

PRODUCT INFORMATION



Okadaic Acid

Item No. 10011490

CAS Registry No.: 78111-17-8

Formal Name: (6R)- α R,5R-dihydroxy- α ,10-dimethyl-8S-[(2E)-1R-methyl-3-[(2R,4'aR,8'aS)-octahydro-8'R-hydroxy-6'S-[1S-hydroxy-3S-[(6S)-3R-methyl-1,7-dioxaspiro[5.5]undec-2S-yl]butyl]-7'-methylenespiro[furan-2(3H),2'(3'H)-pyrano[3,2-b]pyran]-5R-yl]-2S-propen-1-yl]-1,7-dioxaspiro[5.5]undec-10-ene-2S-propanoic acid

Synonyms: Acanthifolicin, 35-demethyl DTX1, NSC 677083, OA

MF: $C_{44}H_{68}O_{13}$

FW: 805.0

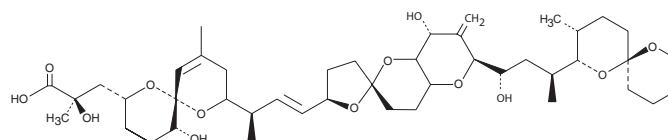
Purity: $\geq 95\%$

Supplied as: A solution in ethanol

Storage: -20°C

Stability: ≥ 2 years

Item Origin: Alga/*Prorocentrum lima*



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Description

Okadaic acid is a marine sponge toxin which potently inhibits certain serine/threonine protein phosphatases. This cell permeable inhibitor targets the multiple isoforms of PP1 ($IC_{50} = 10\text{-}50\text{ nM}$), both isoforms of PP2A ($IC_{50} = 0.5\text{ nM}$) and PP3 ($IC_{50} = 4\text{ nM}$).¹⁻³ It is a very weak inhibitor of PP2B ($IC_{50} > 2\text{ }\mu\text{M}$) and does not inhibit PP2C or other phosphatases.^{1,3} Presumably through these actions, okadaic acid is a potent carcinogen and induces tau phosphorylation.^{4,5} In sponge, okadaic acid plays a role in defense, inducing apoptosis in symbiotic or parasitic annelids.⁶

References

1. Bialojan, C. and Takai, A. Inhibitory effect of a marine-sponge toxin, okadaic acid, on protein phosphatases. Specificity and kinetics. *Biochem. J.* **256**(1), 283-290 (1988).
2. Gupta, V., Ogawa, A.K., Du, X., *et al.* A model for binding of structurally diverse natural product inhibitors of protein phosphatases PP1 and PP2A. *J. Med. Chem.* **40**(2), 3199-3206 (1997).
3. McCluskey, A., Sim, A.T.R., and Sakoff, J.A. Serine-threonine protein phosphatase inhibitors: Development of potential therapeutic strategies. *J. Med. Chem.* **45**(6), 1151-1175 (2002).
4. Suganuma, M., Fujiki, H., Suguri, H., *et al.* Okadaic acid: An additional non-phorbol-12-tetradecanoate-13-acetate-type tumor promoter. *Proc. Natl. Acad. Sci. USA* **85**(6), 1768-1771 (1988).
5. Zhang, Z. and Simpkins, J.W. Okadaic acid induces tau phosphorylation in SH-SY5Y cells in an estrogen-preventable manner. *Brain Res.* **1345**, 176-181 (2010).
6. Schröder, H.C., Breter, H.J., Fattorusso, E., *et al.* Okadaic acid, an apoptogenic toxin for symbiotic/parasitic annelids in the demosponge *Suberites domuncula*. *Appl. Environ. Microbiol.* **72**(7), 4907-4916 (2006).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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