

Product Data Sheet

Product Name: GM 6001

Cat. No.: GC14523

Chemical Properties

Cas. No. 142880-36-2

Chemical Name (2R)-N'-hydroxy-N-[(2S)-3-(1H-indol-3-yl)-1-(methylamino)-1-oxopropan-2-yl]-2-(2-methylpropyl)butanediamide

SMILES CC(C)CC(CC(=O)NO)C(=O)NC(CC1=CNC2=CC=CC=C21)C(=O)NC

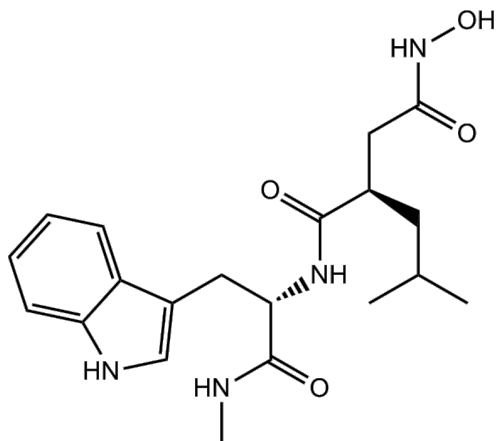
Formula $C_{20}H_{28}N_4O_4$ M.Wt 388.46

Solubility ≥ 19.423 mg/mL in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Caution: Product has not been fully validated for medical applications. For research use only.

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Cell experiment [1]:

Cell lines Human OSCC cell line, SCC-15

GM 6001 (100 μ M) was added to the culture medium to culture the cells.

Preparation Method Western blot was used to detect the expression of ephrinA1 protein at 24 h and 48 h.

Reaction Conditions 100 μ M, 24h and 48h

Applications GM 6001 can significantly reduce ephrinA1 protein in the supernatant of hypoxic cancer cells.

Animal experiment [2]:

Animal models New steroid-induced necrosis of femoral head (SINFH) rats

Preparation Method A total of 120 rats were divided into four groups: 1. WT negative control group 2. WT+GM 6001 group 3. SINFH model positive control group 4. SINFH model + GM 6001 group. GM 6001 was injected into the tail vein once a week at 70 mg/kg for a total of 8 injections.

Dosage form 70 mg/kg, once a week, 8 weeks, i.v.

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Applications Serum calcium and phosphorus levels, BGP levels, femoral head density, and osteoblast counts were all higher in the GM 6001 group than in the SINFH model group.

References:

- [1]. Ma T T, Wang L, Wang J L, et al. Hypoxia-induced cleavage of soluble ephrinA1 from cancer cells is mediated by MMP-2 and associates with angiogenesis in oral squamous cell carcinoma[J]. OncoTargets and therapy, 2019: 8491-8499.
- [2]. Li G, Ma X, Ye Y, et al. GM6001 improves bone dysfunction and bone metabolism disorder in SINFH rats[J]. INTERNATIONAL JOURNAL OF CLINICAL AND EXPERIMENTAL MEDICINE, 2020, 13(5): 3623-3629.

Background

GM 6001 is a broad-spectrum MMP inhibitor that can be used in the study of cancer and neurodegenerative diseases. The Ki values of GM 6001 for MMP-1, 2, 3, 8 and 9 are 0.4, 0.5, 27, 0.1 and 0.2 nM, respectively^[1-4].

GM 6001 (25 μ M) can inhibit the decrease of E-cadherin expression and increase of vimentin expression induced by TGF- β 1^[2]. In addition, GM 6001 can also inhibit the proliferation and invasion of MDA-MB-231 cells and promote cell apoptosis^[3].

GM 6001 (100 mg/kg) can significantly reduce pro-MMP-9 and active-MMP-9 levels in MPTP-induced Parkinson's disease mouse model^[4]. GM 6001 (1.2mg/kg) treatment significantly reduced the mean blood pressure of Dahl/SS rats, inhibited the expression and activity of MMP-9 and significantly improved oxidative/nitrosative stress and TJPs, restoring Dahl/SS rats vascular integrity^[5].

References:

- [1] McNulty AL, Weinberg JB, Guilak F. Inhibition of matrix metalloproteinases enhances in vitro repair of the meniscus. Clin Orthop Relat Res. 2009 Jun;467(6):1557-67.
- [2] Bai X, Li YY, Zhang HY, Wang F, He HL, Yao JC, Liu L, Li SS. Role of matrix metalloproteinase-9

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in transforming growth factor- β 1-induced epithelial-mesenchymal transition in esophageal squamous cell carcinoma. Onco Targets Ther. 2017 Jun 2;10:2837-2847.

[3] Cui Q, Wang B, Li K, et al. Upregulating MMP-1 in carcinoma-associated fibroblasts reduces the efficacy of Taxotere on breast cancer synergized by Collagen IV[J]. Oncology letters, 2018, 16(3): 3537-3544.

[4] Si X, Dai S, Fang Y, et al. Matrix metalloproteinase-9 inhibition prevents aquaporin-4 depolarization-mediated glymphatic dysfunction in Parkinson's disease[J]. Journal of advanced research, 2024, 56: 125-136.

[5] Kalani A, Pushpakumar S B, Vacek J C, et al. Inhibition of MMP-9 attenuates hypertensive cerebrovascular dysfunction in Dahl salt-sensitive rats[J]. Molecular and cellular biochemistry, 2016, 413: 25-35.

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