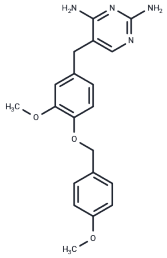
Data Sheet (Cat.No.T2659)

TargetMol
YOUR TARGET MOLECULES

GW2580

Chemical Properties



CAS No. : 870483-87-7

Formula: C20H22N4O3

Molecular Weight: 366.41

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	GW2580 (SC-203877) is a specific, oral-bioavailable CSF-1R inhibitor for c-FMS.
Targets(IC50)	c-Fms
In vitro	In adjuvant-induced arthritis models, GW2580 (50 mg/kg) effectively inhibits the destruction of joint connective tissue and bone. In mice, the oral administration of GW2580 (40 mg/kg) suppresses the ability of exogenous CSF-1 to enhance lipopolysaccharide-induced TNF-α production. Furthermore, in an intraperitoneal CSF-1 dependent M-NFS-60 tumor cell model, oral GW2580 (80 mg/kg) inhibits tumor cell growth. In transplantable 3LL lung tumor models, GW2580 (160 mg/kg) effectively restricts the growth of bone marrow cells.
In vivo	GW2580 effectively inhibits growth in various cell types, demonstrating activity against M-NFS-60 myeloma cells stimulated by CSF-1 (IC50=0.33 μM), NSO myeloma cells stimulated by serum (IC50=13.5 μM), freshly isolated human monocytes stimulated by CSF-1 (IC50=0.47 μM), and human umbilical vein endothelial cells stimulated by vascular endothelial growth factor (IC50=12 μM). It also exhibits inhibitory effects on TRKA (IC50=0.88 μM) and human CFMS kinase (0.06 μM). In RAW264.7 mouse macrophages (IC50=10 nM), GW2580 operates by inhibiting the phosphorylation of CSF1R.
Kinase Assay	cFMS tyrosine kinase assay: The enzyme is activated by autophosphorylation by incubating 10 μM enzyme, 100 μM ATP, and 5 mM MgCl2 in 50 mM Tris HCL for 90 min at room temperature. Enzyme reactions are performed in a volume of 45 μL, by using round-bottom polystyrene 96-well plates on a Biomek 2000. Compound in 1 μL DMSO or DMSO alone are added to each well containing 30 μL of a 1.5× substrate reaction mix containing 50 mM Mops (3-[N-Morpholino]propanesulfonic acid), pH 7.5, 15 mM MgCl2, 6 μM peptide substrate, biotin-EAIYAPFAKKK-NH2 7.5 mM DTT, 75 mM NaCl, 10 μM ATP, and 0.5 μCi (1 Ci = 37 GBq) [33P-γ] ATP per assay. The reaction is initiated by the addition of 15 μL of diluted enzyme solution, resulting in a final enzyme concentration 20 nM. EDTA is added to control wells for determination of background. The reaction is allowed to proceed for 40 min and stopped by the addition of an equal volume of 0.5% phosphoric acid, and 75 μL is transferred to a 96-well phosphocellulose filter plate that has been prewet with 100 μL of 0.5% phosphoric acid. The plate is filtered on a Millipore filter-plate vacuum manifold and washed three times with the phosphoric acid solution, followed by the addition of 40 μL of scintillation solution. The plates are sealed and counted in a Packard Topcount NXT scintillation counter.

Cell Research	One day before the start of the cell growth assay the cells are spun down and placed in a depleted media at 2× 106 cells per ml for 24 h. Depleted medium for M-NSF60 cells lacks MCSF. The next day, GW2580 at 10 mM in DMSO is diluted to 20 μM and 0.2% DMSO in medium containing 10% serum and serially diluted to yield a 10-point concentration curve. The M-NFS-60 cells are resuspended in medium at 0.5× 106 cells/mL with 10% serum and 20 ng/mL mouse MCSF. Cells (50 μL) are added to each well containing inhibitor (50 μL), and, 3 days later, 10 μL of WST-1 reagent is added to each well. After a 4-h incubation, the absorbance is measured at 440 nm and growth calculated as the difference between wells with full medium and wells with depleted medium.(Only for Reference)

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 45 mg/mL (122.8 mM), Ethanol: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7292 mL	13.6459 mL	27.2918 mL
5 mM	0.5458 mL	2.7292 mL	5.4584 mL
10 mM	0.2729 mL	1.3646 mL	2.7292 mL
50 mM	0.0546 mL	0.2729 mL	0.5458 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Conway JG, et al. Proc Natl Acad Sci U S A, 2005, 102(44), 16078-16083.
Priceman SJ, et al. Blood, 2010, 115(7), 1461-1471