BDG SYNTHESIS

Certificate of Analysis

BDG Synthesis certifies that this reference material meets or exceeds the specifications stated herein.

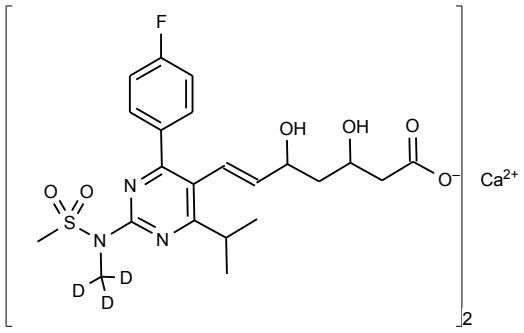
Barry Dent

Barry R. Dent, PhD, Director
14 January 2012

Name: **Rosuvastatin-d_3 Calcium Salt**

CAS Number: 147098-20-2 (unlabelled)

Structure:



Molecular Weight: $2C_{22}H_{24}D_3FN_3O_6S{\cdot}Ca = 1007.17$

Lot Number: BDG 6732.4

Appearance: White, crystalline solid

Corrected Purity: 95.9 % (HPLC) - 5.6 % (water) = 90.3 %

Isotopic Purity: Under 0.5 % d_0

Re-test Date: 14 January 2017

Storage and Handling:

Temperature:	refrigerate for prolonged storage; may be handled and shipped at ambient temperature.
Humidity:	may be hygroscopic; store desiccated; recommended to determine water content periodically.
Light:	store in an amber vial and protect from bright light.
Caution:	only experienced laboratory personnel should handle the material.

Mailing:
BDG Synthesis Limited
PO Box 38627, Wellington Mail Centre,
Wellington 5045, New Zealand.

Shipping:
BDG Synthesis Limited
Gracefield Research Centre, Building F,
69 Gracefield Rd, Lower Hutt 5010, New Zealand.

Phone: + 64 4 569 0520
Fax: + 64 4 569 0521

info@bdg.co.nz
www.bdg.co.nz

Identity and Purity

Proton NMR Spectrum

Identity: the signals are consistent with the proposed structure and in accord with literature where available.
Isotopic Labelling: signals at the site of deuteration are absent, compared with what would be expected for unlabelled material, indicating clean deuteration.
Residual Solvents: no residual solvents are observed.
Impurities: an unidentified impurity is seen in the baseline.

Carbon-13 NMR Spectrum

Identity: the signals are consistent with the proposed structure and in accord with literature where available.
Isotopic Labelling: signals at the site of deuteration have collapsed to small multiplets compared with what would be expected for unlabelled material, indicating clean deuteration.

High-resolution Mass Spectrum (ESI+)

Found *m/z* 967.3647. $C_{44}H_{49}D_6F_2N_6O_{12}S_2$ $[2M+H]^+$ requires *m/z* 967.3659. The deviation of 1.2 ppm is within normally accepted limits for the establishment of identity by HRMS. No signal for d_0 material was seen (detection limit about 0.5 %).

HPLC

A sharp, symmetrical peak is observed (95.9 %). Note: in the absence of reference materials for preparing calibration curves, it is assumed that all peaks have the same detector response. Where possible, the conditions of analysis follow a pharmacopeial or literature method, or have been adapted from same.

Elemental Analysis

	Found:	C 49.81, H 4.82, D 1.21, N 7.85 %
$2C_{22}H_{24}D_3FN_3O_6S{\cdot}Ca{\cdot}3.0H_2O$	Requires:	C 49.80, H 5.13, D 1.14, N 7.92 %
$2C_{22}H_{24}D_3FN_3O_6S{\cdot}Ca$	Requires:	C 52.47, H 4.80, D 1.20, N 8.34 %

The elemental analyses fall somewhat outside those expected for anhydrous material; the presence of water is reasonably expected from the method of purification and/or the type of material, and the “best-fit” hydrated molecular formula is given.

Karl-Fischer Analysis

	Found:	H_2O 5.6 %
$2C_{22}H_{24}D_3FN_3O_6S{\cdot}Ca{\cdot}3.0H_2O$	Requires:	H_2O 5.1 %

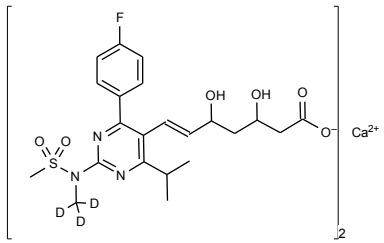
Of necessity, only a small sample could be used and only a single or duplicate analysis performed. We are unable to state what the errors in the reported water content are, but recommend that the result be used, as the best available, when determining corrected purity.

The available quantity of custom-synthesised material is always small, and this limits the extent and type of analytical data which can be obtained. This Certificate is presented in descriptive format for use by analytical chemists who are trained in the use of custom-synthesised materials. Custom materials often contain higher levels of residual solvents and/or water, and we urge you to use the corrected purity where needed rather than the raw HPLC purity. This compound is intended for use as an analytical reference material and it is not for human administration. Structures are shown with relative stereochemistry unless otherwise specified.

The re-test date is assigned from experience gained with the material in the laboratory and/or on storage. It is not possible to perform formal storage studies because of the small amount of material available.

