

Hello Bio, Inc.
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500
F. 609-228-4994

customercare-usa@m2stage.hellobio.com



DATASHEET

Phorbol 12-myristate 13-acetate (PMA)

Product overview

Name	Phorbol 12-myristate 13-acetate (PMA)
Cat No	HB0502
Alternative names	PMA; TPA
Biological action	Activator
Purity	>99%
Customer comments	<i>Shipping at RT but it works properly. cheap and quick delivery. Verified customer, Seoul National University</i>

Description	PKC activator. Widely used for THP-1 cell differentiation and with ionomycin for stimulating cytokine production
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Images



Biological Data

Biological description	Phorbol 12-myristate 13-acetate (PMA) is a protein kinase C (PKC) activator which associates to the C1 domain. It is structurally analogous to diacylglycerol and has various biological actions. It induces ERK1/2 activation.
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It is widely used to differentiate THP-1 cells for use as a model for function and biology of human macrophages.

It is frequently used with **ionomycin** to stimulate intracellular cytokine production in T-cells. Also used with Concanavalin A (ConA) to stimulate DNA and protein synthesis.

PMA also facilitates long term potentiation in hippocampal neurons via δ and ϵ PKC binding sites.

Additionally, PMA potentiates exocytosis and modulates vesicle fusion kinetics.

It is a potent tumor promoter.

Solubility & Handling

Storage instructions

-20 °C (protect from light)

Solubility overview

Soluble in DMSO (100mM)

Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

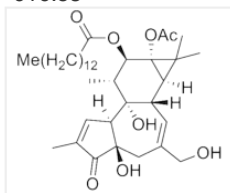
Chemical name

(1a*R*,1b*S*,4a*R*,7a*S*,7b*S*,8*R*,9*R*,9a*S*)-9a-(Acetyloxy)-1a,1b,4,4a,5,7a,7b,8,9,9a-decahydro-4a,7b-dihydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-5-oxo-1*H*-cyclopropa[3,4]benz[1,2-*e*]azulen-9-yl tetradecanoate

Molecular Weight

616.83

Chemical structure



Molecular Formula

C₃₆H₅₆O₈

CAS Number

16561-29-8

PubChem identifier

27924

SMILES

CCCCCCCCCCCCC(=O)O[C@@H]1[C@H]([C@]2([C@@H](C=C(C[C@]3([C@H]2C=C(C3=O)C)O)CO)[C@H]4[C@@]1(C4(C)C)OC(=O)C)O)C

InChi

InChI=1S/C36H56O8/c1-7-8-9-10-11-12-13-14-15-16-17-18-29(39)43-32-24(3)35(42)27(30-33(5,6)36(30,32)44-25(4)38)20-26(22-37)21-34(41)28(35)19-23(2)31(34)40/h19-20,24,27-28,30,32,37,41-42H,7-18,21-22H2,1-6H3/t24-,27+,28-,30-,32-,34-,35-,36-/m1/s1

InChiKey

PHEDXBVPIONUQT-RGYGYFBISA-N

MDL number

MFCD00036736

References

Phorbol 12-myristate 13-acetate inhibits P-glycoprotein-mediated efflux of DGX in MDCKII-MDR1 and Caco-2 cell monolayer models.

Li YH *et al* (2014) Acta Pharmacol Sin 35(2)

PubMedID [24362330](#)

Phorbol ester phorbol-12-myristate-13-acetate promotes anchorage-independent growth and survival of melanomas through MEK-independent activation of ERK1/2.

Jørgensen K *et al* (2005) Biochem Biophys Res Commun 329(1)

PubMedID [15721302](#)

Involvement of PKC alpha in PMA-induced facilitation of exocytosis and vesicle fusion in PC12 cells.

Xue R *et al* (2009) Biochem Biophys Res Commun 380(2)

PubMedID [19250646](#)

Phorbol 12-Myristate 13-Acetate Enhances Long-Term Potentiation in the Hippocampus through Activation of Protein Kinase Cδ and ε.

Kim EC *et al* (2013) Korean J Physiol Pharmacol 17(1)

PubMedID [23440225](#)