

**DigestPro™**  
Automated Enzymatic Digestion System

# Automated Protein Digestion and MS Sample Preparation

The DigestPro is a dedicated protein digestion and sample preparation system for MS based proteomics. It completely automates all essential steps of protein digestion protocols and easily works with both in-solution and in-gel based methods.

In addition sample clean-up and MALDI spotting can be automated. It achieves high throughput with up to 96 samples at a time. The whole procedure is performed under controlled and reproducible conditions that is essential for protein analysis by mass spectrometry.

- Automated in-gel or in-solution digestion
- Ready-to-run optimized programs with full customizability
- Freely selectable temperature for each step (heating and cooling)
- Use of standard lab buffers and solutions (low running costs)
- Desalting and concentration with ZipTips® (or similar reversed phase tips)
- MALDI target spotting
- Modular work area setup for individual instrument configuration



# Simplified Proteomics

Easily prepare samples for protein analysis by mass spectrometry.

The system is a single instrument for in-solution digestion, in-gel digestion, and sample clean-up including desalting and enrichment. Ready-to-use protocols can be immediately used for high-throughput rapid automation of all steps necessary. Additionally, all steps can be easily customized as needed.

## Solution Digestion

- 1 Reduction of disulfide bonds
- 2 Alkylation of cysteine residues
- 3 Enzymatic digestion (up to 70 °C)
- 4 Optional: Clean-up and enrichment with ZipTips or StageTips

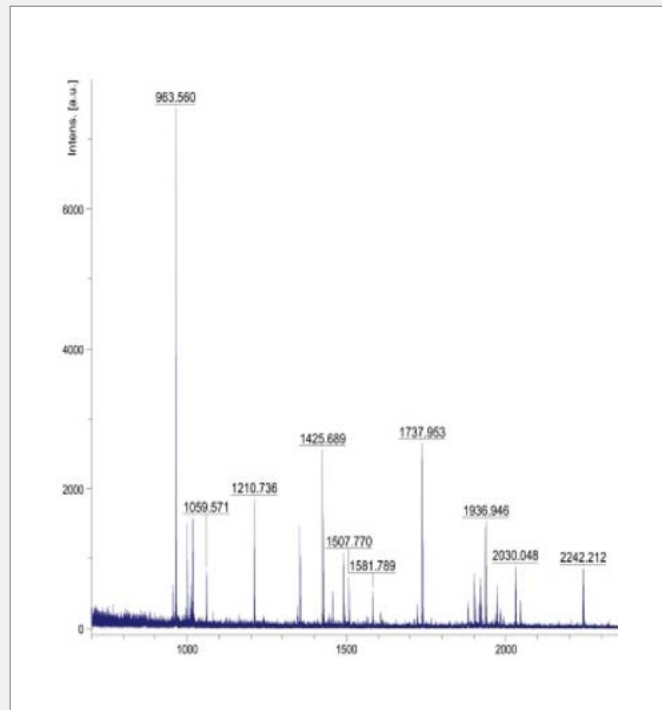
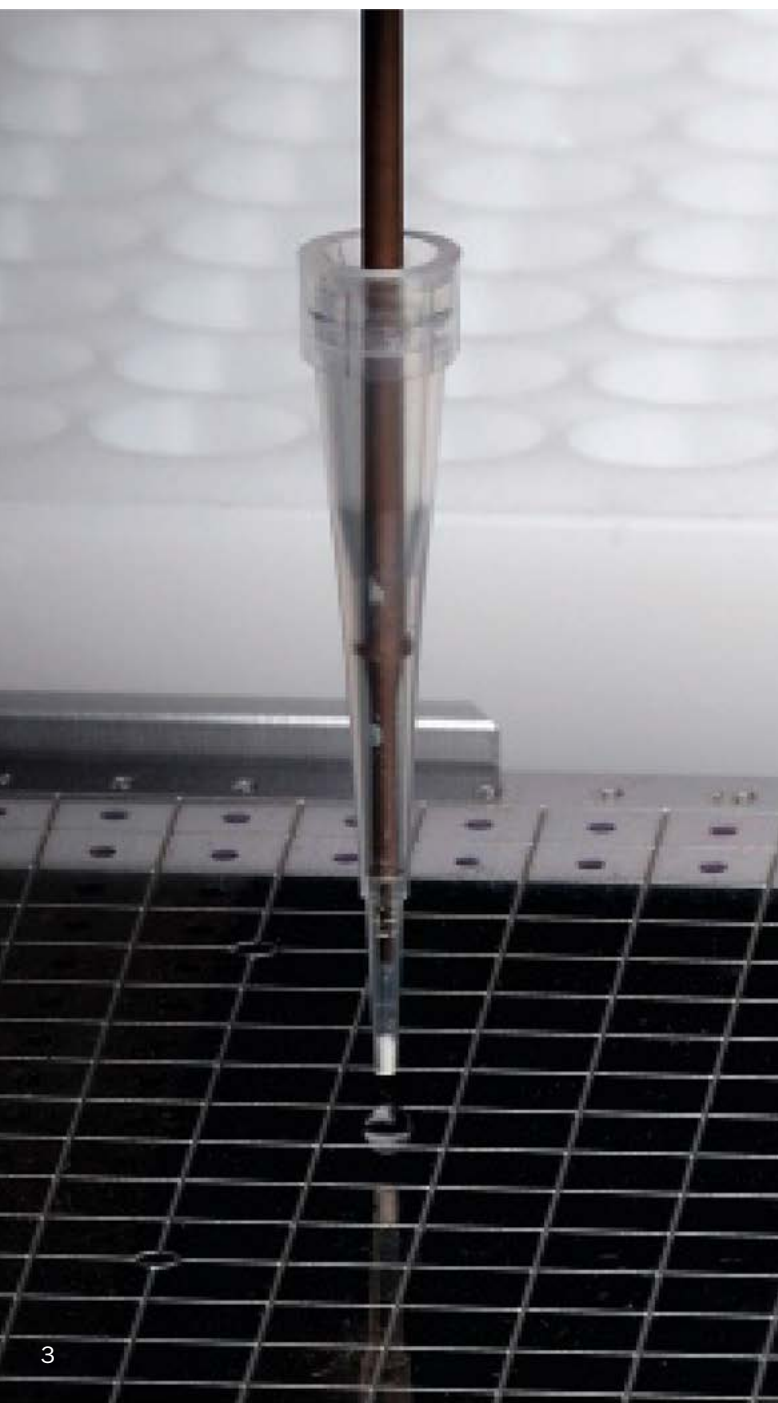
## In-Gel Digestion

