# PRODUCT INFORMATION

## IDS (human, recombinant)

*Item No. 32088*

### Overview and Properties

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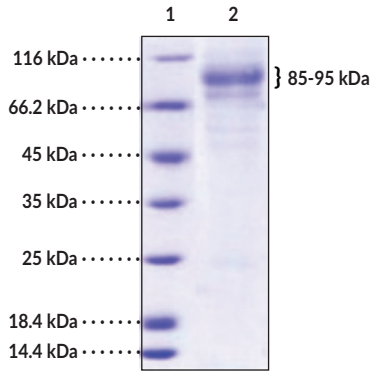
|---|---|
| **Synonyms:** | Iduronate 2-Sulfatase, α-L-Iduronate Sulfate Sulfatase, Idursulfase |
| **Source:** | Active recombinant human C-terminal His-tagged IDS expressed in HEK293 cells |
| **Amino Acids:** | 26-550 |
| **Uniprot No.:** | P22304 |
| **Molecular Weight:** | 61 kDa |
| **Storage:** | -80°C (as supplied) |
| **Stability:** | ≥1 year |
| **Purity:** | ≥87% estimated by SDS-PAGE |
| **Supplied in:** | Lyophilized from sterile PBS, pH 7.4 |
| **Endotoxin Testing:** | <1.0 EU/µg, determined by the LAL endotoxin assay |
| **Bioactivity:** | Measured by its ability to hydrolyze the substrate 4-nitrocatechol sulfate (PNCS). The specific activity is >1.0 pmoles/min/µg. |

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

### Image




**Lane 1:** MW Markers
**Lane 2:** IDS

**SDS-PAGE Analysis of IDS.** This protein has a calculated molecular weight of 61 kDa. It has an apparent molecular weight of approximately 85-95 kDa by SDS-PAGE under reducing conditions due to glycosylation.



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## Description

Iduronate 2-sulfatase (IDS) is a lysosomal exohydrolase belonging to the sulfatase family and is required for the degradation of the glycosaminoglycans heparan sulfate and dermatan sulfate.[1,2] IDS is synthesized as a 550-amino acid precursor comprised of an N-terminal signal peptide and propeptide that are cleaved during secretion and maturation, followed by two subdomains, SD1, which contains the catalytic core, and the catalytically-inactive SD2.[2-4] SD1 and SD2 can be separated by proteolytic cleavage and remain stably associated in an enzymatically active form. *IDS* is highly expressed in the brain, particularly in the cortex, amygdala, hippocampus, hypothalamus, and basal ganglia, with lower levels observed in the cerebellum and spinal cord.[3] Mutations in *IDS* resulting in IDS functional deficiencies cause Hunter syndrome, also known as mucopolysaccharidosis type II (MPS II), an X-linked lysosomal storage disease.[1,2] Formulations containing recombinant human IDS have been used in the treatment of Hunter syndrome. Cayman's IDS (human, recombinant) protein can be used for enzyme activity assay applications. This protein consists of 536 amino acids, has a calculated molecular weight of 61 kDa, and a predicted N-terminus of Ser26 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the protein migrates as several bands with apparent molecular masses of 85 to 95 kDa due to glycosylation.

## References


1. Wilson, P.J., Meaney, C.A., Hopwood, J.J., *et al.* Sequence of the human iduronate 2-sulfatase (IDS) gene. *Genomics* **17(3)**, 773-775 (1993).
2. Demydchuk, M., Hill, C.H., Zhou, A., *et al.* Insights into Hunter syndrome from the structure of iduronate-2-sulfatase. *Nat. Commun.* **8**, 15786 (2017).
3. Holmes, R.S. Comparative studies of vertebrate iduronate 2-sulfatase (*IDS*) genes and proteins: Evolution of a mammalian X-linked gene. *3 Biotech* **7(1)**, 22 (2017).
4. Wilson, P.J., Morris, C.P., Anson, D.S., *et al.* Hunter syndrome: Isolation of an iduronate-2-sulfatase cDNA clone and analysis of patient DNA. *Proc. Natl. Acad. Sci. USA* **87(21)**, 8531-8535 (1990).



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