Estradiol hemihydrate

Cat. No.: HY-B0141C

CAS No.: 35380-71-3

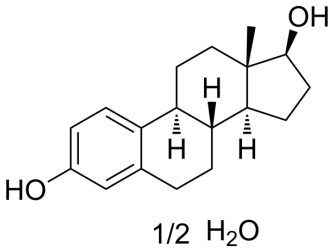
Molecular Formula: $C_{18}H_{26}O_3$

Molecular Weight: 281.39

Target: Estrogen Receptor/ERR; Endogenous Metabolite; Bacterial

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

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Estradiol (β-Estradiol) hemihydrate is a steroid hormone and the major female sex hormone. Estradiol (β-Estradiol) hemihydrate can up-regulate the expression of neural markers of human endometrial stem cells (hEnSCs) and promote their neural differentiation. Estradiol (β-Estradiol) hemihydrate can be used for the research of cancers, neurodegenerative diseases and neural tissue engineering[1][2].

In Vitro

Estradiol hemihydrate (10 nM, 7 days) induces neural differentiation and increased neurite branching of human endometrial stem cells (hEnSCs)[1].

Estradiol hemihydrate (17β-estradiol, 10 nM, 7 days) increases the expression of neuron-like cell markers (Tuj-1, nestin and NF-H) in neural-like cells differentiated from hEnSCs[1].

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

Cell Differentiation Assay[1]

Cell Line:	Isolated human endometrial stem cells (hEnSCs) from human endometrial tissue
Concentration:	10 nM
Incubation Time:	7 days
Result:	Increased the percentage of neural marker (Tuj-1, nestin and NF-H)-positive cells of 62.2±1.3%, 71.5±4% and 51.2±1.5% respectively.

Immunofluorescence[1]

Cell Line:	Isolated human endometrial stem cells (hEnSCs) from human endometrial tissue
Concentration:	10 nM
Incubation Time:	7 days
Result:	Increased the percentage of neural marker (Tuj-1, nestin and NF-H)-positive cells of 62.2±1.3%, 71.5±4% and 51.2±1.5% respectively.

In Vivo

Estradiol hemihydrate (1 nM, the hippocampal slices from FBN-ARO-KO mice) rescues long-term potentiation (LTP) amplitude[1].

Estradiol hemihydrate (0.0167 mg, implanted s.c., FBN-ARO-KO mice) rescues the molecular and functional deficits in FBN-

ARO-KO mice[1].

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

Animal Model:	FBN-ARO-KO Mice[2]
Dosage:	1 nM
Administration:	Treated for the hippocampal slices
Result:	Rescued long-term potentiation (LTP) amplitude of both male and female mice.

Animal Model:	FBN-ARO-KO Mice[2]
Dosage:	0.0167 mg
Administration:	Alzet minipumps with Estradiol (implanted s.c.), examined 7 days after minipump implantation.
Result:	Restored hippocampal and cortical E2 levels to 93%, phosphorylation of AKT, ERK and CREB in the hippocampus and cortex to 90-95%, BDNF level to 80-90%, restored both synaptophysin and PSD95 in the forebrain. Rescued the spatial learning and memory defects.

CUSTOMER VALIDATION

- Nat Chem Biol. 2022 Aug 18.
- Biosens Bioelectron. 12 July 2022, 114548.
- Theranostics. 2020 Aug 29;10(24):10874-10891.
- Neurobiol Stress. 2020 Oct 14;13:100256.
- NPJ Regen Med. 2023 May 2;8(1):23.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Elham Hasanzadeh. Defining the role of 17β-estradiol in human endometrial stem cells differentiation into neuron-like cells. Cell Biol Int. 2021 Jan;45(1):140-153.

[2]. Yujiao Lu, et al. Neuron-Derived Estrogen Regulates Synaptic Plasticity and Memory. J Neurosci. 2019 Apr 10;39(15):2792-2809.

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