

Estradiol

Chemical Properties

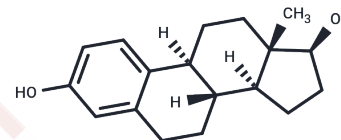
CAS No. : 50-28-2

Formula: C₁₈H₂₄O₂

Molecular Weight: 272.38

Storage: Keep away from direct sunlight, Store under nitrogen
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Estradiol (E2) is a naturally occurring steroidal sex hormone that is essential for female fertility and maintenance of secondary sexual characteristics. Estradiol upregulates IL-6 expression through estrogen receptor beta (ERβ).
Targets(IC50)	Estrogen Receptor/ERR, Estrogen/progestogen Receptor, Endogenous Metabolite
In vitro	<p>METHODS: Human lens epithelial cells HLEC were treated with Estradiol (0.001-10 μM) for 24 h. Cell viability was measured using the MTT.</p> <p>RESULTS: The number of viable cells was significantly reduced in the presence of 10 μM Estradiol. [1]</p> <p>METHODS: Human breast cancer cells MB231 were treated with Estradiol (100 nM) for 24 h. Cell motility was detected using scratch/wound healing assay and transwell assay.</p> <p>RESULTS: Estradiol treatment reduced the migration and invasion of MB231 cells. [2]</p>
In vivo	<p>METHODS: To assay in vivo activity, Estradiol (0.2 mg/kg) and progesterone (5-20 mg/kg) were administered intraperitoneally as a single injection to ovariectomized C57BL/6 female mice.</p> <p>RESULTS: Mice receiving Estradiol alone or Estradiol plus 10-20 mg/kg progesterone showed significantly enhanced memory for new objects. [3]</p> <p>METHODS: To assay in vivo activity, Estradiol (0.2 mg/kg) was administered by gavage to ovariectomized C57BL/6 female mice once daily for two weeks.</p> <p>RESULTS: Long-term activation of ERβ reduced hot flash-like symptoms and enhanced spatial and object recognition memory in ovariectomized mice. [4]</p>
Cell Research	Estradiol is dissolved in 0.01% ethanol. Briefly, B9 cells (5×10 ³ /well of a 96-well plate) are cultured with a series of dilutions of the supernatants in a final volume of 100 mL of RPMI 1640, supplemented with 5×10 ⁻⁵ mol/L of 2-mercaptoethanol, 10% FBS, 100 U/mL penicillin, and 100 μg/mL streptomycin in flat-bottom microtiter plates. After 42 h, 0.5 μCi of [3H]thymidine is added. 6 h later, the cells are harvested and the radioactivity incorporated is determined. IL-6 is quantitated from a standard curve set up with known amounts of recombinant human or mouse IL-6. The anti-IL-6 monoclonal antibody completely inhibited the ability of the B9 cells to proliferate in response to recombinant mouse IL-6. In addition, we determined that B9 cells do not proliferate in response to IL-1 or TNF, and that antibodies to these two cytokines did not affect the cell proliferation in response to IL-6. Further, it is established that neither Estradiol (17β-estradiol), nor the 0.01% ethanol used as vehicle in these experiments, has any effect on the bioassay.

Solubility Information

Solubility	H2O: <1 mg/mL (insoluble) Ethanol: 20.4 mg/mL (74.9 mM),Sonication is recommended. DMSO: 250 mg/mL (917.84 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.73 mg/mL (10.02 mM),Suspension. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.6713 mL	18.3567 mL	36.7134 mL
5 mM	0.7343 mL	3.6713 mL	7.3427 mL
10 mM	0.3671 mL	1.8357 mL	3.6713 mL
50 mM	0.0734 mL	0.3671 mL	0.7343 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

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