

Protease ID39, *Labilibacter marinus*

Catalogue number	Presentation
MB47101	1 mg
MB47102	3 x 1 mg

Description

Protease ID39, scientifically assigned with the Enzyme Commission (E.C.) number 3.4.22.-, is a C40 family peptidase, yet to be classified under a specific subgroup, isolated from *Labilibacter marinus*. The enzyme, produced recombinantly and purified from *Escherichia coli*, belongs to the cysteine-type peptidase category, playing a vital role in the specific degradation of the cell wall of *Chlorella vulgaris*. *Chlorella vulgaris* is a unicellular, green microalga extensively employed in various applications, such as a dietary supplement and a protein-dense food/feed additive due to its rich nutritional profile. The efficacious application of Protease ID39 in the degradation of its cell wall underscores the enzyme's potential in facilitating the extraction of intracellular contents, which can be pivotal for nutritional and biochemical applications. Protease ID39 is supplied in a solution containing 35 mM NaHepes buffer (pH 7.5), 750 mM NaCl, 200 mM Imidazole, 3.5 mM CaCl₂, and 25% (v/v) glycerol, at a concentration of 1 mg/mL. Bulk quantities of this product can be made available upon request.

Electrophoretic Purity

The molecular integrity and purity of Protease ID39 have been rigorously assessed utilizing sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE), complemented by BlueSafe staining (MB15201), to ascertain the qualitative and quantitative purity of the enzyme preparation (Figure 1).

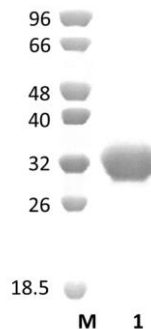


Figure 1. SDS-PAGE analysis was performed by deploying a 14% polyacrylamide gel. Lane 1 delineates the electrophoretic mobility of Protease ID39, exhibiting a distinctive band corresponding to an approximate molecular weight of 30.71 kDa. Concurrently, Lane M encompasses a protein marker to provide a molecular weight reference, facilitating accurate determinations and comparative analyses.

Storage temperature

The protein should be stored at -30°C to -15°C in a constant temperature freezer. The protein will remain stable till the expiry date if stored as specified.

Substrate specificity

Protease ID39, classified within the Family C40 of unassigned peptidases, exhibits a presumptive capability to hydrolyze peptidoglycan found in *Chlorella vulgaris* cell walls, thereby facilitating an improved extraction of its intracellular contents. This enzymatic activity underscores its potential utility in applications necessitating targeted degradation of specific cellular structures to access and utilize intracellular components effectively.

Quality control assay

Protein purity is determined to be ≥90%, as assessed by SDS-PAGE and subsequent BlueSafe staining (MB15201).