



Technical Data Sheet:

Retinoic Acid

Catalog Number	SML07F
Synonyms	Retinoic acid (AT), Retinoic acid (All-trans), All-trans retinoic acid (ATRA), NSC 122758, Trans retinoic acid, Tretinoin, Vitamin A acid, RA
Size	500 mg
Description	Retinoic Acid (all-trans) is a metabolite of vitamin A that acts as a ligand for nuclear retinoic acid receptors (RARs, specifically RAR α / β / γ) with an IC ₅₀ of 14nM and has a major effect on the differentiation and patterning of stem cells, and therefore in the development process (Rhinn & Dolle). In the process of differentiating mouse embryonic stem cells (ESCs), Retinoic Acid has been shown to promote the growth of glial cells and functional neurons in culture (Fraichard, et al.). Furthermore, Retinoic Acid has played an important role in protocols involving the differentiation of human pluripotent stem cells (PSCs) into functional pancreatic β cells when combined with CHIR99021 (Cat. No. SML01B), SANT-1 (Cat. No. SML08B), Y27632 (Cat. No. SML13B), Compound E (Cat. No. SML02B), RepSox (Cat. No. SML06B), Triiodothyronine Salt (Cat. No. SML11F), and other growth factors (Pagliuca, et al.).
Molecular Weight	300.44
Molecular Formula	C ₂₀ H ₂₈ O ₂
Chemical Name	(all-E)-3,7-Dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenoic acid
CAS Number	302-79-4
Target	RAR/RXR; PPAR; Endogenous Metabolite
Appearance	Light yellow to yellow (Solid)
Purity	≥95% by LCMS
Solubility and Reconstitution	Soluble in DMSO up to 25 mM and Ethanol up to 2 mM, for example: 500 mg/1664.2 mL = 0.300 mg/mL = 1 mM 500 mg/832.113 mL = 0.601 mg/mL = 2 mM 500 mg/166.423 mL = 3.004 mg/mL = 10 mM 500 mg/83.211 mL = 6.009 mg/mL = 20 mM
Storage Temperature and Stability	Store at -20°C sealed, to protect from light and moisture
References	Fraichard, et al. 1995. In vitro differentiation of embryonic stem cells into glial cells and functional neurons. J of Cell Science. 108: 3181-3188. Pagliuca, et al. 2014. Generation of functional human pancreatic β cells in vitro. Cell 159: 428-439. Rhinn & Dolle. 2012. Retinoic acid signaling during development. Development. 139: 843-858.