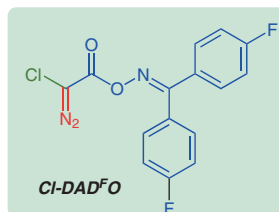


F.-P. WU, J. L. TYLER, C. G. DANILIUC, F. GLORIUS\* (UNIVERSITY OF MÜNSTER, GERMANY)  
Atomic Carbon Equivalent: Design and Application to Diversity-Generating Skeletal Editing from Indoles to 3-Functionalized Quinolines  
*ACS Catal.* **2024**, *14*, 13343–13351, DOI: 10.1021/acscatal.4c03868.

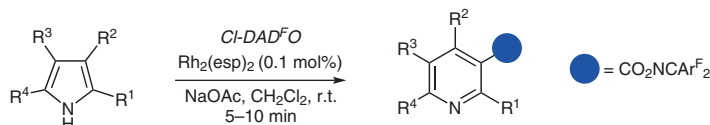
## Skeletal Editing of Indoles and Pyrroles Enabled by a Novel, Atomic Carbon Equivalent



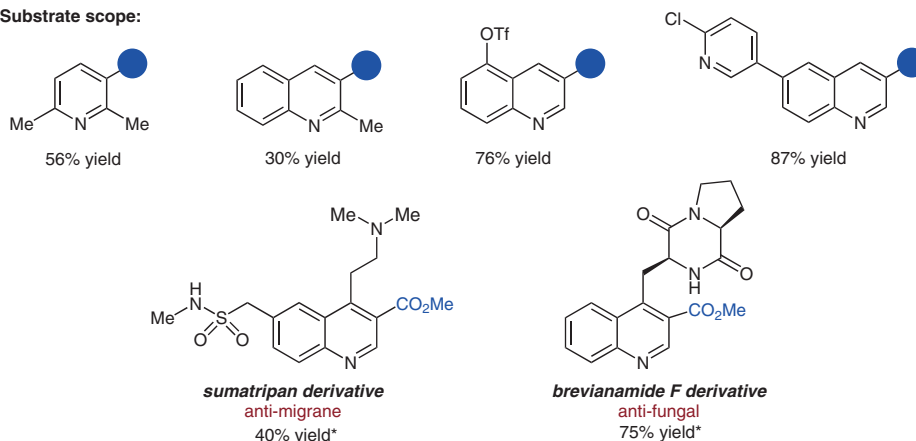
selectively activated

- base (-Cl)
- metal/D (-N<sub>2</sub>)
- blue LEDs (-CO<sub>2</sub>NCArF<sub>2</sub>)

General scheme:

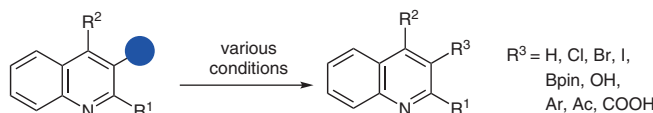


Substrate scope:



\* NEt<sub>3</sub> or Cs<sub>2</sub>CO<sub>3</sub> used instead of NaOAc and reaction treated with MeOH.

Derivatization of  
oxime ester:



**Significance:** Indoles and pyrroles are common structural motifs in drug discovery. As such, any chemical tool that allows for the late-stage diversification of these heterocycles would be of high value to the medicinal chemistry community. The Glorius group has developed an atomic carbon equivalent called CI-DADFO that allows for the skeletal editing of indoles and pyrroles to their corresponding ring-expanded quinoline and pyridine derivatives, respectively. The photosensitive oxime ester group provides a handle for subsequent structural diversification.

**Comment:** The ring expansion product was reliably generated for pyrroles and indoles with substituents at all positions, including C2. Following ring-expansion, radical reaction of the oxime ester allowed for further diversification. This skeletal editing sequence was applied to several drug molecules and natural products, including the anti-migrane medication sumatripan and the anti-fungal natural product brevianamide F.

**SYNFACTS Contributors:** Dirk Trauner, Daniel W. Zuschlag  
*Synfacts* 2024, 20(11), 1204 Published online: 16.10.2024  
DOI: 10.1055/s-0043-1773611; Reg-No.: T10624SF

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