



Acidic Mammalian Chitinase

Product Data Sheet

For Research Use Only, Not for use in diagnostic procedures

Acidic Mammalian Chitinase

Human, recombinant protein expressed in HEK293 cells, Active

Cat# CY-E1248

Amount: 10µg (0.2 µg/µl)

Lot:

Introduction:

The glycosyl hydrolase family is quite large, with over 100 families. Acidic mammalian chitinase (AMCase) and chitotriosidase-1 are enzymatically active true chitinases in a member of the glycosyl hydrolase-18 family, identified by EC 3.2.1.14. In mammals, only these two enzymes cleave N-acetyl-beta-D-glucosamine (1->4)-beta linkages in chitodextrins and chitin, the second most abundant biopolymer that can be found in the cell walls of fungi, micro-filarial sheaths of helminths, and exoskeletons of insects and crustaceans (1). Other member included in this family are chitinase-like molecules, e.g. YKL-40/Chitinase-3-like-1 and YKL-39/chitinase-3-like-2, that are thought to lack the ability to hydrolyze the chitin linkages, but retain chitin-binding activity (2, 3) and act more like connective tissue proteins, and immediate early gene products.

AMCase was cloned as an acid-stable active enzyme and is highly expressed in the gastrointestinal tract, and to a lesser extent, in the lung and alveolar macrophages in both humans and mice (4, 5), with an optimum activity at pH 4-5 (6). AMCase as well as chitotriosidase-1 is 50 kDa proteins, consisting of a 39 kDa catalytic region separated from a chitin-binding domain by a hinge region (7, 8). They both show considerable homology to chitinases from lower organisms.

AMCase is one of the important proteins involved in Th2-mediated inflammation and has been implicated in asthma and allergic diseases by affecting the IL-13 downstream pathway (9). Inhibition of AMCase results in decreased airway inflammation and airway hyper-responsiveness in a murine asthmatic model, suggesting that the AMCase activity is a part of the mechanism of Th2 cytokine-driven inflammatory response in asthma (9).

Product Description:

Human acidic mammalian chitinase 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_201653

Gene Aliases:

CHIA, AMCase

Formulation:

Recombinant human acidic mammalian chitinase 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

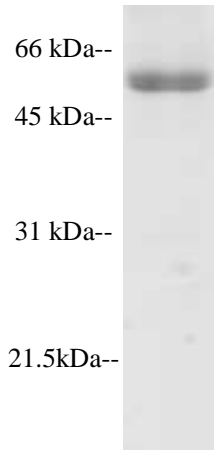


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Molecular Weight: 56 kDa



CBB stain

Recombinant human acidic mammalian chitinase 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 810 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''-triacetylchitotrioside per minute at 30°C . Specific activity will vary among production lots.

Assay condition:

Assay activity of recombinant human acidic mammalian chitinase in a $100\ \mu\text{L}$ reaction containing 20 mM citric acid, 40 mM sodium phosphate, pH 4.2, 1.0 mg/mL BSA, $20\ \mu\text{M}$ 4-Methylumbelliferyl- β -D-N,N',N''-triacetylchitotrioside. 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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Related Products:

- * CycLex Acidic Mammalian Chitinase Fluorometric Assay Kit: Cat# CY-1248
- * CycLex Chitotriosidase Fluorometric Assay Kit: Cat# CY-1249
- * CircuLex Human Chitotriosidase ELISA Kit: Cat# CY-8074

- * CycLex Human Acidic Mammalian Chitinase: Cat# CY-E1248
- * CycLex Human Chitotriosidase: Cat# CY-E1249



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