

Product Data Sheet

Product Name: Hydrocortisone-d4

Cat. No.: GC47440

Chemical Properties

Cas. No. 73565-87-4

SMILES O=C1CC[C@@]2(C)C(CC[C@]3([H])[C@]2([2H])[C@](O)([2H])C([2H])([2H])[C@@]4(C)[C@@]3([H])CC[C@]4(O)C(CO)=O)=C1

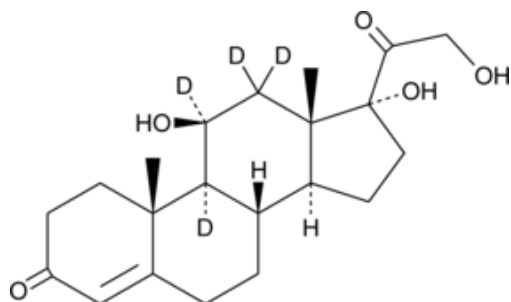
Formula $C_{21}H_{26}D_4O_5$ M.Wt 366.5

Solubility DMF: 30 mg/ml, DMF:PBS (pH 7.2) (1:4): 0.2 mg/ml, DMSO: 20 mg/ml, Ethanol: 2 mg/ml
Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Hydrocortisone-d4 is intended for use as an internal standard for the quantification of hydrocortisone/cortisol by GC- or LC-MS. 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

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major depressive disorder, certain forms of hypertension, and Parkinson's disease.^{3,4,5}

1.Krieger, D.T.Rhythms of ACTH and corticosteroid secretion in health and disease, and their experimental modificationJ. Steroid Biochem.6(5)785-791(1975) 2.Dunlop, B.W., and Wong, A.The hypothalamic-pituitary-adrenal axis in PTSD: Pathophysiology and treatment interventionsProg. Neuropsychopharmacol. Biol. Psychiatry89361-379(2019) 3.Quinkler, M., and Stewart, P.M.Hypertension and the cortisol-cortisone shuttleJ. 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 physiciansPrim. Care Companion J. Clin. Psychiatry3(4)151-155(2001) 5.Soures, N.M., Pereira, G.M., Altmann, V., et al.Cortisol levels, motor, cognitive and behavioral symptoms in Parkinson's disease: A systematic reviewJ. Neural Transm. (Vienna)(2018)

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