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Zuschläge

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- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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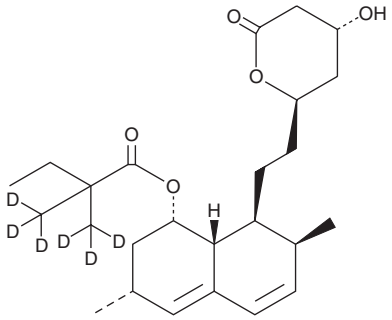
PRODUCT INFORMATION

Simvastatin-d_6

Item No. 22181

CAS Registry No.:	1002347-71-8
Formal Name:	2,2-di(methyl-d_3)-butanoic acid, (1S,3R,7S,8S,8aR)-1,2,3,7,8,8a-hexahydro-3,7-dimethyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1-naphthalenyl ester
Synonym:	SVA-d_6
MF:	$C_{25}H_{32}D_6O_5$
FW:	424.6
Chemical Purity:	≥95% (Simvastatin)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_6); ≤1% d_0
UV/Vis.:	λ_{max}: 230, 237, 246 nm
Supplied as:	A crystalline 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

Simvastatin-d_6 is intended for use as an internal standard for the quantification of simvastatin (Item Nos. 10010344 | 10010345) 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).

Simvastatin-d_6 is supplied as a crystalline solid. A stock solution may be made by dissolving the simvastatin-d_6 in the solvent of choice, which should be purged with an inert gas. Simvastatin-d_6 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of simvastatin-d_6 in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Description

Simvastatin is a competitive inhibitor of HMG-CoA reductase (K_i = 0.12 nM).[1] Simvastatin reduces plasma cholesterol levels in rats and dogs when administered at doses of 1.2 and 8 mg/kg, respectively.[2] Simvastatin suppresses TNF-induced NF-κB activation (IC_{50} = ~13 µM) and potentiates apoptosis in human myeloid leukemia cells.[3] It also inhibits glutathione peroxidase 4 (GPX4) activity, increases malondialdehyde (MDA) levels, and induces ferroptosis in MDA-MB-231 and MCF-7 breast cancer cells.[4] Formulations containing simvastatin have been used in the treatment of dyslipidemias.

References

1. Corsini, A., Maggi, F.M., and Catapano, A.L. Pharmacology of competitive inhibitors of HMG-CoA reductase. *Pharmacol. Res.* **31(1)**, 9-27 (1995).
2. Chao, Y., Chen, J.S., Hunt, V.M., *et al*. Lowering of plasma cholesterol levels in animals by lovastatin and simvastatin. *Eur. J. Clin. Pharmacol.* **40(Suppl 1)**, S11-S14 (1991).
3. Ahn, K.S., Sethi, G., and Aggarwal, B.B. Reversal of chemoresistance and enhancement of apoptosis by statins through down-regulation of the NF-κB pathway. *Biochem. Pharmacol.* **75(4)**, 907-913 (2008).
4. Lu, S., Shao, N.-Y., Bi, J., *et al*. Abstract PS18-44: Simvastatin induces ferroptosis in breast cancer cells by inhibiting GPX4 and sensitizes chemotherapy. *2020 San Antonio Breast Cancer Virtual Symposium* (2021).

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