- 1 Reduction of disulfide bonds
- 2 Alkylation of cysteine residues
- 3 Enzymatic digestion (up to 70 °C)
- 4 Washing of gel slices and elution of peptides. The needle adds liquids from a distance, never touching the sample and thus avoiding any risk of cross contamination.
- 5 Optional: Clean-up and Enrichment with ZipTips or StageTips



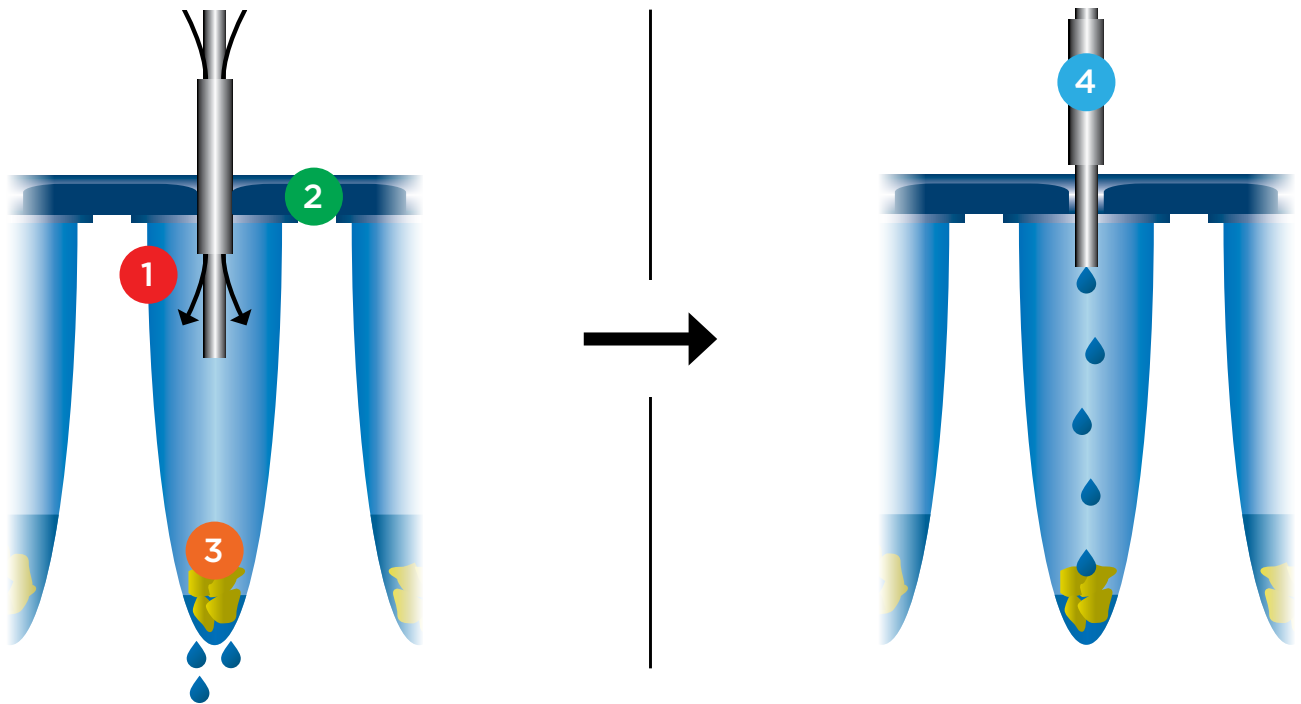
# Automated ZipTip Assisted Desalting and Enrichment

