



Legumain

Asparaginyl Endopeptidase (AEP)
human, recombinant, *Leishmania*

Cat. No.	Amount
PR-967S	10 µg
PR-967L	5 x 10 µg

For general laboratory use.

Shipping: shipped on gel packs

Storage Conditions: store at -20 °C

Additional Storage Conditions: avoid freeze/thaw cycles

Shelf Life: 12 months

Molecular Weight: 36 kDa

Accession number: Q99538

Purity: > 90 % (SDS-PAGE)

Form: liquid (supplied in 20 mM citric acid pH 4.0, 100 mM NaCl, 2 mM DTT)

Concentration: 500 µg/ml

Description:

Legumain is a cysteine protease with a strict specificity for cleaving after asparagine and, to a lesser extent, aspartic acid residues. Therefore, it is synonymously named the asparaginyl endopeptidase or AEP. Its very strict substrate specificity makes it an ideal enzyme for example for digestion proteomics. Human legumain is synthesized as an inactive proenzyme (56 kDa) composed of the caspase-like catalytic AEP domain (36 kDa) and a C-terminal death-domain-like prodomain. Activation to the active AEP proceeds via the pH-dependent autocatalytic release of the C-terminal prodomain at acidic pH. While prolegumain is stable at neutral pH, AEP is stable at acidic pH (≤ 6.0) but will irreversibly unfold at near neutral pH conditions. The pH-optimum of its endopeptidase activity is at pH 5.5 with a strong preference for cleaving after asparagine residues. Hydrolysis of aspartyl peptide bonds is preferentially catalyzed at more acidic pH (pH 4.0). In addition to its well established protease activity, legumain harbors a pH-dependent ligase activity at near neutral pH.

Selected References:

Dall and Brandstetter (2013) Mechanistic and structural studies on legumain explain its zymogenicity, distinct activation pathways, and regulation. *Proceedings of the National Academy of Sciences of the United States of America*. **110(27)**:10940-5.

Dall *et al.* (2015) Structure and mechanism of an aspartimide-dependent peptide ligase in human legumain. *Angew Chem Int Ed Engl*. **54(10)**:2917-21.

Soh *et al.* (2020) ExtENDING Proteome Coverage with Legumain as a Highly Specific Digestion Protease. *Anal. Chem*. **92(4)**:2961-71.