

Product Data Sheet

Product Name: KF 38789

Cat. No.: GC14589

Chemical Properties

Cas. No. 257292-29-8

Chemical Name 3-(7-(2,4-dimethoxyphenyl)-2,3,6,7-tetrahydro-1,4-thiazepin-5-yl)-4-hydroxy-6-methyl-2H-pyran-2-one

SMILES CC(O1)=CC(O)=C(C1=O)C2=NCCSC(C3=C(OC)C=C(OC)C=C3)C2

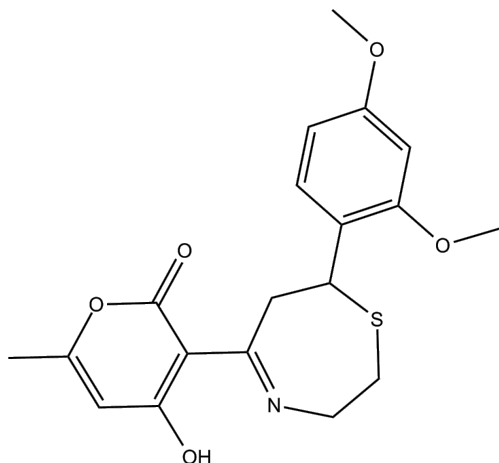
Formula $C_{19}H_{21}NO_5S$ M.Wt 375.44

Solubility <37.54mg/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

Cell experiment [1]:

Cell lines Gastric cancer MKN-74 and MGC-803 cells

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We used the scratch assay to test the migratory abilities of MKN-74 and MGC-803 cells. Preparation Method 803 cells were seeded in 6-well plates (5×10^5 cells/well), and after adherence, the cells were treated with 0.5 μ M of KF 38789 for 24h.

Reaction
Conditions 0.5 μ M; 24h

Applications Under the effect of KF 38789, the colonies of MKN-74 and MGC-803 cells were smaller than those in the control group. The western blot experiments showed that the levels of EMT-related proteins in gastric cancers cells changed significantly after 24h of KF 38789 treatment. Transwell and wound healing assays were performed to determine the effect of KF 38789 on the migration of MKN-74 and MGC-803 cells. The results indicated that culture in KF 38789 significantly decreased the migration of MKN-74 and MGC-803 cells compared to the control groups.

Animal experiment [2]:

Animal models Male C57BL/6J mice

Preparation Method Seven groups of mice were used in this portion of the study. The first five groups (4 mice per group) received right facial carrageenan injection and daily intraperitoneal injection of 10, 1, 0.1, 0.01 or 0.001mg/kg of P-selectin inhibitor, KF 38789 (dissolved in 1% DMSO) for 12 days. The sixth group (4 mice) received right facial carrageenan injection and daily intraperitoneal injection of 1% DMSO (vehicle control) for 12 days. The last group (4 mice) did not receive facial carrageenan injection, but received daily intraperitoneal injection of 10mg/kg of KF 38789 in 1% DMSO for 12 days.

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Dosage form 10, 1, 0.1, 0.01 or 0.001mg/kg; i.p.; 12 days

Applications Mice treated with the higher doses of KF 38789 (10, 1 and 0.1mg/kg) exhibited significantly reduced mechanical allodynia from the 3rd to the 9th day after carrageenan injection. Mice treated with the lower doses (0.01 and 0.001mg/kg) did not show a significant difference from the vehicle-treated group.

References:

[1]Wu Y, Liu J Y, Yin T, et al. SELP can affect the immune microenvironment of gastric cancer and is associated with poor prognosis. Discov Oncol. 2025 May 21;16(1):846.

[2]Poh K W, Lutfun N, Manikandan J,et al. Global gene expression analysis in the mouse brainstem after hyperalgesia induced by facial carrageenan injection--evidence for a form of neurovascular coupling?. Pain. 2009 Mar;142(1-2):133-41.

Background

KF 38789 is a novel, low molecular weight P-selectin inhibitors displayed an IC₅₀ of 1.97μM. P-selectin is a cell adhesion molecule of the selectin family^{[1][5]}. KF 38789 can effectively inhibit P-selectin-dependent cell adhesion and leukocyte recruitment^{[2][3][5]}. KF 38789 also has potential in reducing inflammation and inhibiting tumor growth^{[4][6][7]}.

