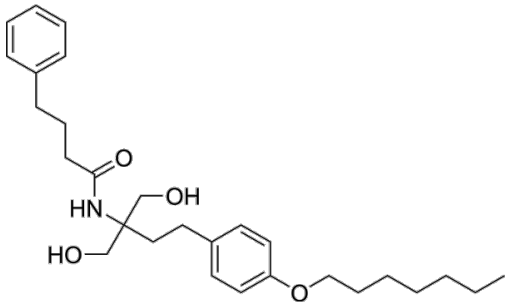
Product Data Sheet

Product Name: ST1072
Cat. No.: GC79707

Chemical Properties

Cas. No.	1402703-50-7		
Formula	$C_{28}H_{41}NO_4$	M.Wt	455.63
Solubility		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			



Background

ST1072 is an inhibitor of CerS4 and CerS6. ST1072 preferentially inhibits CerS6 over CerS4, and reduces the production of C 16 ceramide. ST1072 impairs TCR-mediated N-RAS activation, ERK signaling pathway, and the colocalization of CD3 / PKCθ. ST1072 decreases the production of IFN-γ as well as the migration of donor cells to target organs. ST1072 regulates immune cell populations and the expression of co-stimulatory molecules. ST1072 can be used in research related to colon cancer, cervical cancer, graft-versus-host disease, and hematologic malignancies [1] [2] [3].

In Vivo, ST1072 (2 mg/kg; i.p.; daily; day -1 to day 28 post-transplant) significantly reduces chronic

Product Data Sheet

GVHD severity in an MHC-mismatched murine allogeneic bone marrow transplantation model, matching the efficacy of CerS6 knockout donor grafts[3]. ST1072 (1 mg/kg; i.p.; daily; day -1 to day 14 post-transplant) significantly reduces acute GVHD severity and improves survival while preserving the GVL effect against mixed-lineage leukemia in an MHC-mismatched murine allogeneic bone marrow transplantation model[3]. ST1072 (1 mg/kg; i.p.; daily; day -1 to day 14 post-transplant) significantly reduces donor T-cell expansion and migration to GVHD target organs in an MHC-mismatched murine allogeneic bone marrow transplantation model[3].

In Vitro, ST1072 (10 min preincubation, 30 min reaction) potently inhibits ceramide synthase activity in HCT-116 cell microsomes, with the highest potency against C18:0-dhCer synthesis (IC_{50} = 26.9 μM) followed by C16:0-dhCer (IC_{50} = 50.4 μM) and weaker activity against C24:0-dhCer (IC_{50} = 81.3 μM)[1]. ST1072 (0-80 μM; 48 h) reduces the viability of HCT-116 human colon cancer cells in a concentration-dependent manner starting at 20 μM after 48 h of incubation[1]. ST1072 (25 μM) significantly reduces C16:0-dhCer, C24:0-dhCer, and C24:1-dhCer levels in HeLa human cervical cancer cells after 48 h of incubation[1]. ST1072 (5-30 μM; 48 h) potently reduces ceramide levels in HeLa human cervical cancer cells, with the highest potency against C16:0-Cer (IC_{50} = 6.8 μM) followed by C14:0-Cer (IC_{50} = 12.2 μM) and C24:1-Cer (IC_{50} = 14.5 μM) after 48 h of incubation [1]. ST1072 (50 μM; 5 days) potently inhibits allogeneic proliferation and IFN-γ production in primary murine WT T cells[2]. ST1072 (50 μg/mL; 24 h-5 days) inhibits TCR-mediated N-RAS activation and downstream ERK signaling in primary mouse wild-type T cells, reducing IFN-γ production in CD4 T cells, an effect reversed by active N-RAS overexpression[3].

References:

[1]. Schiffmann S, et al. Inhibitors of specific ceramide synthases. Biochimie. 2012 Feb;94(2):558-65.
[2]. Sofi MH, et al. Ceramide synthesis regulates T cell activity and GVHD development. JCI insight. 2017 May 18;2(10):e91701.
[3]. Sofi MH, et al. Ceramide synthase 6 impacts T-cell allogeneic response and graft-versus-host disease through regulating N-RAS/ERK pathway. Leukemia. 2022 Jul;36(7):1907-1915.

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