Automated use of ZipTips or similar reversed phase tips for easy clean-up and enrichment of samples (ZipTips are registered by EMD Millipore). Tips are stored in a rack and are picked up and deposited onto the needle for repeated access. ZipTips enable peptide binding onto a C-18 substrate that allows for washing on the tip. The peptide solution can then be eluted with a small concentrated volume of solution. Optionally, samples can directly be spotted onto MALDI targets with the tips. As an alternative to ZipTips, selfmade StageTips can be used with the DigestPro.



# Robust and Simple

The instrument utilizes a unique 2-channel syringe which can deliver both liquid and air. For vessel draining the syringe seals on the vessel membrane and drains liquid reagents with air purging from the outer channel. Liquid delivery is accomplished through the inner channel after the syringe is unsealed from the membrane. In this way liquid transfer both in and out of the vessel is robust and accurate for small volume transfers without loss of gel slices.



## Draining

1 Air Purging

2 Sealing Membrane

3 Gel Slices

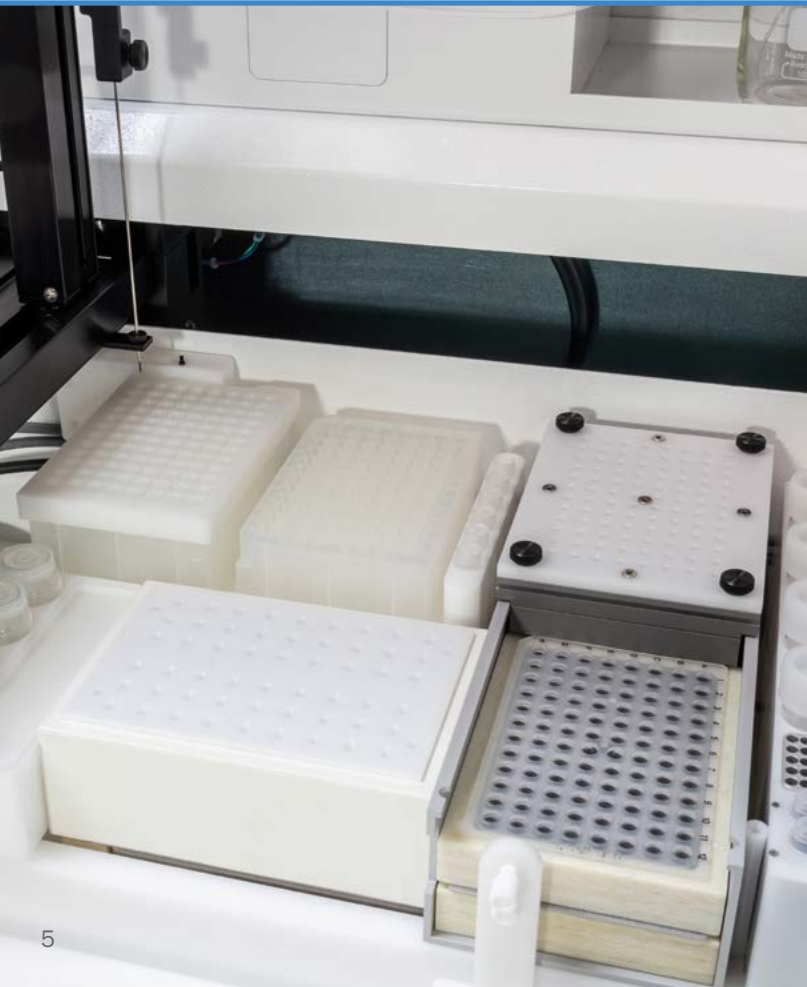
## Addition of New Buffer

4 Liquid Delivery

## Enhanced Digestion

# Rapid Digestion at Elevated Temperature

The DigestPro allows for rapid enzymatic digestion using programmable temperatures from 8 – 65 °C. More rapid and complete digestions can be achieved with optimized elevated temperature protocols. Additionally, elevated temperature protocols can be used to simplify reduction of disulfide bonds.



## Meets Your Needs

# Design Your Ideal Work Area

The work area is fully customizable. The customer can choose different modules required for his individual applications. Modules are available for:

