

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

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

customercare-usa@hellobio.com



## DATASHEET

Phorbol 12-myristate 13-acetate (PMA)

### Product overview

<b>Name</b>	Phorbol 12-myristate 13-acetate (PMA)
<b>Cat No</b>	HB0502
<b>Alternative names</b>	PMA; TPA
<b>Biological action</b>	Activator
<b>Purity</b>	>99%
<b>Customer comments</b>	<i>Shipping at RT but it works properly. cheap and quick delivery. Verified customer, Seoul National University</i>
<b>Description</b>	PKC activator. Widely used for THP-1 cell differentiation and with ionomycin for stimulating cytokine production

### 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.

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  $\delta$  and  $\epsilon$  PKC binding sites.

Additionally, PMA potentiates exocytosis and modulates vesicle fusion kinetics.

It is a potent tumor promoter.

### Solubility & Handling

#### Storage instructions Solubility overview

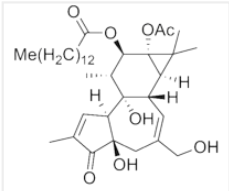
-20 °C (protect from light)  
Soluble in DMSO (100mM)

**Important**

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

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## Chemical Data

<b>Chemical name</b>	(1 <i>aR</i> ,1 <i>bS</i> ,4 <i>aR</i> ,7 <i>aS</i> ,7 <i>bS</i> ,8 <i>R</i> ,9 <i>R</i> ,9 <i>aS</i> )-9 <i>a</i> -(Acetyloxy)-1 <i>a</i> ,1 <i>b</i> ,4,4 <i>a</i> ,5,7 <i>a</i> ,7 <i>b</i> ,8,9,9 <i>a</i> -decahydro-4 <i>a</i> ,7 <i>b</i> -dihydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-5-oxo-1 <i>H</i> -cyclopropa[3,4]benz[1,2- <i>e</i> ]azulen-9-yl tetradecanoate
<b>Molecular Weight</b>	616.83
<b>Chemical structure</b>	
<b>Molecular Formula</b>	C <sub>36</sub> H <sub>56</sub> O <sub>8</sub>
<b>CAS Number</b>	16561-29-8
<b>PubChem identifier</b>	27924
<b>SMILES</b>	CCCCCCCCCCCC(=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
<b>InChi</b>	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
<b>InChiKey</b>	PHEDXBVPIONUQT-RGYGYFBISA-N
<b>MDL number</b>	MFCD00036736

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## 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](#)

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