Estradiol-d_4

Cat. No.: HY-B0141S1

CAS No.: 66789-03-5

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

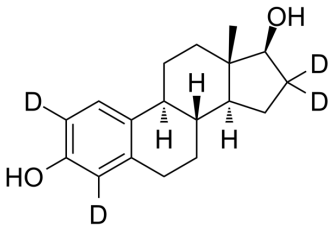
Molecular Weight: 276.41

Target: Estrogen Receptor/ERR; Endogenous Metabolite

Pathway: Vitamin D Related/Nuclear Receptor; Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

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

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6178 mL	18.0891 mL	36.1781 mL
	5 mM	0.7236 mL	3.6178 mL	7.2356 mL
	10 mM	0.3618 mL	1.8089 mL	3.6178 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (7.53 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.53 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.53 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Estradiol-d_4 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 (ERβ) pathway[1][2][3].

In Vitro

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].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[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. 17β-estradiol Upregulates IL6 Expression Through the ERβ Pathway to Promote Lung Adenocarcinoma Progression. J Exp Clin Cancer Res. 2018 Jul 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.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA