

Mass Spectrometry Protein Analysis

ProteasMAX™ Surfactant, Trypsin Enhancer

- Reduce in-gel and in-solution digestions to three hours
- Increase protein sequence/coverage
- Improve peptide recovery from gels several fold
- Eliminate additional inactivation steps
- Solubilize membrane proteins at room temperature
- Use your existing in-gel and in-solution digestion protocols



Promega

ProteasMAX™ Surfactant, Trypsin Enhancer

ProteasMAX™ Surfactant, Trypsin Enhancer is designed to enhance the enzymatic performance of trypsin or chymotrypsin in any digestion reaction performed with the objective of characterizing the products by mass spectrometry or liquid chromatography.

ProteasMAX Surfactant is compatible with existing protocols for 1 or 2D in-gel digestion of a purified protein or the digestion of complex protein samples by 2D LC- MS/MS. ProteasMAX Surfactant is neutralized during the reaction, enabling direct analysis of peptides without additional purification steps.

ProteasMAX Surfactant enhances the solubilization and the denaturation of proteins, ensuring quick and efficient in-solution digestion. For in-gel procedures, ProteasMAX Surfactant also improves the recovery of peptides from the gel after digestion.

- **Improved protein digestion**

Enable cleavage at sites that were not accessible due to secondary or tertiary protein structure. Reduce standard digestion time from overnight to 3 hours (Figure 1).

- **Improved peptide recovery from gels**

Increase protein sequence coverage, increasing confidence of correct protein identification (Figure 2).

- **Enhanced protein solubilization using mild conditions**

Solubilize complex proteins, such as membrane proteins, at room temperature, avoiding high temperatures and preventing precipitation.

- **Self-degradable**

Use directly for mass spec analysis without additional inactivation steps such as heating or acid treatment.

- **Compatible with existing protocols**

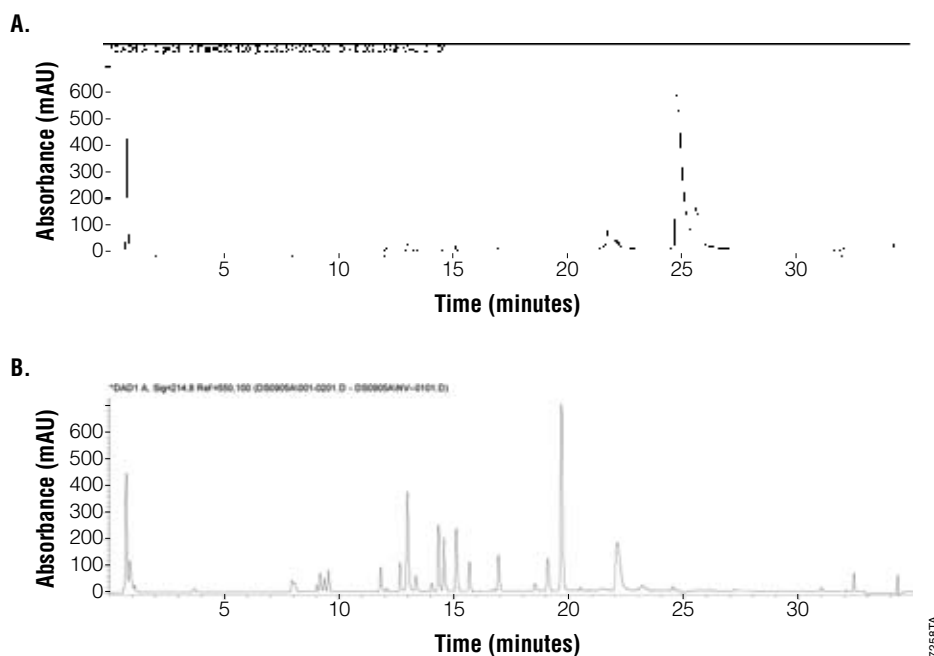


Figure 1. HPLC chromatograms of myoglobin digests (–/+ ProteasMAX™ Surfactant). Myoglobin from horse heart was digested with trypsin at 50:1 ratio for 30 minutes at 37°C and resolved on C18 HPLC column. **Panel A.** Myoglobin was digested under standard conditions (without ProteasMAX Surfactant). The tall peak at the right is intact myoglobin. **Panel B.** Myoglobin was digested in the presence of 0.025% ProteasMAX Surfactant. The peaks on the bottom panel indicate digested peptides.

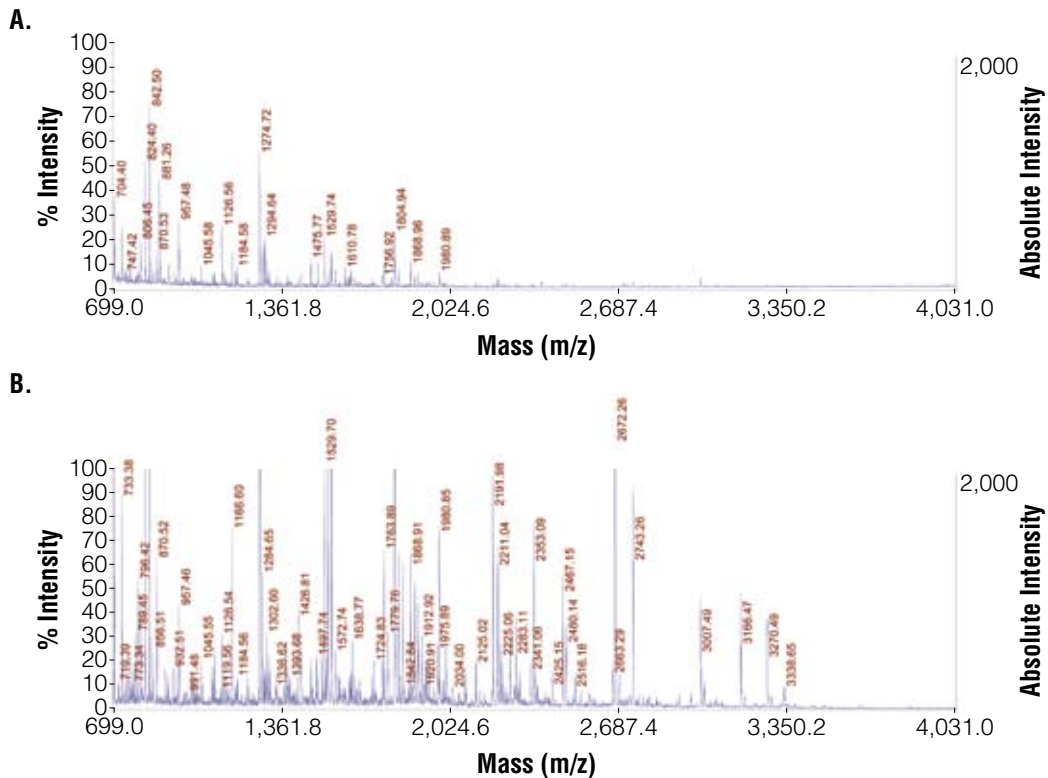


Figure 2. MALDI-TOF mass spectra of the digest of 47kDa protein band from mouse cytoplasmic protein extract (–/+ ProteasMAX™ Surfactant). Cytoplasmic protein extract from mouse heart was resolved in 4–20% SDS-PAGE. A protein band with an apparent mass of 47kDa was excised from the gel and protein was digested. **Panel A.** Standard protocol without ProteasMAX Surfactant overnight at 37°C. **Panel B.** With ProteasMAX Surfactant; for 3 hours at 37°C.

Improved protein digestion

Secondary or tertiary protein structure can limit accessibility of trypsin or chymotrypsin to potential cleavage sites. ProteasMAX™ Surfactant enhances protein denaturation. This dramatically improves protein digestion with trypsin or chymotrypsin, enabling complete digestions in only 3 hours (Figure 1).

Improved peptide recovery from gels

ProteasMAX Surfactant substantially improves extraction of long and hydrophobic peptides that are retained in the gel under standard extraction protocols. Exclusion of the acetonitrile extraction step eliminates the need for drying and prevents peptide loss caused by absorption of dried peptides to a plastic tube. Comparison of MALDI-TOF spectra of peptides prepared by standard and ProteasMAX Surfactant-assisted protocols indicates multifold increase in peptide yield in the presence of ProteasMAX Surfactant (Figure 2). This dramatically improves confidence of protein identification and reliability of in-gel digestion protocol from experiment to experiment.

Self-degradable

ProteasMAX Surfactant is designed to degrade over the course of the digestion reaction, yielding peptides that are compatible with downstream applications such as mass spectrometry. There is no requirement for acid inactivation, which requires additional time and can result in loss of peptides.

Ordering Information

Product	Size	Cat. #
ProteasMAX™ Surfactant, Trypsin Enhancer	1 × 1mg	V2071
	5 × 1mg	V2072

Related Products

Product	Size	Cat. #
Trypsin Gold Mass Spectrometry Grade	100µg	V5280
Sequencing Grade Modified Trypsin	100µg	V5111
Sequencing Grade Modified Trypsin (Frozen)	100µg	V5113

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