Small Molecules

TTNPB

Retinoid pathway activator; Activates retinoic acid receptor (RAR)

Catalog # 72892

10 mg

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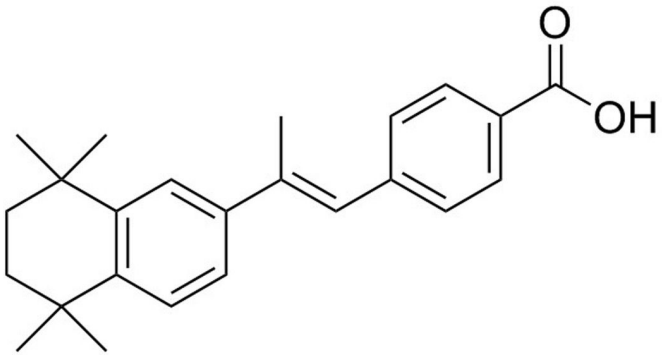
Product Description

TTNPB is an analog of retinoic acid that potently and selectively activates retinoic acid receptors (RAR; EC_{50} = 21, 4, and 2.4 nM for RARα, RARβ, and RARγ, respectively; Beard et al.; Wong et al.). It does not act on retinoid X receptors and weakly agonizes farnesoid X receptor (EC_{50} > 1 µM; Maloney et al.; Wong et al.). TTNPB is used to study RAR action in diverse processes, including epidermal cell proliferation, embryogenesis, and stem cell differentiation (Araoka et al.; Hou et al.; Minucci et al.; Thacher et al.).

Molecular Name:	TTNPB
Alternative Names:	AGN 191183; Arotinoid Acid; Ro 13-7410
CAS Number:	71441-28-6
Chemical Formula:	$C_{24}H_{28}O_2$
Molecular Weight:	348.5 g/mol
Purity:	≥ 98%
Chemical Name:	4-[(1E)-2-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthalenyl)-1-propen-1-yl]-benzoic acid
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· Absolute ethanol ≤ 280 µM · DMSO ≤ 5.7 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.86 mL of fresh DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

REPROGRAMMING
· Enables chemical reprogramming (without genetic factors) of mouse embryonic fibroblasts to induced pluripotent stem cells, in combination with CHIR99021 (Catalog #72052), Tranylcypromine (72272), Valproic Acid (Catalog #72292), 3-Deazaneplanocin A (Catalog #72322), and RepSox (Catalog #73792) (Hou et al.).
DIFFERENTIATION
· In combination with CHIR99021 or Activin A (Catalog #78001), induces intermediate mesoderm formation from human or mouse pluripotent stem cells, respectively (Araoka et al.; Oeda et al.).
· Promotes neuronal differentiation in cultured chick caudal neural plate explants (Diez del Corral et al.).
CANCER RESEARCH
· Induces the in vitro growth and differentiation to granulocytes of myeloid progenitor cells isolated from myelodysplastic syndrome (MDS) patients (Fabian et al.).

References

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Hou P et al. (2013) Pluripotent stem cells induced from mouse somatic cells by small-molecule compounds. Science 341(6146): 651–4.
Maloney PR et al. (2000) Identification of a chemical tool for the orphan nuclear receptor FXR. J Med Chem 43(16): 2971–4.
Minucci S et al. (1996) Retinoid X receptor-selective ligands produce malformations in Xenopus embryos. Proc Natl Acad Sci USA 93(5): 1803–7.
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Thacher SM et al. (1997) Receptor specificity of retinoid-induced epidermal hyperplasia: effect of RXR-selective agonists and correlation with topical irritation. J Pharmacol Exp Ther 282(2): 528–34.
Wong MF et al. (1997) Synthesis and receptor binding affinity of conformationally restricted retinoic acid analogues. Bioorg Med Chem Lett 7(17): 2313–8.

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