

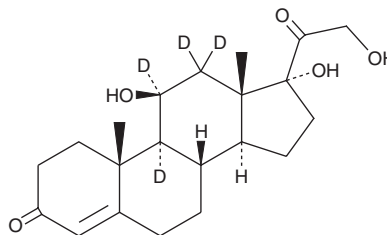
PRODUCT INFORMATION



Hydrocortisone-d₄

Item No. 26500

CAS Registry No.: 73565-87-4
Formal Name: (11β)-11,17,21-trihydroxy-pregn-4-ene-3,20-dione-9,11,12,12-d₄
Synonym: Cortisol-d₄
MF: C₂₁H₂₆D₄O₅
FW: 366.5
Chemical Purity: ≥98% (Hydrocortisone)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Hydrocortisone-d₄ is intended for use as an internal standard for the quantification of hydrocortisone/cortisol (Item No. 20739) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Hydrocortisone-d₄ is supplied as a solid. A stock solution may be made by dissolving the hydrocortisone-d₄ in the solvent of choice, which should be purged with an inert gas. Hydrocortisone-d₄ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of hydrocortisone-d₄ in these solvents is approximately 2, 20, and 30 mg/ml, respectively.

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 (GR), 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

1. Krieger, D.T. Rhythms of ACTH and corticosteroid secretion in health and disease, and their experimental modification. *J. Steroid Biochem.* **6**(5), 785-791 (1975).
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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