Valliscor

Experts in Fluoroalkylation

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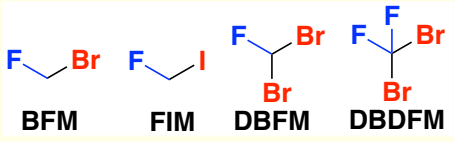
Fluorine

Company Overview. Valliscor is a smart chemical manufacturing company that provides fluorinated building blocks such as bromofluoromethane (**BFM**), fluoroiodomethane (**FIM**), dibromofluoromethane (**DBFM**) and dibromodifluoromethane (**DBDFM**) to pharmaceutical, agrochemical, electronics and specialty chemical industries. Founded in 2012, Valliscor is a privately held, limited liability corporation (LLC) based in Corvallis, Oregon (USA) with its manufacturing facility located within the Advanced Technology and Manufacturing Institute (ATAMI). ATAMI offers a modern, well-equipped facility with access to extensive instrumentation services.

Expertise in Fluoroalkylation

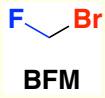
Using proprietary technology, Valliscor manufactures kilogram to commercial scale quantities (>100 kg) of high purity bromofluorinated and iodofluorinated building blocks for the pharmaceutical, agrochemical, electronics and specialty chemical industries. We are well-versed in addressing the regulatory hurdles associated with ozone-depleting substances (including with the US EPA & the EU Climate Action), the Montreal Protocol and shipping around the globe.

Figure 1. Select C_1 Fluoroalkylation Reagents Manufactured by Valliscor.[a]



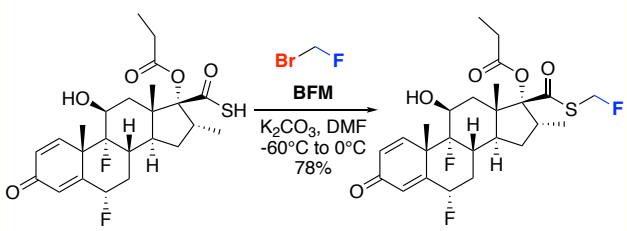
[a] **BFM** = bromofluoromethane (CAS # 373-52-4). **FIM** = fluoroiodomethane (CAS # 373-53-5). **DBFM** = dibromofluoromethane (CAS # 1868-53-7). **DBDFM** = dibromodifluoromethane (CAS # 75-61-6).

Bromofluoromethane (BFM)



Valliscor is the only US-based manufacturer and one of the largest manufacturers globally of **BFM**. **BFM's** primary industrial use is in a late-stage fluoromethylation of a thioacid to yield fluticasone propionate (API found in Flonase® and Advair®) or fluticasone furoate (Breo®) (Figure 2). In addition, **BFM** has also proven useful for accessing PET imaging molecules as well as fluoromethylation of enolates, phenols and oximes. Check out our dedicated BFM webpage (www.vallliscor.com/bromofluoromethane) for more information.

Figure 2. Synthesis of Fluticasone Propionate by Glaxo using **BFM**.[a]



[a] *J. Med. Chem.* **1994**, *37*, 3717-3729.

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*Visit **www.valliscor.com** for an extensive listing of all available fluoroalkylation products and services.*

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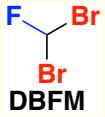
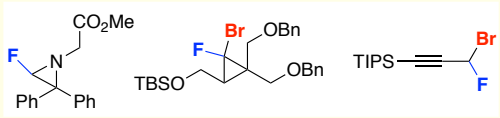
Dibromofluoromethane (DBFM)



DBFM

DBFM can be employed in cyclopropanations, alkylations & dipolar cycloadditions (Figure 3). **DBFM** has been demonstrated to cyclopropanate a trisubstituted alkene to access fluoroanalogues of the anti-cytomegalovirus agent cyclopropavir. Others have exploited the carbene-like reactivity of **DBFM** to access fluoromethyl aziridines and their use in dipolar cycloadditions. **DBFM** has been shown to be a good electrophile for alkylation by lithiated acetylides & phosphorous-based nucleophiles.

Figure 3. Representative Examples of Functional Groups Accessible from **DBFM**.

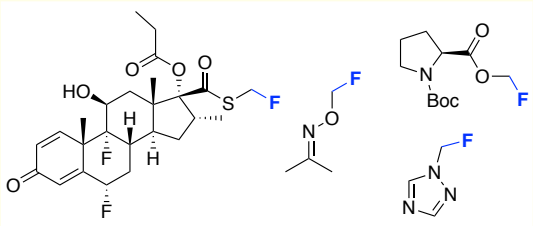


Fluoroiodomethane (FIM)

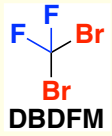
FIM

FIM can serve as an excellent medicinal chemistry surrogate for bromofluoromethane (**BFM**) - offering increased reactivity and reduced regulatory requirements. For example, **FIM** can be used instead of **BFM** in the fluoroalkylation reaction to generate fluticasone propionate. In addition, **FIM** can provide access to a range of fluoroalkylated derivatives (Figure 5). Valliscor offers **FIM** in lab scale to multi-kilogram quantities.

Figure 5. Representative Examples of Functional Groups Accessible from **FIM**.



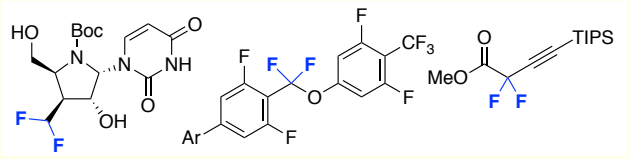
Dibromodifluoromethane (DBDFM)



DBDFM

DBDFM is a useful tool for a wide variety of functionalizations (Figure 4). For example, **DBDFM** has been employed in the difluoromethylenation of aldehydes to introduce a -CF_2- linker and nucleosides to introduce a -CF_2H group. **DBDFM** has been reported in numerous patents as a potential component for use in LCD & OLED displays. **DBDFM** has also been used in a range of multi-component couplings and cyclopropanations.

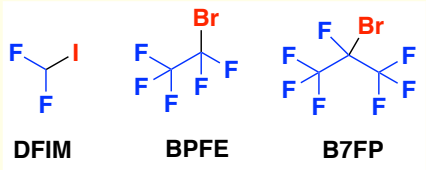
Figure 4. Representative Examples of Functional Groups Accessible from **DBDFM**.



Other Fluoroalkylation Reagents

Valliscor offers additional fluoroalkylation reagents such as difluoroiodomethane (**DFIM**, CAS # 1493-03-4) and pentafluorobromoethane (**BPFE**, CAS # 354-55-2). An extensive list of our fluoroalkylation reagents can be found on our products webpage (www.valliscor.com/products). In addition, Valliscor draws on our expertise to accomplish custom synthesis projects to access fluorinated compounds for its customers. Let us help you with your fluoroalkylation needs.

Figure 6. Representative Examples of Additional Fluoroalkylation Reagents.



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