Print Date: Apr 8th 2022

Certificate of Analysis

www.tocris.com

Product Name: **Retinoic acid** **Catalog No.: 0695** **Batch No.: 3**

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: $C_{20}H_{28}O_2$

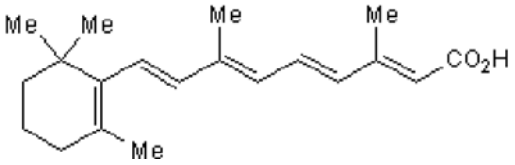
Batch Molecular Weight: 300.44

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 99.7% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	79.96	9.39	
Found	79.78	9.37	

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

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Product Information

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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). Also promotes differentiation of mouse embryonic stem cells (ESCs) into adipocytes, neurons and glia in vitro. 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 Organoids. Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

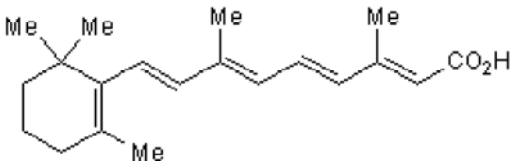
Batch Molecular Formula: $C_{20}H_{28}O_2$

Batch Molecular Weight: 300.44

Physical Appearance: Yellow solid

Minimum Purity: ≥99%

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. Our standard recommendations are:

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:

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

Lancaster *et al* (2015) Generation of Cerebral Organoids from Human Pluripotent Stem Cells Nat. Protoc. ***9*** 2329. PMID: 25188634.

Kadoshima *et al* (2013) Self-organization of axial polarity, inside-out layer pattern, and species-specific progenitor dynamics in human ES cell-derived neocortex. Proc.Natl.Acad.Sci.USA. ***110*** 20284. PMID: 24277810.

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