

Thermo Scientific EASY-nLC 1000 System

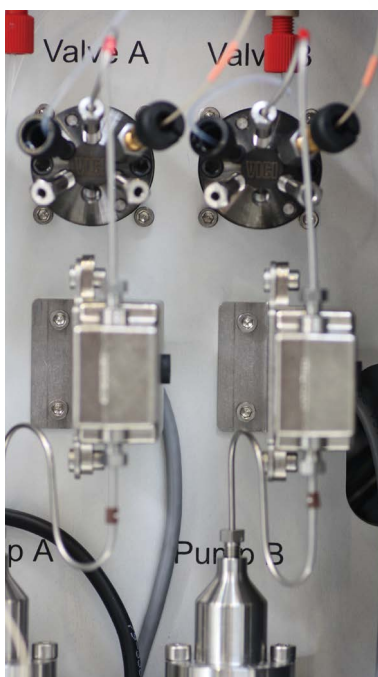


Effortless, split-free nanoflow UHPLC
Top performance in LC/MS

Thermo
SCIENTIFIC

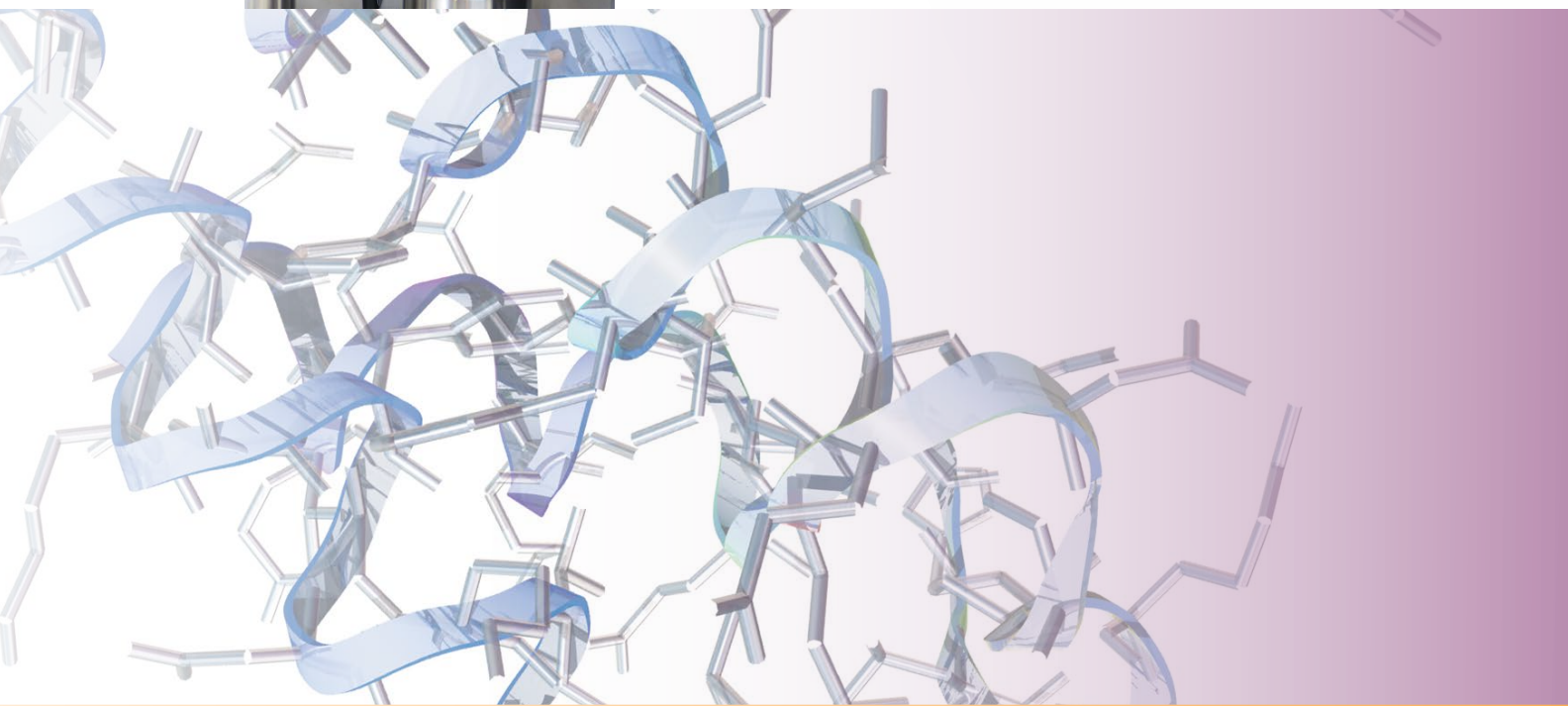
Effortless

split-free, nanoflow UHPLC



The Thermo Scientific™ EASY-nLC™ 1000 is a fully integrated, split-free, nanoflow liquid chromatograph optimized for separating biomolecules such as proteins and peptides at ultra high pressures up to 1000 bar (15,000 psi.)

The instrument seamlessly integrates with various mass spectrometers (MS), securing instant trouble-free operation.



***“Using the EASY-nLC 1000 system
has increased our throughput by 25%”***

Professor Matthias Mann, Max Planck Institute for Signal Transduction, Germany

Top Performance in LC/MS

The market leading operating pressure of the EASY-nLC 1000 system offers an unprecedented choice of columns and is designed to help researchers achieve top performance in LC/MS.

Combine the Thermo Scientific™ EASY-Spray™ source with Acclaim™ PepMap™ C18 columns for plug-and-spray simplicity and state-of-the-art performance.



Unrivalled ease of use and productivity for instant trouble-free operation

Designed for MS workflows

- Quality assured – the system is shipped pre-configured and tested by mass spectrometry
- Installed and running within hours

Accurate and reproducible

- Dual flow sensors immediately before ultra high-pressure mixing ensure accurate delivery of each mobile phase
- Automatic and intelligent flow control

Continuous 24/7 operation

- 2 x 25 mL solvent bottles
- Sufficient for up to three weeks use

Seamless interface and synchronization with MS

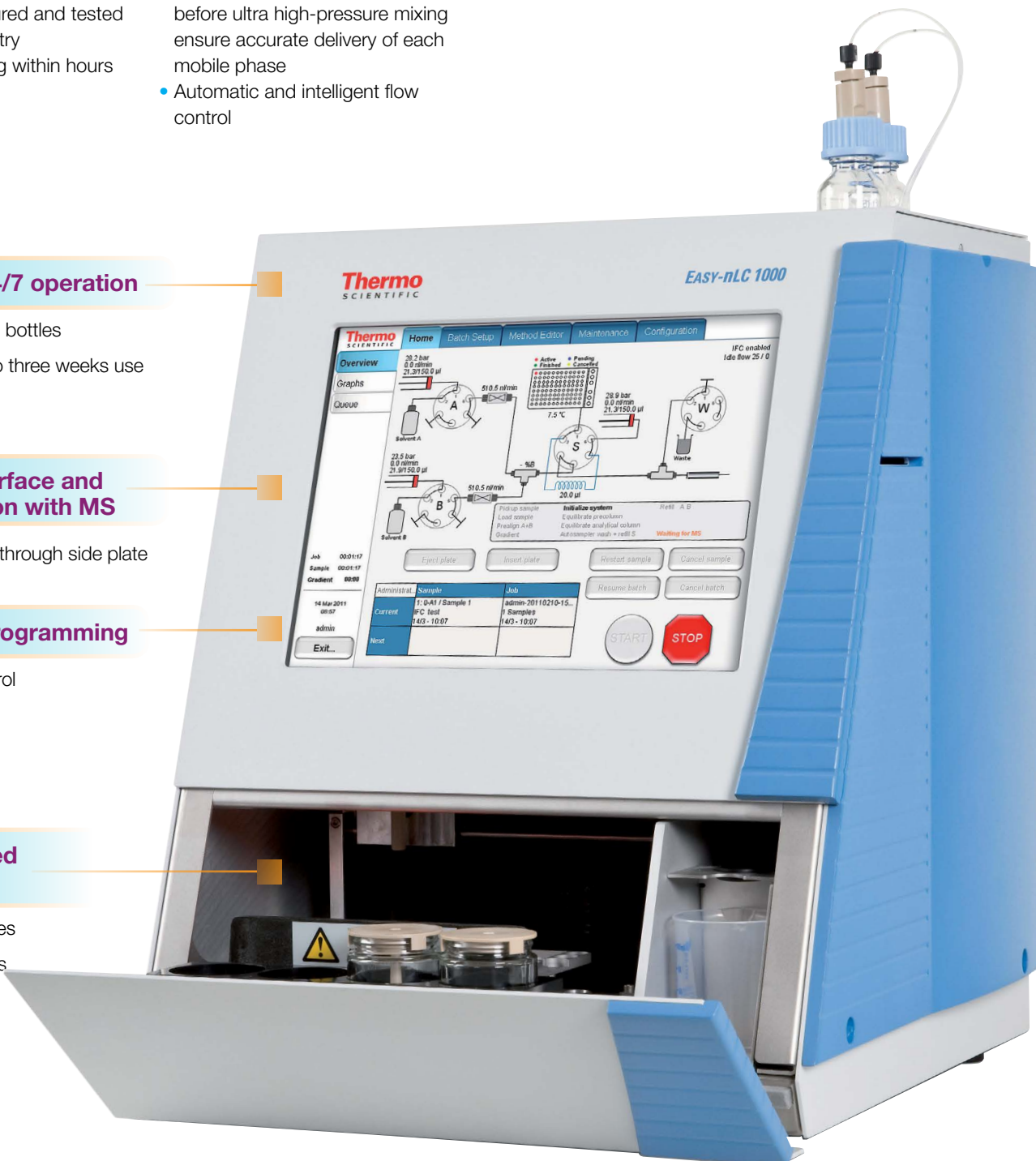
- Transfer lines exit through side plate

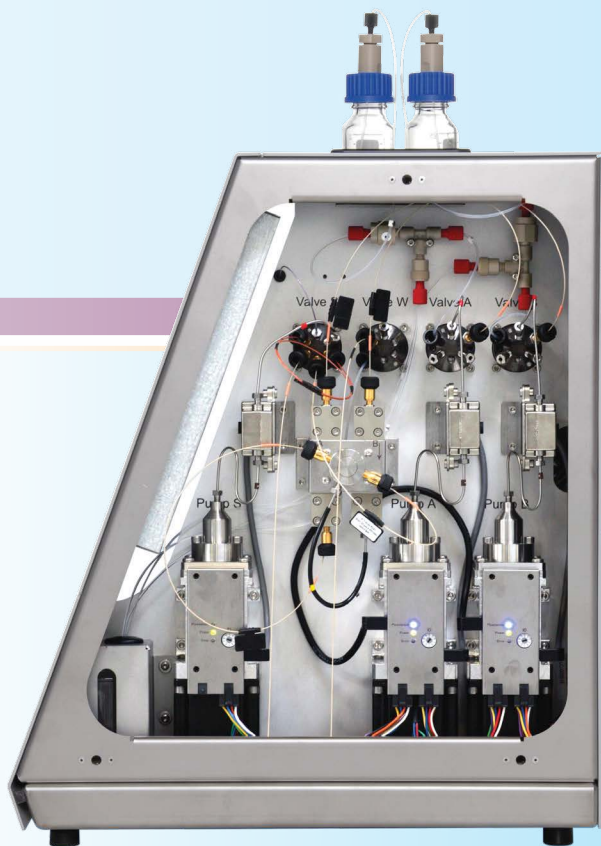
Wizard-style programming

- Touch screen control

Enclosed cooled autosampler

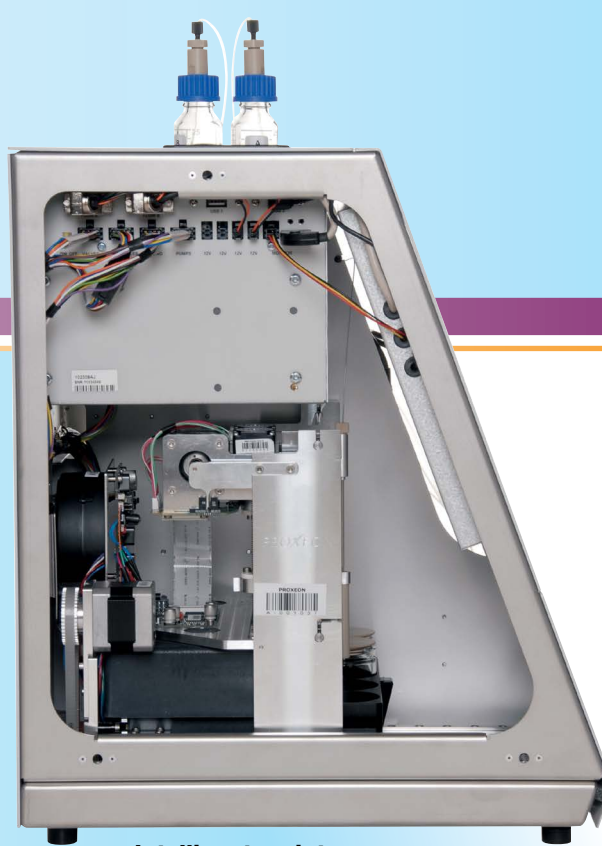
- 96 or 384 well plates
- Wash/waste bottles
- 54 vial capacity





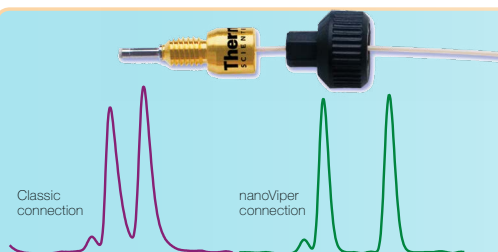
Easy access

- Modular components
- Identical valves, pumps, and flow sensors



Intelligent maintenance

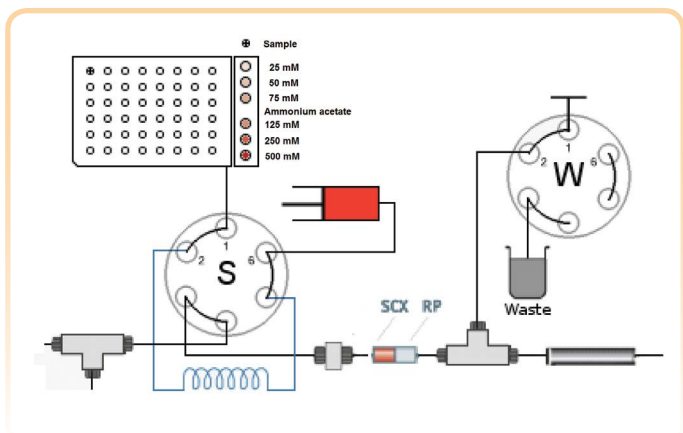
- Automatic scripts
- Remote diagnostics
- Built-in PC and software
- Full event log



Thermo Scientific™ Dionex™ nanoViper™ fittings eliminate conventional drawbacks

- Leak-free, fingertight to UHPLC pressures
- Virtually zero-dead volume by design
- Ensures maximum performance

Gain additional insights from automated 2D experiments



The Thermo Scientific™ EASY-2D™ application consists of a bi-phasic SCX-RP precolumn and automatic injection of sample and salt plugs.

