

# PRODUCT INFORMATION



## 11 $\beta$ -Hydroxysteroid Dehydrogenase Type 1

Item No. 10007815

### Overview and Properties

**Synonyms:** 11 $\beta$ -HSD1, HSD11 $\beta$   
**Source:** Active recombinant N-terminal His-tagged protein, expressed in *E. coli*  
**Uniprot No.:** P28845

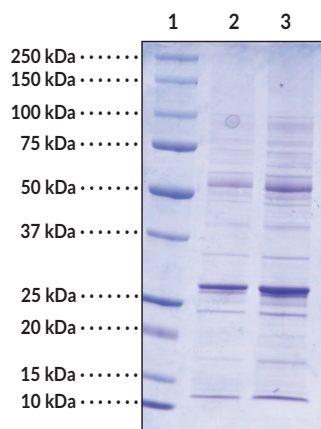
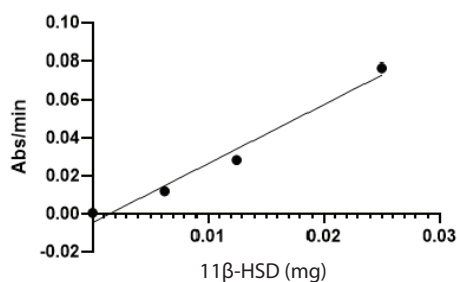
Batch specific information can be found on the Certificate of Analysis or by contacting Technical Support

**Molecular Weight:** 31.4 kDa  
**Storage:** -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein  
**Stability:** As supplied, 6 months from the QC date provided on the Certificate of Analysis, when stored properly  
**Purity:** *batch specific* ( $\geq 40\%$  estimated by SDS-PAGE)  
**Supplied in:** 50 mM Potassium phosphate pH 7.6, with 5% glycerol, 50 mM sodium chloride, 1 mM EDTA, and 0.1 mM DTT

#### Protein

**Concentration:** *batch specific* mg/ml  
**Activity:** *batch specific* U/ml  
**Unit Definition:** One unit is defined as the amount of enzyme required to consume 1 nmol NADH per minute at 37°C in 50 mM potassium phosphate buffer, pH 7.5 containing 20  $\mu$ M cortisone and 1 mM NADH

### Images



Lane 1: MW Markers  
Lane 2: Purified 11 $\beta$ -HSD1 (2  $\mu$ g)  
Lane 3: Purified 11 $\beta$ -HSD1 (4  $\mu$ g)

Representative gel image shown; actual purity may vary between each batch.

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.

WARRANTY AND LIMITATION OF REMEDY  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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11 $\beta$ -Hydroxysteroid dehydrogenase (11 $\beta$ -HSD) exists as two isozymes 11 $\beta$ -HSD1 and 11 $\beta$ -HSD2.<sup>1</sup> Both isoforms are members of the short-chain dehydrogenase/reductase (SDRs) family.<sup>2</sup> 11 $\beta$ -HSD1 is a membrane-bound glycoprotein localized on the endoplasmic reticulum. The main catalytic domain of 11 $\beta$ -HSD1 lies within the lumen of the ER. A short five amino acid N-terminal region extends into the cytoplasm and is linked to the catalytic portion through a single transmembrane helix.<sup>1</sup> 11 $\beta$ -HSD1 is a relatively low-affinity NADP-dependent enzyme with a bidirectional catalytic activity. The dehydrogenase activity of 11 $\beta$ -HSD1 catalyzes the conversion of cortisol to cortisone. The primary function of 11 $\beta$ -HSD1 is the oxoreduction of cortisone to the active glucocorticoid cortisol.<sup>2</sup> Cortisol is a steroid hormone essential for a variety of physiological and homeostatic functions.

## References

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1. Walker, E.A., Clark, A.M., Hewison, M., *et al.* Functional expression, characterization, and purification of the catalytic domain of human 11 $\beta$ -hydroxysteroid dehydrogenase type 1. *J. Biol. Chem.* **276**(24), 21343-21350 (2001).
2. Blum, A., Martin, H.-J., and Maser, E. Human 11 $\beta$ -hydroxysteroid dehydrogenase type 1 is enzymatically active in its nonglycosylated form. *Biochem. Biophys. Res. Commun.* **276**(2), 428-434 (2000).

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