

Trypsin-ultra™,
Mass Spectrometry
Grade



1-800-632-7799
info@neb.com
www.neb.com



P8101S 007160917091

P8101S

100 µg Lot: 0071609 Exp: 9/17

5 x 20 µg Store at -20°C

Description: Trypsin-ultra, Mass Spectrometry Grade is a serine endopeptidase. It selectively cleaves peptide bonds C-terminal to lysine and arginine residues (1). Trypsin-ultra is treated with L-(tosylamido-2-phenyl) ethyl chloromethyl ketone (TPCK) to inactivate any remaining chymotryptic activity. It is modified by acetylation of the ε-amino groups of lysine residues to prevent autolysis. Trypsin-ultra cleaves at Lys-Pro and Arg-Pro bonds at a much slower rate than other amino acid residues (2).

Source: Isolated from bovine (*Bos taurus*) pancreas

Applications:

- Digestion of proteins for proteomic analysis by Mass Spectrometry
- Protein and peptide identification

Reaction Conditions: 1X Trypsin-ultra, Reaction Buffer. Incubate at 37°C.

Reagents Supplied with Enzyme: 2X Trypsin-ultra, Reaction Buffer.

1X Trypsin-ultra, Reaction Buffer:

50 mM Tris-HCl
20 mM CaCl₂
pH 8.0 @ 25°C

Note: Substrate must be in phosphate-free buffer to prevent calcium precipitation with both reconstituted enzyme and enzyme buffer.

Molecular Weight: 23,675 daltons

Reconstitution: Trypsin-ultra, Mass Spectrometry Grade should be reconstituted by the addition of 20–200 µl of high purity water. Rapid autolysis is a function of enzyme concentration.

Storage Conditions: Supplied freeze-dried from a sodium acetate and calcium chloride buffer. Store at -20°C.

Can be stored frozen in solution at -20°C for up to 2 weeks. A decrease in activity will occur if stored in solution. Use only freshly reconstituted protease for best results.

Quality Assurance: Trypsin-ultra, Mass Spectrometry Grade is free of glycerol and detergents which may interfere with Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) Mass Spectrometry (MS) or liquid chromatography (LC) methods.

Quality Controls

Functional Test (Calcitonin Peptide Digestion): A 20 µl reaction in Trypsin-ultra, Mass Spectrometry Grade Reaction Buffer containing 2 µg of human calcitonin peptide and 0.1 µg of Trypsin incubated for 16 hours at 37°C results in the expected digestion products determined by MALDI-TOF MS analysis.

Functional Test (Cytochrome C Digestion): A 20 µl reaction in Trypsin-ultra, Mass Spectrometry Grade Reaction Buffer containing 2 µg of Cytochrome C and 0.1 µg of Trypsin incubated for 16 hours at 37°C results in the expected digestion products determined by MALDI-TOF MS analysis.

Specific Activity: The specific activity of Trypsin-ultra, Mass Spectrometry Grade is between 1.8 µmol min⁻¹ mg⁻¹ and 3.0 µmol min⁻¹ mg⁻¹.

Note: Trypsin-ultra, Mass Spectrometry Grade is acetylated on multiple lysine residues. This protein appears as a single band on SDS-PAGE. This sequence is also available at www.neb.com.

(see other side)

CERTIFICATE OF ANALYSIS

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CERTIFICATE OF ANALYSIS

Trypsin-ultra, Mass Spectrometry Grade Protein Sequence:

1 IVGGYTCAENSVPYQVSLNAGYHFCGGSLINDQWVVSAAHCYQYHIQVRLGEYNID
61 VLEGGEQFIDASKIIRHPKYSSWTLNDNDILLIKLSTPAVINARVSTLLLPSACASA
121 GTECLISGWGNTLSSGVNYPDLLQCLVAPLLSHADCEASYPGQITNNMICAGFLEG
181 GKDSCQGDSSGPPVACNGQLQGI VSWGYGCAQKKGKPGVYTKVCNYVDWIQETIAANS

References:

1. Northrop J. H. and Kunitz, M. (1931). *Science* 73, 262–263.
2. Perona J. J. and Craik, C.S. (1995). *Protein Sci.* 4, 337–360.

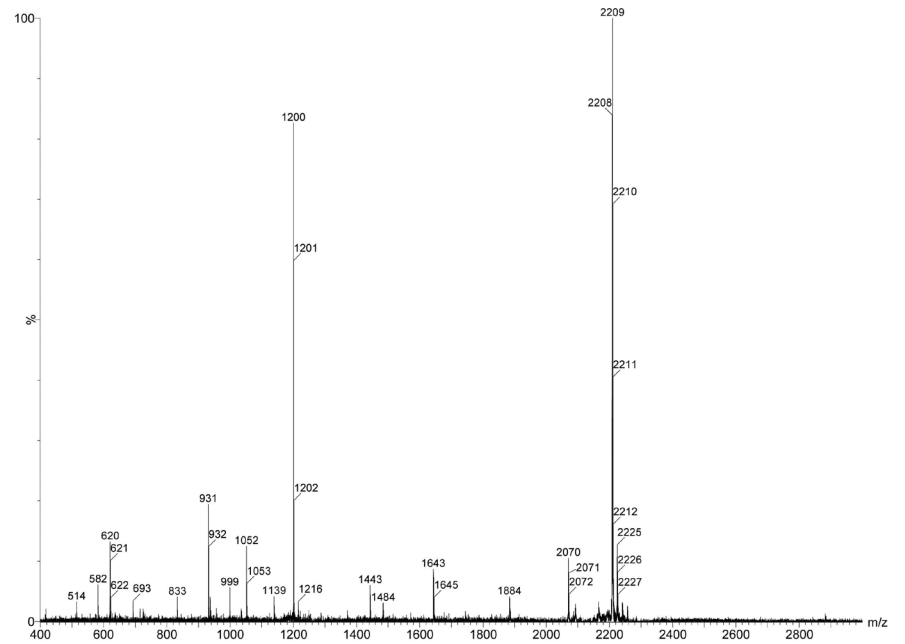


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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

MALDI-TOF MS: *Issatchenkia orientalis* Cytochrome c subjected to digestion by Trypsin-ultra, Mass Spectrometry Grade for 16 hours, dried and subjected to MALDI-TOF MS.



Trypsin-ultra, Mass Spectrometry Grade Protein Sequence:

1 IVGGYTCAENSVPYQVSLNAGYHFCGGSLINDQWVVSAAHCYQYHIQVRLGEYNID
61 VLEGGEQFIDASKIIRHPKYSSWTLNDNDILLIKLSTPAVINARVSTLLLPSACASA
121 GTECLISGWGNTLSSGVNYPDLLQCLVAPLLSHADCEASYPGQITNNMICAGFLEG
181 GKDSCQGDSSGPPVACNGQLQGI VSWGYGCAQKKGKPGVYTKVCNYVDWIQETIAANS

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