bio-techne
TOCRIS

Print Date: Nov 18th 2024

Certificate of Analysis

www.tocris.com

Product Name: **Retinoic acid** **Catalog No.: 0695** **Batch No.: 4**

CAS Number: 302-79-4 EC Number: 206-129-0

IUPAC Name: 3,7-Dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2*E*,4*E*,6*E*,8*E*,-nonatetraenoic acid

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{20}H_{28}O_2$.

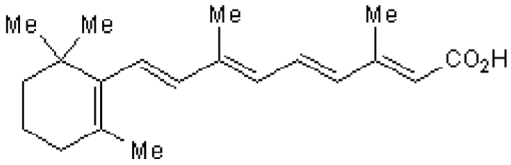
Batch Molecular Weight: 300.44

Physical Appearance: Yellow solid

Solubility: DMSO to 25 mM
ethanol to 10 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.8% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	79.96	9.39	0
Found	79.78	9.41	0.05

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Retinoic acid is an endogenous agonist for retinoic acid receptors (IC_{50} = 14 nM for RARα, RARβ and RARγ receptors). Retinoic acid specifies anterior-posterior patterning of neural progenitors. It promotes differentiation of mouse embryonic stem cells (ESCs) into adipocytes, neurons and glia in vitro. Retinoic acid also promotes differentiation of human PSCs into dopaminergic neurons and maturation of retinal organoids. It is a proposed ligand of RORβ (K_d = 280 nM). Activates autophagy. For more information about how Retinoic acid may be used, see our protocols: Generation of β cells from hPSCs, Cultivating Cerebral ... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

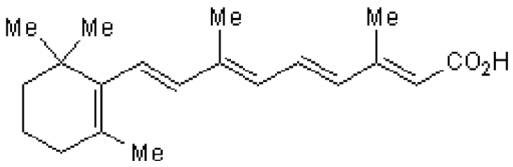
Batch Molecular Formula: $C_{20}H_{28}O_2$.

Batch Molecular Weight: 300.44

Physical Appearance: Yellow solid

Minimum Purity: ≥98%

Batch Molecular Structure:



Storage: Store at -20°C

CAUTION - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

Solubility & Usage Info:

DMSO to 25 mM
ethanol to 10 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Alekseenko *et al* (2022) Robust derivation of transplantable dopamine neurons from human pluripotent stem cells by timed retinoic acid delivery. Nat.Commun. ***13*** 3046. PMID: 35650213.

Sanjurjo-Soriano *et al* (2022) Retinoic acid delays initial photoreceptor differentiation and results in a highly structured mature retinal organoid. Stem Cell Res.Ther. ***13*** 478. PMID: 36114559.

Galluzzi *et al* (2017) Pharmacological modulation of autophagy: therapeutic potential and persisting obstacles. Nat.Rev.Drug.Discov.. PMID: 28529316.