
Product Data Sheet

Product Name: Estradiol-d4

Cat. No.: GC63643

Chemical Properties

Cas. No. 66789-03-5

Formula $C_{18}H_{20}D_4O_2$

M.Wt 276.41

Solubility DMSO : 125 mg/mL (452.23 mM; Need ultrasonic) 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.

Structure

Background

Estradiol-D4 (β -Estradiol-D4) is the deuterium labeled Estradiol. Estradiol is a steroid sex hormone vital to the maintenance of fertility and secondary sexual characteristics in females. Estradiol upregulates IL-6 expression through the estrogen receptor β (ER β) pathway[1][2][3].

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother.* 2019;53(2):211-216. [2]. Woolley CS, et al. Estradiol increases the sensitivity of hippocampal CA1 pyramidal cells to NMDA receptor-mediated synaptic input: correlation with dendritic spine density. *J Neurosci.* 1997 Mar 1;17(5):1848-59.; Mermelstein PG, et al. Estradiol reduces calcium currents in rat neostriatal neurons via a membrane receptor. *J Neurosci.* 1996 Jan 15;16(2):595-604.; Quanfu Huang, et al. 17 β -estradiol Upregulates IL6 Expression Through the ER β Pathway to Promote Lung Adenocarcinoma Progression. *J Exp Clin Cancer Res.* 2018 Jul

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

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3;37(1):133.;Woolley CS, et al. Estradiol mediates fluctuation in hippocampal synapse density during the estrous cycle in the adult rat. J Neurosci. 1992 Jul;12(7):2549-54.;Woolley CS, et al. Roles of estradiol and progesterone in regulation of hippocampal dendritic spine density during the estrous cycle in the rat. J Comp Neurol. 1993 Oct 8;336(2):293-306.;Harburger LL, et al. Dose-dependent effects of post-training estradiol plus progesterone treatment on object memory consolidation and hippocampal extracellular signal-regulated kinase activation in young ovariectomized mice. Neuroscience. 2009;160(1):6-12.

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