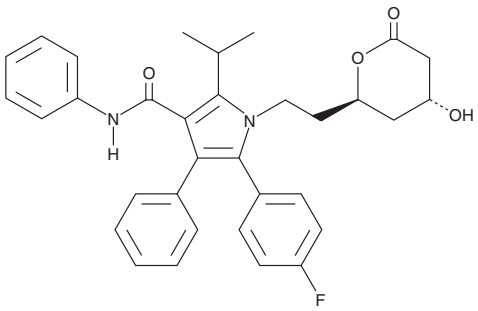
PRODUCT INFORMATION

Atorvastatin lactone

Item No. 20951

CAS Registry No.:	125995-03-1
Formal Name:	5-(4-fluorophenyl)-2-(1-methylethyl)-N,4-diphenyl-1-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1H-pyrrole-3-carboxamide
MF:	$C_{33}H_{33}FN_2O_4$
FW:	540.6
Purity:	≥95%
UV/Vis.:	λ_{max}: 248 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

Atorvastatin lactone is supplied as a crystalline solid. A stock solution may be made by dissolving the atorvastatin lactone in the solvent of choice, which should be purged with an inert gas. Atorvastatin lactone is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of atorvastatin lactone in these solvents is approximately 10, 15, and 25 mg/ml, respectively.

Atorvastatin lactone is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, atorvastatin lactone should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Atorvastatin lactone has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Atorvastatin lactone is an active metabolite of the HMG-CoA reductase inhibitor atorvastatin.[1,2] It is formed from atorvastatin by the UDP-glucuronosyltransferase (UGT) isoforms UGT1A3 and UGT1A1 in insect cell-derived supersomes expressing the human enzymes, and hydrolyzes to form atorvastatin in human serum at room temperature.[2,3] Atorvastatin lactone inhibits HMG-CoA reductase (IC_{50} = 0.007 µM for the rat liver enzyme).[1] It also inhibits the cytochrome P450 (CYP) isoforms CYP2C9.1 and CYP2C9.3 (IC_{50}s = 16.8 and 5.62 µM, respectively), as well as P-glycoprotein (P-gp; IC_{50} = 3.1-5.2 µM).[4,5]

References

1. Roth, B.D., Blankley, C.J., Chucholowski, A.W., *et al.* Inhibitors of cholesterol biosynthesis. 3. Tetrahydro-4-hydroxy-6-[2-(1*H*-pyrrol-1-yl)ethyl]-2*H*-pyran-2-one inhibitors of HMG-CoA reductase. 2. Effects of introducing substituents at positions three and four of the pyrrole nucleus. *J. Med. Chem.* **34(1)**, 357-366 (1990).
2. Schirris, T.J.J., Ritschel, T., Bilos, A., *et al.* Statin lactonization by uridine 5'-diphospho-glucuronosyltransferases (UGTs). *Mol. Pharm.* **12(11)**, 4048-4055 (2015).
3. Jemal, M., Ouyang, Z., Chen, B.C., *et al.* Quantitation of the acid and lactone forms of atorvastatin and its biotransformation products in human serum by high-performance liquid chromatography with electrospray tandem mass spectrometry. *Rapid Commun. Mass. Spectrom.* **13(11)**, 1003-1015 (1999).
4. Shiozawa, A., Yamaori, S., Kamijo, S., *et al.* Effects of acid and lactone forms of statins on S-warfarin 7-hydroxylation catalyzed by human liver microsomes and recombinant CYP2C9 variants (CYP2C9.1 and CYP2C9.3). *Drug Metab. Pharmacokinet.* **36**, 100364 (2021).
5. Bogman, K., Peyer, A.-K., Török, M., *et al.* HMG-CoA reductase inhibitors and P-glycoprotein modulation. *Br. J. Pharmacol.* **132(6)**, 1183-1192 (2001).

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