TTNPB is an analog of retinoic acid that potently and selectively activates retinoic acid receptors (RAR; $EC_{50} = 21, 4,$ and $2.4 \text{ nM for RAR}_\alpha, \text{ RAR}_\beta,$ and $\text{ RAR}_\gamma,$ respectively; Beard et al.; Wong et al.). It does not act on retinoid X receptors and weakly agonizes farnesoid X receptor ($EC_{50} > 1 \text{ µM; Maloney et al.; Wong et al.}$). 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.).

**Product Description**

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**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:** $\geq 98\%$  
**Chemical Name:** $4-[(1E)-2-(5,6,7,8-tetrahydro-5,5,8,8-tetramethyl-2-naphthalenyl)-1-propen-1-yl]-benzoic$ acid

![Structure of TTNPB](image)

**Properties**

**Physical Appearance:** A crystalline solid  
**Storage:** Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.  
**Solubility:**  
- Absolute ethanol $\leq 280 \text{ µM}$  
- DMSO $\leq 5.7 \text{ mM}$  
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 (iPS) cells, in combination with CHIR99021, Tranylcypromine, Valproic Acid, 3-Deazaneplanocin A, and RepSox (Hou et al.).

DIFFERENTIATION
- In combination with CHIR99021 or Activin A, 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 progenitors isolated from myelodysplastic syndrome (MDS) patients (Fabian et al.).

References

Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, please visit our website at www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).