Product Data Sheet

Product Name: Ertiprotafib (PTP 112)
Cat. No.: GC33816

Chemical Properties

Cas. No.	251303-04-5		
SMILES	OC([C@@H](CC1=CC=CC=C1)OC2=C(C)C=C(C3=C(C(C)=C(C)S4)C4=C(Br)C5=CC=CC=C53)C=C2C)=O		
Formula	$C_{31}H_{27}BrO_3S$	M.Wt	559.51
Solubility	Soluble in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Ertiprotafib (PTP 112)		

Protocol

Animal experiment:

Mice, Rats[2]Male Ob/ob mice and Zucker fa/fa rats are used. They are kept on a 12-h/12-h light/dark cycle and fed Rodent Diet 5001 (for mice and rats) from Purina Mills. Compounds are dosed orally by gavage in an aqueous suspension of 2% Tween 80 and 0.5% methylcellulose. Whole blood (5 µL) is used for glucose readings via tail nick for measurement using the Ascensia Elite XL glucometer and glucose strips by preloading a strip into the meter and touching the end to a small drop of blood on each tail. Insulin levels are quantified by enzyme-linked immunosorbent assay[2].

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

References:

[1]. Shrestha S, et al. PTP1B inhibitor Ertiprotafib is also a potent inhibitor of IkappaB kinase beta (IKK-beta). Bioorg Med Chem Lett. 2007 May 15;17(10):2728-30. Epub 2007 Mar 3.
[2]. Erbe DV, et al. Ertiprotafib improves glycemic control and lowers lipids via multiple mechanisms. Mol Pharmacol. 2005 Jan;67(1):69-77.

Background

Ertiprotafib is an inhibitor of PTP1B, IkB kinase β (IKK-β), and a dual PPARα and PPARβ agonist, with an IC50 of 1.6 μM for PTP1B, 400 nM for IKK-β, an EC50 of ~1 μM for PPARα/PPARβ.

Ertiprotafib is a potent inhibitor of IKK-β, with an IC50 value of 400±40 nM, which is much lower than that required for the half-maximal inhibition of the p-nitrophenyl phosphatase activity of PTP1B. The reported IC50 value of Ertiprotafib against PTP1B ranges from 1.6 to 29 μM depending on the assay conditions[2]. Ertiprotafib is at least a dual PPARα and PPARβ agonist with EC50 values for transactivation of 1 μM. Such activities readily explain the observations with suprapharmacologic doses of these[1].

As seen with treatment of ob/ob mice, both Ertiprotafib and compound 3 seem to significantly improve glucose metabolism in rats. At 25 mg/kg/day, these compounds decrease both fasting blood glucose and insulin levels compared with vehicle treated rats. Furthermore, both Ertiprotafib and compound 3 increase glucose disposal after an oral challenge. It is noteworthy that lipid levels are also reduced in treated animals. Both triglyceride and free fatty acid levels are substantially reduced in rats treated with 25 mg/kg/day of either compound. To summarize, both Ertiprotafib and compound 3 seem to be robust agents in improving glucose utilization in fa/fa rats while also decreasing lipid levels in these animals. Decreased lipid levels may be unexpected for a pure PTP1b inhibitor. It is more telling, as mentioned above, that rats treated with suprapharmacologic doses of Ertiprotafib show signs of PPAR family activation[2].

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

[1]. Shrestha S, et al. PTP1B inhibitor Ertiprotafib is also a potent inhibitor of IkappaB kinase beta (IKK-beta). Bioorg Med Chem Lett. 2007 May 15;17(10):2728-30. Epub 2007 Mar 3. [2]. Erbe DV, et al. Ertiprotafib improves glycemic control and lowers lipids via multiple mechanisms. Mol Pharmacol. 2005 Jan;67(1):69-77.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA