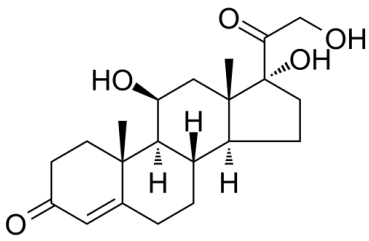
Data Sheet

Product Name:	Hydrocortisone
Cat. No.:	CS-2226
CAS No.:	50-23-7
Molecular Formula:	C21H30O5
Molecular Weight:	362.46
Target:	Endogenous Metabolite; Glucocorticoid Receptor
Pathway:	GPCR/G Protein; Metabolic Enzyme/Protease
Solubility:	DMSO : ≥ 31 mg/mL (85.53 mM)



BIOLOGICAL ACTIVITY:

Hydrocortisone is a steroid hormone or glucocorticoid secreted by the adrenal cortex. **In Vitro:** Hydrocortisone (50 nM) shows a dose-dependent down-regulation of GR transcript in hCMEC/D3 cells. Hydrocortisone supplementation of the serum-reduced cell differentiation medium leads to a significant increase in TER across the hCMEC/D3 monolayer[1]. Hydrocortisone-treated Dendritic cells (DCs) show a decreased expression of MHC II molecules, the costimulatory molecule CD86, and the DC-specific marker CD83, as well as a strongly reduced IL-12 secretion. Hydrocortisone-treated DCs inhibit production of IFN-γ but induce an increased release of IL-4 and no change in IL-5[2]. Hydrocortisone reduces postischemic oxidative stress, perfusion pressure, and transudate formation. Hydrocortisone inhibits postischemic shedding of syndecan-1, heparan sulfate, and hyaluronan as is release of histamine from resident mast cells[3].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: [1]Cells are plated on top of collagen IV-coated transwell chambers for six-well plates (24 mm diameter, membrane material: polyethylene terephthalate (PET), 0.4 μm pores, pore density 1.6×10^6 cm^2) at densities of 2.5×10^4 cells cm^2 per well. When they have reached confluence at day 5, the different experimental sets of cells are transferred to differentiation medium containing reduced amounts of FCS and treated with TNFα or hydrocortisone as indicated.

References:

[1]. F?rster C, et al. Differential effects of hydrocortisone and TNFalpha on tight junction proteins in an in vitro model of the human blood-brain barrier. J Physiol. 2008 Apr 1;586(7):1937-49.

[2]. Bellinghausen I, et al. Inhibition of human allergic T-cell responses by IL-10-treated dendritic cells: differences from hydrocortisone-treated dendritic cells. J Allergy Clin Immunol. 2001 Aug;108(2):242-9.

[3]. Chappell D, et al. Hydrocortisone preserves the vascular barrier by protecting the endothelial glycocalyx. Anesthesiology. 2007 Nov;107(5):776-84.

CAIndexNames:

Pregn-4-ene-3,20-dione, 11,17,21-trihydroxy-, (11β)-

SMILES:

C[C@@]1([C@@]2(O)C(CO)=O)[C@](CC2)([H])[C@@](CCC3=CC4=O)([H])[C@]([C@]3(CC4)C)([H])[C@@H](O)C1

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

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