

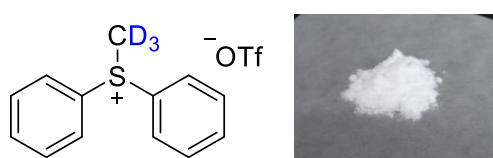
For regioselective introduction of deuterium

## Deuterated-Alkylation Reagents

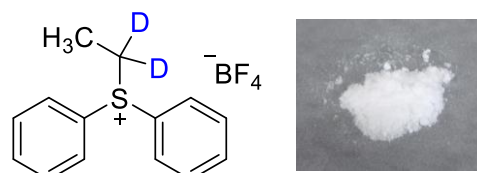
Deuterium is a stable isotope of hydrogen with approximately double the mass of regular hydrogen (protium). Due to the kinetic isotope effect, carbon–deuterium (C–D) bonds are more resistant to cleavage than carbon–hydrogen (C–H) bonds. As a result, deuterated compounds generally exhibit greater metabolic stability than their non-deuterated counterparts.

Building on this advantage, deuterated pharmaceuticals (also referred to as heavy drugs) are attracting increasing attention as a promising drug development strategy. By replacing metabolically labile C–H bonds with C–D bonds, these compounds can achieve prolonged therapeutic activity.

We have introduced a lineup of deuterated-alkylation reagents developed by Professor Sawama of Osaka University.



**1** (Deuterated-methylation reagent)

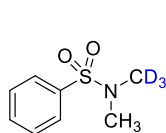
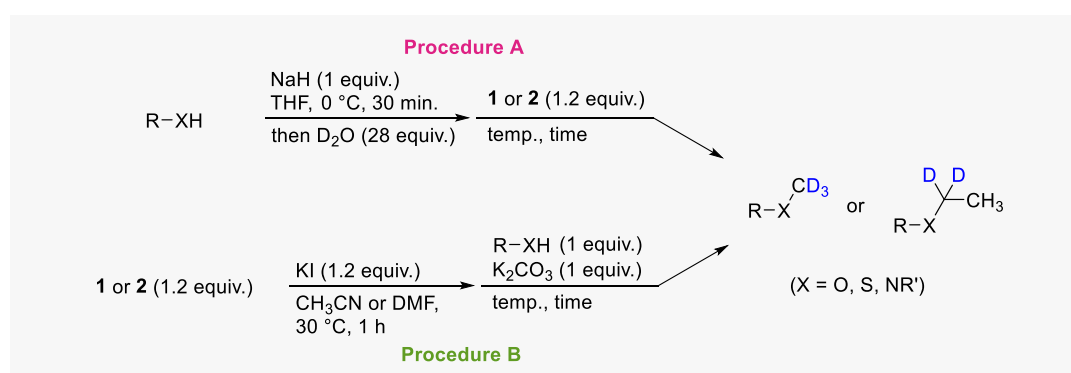


**2** (Deuterated-ethylation reagent)

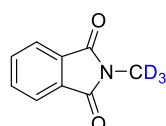
### Features

- Electrophilic deuterated-alkylation reagents
- Relatively stable to light and moisture

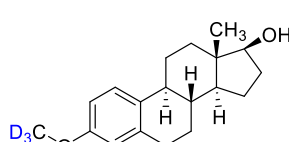
### Applications



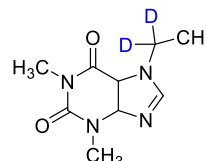
Procedure A  
quant. (rt, 1 h)



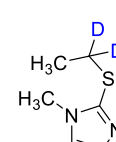
Procedure A  
90% (rt, 3 h)



Procedure B  
42% (30 °C, 12 h)



Procedure A  
62% (80 °C, 12 h)

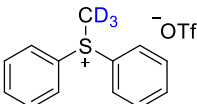
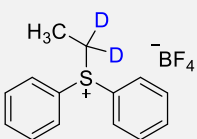


Procedure B  
98% (30 °C, 12 h)

### <Reference>

Ban, K., Imai, K., Oyama, S., Tokunaga, J., Ikeda, Y., Uchiyama, H., Kadota, K., Tozuka, Y., Akai, S. and Sawama, Y. : *Angew. Chem. Int. Ed.*, **62**, e202311058 (2023).

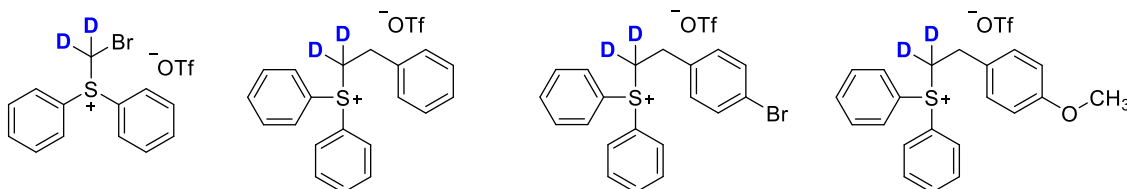
## Product Lineup

|   | Product No. | Product Name                                                         | Structure                                                                          | Grade                 | Pkg. Size | Storage Condition       |
|---|-------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------|-----------|-------------------------|
|   |             |                                                                      |                                                                                    | CAS RN®               |           |                         |
| 1 | 136-19681   | (Methyl-d <sub>3</sub> )-diphenylsulfonium Trifluoromethanesulfonate |  | for Organic Synthesis | 5g        | Keep at 2-10 degrees C. |
|   |             |                                                                      |                                                                                    | 2251781-86-7          |           |                         |
| 2 | 052-09661   | (Ethyl-1,1-d <sub>2</sub> )-diphenylsulfonium Tetrafluoroborate      |  | for Organic Synthesis | 5g        | Keep at 2-10 degrees C. |
|   |             |                                                                      |                                                                                    | 3056531-73-5          |           |                         |

## Custom Synthesis

We also accept custom synthesis orders for deuterated alkylation reagents other than the products listed above.

Examples of compounds available for custom synthesis



For detailed product information, please visit our website.



Listed products are intended for laboratory research use only, and not to be used for drug, food or human use. Please visit each region's website for product information. This leaflet may contain products that cannot be exported to your country due to regulations. Bulk quote requests for some products are welcomed. Please contact us.

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