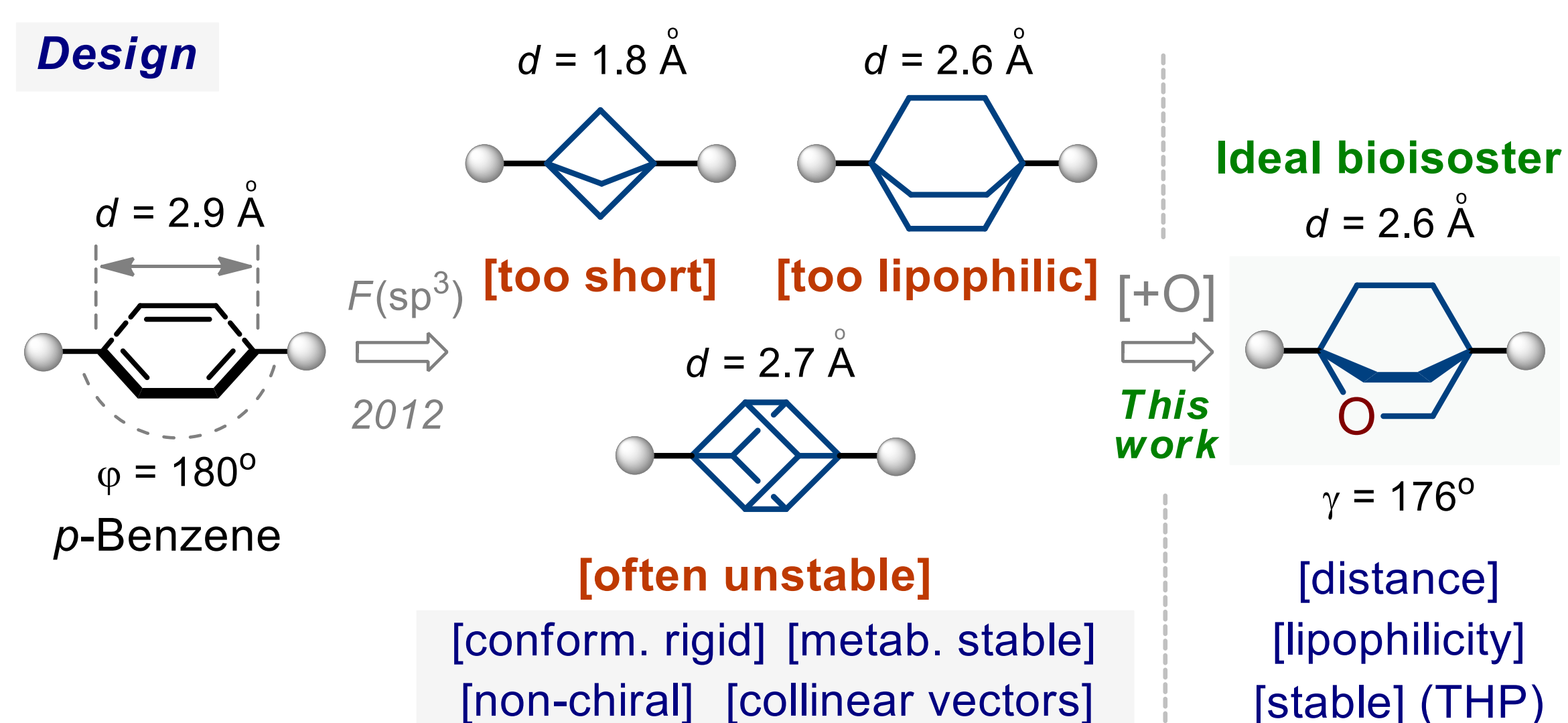


# 2-Oxabicyclo[2.2.2]octane: A New Bioisostere of the Phenyl Ring

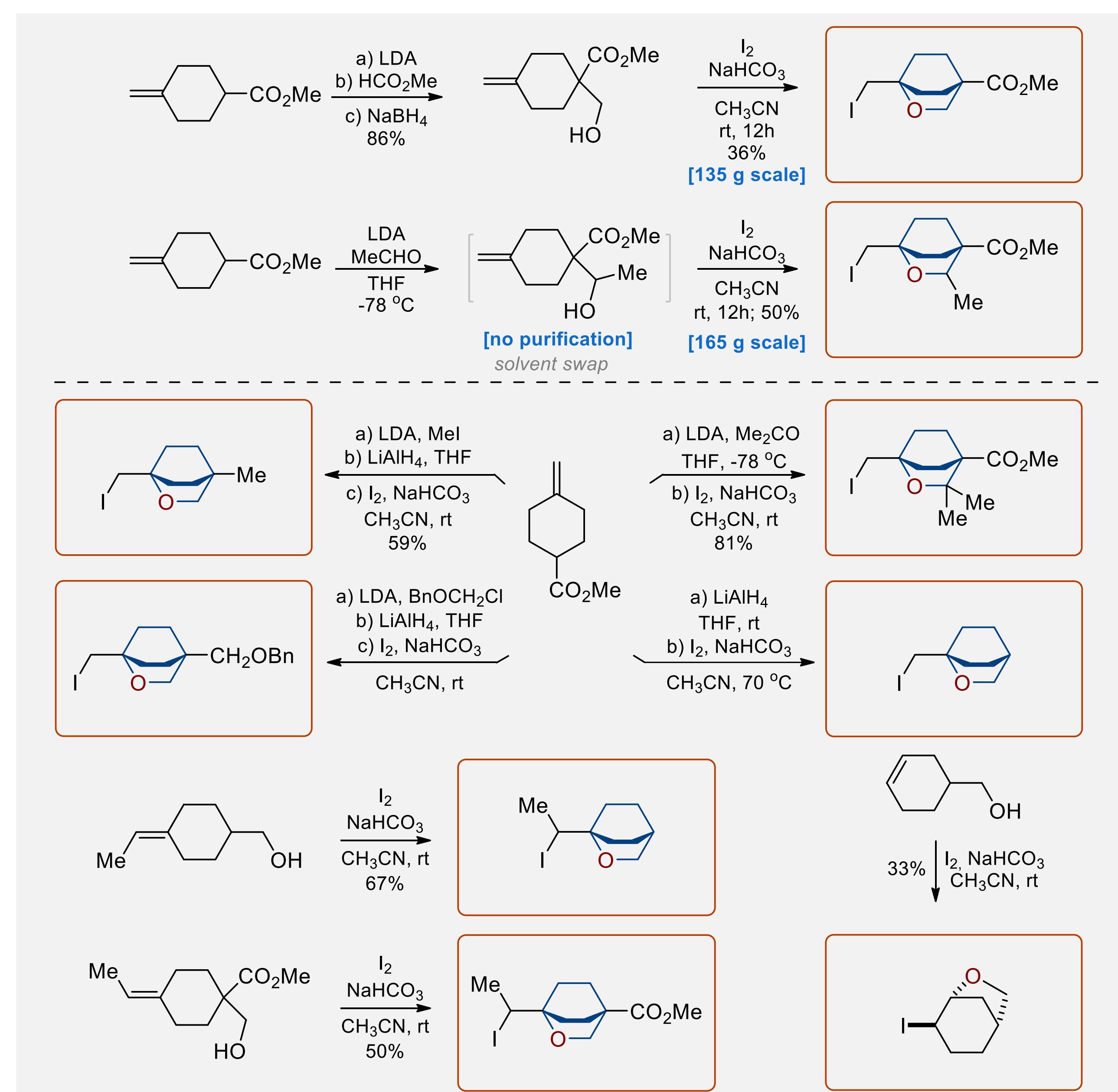
V. Levterov, Y. Panasyuk, K. Sahun, O. Stashkevich, V. Badlo, O. Shablykin, I. Sadkova, L. Bortnichuk, O. Klymenko-Ulianov, Y. Holota, L. Lachman, P. Borysko, K. Horbatok, J. Bas, P. Mykhailiuk

