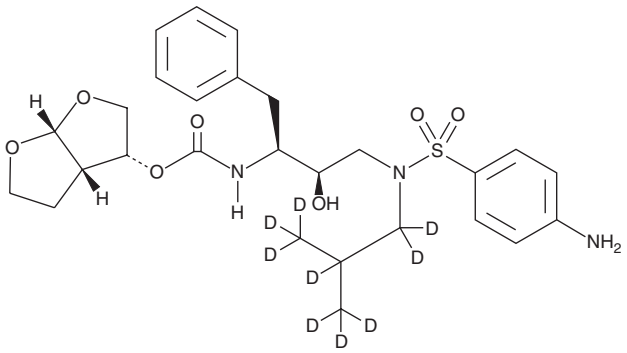
# PRODUCT INFORMATION

## Darunavir-$d_9$

*Item No. 25220*

**CAS Registry No.:** 1133378-37-6
**Formal Name:** (3R,3aS,6aR)-N-[(1S,2R)-3-[[(4-aminophenyl) sulfonyl][2-(methyl-$d_3$)propyl-1,1,2,3,3,3-$d_6$]amino]-2-hydroxy-1-(phenylmethyl)propyl]-carbamic acid, hexahydrofuro[2,3-b]furan-3-yl ester
**Synonym:** TMC114-$d_9$
**MF:** $C_{27}H_{28}D_9N_3O_7S$
**FW:** 556.7
**Chemical Purity:** ≥98% (Darunavir)
**Deuterium Incorporation:** ≥99% deuterated forms ($d_1$-$d_9$); ≤1% $d_0$
**Supplied as:** A solid
**Storage:** -20°C
**Stability:** ≥4 years



*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

## Laboratory Procedures

Darunavir-$d_9$ is intended for use as an internal standard for the quantification of darunavir (Item No. 15866 | 31083) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Darunavir-$d_9$ is supplied as a solid. A stock solution may be made by dissolving the darunavir-$d_9$ in the solvent of choice. Darunavir-$d_9$ is soluble in organic solvents such as methanol, DMSO, and dimethyl formamide, which should be purged with an inert gas.

## Description

Darunavir-$d_9$ is intended for use as an internal standard for the quantification of darunavir (Item Nos. 15866 | 31083) by GC- or LC-MS. Darunavir is an HIV-1 protease inhibitor.[1] It is active against HIV-$1_{LAI}$ in MT-2 cells ($IC_{50}$ = 3 nM) with a cytotoxic concentration ($CC_{50}$) of 74.4 µM. Darunavir is also active against wild-type and multidrug-resistant clinical isolates of HIV-1 in phytohemagglutinin-activated peripheral blood mononuclear cells (PHA-PBMCs; $IC_{50}$s = 3 and 3-29 nM, respectively). It inhibits cell-free diffusion and cell-to-cell spread of HIV-1 in Jurkat cell populations ($IC_{50}$s = 2.5 and 2.8 nM, respectively).[2] Formulations containing darunavir have been used in combination therapy for the treatment of HIV.

## References


1. Koh, Y., Nakata, H., Maeda, K., *et al.* Novel *bis*-tetrahydrofuranylurethane-containing nonpeptidic protease inhibitor (PI) UIC-94017 (TMC114) with potent activity against multi-PI-resistant human immunodeficiency virus in vitro. *Antimicrob. Agents Chemother.* **47(10)**, 3123-3129 (2003).
2. Titanji, B.K., Aasa-Chapman, M., Pillay, D., *et al.* Protease inhibitors effectively block cell-to-cell spread of HIV-1 between T cells. *Retrovirology* **10:161** (2013).





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