BDG SYNTHESIS

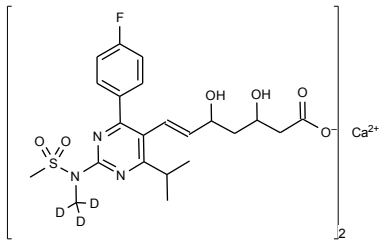
Proton NMR Spectrum of Rosuvastatin-d_3 Calcium Salt in DMSO-d_6



Lot Number: BDG 6732.4

BDG SYNTHESIS

Carbon-13 NMR Spectrum of Rosuvastatin-d_3 Calcium Salt in DMSO-d_6

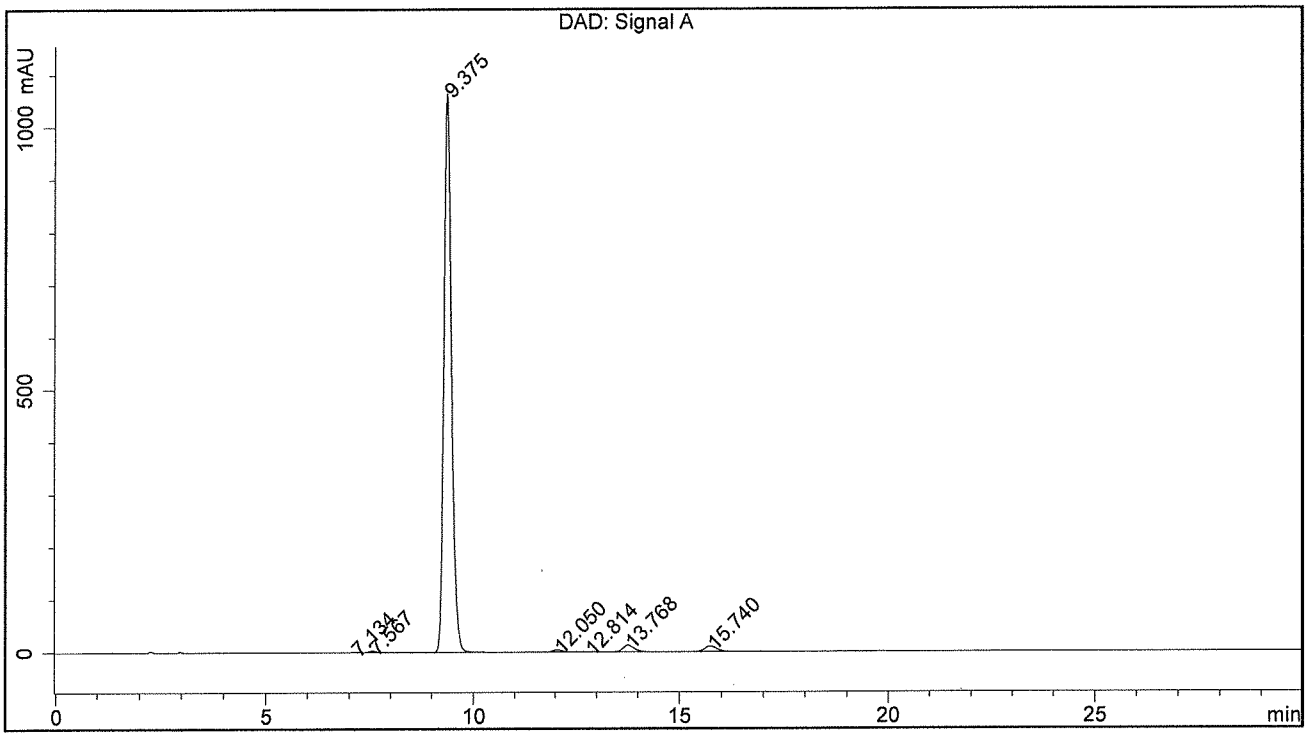


Lot Number: BDG 6732.4

BDG - Analysis of Rosuvastatin-d3 Calcium

Column : Phenomenex Luna C18(2) 5um 250 x 4.6 mm
Guard : Phenomenex Security Guard C18 RP 4 x 3 mm
Mobile Phase : 55:45 40 mM Formic Acid : Acetonitrile
Flow Rate : 1.0 mL/min
Sample Solvent : Mobile Phase
Column Temperature : 20C
Injection Volume : 10 uL
Detection : UV at 240 nm

Sample Name	BDG 6732.4	Instrument	AnalyticalLC01
Acquisition	14/01/2012, 15:11:55	Method (rev.)	LC10009c (4)
Sequence	BDG_14Jan2011a - Reprocessed	Vial Position	11
Operator	solvation010\cerityadmin	Injection	1 of 2



Area Percent Report

Peak#	RT	Peak Height	Peak Area	Width	Area %
1	7.13 min	0.6705	6.9338	0.1566 min	0.049 %
2	7.57 min	2.8792	34.1606	0.1784 min	0.241 %
3	9.37 min	1063.6669	13617.8897	0.1974 min	95.948 %
4	12.05 min	3.9598	69.0001	0.2613 min	0.486 %
5	12.81 min	0.6575	10.6806	0.2555 min	0.075 %
6	13.77 min	12.7969	239.2603	0.2861 min	1.686 %
7	15.74 min	10.4986	215.0677	0.3130 min	1.515 %