## Introduction and Aim

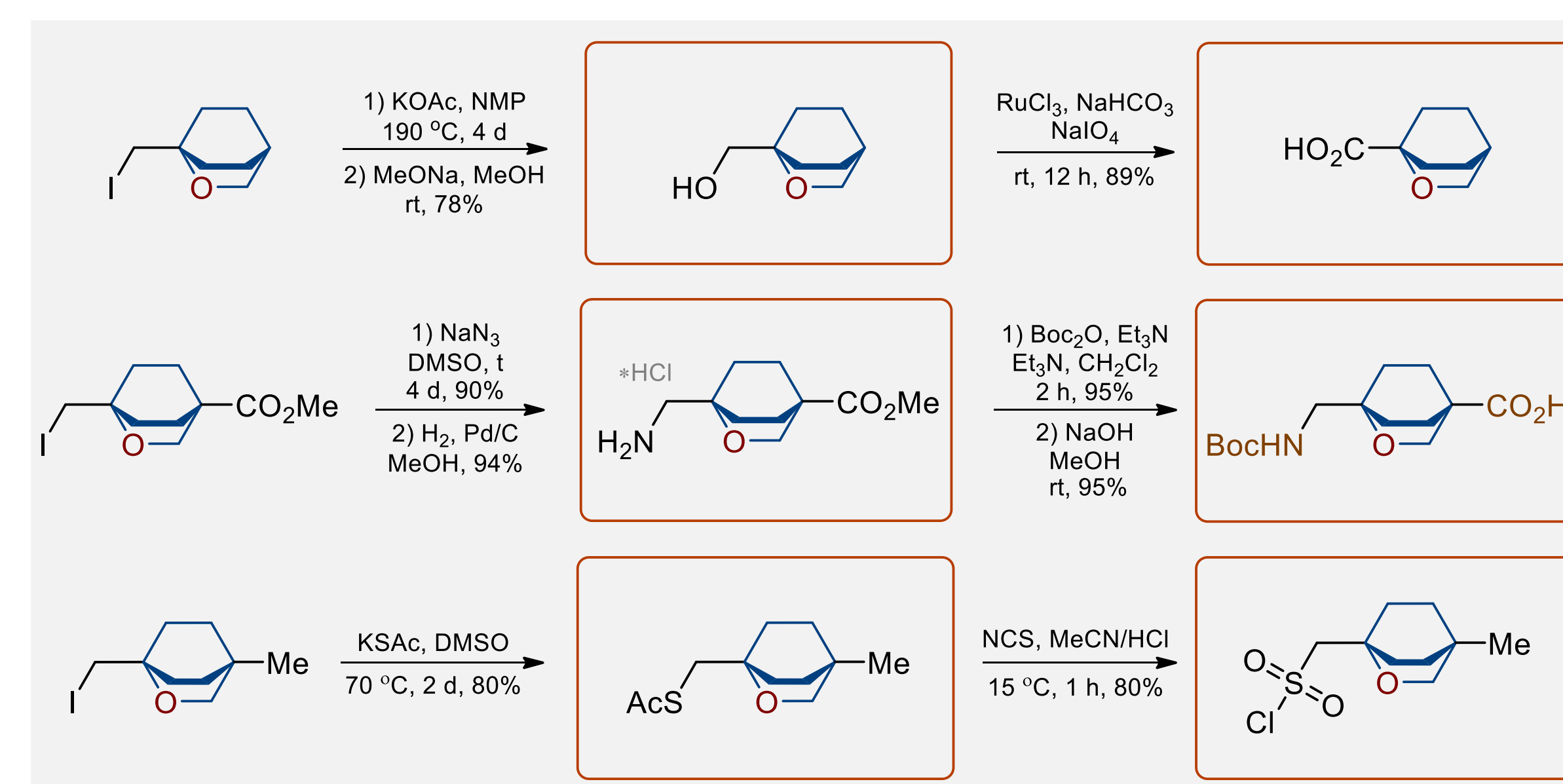
More than five hundred drugs contain a fragment of *para*-disubstituted benzene. However, organic compounds with more than two phenyl rings often suffer from poor solubility and low metabolic stability.<sup>1-3</sup> We have developed an “ideal” saturated bioisostere of the *para*-substituted phenyl ring, - 2 oxabicyclo[2.2.2]octane. Its incorporation into *Imatinib* drug led to dramatic improvement of all physicochemical properties. This study opens new horizons in science, given the commonplace of the phenyl ring everywhere. In this work, we have rationally designed, synthesized, and characterized the ideal bioisostere of the *para*-substituted phenyl ring – 2-oxabicyclo[2.2.2]octane.<sup>4</sup>



