
Product Data Sheet

Product Name: Cosyntropin (acetate)

Cat. No.: GC18804

Chemical Properties

Cas. No. 60189-34-6

Chemical Name α 1-24-corticotropin, acetate

SMILES N/A

Formula $C_{136}H_{210}N_{40}O_{31}S \cdot XC_2H_4O_2$ M.Wt 2993.5

Solubility PBS (pH 7.2): 10 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 **Protocol****Cell experiment [1]:**

Cell lines Adrenal cells

Preparation Method Adrenal cells were treated with 10nM Cosyntropin (acetate) for 48 hours.

Reaction Conditions 10nM; 48h

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Applications After Cosyntropin (acetate)-stimulated conditions, PregS and Preg demonstrated abrupt acute responses (21-and 12-fold increase at 3 hours compared with baseline, respectively) and peaked after 24 hours. In contrast, DHEAS and DHEA responded only modestly to Cosyntropin (acetate) stimulation (1.8- and 2.8-fold increase at 3 hours compared with baseline, respectively). By 48 hours after Cosyntropin (acetate) stimulation, a modest decline in PregS levels and a steep drop in Preg content, whereas the DHEAS level continued to rise slightly.

Animal experiment [2]:

Animal models Glucocorticoid-induced osteonecrosis model

Preparation Method We treated female rabbits averaging 4.48 kg with depot methylprednisolone acetate alone or Cosyntropin (acetate) 0.2µg/kg, daily, as an sc. injection. They were also administered 10 mg/kg tetracycline 5 days apart before sacrifice.

Dosage form 0.2µg/kg/day; SC; 24d

Applications Cosyntropin (acetate) stimulates vascular endothelial growth factor production in vivo and induces vascular endothelial growth factor secretion from osteoblasts via the pro-adrenocorticotrophic hormone receptor, MC2R, which supports osteoblast maturation and survival in vitro.

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References:

- [1]. Rege J, Nanba A T, Auchus R J, et al. Adrenocorticotropin acutely regulates pregnenolone sulfate production by the human adrenal in vivo and in vitro[J]. The Journal of Clinical Endocrinology & Metabolism, 2018, 103(1): 320-327.
- [2]. Siebold L, Krueger A C, Abdala J A, et al. Cosyntropin attenuates neuroinflammation in a mouse model of traumatic brain injury[J]. Frontiers in Molecular Neuroscience, 2020, 13: 109.

Background

Cosyntropin (acetate) is a synthetic peptide stimulating the release of corticosteroids such as cortisol from the adrenal gland. Cosyntropin (acetate) is currently used for the research of ulcerative colitis and Crohn's disease, juvenile/adult rheumatoid arthritis and osteoarthritis^[1].

Under the stimulation of Cosyntropin (acetate) (10nM; 48h), PregS and Preg in adrenal cells showed an acute response (increased 21-fold and 12-fold respectively over the baseline within 3h) and reached a peak after 24h. In contrast, DHEAS and DHEA did not respond much to Cosyntropin (acetate) stimulation (increased 1.8-fold and 2.8-fold respectively over the baseline after 3h). After 48h of Cosyntropin (acetate) stimulation, PregS levels decreased slightly, Preg content decreased sharply, and DHEAS levels

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continued to increase slightly [2].

Cosyntropin (acetate) (0.2µg/kg/day; SC; 24d) stimulates vascular endothelial growth factor production in vivo and induces vascular endothelial growth factor secretion from osteoblasts via the pro-adrenocorticotrophic hormone receptor, MC2R, which supports osteoblast maturation and survival in vitro^[3]. Reduced microglia/macrophage accumulation and neutrophil infiltration in conjunction with moderate improvements in spatial learning in Cosyntropin (acetate) treated TBI mice^[4].

References:

- [1]Iuliano F, Iuliano E, Rossi M. Adding Slow Release Tetracosactide Acetate to Eltrombopag Improves Haematological Response in ITP Patients with Platelet-Count Fluctuation[J]. Blood, 2018, 132: 2449.
- [2]. Rege J, Nanba A T, Auchus R J, et al. Adrenocorticotropin acutely regulates pregnenolone sulfate production by the human adrenal in vivo and in vitro[J]. The Journal of Clinical Endocrinology & Metabolism, 2018, 103(1): 320-327.
- [3].Zaidi M, Sun L, Robinson L J, et al. ACTH protects against glucocorticoid-induced osteonecrosis of bone[J]. Proceedings of the National Academy of Sciences, 2010, 107(19): 8782-8787.
- [4]. Siebold L, Krueger A C, Abdala J A, et al. Cosyntropin attenuates neuroinflammation in a mouse model of traumatic brain injury[J]. Frontiers in Molecular Neuroscience, 2020, 13: 109.

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