

Product Data Sheet

Product Name: 17-ODYA

Cat. No.: GC12757

Chemical Properties

Cas. No. 34450-18-5

Chemical Name octadec-17-ynoic acid

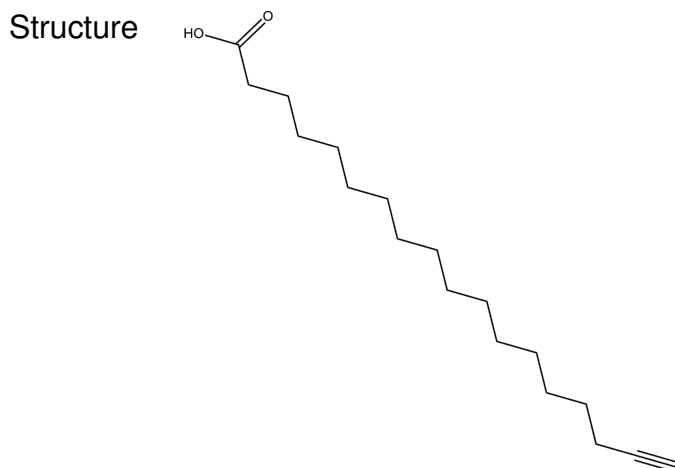
SMILES OC(CCCCCCCCCCCCCCCC#C)=O

Formula $C_{18}H_{32}O_2$ M.Wt 280.45

Solubility 1 mg/mL in DMSO, 10mg/mL in DMF, 10mg/mL in ethanol Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.



Protocol

Cell experiment [1]:

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Cell lines	Human neutrophils
Preparation Method	Pre-warmed human neutrophil suspensions (37°C, 5 million cells/ml in HBSS containing 1.6 mM CaCl ₂) were incubated 5 minutes with vehicle (DMSO), PF-4708671 (30μM, 5 minutes), or 17-ODYA (30μM, 30 minutes), then treated with 1μM of LTB ₄ for the indicated times. Samples then were processed and analyzed for LTB ₄ biosynthesis, then performing kinetic experiments in which neutrophils were incubated with 1μM LTB ₄ .
Reaction Conditions	30μM 17-ODYA for 30 minutes
Applications	17-ODYA increased LTB ₄ half-life by 5 folds, from ~10 sminutes to ~50 minutes. In comparison, PF-4708671 increased the half-life of LTB ₄ by 7.5 folds, from ~20 minutes to ~150 minutes.
Animal experiment [2]:	
Animal models	Male Sprague-Dawley rats (9-12 week old)
Preparation Method	Rats (n=9) were pretreated 30 mins before subarachnoid hemorrhage (SAH) with N-hydroxy-N'-(4-butyl-2-methylphenyl) formamidine (HET0016) (10mg/kg iv) or 17-ODYA (1.5nmol intrathecally) (n=7 each) or vehicle (n=15). An additional control group of rats (n=9) received an infusion of an equal volume of artificial cerebrospinal fluid in the cisterna magna SAH was induced by injecting 0.3 mL of blood into the cisterna magna over a 10-min period. The effects of two inhibitors on the changes on regional cerebral blood flow (rCBF) after induction of SAH were measured with laser-Doppler flowmetry.
Dosage form	1.5nM, 50μL, cisterna magna injection

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Applications Both 17-ODYA and HET0016 attenuated fall in rCBF recorded at 10mins after induction of SAH by 40%, and rCBF completely recovered within 60mins after induction of SAH in rats treated with 17-ODYA and within 90mins in rats treated with HET0016.

References:

- [1] Archambault A S, Turcotte C, Martin C, et al. Leukotriene B₄ Metabolism and p70S6 Kinase 1 Inhibitors: PF-4708671 but Not LY2584702 Inhibits CYP4F3A and the ω -Oxidation of Leukotriene B₄ In Vitro and In Cellulo[J]. Plos one, 2017, 12(1): e0169804.
- [2] Kehl F, Cambj-Sapunar L, Maier K G, et al. 20-HETE contributes to the acute fall in cerebral blood flow after subarachnoid hemorrhage in the rat[J]. American Journal of Physiology-Heart and Circulatory Physiology, 2002, 282(4): H1556-H1565.

Background

17-ODYA, a non-selective inhibitor of both ω -hydroxylation and epoxygenation of arachidonic acid via cytochrome P₄₅₀ (IC₅₀[1,2].

17-ODYA as the highest unique metabolite in periapical abscesses, acts an essential role in the Pathogenesis of Periapical Abscesses, one of the most frequent pathologic lesions in the alveolar bone. 17-ODYA caused significant up-regulation of interleukin-1 α , interleukin-1 β , interleukin-6, matrix metalloproteinase-1, monocyte chemoattractant protein-1 and platelet-derived growth factor alpha and vascular endothelial growth factor alpha at 10 μ mol/L in periodontal ligament fibroblasts. 1 μ mol/L 17-ODYA caused the same effect in peripheral blood mononuclear cells. These affected cytokines have important biological activities in coordinating the body's response to infection[3].

17-ODYA delivered via the superfusate for 45mins at 10mmol/l, inhibits both local and conducted responses of microiontophoresis of ACh evoked vasodilation that conducted along arterioles in C57Bl6 mice[4].

References:

- [1] Zou A P, Ma Y H, Sui Z H, et al. Effects of 17-octadecynoic acid, a suicide-substrate inhibitor of cytochrome P₄₅₀ fatty acid omega-hydroxylase, on renal function in rats[J]. Journal of Pharmacology

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

and Experimental Therapeutics, 1994, 268(1): 474-481.

[2] Manicam C, Ginter N, Li H, et al. Compensatory vasodilator mechanisms in the ophthalmic artery of endothelial nitric oxide synthase gene knockout mice[J]. Scientific reports, 2017, 7(1): 7111.

[3] Altaie A M, Mohammad M G, Madkour M I, et al. The essential role of 17-octadecynoic acid in the pathogenesis of periapical abscesses[J]. Journal of Endodontics, 2023, 49(2): 169-177. e3.

[4] Hnngerford J E, Sessa W C, Segal S S. Vasomotor control in arterioles of the mouse cremaster muscle[J]. The FASEB journal, 2000, 14(1): 197-207.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA