



Chitotriosidase
Product Data Sheet

For Research Use Only, Not for use in diagnostic procedures

Chitotriosidase

Human, recombinant protein expressed in HEK293 cells, Active

Cat# CY-E1249

Amount: 10 μ g (0.5 μ g/ μ l)

Lot:

Introduction:

Chitotriosidase was discovered in plasma of patients suffering from Gaucher's disease; it was found that the 1,000-fold-elevated enzyme originates from lipid-laden macrophages that accumulate in various tissues of Gaucher's patients (1). Chitotriosidase has subsequently been purified from the spleen of a Gaucher's patient and its cDNA was cloned from a human macrophages cDNA library (2, 3). This enzyme is a human chitinase member of family 18 glycosyl hydrolases (3-5), and has the capability to hydrolyze chitin. This enzyme is selectively expressed in activated tissue macrophages that accumulate in various tissues of several lysosomal diseases (6). Therefore its activity has been proposed as a biochemical marker of macrophage accumulation in Gaucher's disease (1, 7). In some other inherited lysosomal storage disorders, especially sphingolipidoses such as Niemann Pick, GM1-gangliosidosis, and Krabbe disease, which involve accumulation of different lipids, more modest elevations in plasma chitotriosidase have been noted (7). Chitotriosidase is the only biomarker identified up to date for the monitoring the efficacy of the extremely costly enzyme-replacement therapy of Gaucher patients and male Fabry patients (8).

Elevated levels of serum chitotriosidase were also found in disorders caused by the abnormal activation of immune system, including sarcoidosis (9) and atherosclerosis (10, 11). Additional evidence for a role of chitotriosidase during immunological responses is the observation that the enzyme is shortly and acutely up-regulated both at the level of mRNA and activity following stimulation with prolactin, IFN- γ , TNF α and LPS, but not with IL-10 (12, 13).

Product Description:

Human chitotriosidase containing a C-terminal His-tag, expressed in HEK293 cells and purified by nickel chelating agarose chromatography.

Gene Information:

The gene accession number is NM_003465.2.

Gene Aliases:

Chitinase 1

Formulation:

Recombinant chitotriosidase is supplied frozen in a buffer containing 20 mM HEPES-KOH, pH 7.5, 1 mM DTT, 50 mM NaCl and 50% glycerol.

Purity:

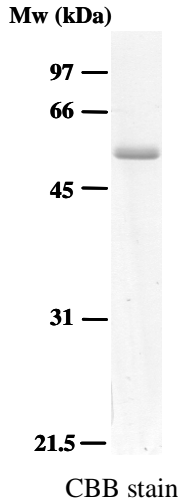
> 90 % as determined by SDS PAGE



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Molecular Weight: 56 kDa



Recombinant chitotriosidase demonstrates approximately 56 kDa band by SDS-PAGE analysis.

Storage:

Store product at -70°C . For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, AVOID REPEATED HANDLING AND MULTIPLE FREEZE/THAW CYCLES.

Stability:

Unopened vial at -70°C , for 1 year after delivery.

Specific Activity:

The specific activity was 2,940 units/ μg in our QC test as measured under the described "Assay conditions".

Unit Definitions:

One unit is defined as the amount of chitotriosidase required producing 1 nmol of 4-Methylumbelliferone from 4-Methylumbelliferyl- β -D-N,N',N''-triacetylchitotriose per minute at 30°C . Specific Activity will vary among production lots.

Assay condition:

Assay activity of chitotriosidase in a 100 μL reaction containing 20 mM citric acid, 40 mM sodium phosphate, pH 5.2, 1.0 mg/mL BSA, 20 μM 4-Methylumbelliferyl- β -D-N,N',N''-triacetylchitotriose. Incubate at 30°C . Read fluorescence intensity for 5 to 30 minutes at 2.5 to 5 minute intervals using microplate fluorometer with excitation at 360 nm and emission at 450 nm. Measure and calculate the rate of reaction while the reaction velocity remains constant.



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References:

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Related Products:

*CycLex Human Chitotriosidase Fluorometric Assay Kit: Cat# CY-1249

*CircuLex Human Chitotriosidase ELISA Kit: Cat# CY-8074



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