

Hydrocortisone

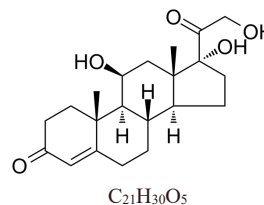
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OrganRegen, INC.
Creating Solutions for Organoid Cultures

DESCRIPTION

Background	Hydrocortisone is a steroid hormone or glucocorticoid secreted by the adrenal cortex ^[1] .		
Alias	Cortisol; 氢化可的松; 17-羟基皮质(甾)酮; 皮质甾醇; 氢化皮质素		
M. W t	362.46		
Formula	C ₂₁ H ₃₀ O ₅		
CAS No	50-23-7		
Storage	Powder	-20 °C	3 years
	In solvent	-80 °C	6 months
		-20 °C	1 month
Solubility	DMSO	≥ 31 mg/mL(85.53 mM)	
	Ethanol	23 mg/mL(63.46 mM)	
	H ₂ O	< 0.1 mg/mL(insoluble)	



BIOLOGICAL ACTIVITY

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].

In Vivo

NCT00621985	Boston Children's Hospital	Adrenal Hyperplasia, Congenital	Phase 2
NCT03910088	Cairo University	Post-Dural Puncture Headache	Phase 4
NCT00657306	University of Turin, Italy	Cirrhosis With Ascites	Phase 2

REFERENCES

- [1]. Förster C, et al. Differential effects of hydrocortisone and TNF α 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.