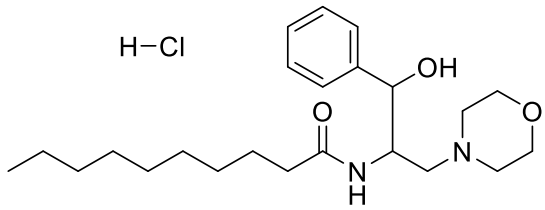
# Product data sheet

| | |
|---|---|
| MedKoo Cat#: 581775<br>Name: RV 538<br>CAS: 73257-80-4<br>Chemical Formula: $C_{23}H_{39}ClN_2O_3$<br>Molecular Weight: 427.03 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**

RV 538 is also known as DL-PDMP. It is a ceramide analog first prepared in a search for inhibitors of UGCG (glucosylceramide synthase). PDMP closely resembles the natural sphingolipid substrate of brain glucosyltransferase and acts as a potent and competitive inhibitor of this enzyme. Blocks the outgrowth of neurites and inhibits glycolipid synthesis in cultured NIH/3T3 cells.

**2. CoA, QC data, SDS, and handling instruction**

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

**3. Solubility data**

| Solvent | Max Conc. mg/mL | Max Conc. mM |
|---|---|---|
| DMF | 25 | 58.54 |
| DMSO | 30 | 70.26 |
| Ethanol | 50 | 117.09 |

**4. Stock solution preparation table:**

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.34 mL | 11.71 mL | 23.42 mL |
| 5 mM | 0.47 mL | 2.34 mL | 4.68 mL |
| 10 mM | 0.23 mL | 1.17 mL | 2.34 mL |
| 50 mM | 0.05 mL | 0.23 mL | 0.47 mL |

**5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator**

Please refer the product web page under section of "Calculator"

**6. Recommended literature which reported protocols for in vitro and in vivo study**

In vitro study


1. Rosenwald AG, Pagano RE. Effects of the glucosphingolipid synthesis inhibitor, PDMP, on lysosomes in cultured cells. J Lipid Res. 1994 Jul;35(7):1232-40. PMID: 7964184.
2. Meuillet EJ, Mania-Farnell B, George D, Inokuchi JI, Bremer EG. Modulation of EGF receptor activity by changes in the GM3 content in a human epidermoid carcinoma cell line, A431. Exp Cell Res. 2000 Apr 10;256(1):74-82. doi: 10.1006/excr.1999.4509. PMID: 10739654.


In vivo study


1. Mishra S, Bedja D, Amuzie C, Foss CA, Pomper MG, Bhattacharya R, Yarema KJ, Chatterjee S. Improved intervention of atherosclerosis and cardiac hypertrophy through biodegradable polymer-encapsulated delivery of glycosphingolipid inhibitor. Biomaterials. 2015 Sep;64:125-135. doi: 10.1016/j.biomaterials.2015.06.001. Epub 2015 Jun 3. PMID: 26111596; PMCID: PMC4557963.
2. Saito M, Fukushima Y, Tatsumi K, Bei L, Fujiki Y, Iwamori M, Igarashi T, Sakakihara Y. Molecular cloning of Chinese hamster ceramide glucosyltransferase and its enhanced expression in peroxisome-defective mutant Z65 cells. Arch Biochem Biophys. 2002 Jul 15;403(2):171-8. doi: 10.1016/s0003-9861(02)00216-3. PMID: 12139966.

# Product data sheet

**7. Bioactivity**

Biological target:

RV 538 inhibits glucosylceramide synthase, primarily through its D-threo (1R,2R) enantiomer, and inhibits β-1,4-galactosyltransferase 6, preventing lactosylceramide synthesis. RV 538 enhances the effectiveness of curcumin in inhibiting proliferation, activating JNK, inhibiting Akt, and inducing apoptosis in melanoma cells.

In vitro activity

High concentrations of RV 538 were observed to target lysosomes in Chinese hamster ovary (CHO) cells, leading to lysosomal enlargement after overnight incubation. RV 538exhibited toxicity at concentrations exceeding 30 microM. This property was leveraged to select RV 538-resistant CHO cells that demonstrated approximately twice the resistance to RV 538 compared to parental cells. RV 538 resistant cells also displayed resistance to other lipophilic drugs with titratable amino groups, indicating a distinct multidrug resistance mechanism from cells overproducing P-glycoprotein, which were found to be highly sensitive to RV 538.

Reference: J Lipid Res. 1994 Jul;35(7):1232-40. https://pubmed.ncbi.nlm.nih.gov/7964184/

In vivo activity

Polymer-encapsulated RV 538 demonstrated significantly increased residence time in mice. This prolonged in vivo longevity substantially improved its efficacy in interfering with atherosclerosis and cardiac hypertrophy in mice with a high-fat and high-cholesterol diet-induced condition. RV 538 is a promising therapeutic option for diseases associated with abnormal glycosphingolipid biosynthesis.

Reference: Biomaterials. 2015 Sep;64:125-135. https://pubmed.ncbi.nlm.nih.gov/26111596/

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*