Ogerin: A Chemical Probe for GPR68

Version 1.0 (25th March 2021)

Web link for more details: https://www.sgc-ffm.uni-frankfurt.de/#!specificprobeoverview/Ogerin

Overview

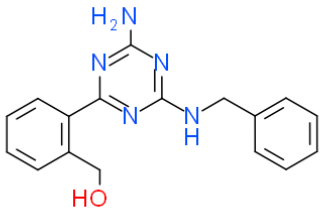
The orphan GPCR, GPR68, senses the microenvironmental pH changes through His residues. It couples multiple signalling pathways through G_q, G_s, $G_{12/13}$, or $G_{i/o}$ proteins and regulates inflammatory processes in airway smooth muscle and other cells.

Summary

Chemical Probe Name	Ogerin
Negative control compound	ZINC32547799
Target(s) (synonyms)	GPR68 (G protein-coupled receptor 68, OGR1)
Recommended cell assay concentration	Use at concentration up to 1 µM for Ogerin and ZINC32547799; use with control for best interpretation of data.
Suitability for *in* vivo use and recommended dose	Tested in mice with a single IP dose of 10 mg/kg
Publications	PMID: 26550826
Orthogonal chemical probes	
In vitro assay(s) used to characterise	
Cellular assay(s) for target-engagement	FLIPR-TETRA assay
ChemicalProbes.org	Link to chemicalprobes.org

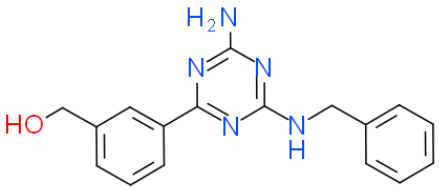
Chemical Probe & Negative Control Structures and Use

Ogerin Chemical Probe



SMILES: C(c1ccccc1)Nc1nc(c2ccccc2CO)nc(N)n1
InChiKey: MDGIEDNDSFMSLP-UHFFFAOYSA-N
Molecular weight: 307.14
Storage: As a dry powder or as DMSO stock solutions (10 mM) at -20 °C. DMSO stocks beyond 3-6 months or 2 freeze/thaw cycles should be tested for activity before use
Dissolution: Soluble in DMSO up to 10 mM; use only 1 freeze/thaw cycle per aliquot

ZINC32547799 Negative Control



SMILES: C(c1ccccc1)Nc1nc(c2cccc(CO)c2)nc(N)n1
InChiKey: RVKAHYFWSKSSQQ-UHFFFAOYSA-N
Molecular weight: 307.14
Storage: As a dry powder or as DMSO stock solutions (10 mM) at -20 °C. DMSO stocks beyond 3-6 months or 2 freeze/thaw cycles should be tested for activity before use
Dissolution: Soluble in DMSO up to 10 mM; use only 1 freeze/thaw cycle per aliquot

Chemical Probe Profile

In vitro Potency & Selectivity:

Ogerin was screened for radioligand binding modulation of CNS GPCRs and toxic pharmacological off-targets. There was only minimal activity for all targets (pKi > 7).

Potency in Cells and Cellular Target Engagement:

Ogerin modulates proton-mediated calcium mobilization at 10 µM: pEC_{50} = 6.83 ± 0.06 (FLIPR-TETRA assay) and decreases contextual memory retrieval. ZINC32547799 shows no measurable effect on learning and memory in wild-type mice.