Estradiol

Catalog Number: C502820

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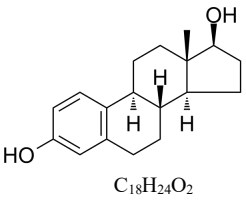
DESCRIPTION

Background	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].		
Alias	β-Estradiol; E2; 17β-Estradiol; 17β-Oestradiol 雌二醇；强力求偶素		
M. W t	272.38		
Formula	$C_{18}H_{24}O_2$		
CAS No	50-28-2		
Storage	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month
Solubility	DMSO	≥ 100 mg/mL(283.71 mM)	
	Ethanol	14 mg/mL(51.40 mM)	
	H2O	< 0.1 mg/mL(insoluble)	



$C_{18}H_{24}O_2$

BIOLOGICAL ALTIVITY

In Vitro

Estradiol causes new dendritic spines and synapses in hippocampal CA1 pyramidal cells. Estradiol increases NMDA receptor binding by 46% in parallel with dendritic spine and synapse density. Estradiol also elevates sensitivity of CA1 pyramidal cells to NMDA receptor-mediated synaptic input and such an effect is correlated with the estradiol-induced increase in dendritic spine density in the apical dendritic tree of these cells[1]. Estradiol reduces Ba^{2+} entry reversibly via Ca^{2+} channels in acutely dissociated and cultured neostriatal neurons. Estradiol also reduces Ba^{2+} currents but is significantly less effective than Estradiol in rat neostriatal neurons[2].

In Vivo

Estradiol functions in hippocampal synapse density during the estrous cycle in the adult rat[4].Estradiol reverses the ovariectomy-induced decrease in spine density. Estradiol in combination with progesterone enhances spine density for 2 to 6 h but decreases following estradiol alone[5].Estradiol (0.2 mg/kg; i.p.; C57BL/6 female mice) plus 10 or 20 mg/kg progesterone, enhances memory consolidation in young ovariectomized mice[6].

REFERENCES

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[6]. 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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