

Store at  
4°C

# PTMScan® Trypsin, TPCK-Treated

Cell Signaling  
TECHNOLOGY®

#56296

20 mg

Support: +1-978-867-2388 (U.S.)  
www.cellsignal.com/supportOrders: 877-616-2355 (U.S.)  
orders@cellsignal.com

New 01/18

## For Research Use Only. Not For Use In Diagnostic Procedures.

**Description:** Trypsin is a serine endopeptidase derived from its inactive pancreatic zymogen, trypsinogen, when the N-terminal 6 amino acid leader sequence is enzymatically removed. Activated trypsin cleaves amide and ester bonds of lysine and arginine and is used extensively in detaching cells from culture dishes, protein sequencing, and proteomics applications.

**Background:** Trypsin digests polypeptides by hydrolysis at the carboxyl side of unmodified arginine and lysine residues (1). Proteolysis is slower when the cleavage site is flanked by acidic residues and will not occur if the lysine or arginine is followed by a proline (2-5). Trypsin's activity is optimal at pH 8.0 and is inhibited to varying degrees by organophosphorus compounds such as diisopropyl fluorophosphate, as well as EDTA, apro-tinin, Ag<sup>+</sup>, and benzamidine (6-8).

### Background References:

- (1) Brown, W.E. and Wold, F. (1973) *Biochemistry* 12, 828-34.
- (2) Rodriguez, J. et al. (2008) *J Proteome Res* 7, 300-5.
- (3) Leiros, H.K. et al. (2004) *Protein Sci* 13, 1056-70.
- (4) Rawlings, N.D. and Barrett, A.J. (1994) *Methods Enzymol* 244, 19-61.
- (5) Perona, J.J. and Craik, C.S. (1995) *Protein Sci* 4, 337-60.
- (6) Kostka, V. and Carpenter, F.H. (1964) *J Biol Chem* 239, 1799-803.
- (7) Levilliers, N. et al. (1970) *Arch Biochem Biophys* 140, 474-83.
- (8) Polgár, L. (2005) *Cell Mol Life Sci* 62, 2161-72.

**Specificity/Sensitivity:** One unit of trypsin hydrolyzes 1 μmole of p-toluene-sulfonyl-L-arginine methyl ester (TAME) per minute at 25°C, pH 8.0 in the presence of 10 mM calcium. One mg of trypsin is approximately equivalent to 180 TAME units.

**Source/Purification:** Trypsin is chromatographically purified from bovine pancreas, treated with L-(tosylamido-2-phenyl) ethyl chloromethyl ketone (TPCK) to inhibit chymotryptic activity, 0.22 micron diafiltered against 1 mM HCl, and lyophilized.

**Directions for Use:** PTMScan® Trypsin-TPCK is provided for use with Cell Signaling Technology's patented PTMScan® protocol in the initial protein digestion step. Samples in urea lysis buffer need to be diluted to 2M or less urea prior to addition of trypsin. For a 1 mg/mL solution, dissolve 20 mg trypsin in 4 mL of 1 mM HCl prior to use. Transfer the 4 mL to a 50 mL conical tube and bring the volume up to 20 mL with 1 mM HCl. Aliquot and store at -80°C. Consult the specific PTMScan® kit and protocol for more details on the appropriate protease before digesting any protein samples.

**Storage:** Store lyophilized trypsin powder at 4°C protected from moisture. Once reconstituted, store trypsin solutions at -80°C. Lyophilized trypsin has a shelf life of 1 year at 4° C and solutions are stable for 6 months at -80° C.

Thank you for your recent purchase. If you would like to provide a review visit [cellsignal.com/comments](http://cellsignal.com/comments).

[www.cellsignal.com](http://www.cellsignal.com)

© 2017 Cell Signaling Technology, Inc.

PTMScan and Cell Signaling Technology are trademarks of Cell Signaling Technology, Inc.

**Applications:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.