOLLOY GROUP – SYNTHETIC METHODOLOGY
AND REACTION DESIGN**

Hannah Kortman
13th November 2025

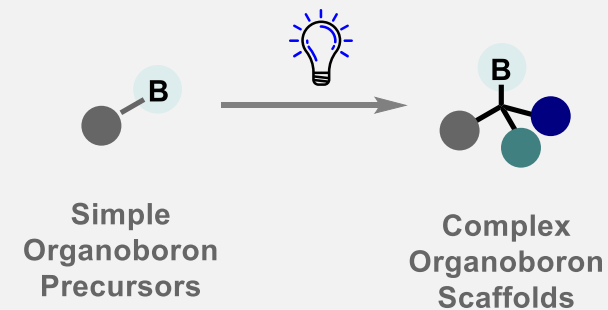
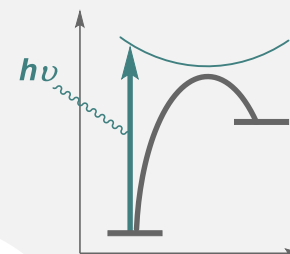


Boron in Organic Synthesis

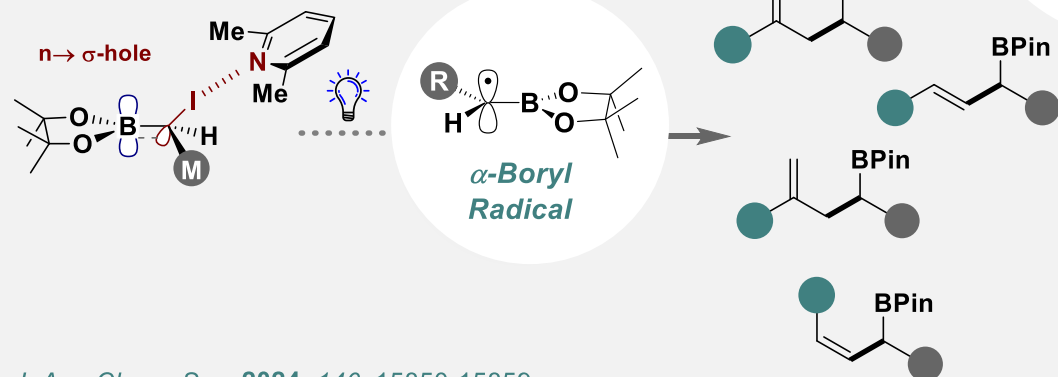


Photochemical activation of organoboron moieties

Light mediated activation to overcome synthetic limitations

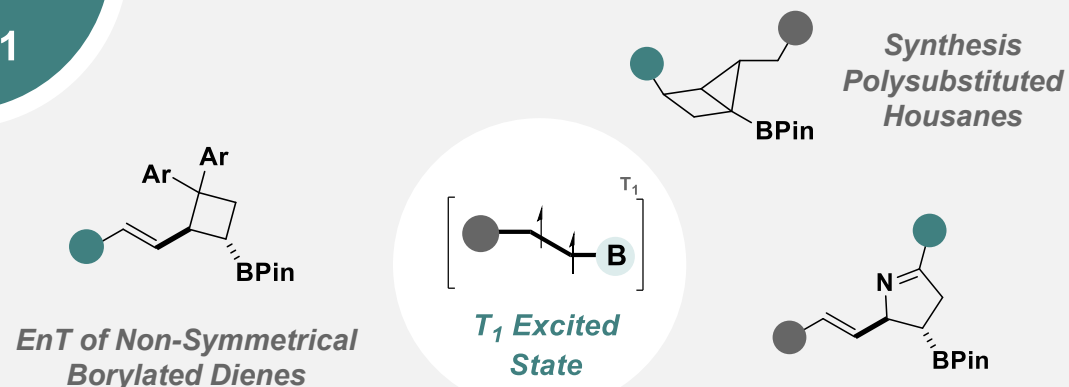


5
B
10.811



J. Am. Chem. Soc. **2024**, 146, 15850-15859.

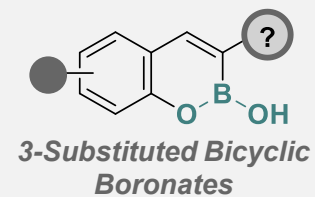
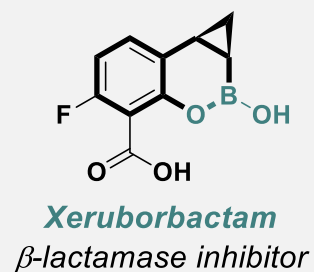
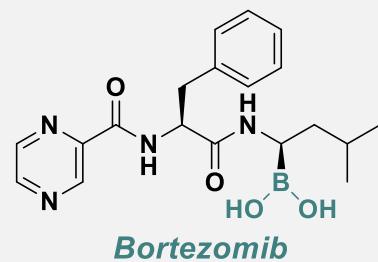
