Cubanes for Drug Design

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Introduction and Aim

In 2016, chemists showed that replacing a benzene ring in the neurotropic compound Leteprinim with a skeleton of cubane beneficially affected activity and water solubility of the parent compound (Figure 1).[1] Since then the cubane-containing building blocks are gaining high popularity in drug discovery projects, as mimics for the benzene ring (Figure 2).[2,3]

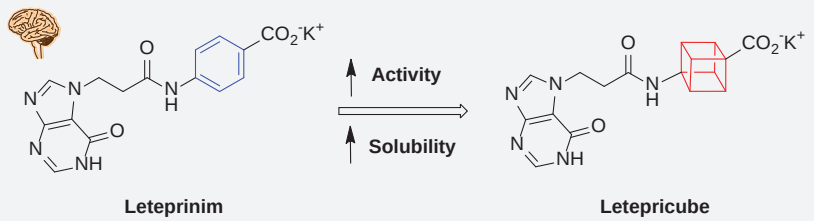


Figure 1. Modification and improvement of activity of Leteprinim drug.

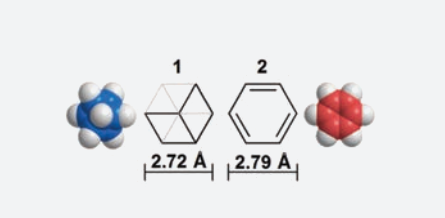
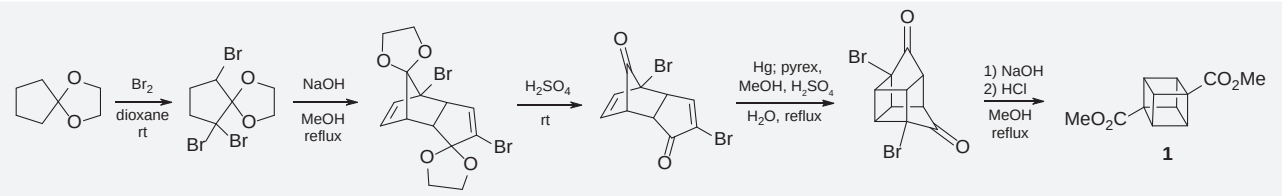


Figure 2. Comparison of 2- and 3-dimensional body views of cubane and benzene.

Synthesis

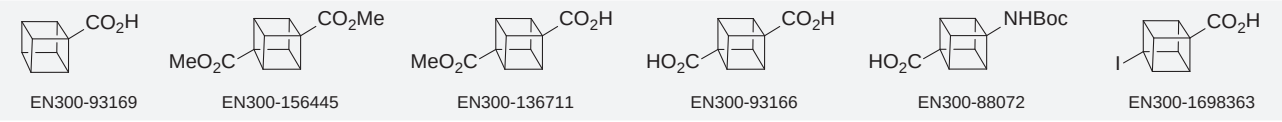
Herein, we synthesized cubane-1,4-diester **1** in 100 g scale following the literature protocol,[4] and used it for the synthesis of diverse cubane-containing building blocks (Schemes 1).



Scheme 1. Literature synthesis of cubane-containing compound 1.[4]

Our offer

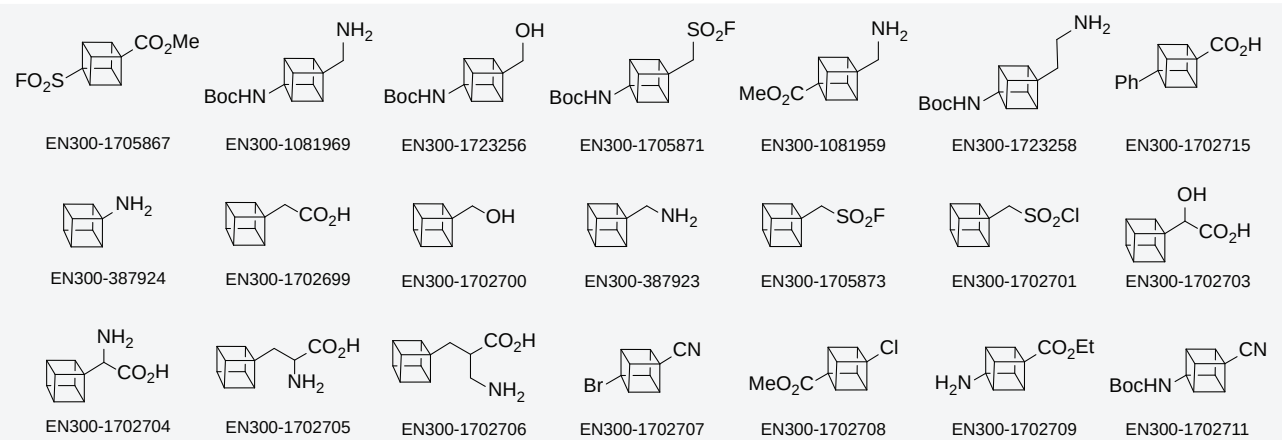
Currently, we have synthesized 6 cubane-containing building blocks, that are available in our EnamineStore on a gram scale.



EN300-93169 | EN300-156445 | EN300-136711 | EN300-93166 | EN300-88072 | EN300-1698363

Pre-order

We also have designed a library of cubane-containing building blocks for drug discovery programs. These molecules can be synthesized upon request within 4-6 weeks.



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EN300-1702704 | EN300-1702705 | EN300-1702706 | EN300-1702707 | EN300-1702708 | EN300-1702709 | EN300-1702711

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References

1. B. A. Chalmers et al. *Angew. Chem. Int. Ed.* **2016**, 3580.
2. J. Wlochal et al. *Org. Lett.* **2014**, 4094.
3. J. Wlochal et al. *Synlett* **2016**, 919.
4. M. J. Falkiner et al. *Org. Process. Res. Dev.* **2013**, 1503.