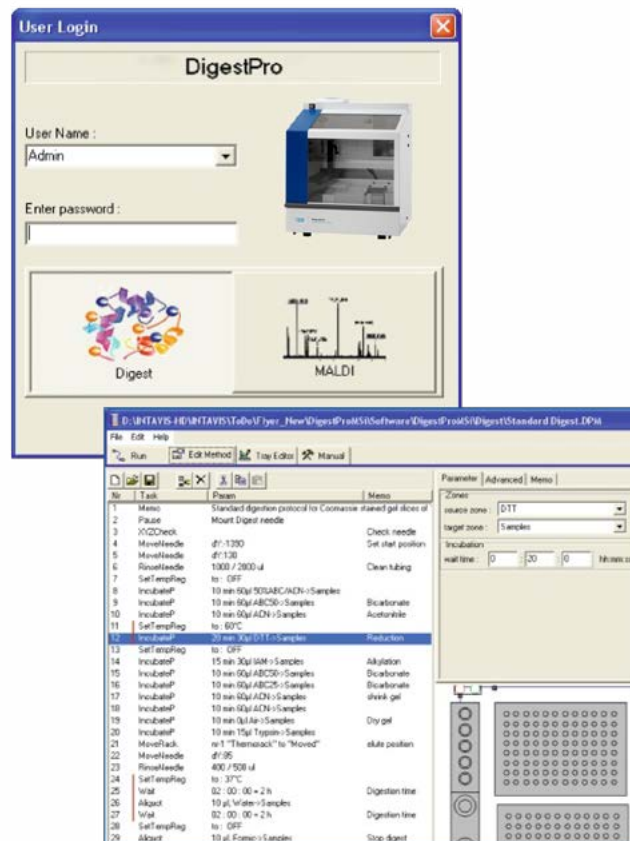
- In-gel digestion
- Solution digestion
- Sample clean-up on tips
- MALDI spotting

The flexibility includes the use of different vial formats for digestion and collection, programmable temperatures from 8 – 70 °C for in-solution digestion, the usage of ZipTips or StageTips, and many available reagent positions.

# Intuitive Operation Software

The DigestPro is operated from Windows™ based software on a standard PC. The graphical user interface shows the work area and all operations during the run in real time. Standard protocols for several digestion and MALDI sample preparation routines are provided. They also serve as templates for user-defined protocols as the methods evolve.

- Graphical user-interface
- Administrator and User level
- Field-tested template protocols
- Access to all parameters
- Real-time display of instrument operation
- Log file with detailed documentation on each run



## Specifications

Number of samples per run:	Up to 96
Operating range:	From low fmol range, depending on MS analysis
Reagents and buffer vials:	23, 4 cooled positions
Volumes delivered:	5 – 100 µl (digestion), 0.5 – 100 µl (MALDI)
Gel volume:	1 mm <sup>3</sup> to 30 mm <sup>3</sup>
MALDI target geometry:	Any current target adaptable
Reagent cooling:	Four cooled reagent positions
Heating range:	Up to 80 °C
Approximate run time:	Digestion 8 – 10 h, MALDI prep 1 – 4 h
Documentation:	Log protocol on PC
Operation:	PC with graphical software under Microsoft Windows™
Cabinet:	Filtered air inlet and vented exhaust outlet
Power:	100 – 120 VAC, 50/60 Hz, 3 A or 220 – 240 VAC, 50/60 Hz, 3 A
Dimensions:	23 in (57 cm) W x 26 in (64 cm) D x 28 in (70 cm) H15
Weight:	155 lb (70 kg)



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