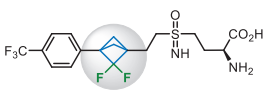
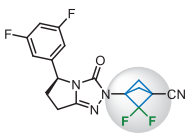
Benzene Perfect Match

Introduction

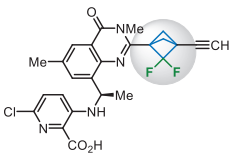
The benzene ring is the most common structural fragment in drugs. In 2019, two groups, one from Enamine[1] and another from Merck,[2] independently introduced difluorobicyclo[1.1.1]pentane, a structure that matches the exact molecular volume of benzene. The isosteric replacement of a phenyl ring with difluorobicyclo[1.1.1]pentane maintains the molecular volume while substantially increasing the sp^3-character and elevating the solubility of the molecule.[1-4] Since 2019, our chemists have expanded the panel of difluorobicyclo[1.1.1]pentanes for use in medicinal chemistry.



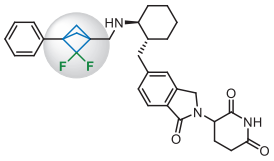
Ferroptosis inducer
WO 2024/030960
Kojin Ther



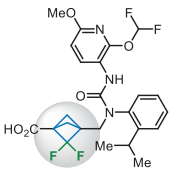
Receptor-interacting protein-1 kinase inhibitor
WO 2023/225041
Merck Sharp & Dohme



phosphoinositide 3-kinases inhibitor
WO 2023/207881
Investinbio

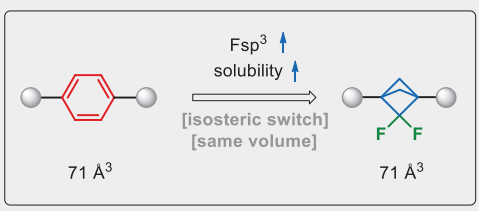


IKAROS family zinc finger degrader
WO 2023/178181
Gilead

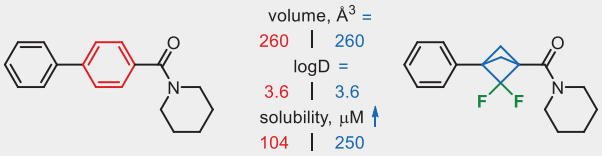


Lysophosphatidic acid receptor 1 antagonist
WO 2023/014908
Pipeline Ther

Concept

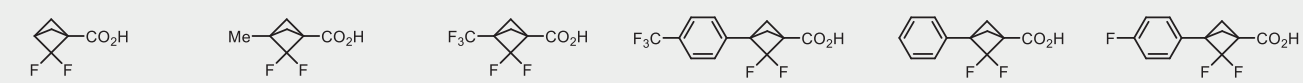


Example: *J. Org. Chem.* **2019**, *84*, 15106



volume calculator: https://www.molinspiration.com/cgi/properties

We offer: over 50 difluorobicyclo[1.1.1]pentanes from stock on 5-10 gram scale.



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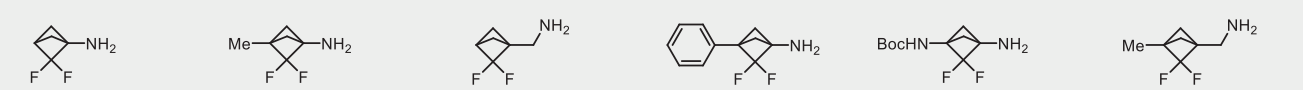

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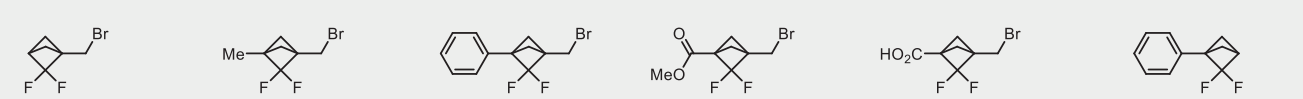

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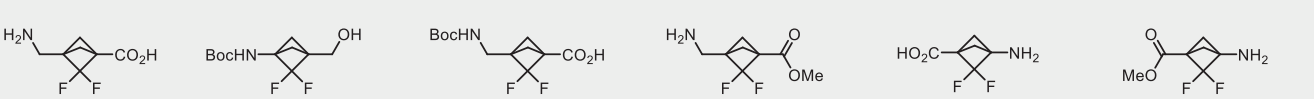

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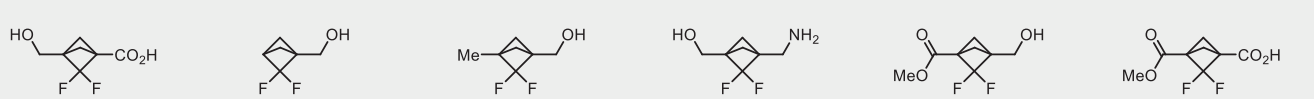

EN300-47293961 | EN300-45642560 | EN300-39849575 | EN300-46985063 | EN300-39919329 | EN300-7427754

References

1. R. Bychek et al. *J. Org. Chem.* **2019**, 84, 15106.
2. X. Ma et al. *Org. Lett.* **2019**, 21, 7199
3. P. Mykhailiuk et al. *Org. Biomol. Chem.* **2019**, 17, 2839.
4. X. Ma et al. *Eur. J. Org. Chem.* **2020**, 4581.

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