

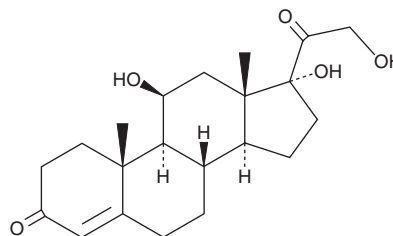
PRODUCT INFORMATION



Hydrocortisone

Item No. 20739

CAS Registry No.: 50-23-7
Formal Name: (11 β)-11,17,21-trihydroxy-pregn-4-ene-3,20-dione
Synonyms: Cortisol, Dihydrocortisone, NSC 10483
MF: C₂₁H₃₀O₅
FW: 362.5
Purity: \geq 98%
UV/Vis.: λ_{max} : 242 nm
Supplied as: A crystalline solid
Storage: Room temperature
Stability: \geq 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Hydrocortisone is supplied as a crystalline solid. A stock solution may be made by dissolving the hydrocortisone in the solvent of choice, which should be purged with an inert gas. Hydrocortisone is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of hydrocortisone in these solvents is approximately 2, 20, and 30 mg/ml, respectively.

Hydrocortisone is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, hydrocortisone should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Hydrocortisone has a solubility of approximately 0.20 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Cortisol, known as hydrocortisone when used as a therapeutic, is a glucocorticoid produced by the adrenal cortex in response to adrenocorticotrophic hormone (ACTH).^{1,2} It is an agonist at the mineralocorticoid receptor (MR) and the glucocorticoid receptor, with an approximately 6- to 10-fold greater affinity for MR. Cortisol production is increased during periods of stress, and it is a major effector molecule in the hypothalamic-pituitary-adrenal axis (HPA) stress response.² Cortisol levels increase with age and are often elevated in major depressive disorder, certain forms of hypertension, and Parkinson's disease.³⁻⁵

References

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2. Dunlop, B.W. and Wong, A. The hypothalamic-pituitary-adrenal axis in PTSD: Pathophysiology and treatment interventions. *Prog. Neuropsychopharmacol. Biol. Psychiatry* **89**, 361-379 (2019).
3. Quinkler, M. and Stewart, P.M. Hypertension and the cortisol-cortisone shuttle. *J. Clin. Endocrinol. Metab.* **88(6)**, 2384-2392 (2003).
4. Varghese, F.P. and Brown, E.S. The hypothalamic-pituitary-adrenal axis in major depressive disorder: A brief primer for primary care physicians. *Prim. Care Companion J. Clin. Psychiatry* **3(4)**, 151-155 (2001).
5. Soares, N.M., Pereira, G.M., Altmann, V., et al. Cortisol levels, motor, cognitive and behavioral symptoms in Parkinson's disease: A systematic review. *J. Neural Transm. (Vienna)* (2018).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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