HSD11B1 Protein, Human (His-SUMO)

Cat. No.:	HY-P72237
Synonyms:	11 beta HSD 1; 11 beta HSD1 ; 11 beta hydroxysteroid dehydrogenase 1; 11 DH ; 11-beta hydroxysteroid dehydrogenase; type 1; 11-beta-HSD1; 11-DH; 11DH ; Corticosteroid 11 beta dehydrogenase isozyme 1; Corticosteroid 11-beta-dehydrogenase isozyme 1; CORTRD2; DHI1_HUMAN; HDL; HSD 11; HSD11; HSD11B; HSD11B1; HSD11L; member 1
Species:	Human
Source:	E. coli
Accession:	P28845 (E25-K292)
Gene ID:	3290
Molecular Weight:	Approximately 45.5 kDa

PROPERTIES

AA Sequence	E E F R P E M L Q G K K V I V T G A S K G I G R E M A Y H L A K M G A H V V V T A R S K E T L Q K V V S H C L E L G A A S A H Y I A G T M E D M T F A E Q F V A Q A G K L M G G L D M L I L N H I T N T S L N L F H D D I H H V R K S M E V N F L S Y V V L T V A A L P M L K Q S N G S I V V V S S L A G K V A Y P M V A A Y S A S K F A L D G F F S S I R K E Y S V S R V N V S I T L C V L G L I D T E T A M K A V S G I V H M Q A A P K E E C A L E I I K G G A L R Q E E V Y Y D S S L W T T L L I R N P C R K I L E F L Y S T S Y N M D R F I N K
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm sterile filtered PBS, 6% Trehalose, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US;may vary elsewhere.

DESCRIPTION

Background	HSD11B1 protein governs the reversible conversion of biologically active glucocorticoids, such as cortisone to cortisol, and 11-dehydrocorticosterone to corticosterone, in the presence of NADP(H). This enzymatic activity is crucial for the corticosteroid receptor-mediated anti-inflammatory response, as well as metabolic and homeostatic processes.

Additionally, HSD11B1 plays a role in the secretion of aqueous humor in the eye, contributing to the maintenance of a normotensive, intraocular environment. While displaying bidirectional capabilities in vitro, it predominantly functions as a reductase in vivo, thereby increasing the concentration of active glucocorticoids. The enzyme exhibits broad substrate specificity, accepting various steroid and sterol substrates. Notably, it interconverts 7-oxo- and 7-hydroxy-neurosteroids, such as 7-oxopregnenolone and 7beta-hydroxypregnenolone, 7-oxodehydroepiandrosterone and 7beta-hydroxydehydroepiandrosterone, among others. Furthermore, HSD11B1 catalyzes the stereo-specific conversion of the major dietary oxysterol, 7-ketocholesterol, into the more polar 7-beta-hydroxycholesterol metabolite, a process with implications in apoptosis, atherosclerotic lesions, lipid peroxidation, and foam cell formation. Moreover, it mediates the 7-oxo reduction of 7-oxolithocholate, providing a link between glucocorticoid activation and bile acid metabolism, ultimately influencing immune cell migration through the synthesis of 7-beta-25-dihydroxycholesterol, a ligand for the G-protein-coupled receptor Epstein-Barr virus-induced gene 2 (EBI2).

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