Click Chemistry Building Blocks for Organic Synthesis

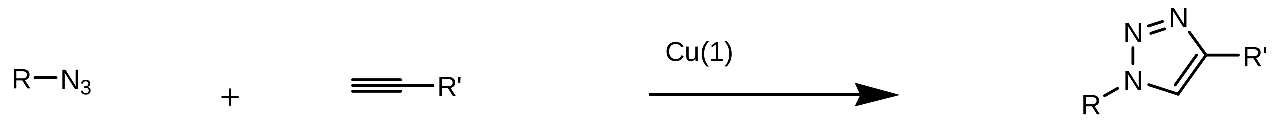
From Advanced Molecular Technologies

The click chemistry concept was first introduced by Professor Barry Sharpless in 2001. [1]

Some of the guiding principles of click chemistries include reactions that are:

1. Modular in design
2. Wide in scope
3. High yielding
4. Create no or inoffensive by-products
5. Are simple to perform and
6. Use benign or easy to remove solvents

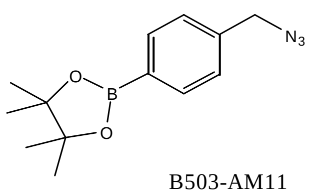
Of the reactions that are capable of achieving the above guiding principals of click chemistry the Huisgen 1,3-dipolar cycloaddtion of alkynes and azides to give 1,2,3-triazoles is undoubtebly one of the most powerful examples.



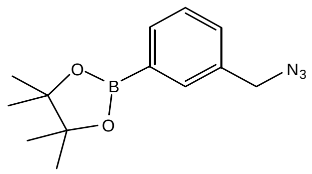
A review of the use of Huisgen 1,3-dipolar cycloaddtions in medicinal chemistry has been published. [2]

One of the require click chemistry reaction characteristics was that the starting materials and reagents should be readily available. To this end AMT has a growing range of functionalized alkynes and azides suitable for click chemistry applications. Many of these building blocks have dual functionalities which allow further elaboration beyond the click chemistry step.

<u>Dual Functional: Azide Organoborons:</u>



B503-AM11
(AKS#: AMTB503)



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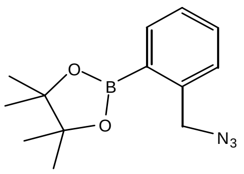
(AKS#: AMTB513)



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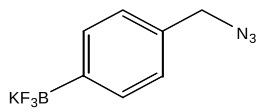

B514-AM11
(AKS#: AMTB514)

The use of B503-AM11, B515-AB11 and B514-AM11 in click chemistry applications have recently been published. [3,4,5]

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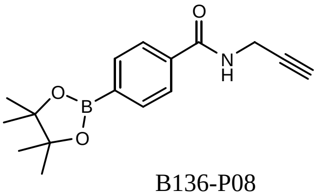
Dual functional: Alkyne Organoborons:



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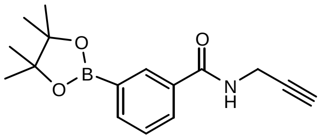

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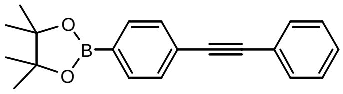

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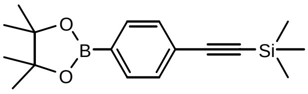

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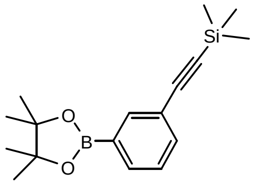

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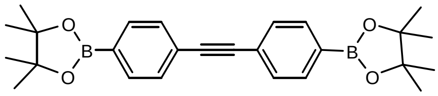

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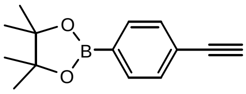

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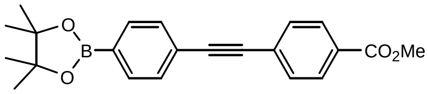

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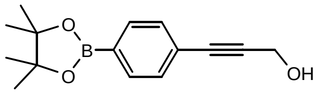

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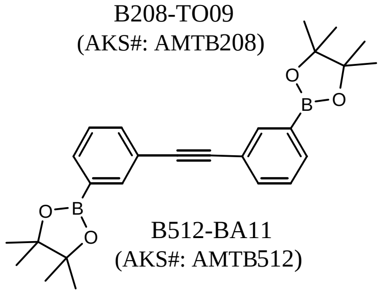

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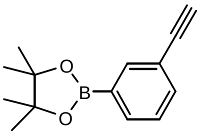

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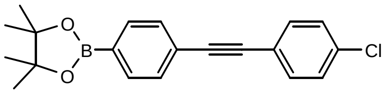

B225-CP09
(AKS#: AMTB225)

* Please note: AKS# in brackets indicates corresponding USA AK Scientific Catalogue Numbers.

References

(1) Click Chemistry: Diverse Chemical Function from a Few Good Reactions,
H.C. Kolb, M.G. Finn and K.B. Sharpless. Angew. Chem. Int. Ed., **2001**, 40, 2004

(2) Click Chemistry Reactions in Medicinal Chemistry: Applications of 1,3-Dipolar Cycloadditions between Azides and Alkynes
G. C. Tron, T. Pirali, R. A. Billington, P. L. Canonico and A. A. Genazzani. Medicinal Chemistry Reviews, **2008**, 28, 278

(3) A Modular Approach to Catalytic Synthesis Using a Dual-functional Linker for Click and Suzuki Coupling Reactions
J. R. White, G. J. Price, S. Schiffers, P. R. Raithby, P. K. Plucinski nd C. G. Frost. Tetrahedron Letters, **2010**, 51, 3913

(4) Highly Sensitive Detection of Saccarides Under Physiological Conditions with Click Synthesized Boronic Acid-ologomer Fluorophors
K. Mulla, P. Dongare, Z. Ningzhang, G. Chen, D. Thompson and Y. Zhao. Organic & Biomolecular Chemistry, **2011**, 9, 1332

(5) Synthesis of Functionalized Organotrifluoroborates via the 1,3-Dipolar Cycloaddtion of Azides
G. A. Molander and J. Ham. Organic Letters, **2006**, 8, 2767

For a full listing of reagents of Click Chemistry products and other building blocks, visit www.amtechpl.com.

- ✓ **Organoborons**
- ✓ **Organosilicons**
- ✓ **Nucleosides & Nucleotides**
- ✓ **Bioactives**

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