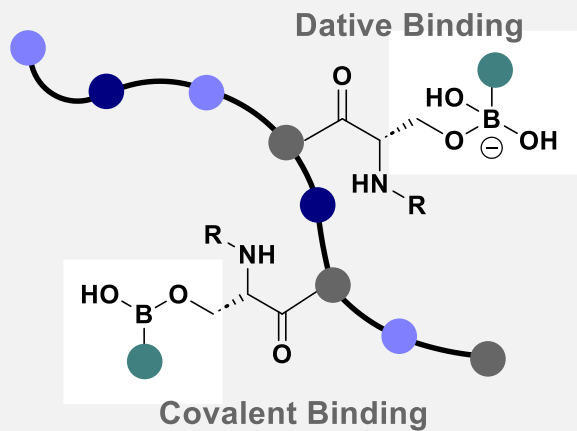
Angew. Chem. Int. Ed. **2023**, 62, e202307540.



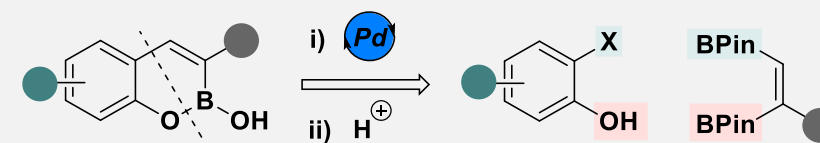
ChemRxiv, **2025**, doi:10.26434/chemrxiv-2025-cgg8d

Angew. Chem. Int. Ed. **2024**, 64, e202418651

Boron in Medicinal Chemistry

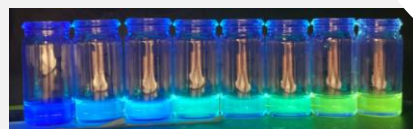
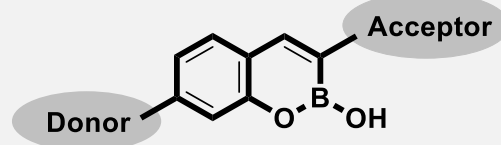


- Enhanced shielding of boron
- Effect on electronic properties of boron
- Potential handle for biomolecular interactions

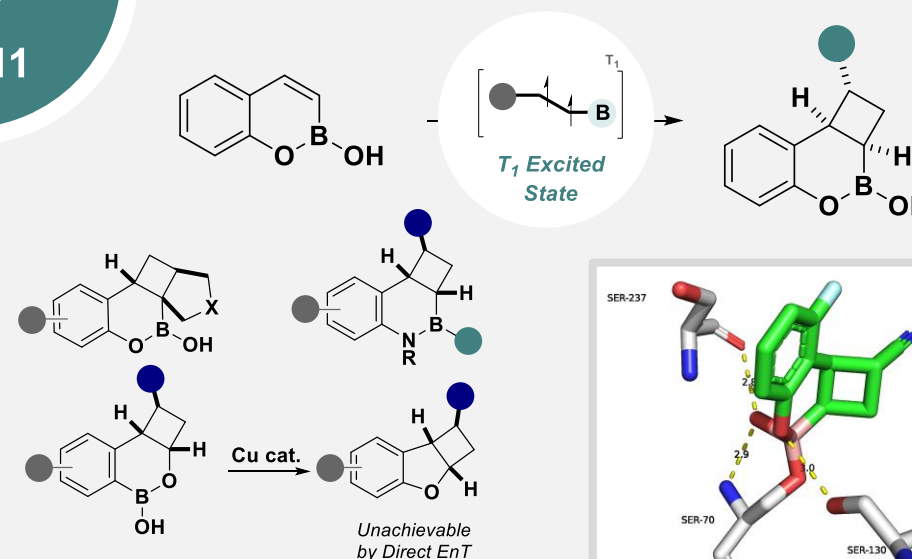
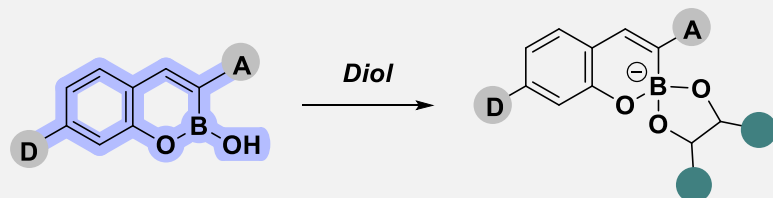


Chem. Commun. **2024**, 60, 13223-13226.