In vitro, KF 38789 (0.5μM) incubating gastric cancer MKN-74 and MGC-803 cells for 24h dose-dependently decreased the cell viability ratio. KF 38789 treatment decreased the level of epithelial-mesenchymal transition (EMT)-related proteins and significantly decreased the migration of MKN-74 and MGC-803 cells by inhibiting P-selectin^[2]. Corneal epithelial HCE-T cell cultures were established in regular serum-supplemented growth medium using 2-well culture inserts (0.22cm² per well) in 35mm diameter culture dishes to expose a cell free gap of approximately 500μm in width. Cells were then cultured for an additional 8h in growth medium with or without 5μM of KF 38789. KF 38789 treatment reduced HCE-T cell migration and culture gap-closure^[3]. Human mesothelial cell LP-9 in coculture devices were treated with 10μM of the KF 38789 1 hour prior to the addition ovarian cancer cells. KF 38789 significantly reduced the adhesion of cancer cells to mesothelial cells and

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effectively inhibited the rolling behavior of cancer cells on mesothelial surfaces^[4].

In vivo, The thioglycollate (TG)-induced accumulation of leukocytes in mice was measured 6h after the treatment. KF 38789 (1mg/kg) injected intravenously prior to TG injection and at 3h following initial injection specifically inhibited P-selectin-dependent leukocyte recruitment in mouse peritonitis^[5]. KF 38789 (10, 1 and 0.1mg/kg) administered to mouse carrageenan-injected model of hyperalgesia via intraperitoneal injection for 12 days, while others received a vehicle control (1% DMSO). The results showed that mice treated with the KF 38789 exhibited significantly reduced mechanical allodynia from the 3rd to the 9th day after carrageenan injection^[6]. KF 38789 (10mg/kg) administered i.p. into human intrahepatic cholangiocarcinoma (ICC) cell line HUCCT1 xenograft mouse model decreased the volumes and weights of HUCCT1 formed tumor nodes in vivo. KF 38789 reduced the level of Ki67, but increased cleaved-caspase3 in tumor tissue^[7].

References:

- [1] Chhabra S R, Abdul Rahim A S A, Kellam B. Recent progress in the design of selectin inhibitors. *Mini Rev Med Chem.* 2003 Nov;3(7):679-87.
- [2] Wu Y, Liu J Y, Yin T, et al. SELP can affect the immune microenvironment of gastric cancer and is associated with poor prognosis. *Discov Oncol.* 2025 May 21;16(1):846.
- [3] Gillies P J, Richardson N A, Walshe J, et al. Demonstration of P-selectin expression and potential function in human corneal epithelial cells. *Exp Eye Res.* 2018 Nov;176:196-206.
- [4] Carroll M J, Fogg K C, Patel H A, et al. Alternatively-Activated Macrophages Upregulate Mesothelial Expression of P-Selectin to Enhance Adhesion of Ovarian Cancer Cells. *Cancer Res.* 2018 Jul 1;78(13):3560-3573.
- [5] Ohta S, Inujima Y, Abe M, et al. Inhibition of P-selectin specific cell adhesion by a low molecular weight, non-carbohydrate compound, KF 38789. *Inflamm Res.* 2001 Nov;50(11):544-51.
- [6] Poh K W, Lutfun N, Manikandan J, et al. Global gene expression analysis in the mouse brainstem after hyperalgesia induced by facial carrageenan injection--evidence for a form of neurovascular coupling?. *Pain.* 2009 Mar;142(1-2):133-41.
- [7] Du X J, Qi Z R, Chen S N, et al. Synthetic Retinoid Sulfarotene Selectively Inhibits Tumor-Repopulating Cells of Intrahepatic Cholangiocarcinoma via Disrupting Cytoskeleton by P-Selectin/PSGL1 N-Glycosylation Blockage. *Adv Sci (Weinh).* 2025 Jan;12(3):e2407519.

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