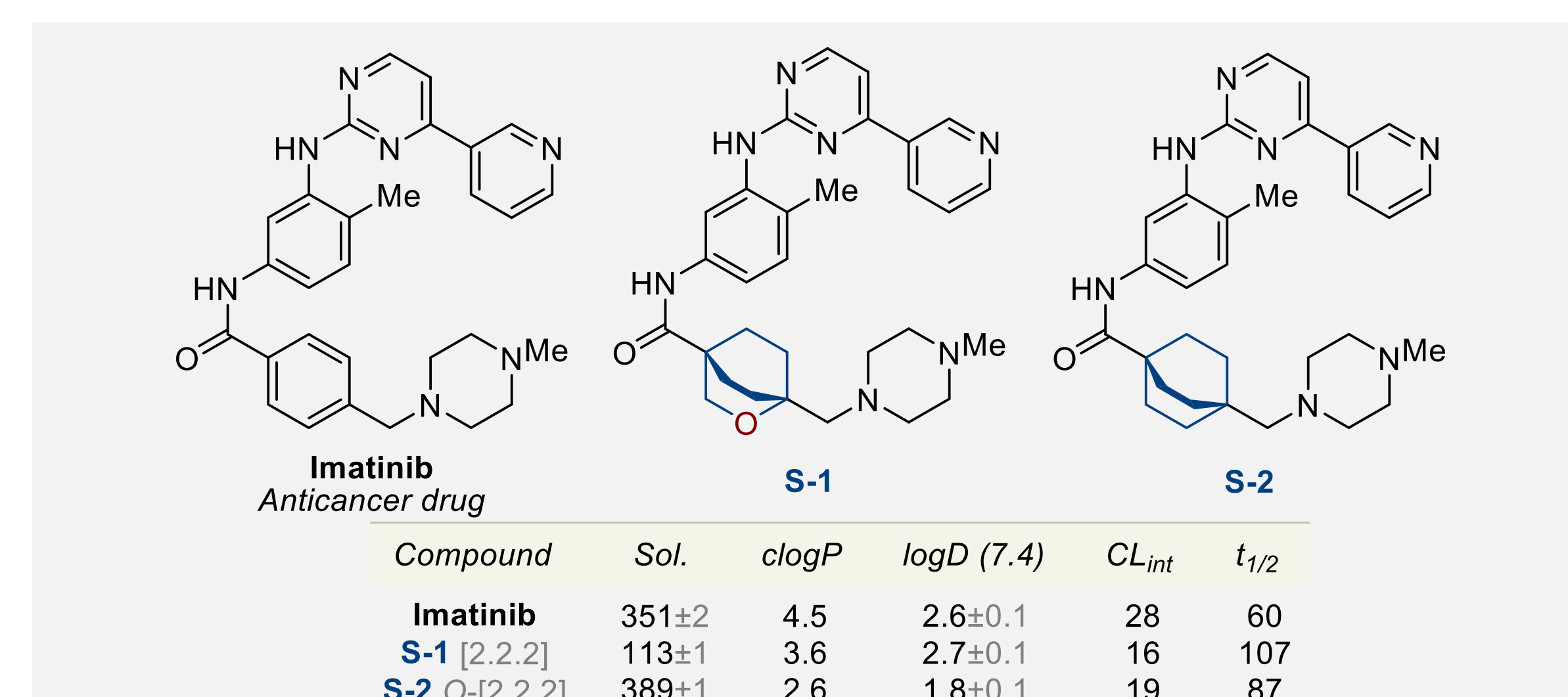
## Synthesis



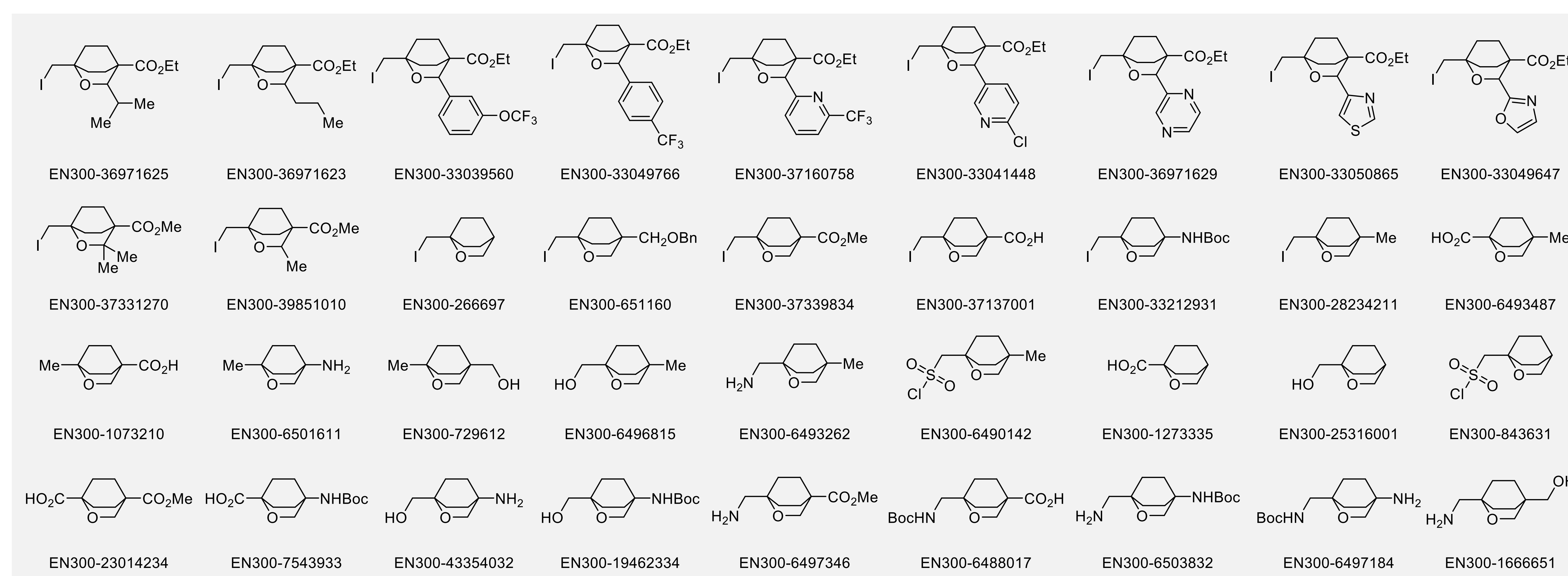
## Modifications



## Physicochemical properties



## Results



## Contact

Pavel K. Mykhailiuk, Dr. Sci.  
pavel.mykhailiuk@gmail.com, mykhailiukchem.org  
Enamine Ltd, www.enamine.net  
78 Chervonotkatska St, 02094, Kyiv, Ukraine

## References

1. F. Lovering *et al.* *J. Med. Chem.* **2009**, *52*, 6752-6756.
2. J. B. Geri *et al.* *Science* **2020**, *367*, 1091-1097.
3. A. F. Stepan *et al.* *J. Med. Chem.* **2012**, *55*, 3414-3424.
4. V. V. Levterov *et al.* *Submitted*.