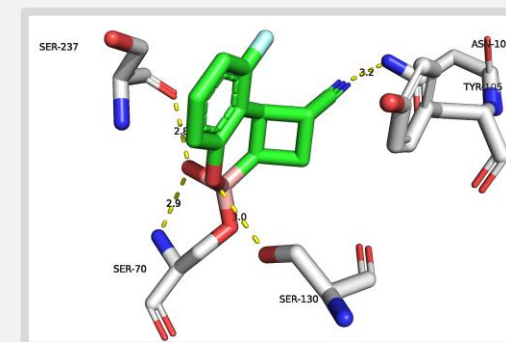
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10.811



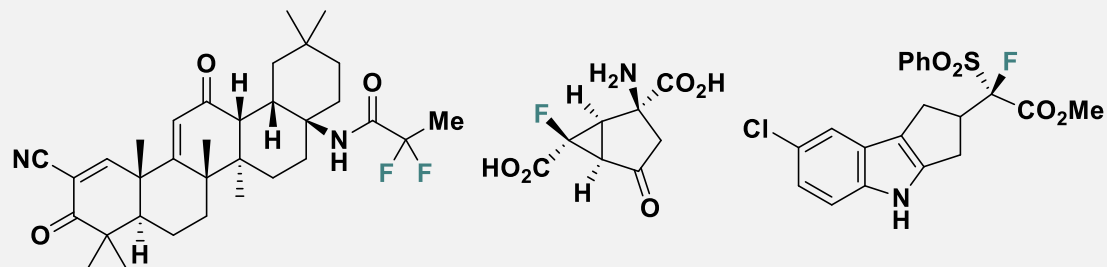
Visible Light Absorption - **Potential Photocat.** - **Sensor of Diols/Nucleophiles**



Chem. Sci. **2025**, DOI:10.1039/d5sc05518k



Fluorine in Medicinal Chemistry

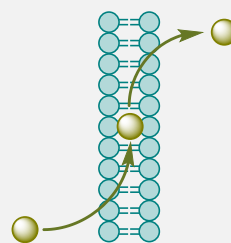


Omaveloxolone

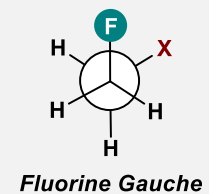
MG 2/3 Receptor Agonist

LXR Modulator

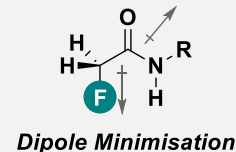
Lipophilicity + Metabolic Stability



Conformational Effects

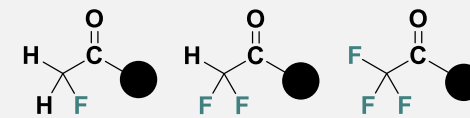


Fluorine Gauche

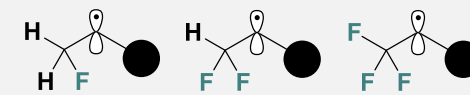


Dipole Minimisation

Effects on Electrophilicity



α -Fluoro Ketones

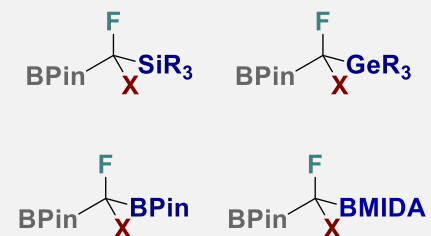
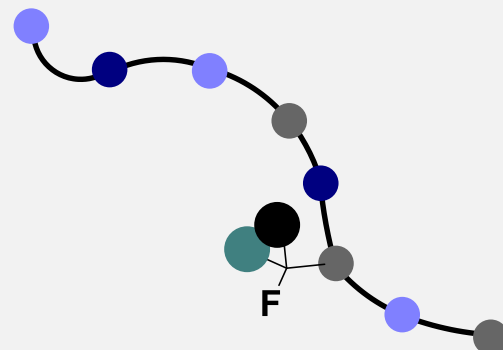


α -Fluoro Radicals

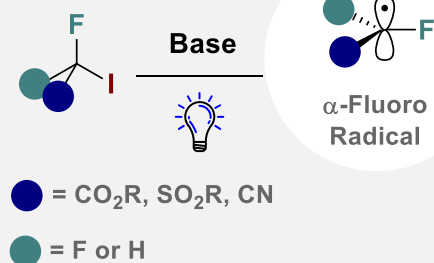
Electrophilicity

⁹F
18.998

Late Stage Functionalisation of Biomolecules



Novel Fluorinated C1-Building Blocks



● = CO₂R, SO₂R, CN

● = F or H

Styrenes

Alkenes

Heteroaryls

Propellanes



Dr. Alessandro Marotta
PostDoc @ MPI KoFo



Dr. Hao Fang
Nanrui Group Co. Ltd



Dr. Lewis McGhie
PostDoc @ Strathclyde



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Willis Lab
@ Oxford University



Suero Lab
@ ICIQ