

VPR-66, ROR gamma T and ROR alpha Inhibitor

Catalog No:	NBP2-29335
Content:	ROR gamma T inhibitor
Storage:	Store lyophilized ROR gamma T inhibitor at -20°C with dessicant, stable for one year. Stock solutions in DMSO should be stored at room temperature in the dark and used within 10 days. Aqueous solutions should be used within one day.
Form:	Crystalline, off-white solid; MW = 287.4

Background

Th17 cells are a sub-type of T-helper cells that secrete IL-17 and other pro-inflammatory cytokines (1). Th17 cells have been implicated in driving the pathophysiology of several human autoimmune diseases (2). Retinoic Acid-Related Orphan Nuclear, Receptors (ROR) are canonical nuclear receptors with transcriptional activity at specific DNA response elements. Although most nuclear receptors are regulated by ligand binding no cognate ligands(s) have been definitively identified for any ROR protein. There are three different ROR proteins: RORa, RORb and RORg. An isoform of RORg, called ROR gamma T, is exclusively expressed in lymphocytes (3). Together, RORa and ROR gamma T are critical transcription factors required for differentiation of naive CD4+ Tcells into Th17 cells (4-6).

Solubility

The ROR gamma T inhibitor should be dissolved in DMSO, ethanol, or other similar organic solvents. The solubility in DMSO exceeds 10 mg/ml. The aqueous solubility is greater than 0.5 mg/ml.

Usage:

The ROR gamma T inhibitor is readily soluble in DMSO. Previous studies have used 10 mM stock solutions in DMSO. Prepare concentrated intermediate dilutions in DMSO and then add small volumes to buffer or cell culture media to provide the final aqueous working concentrations. It is not recommended to prepare serial dilutions in aqueous media.



Chemical structure of the ROR gamma T inhibitor VPR-66: C16H21N3O2

Research purposes only. Not for diagnostic or use in human. For use in animal, follow your Institution's Animal Handling Policy.



VPR-66 inhibition of transcriptional activity determined in CHO cells transfected with ROR gamma.

VPR-66 inhibition of transcriptional activity determined in CHO cells transfected with RORa.

The ROR gamma T inhibitor VPR-66 is a chemical probe compound discovered by Visionary Pharmaceuticals, San Diego, CA distributed exclusively by Novus Biologicals, for research use.

Reference:

- Bettelli, E, Korn, T, Oukka, M and Kuchroo, V K. Induction and effector functions of TH17cells. Nature 453, 1051-1057 (2008).
- Littman, D R & Rudensky, A Y. Th17 and regulatory Tcells in mediation and restraining inflammation. Cell 140, 845-858 (2010).
- 3. Jetten, A M. Retinoid-related orphan receptors (RORs): critical roles in development, immunity, circadian rhythm, and cellular metabolism. Nucl Recept Signal 7, e003 (2009).
- 4. Yang, X X O, et al. T helper 17 lineage differentiation is programmed by orphan nuclear receptors RORa and RORc. Immunity 28, 29-39 (2008).
- 5. Ivanov, II, et al. The orphan nuclear receptor RORct directs the differentiation program of proinflammatory IL-171 T helpercells. Cell 126, 1121-1133 (2006).
- Manel, N, Unutmaz, D & Littman, D R. The differentiation of human Th-17cells requires transforming growth factor-b and induction of the nuclear receptor RORct. Nature Immunol. 9, 641-649 (2008).

Product Citation:

 Characterization of a small molecule compound VPR-66 as an inverse agonist for ROR proteins (P5167). Lee HK, J McAlpine, S Chitta, D Bouzida, G Singh, J Rosenberg, G Alton, S Singh. J Immunol 190:68.11 (2013). Functional Assays; Readout system: Luciferase Reporter Assay