Single Dimension
562 proteins

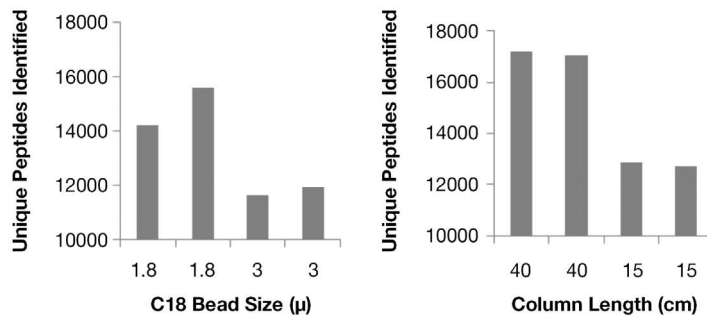


Traditional 2D
1,788 proteins

EASY-nLC 2D
2,171 proteins

The Venn diagram from a tryptic digest of a protein extract from a human multiple myeloma cell line clearly demonstrates superior performance to both a simple run and a traditional MudPIT experiment. (Courtesy of Paul Taylor, PhD Hospital for Sick Children, Toronto, Canada)

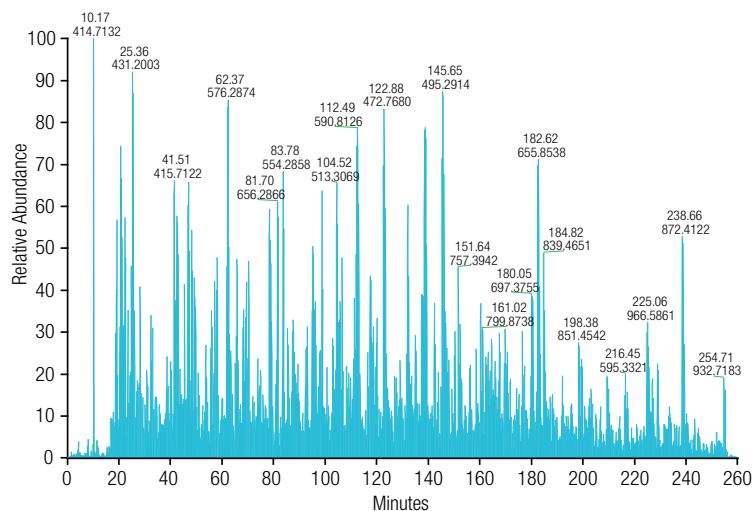
Excellent reproducibility



More Identifications

“Using the EASY-nLC 1000 system we were able to detect 30% more peptides using longer columns and smaller beads”

Prof. Jens Andersen, SDU CEBL, Odense Denmark



Proven Performance

Multiple HeLa Cell Lysate Injections

HeLa cell lysates are very complex samples. In this experiment, 4 hour gradients were used to ensure good separation for efficient peptide analysis and subsequent protein identification.

The retention time deviation for some key peaks were observed to be less than 40 seconds, corresponding to an RT RSD of approximately 0.3%.

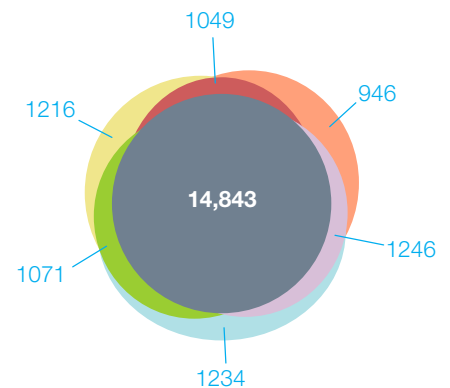
4087 unique proteins were identified from a single HPLC separation of a 1000 ng human cell digest with a 50 cm EASY-Spray column.

EASY-nLC 1000 vs Standard nano-LC

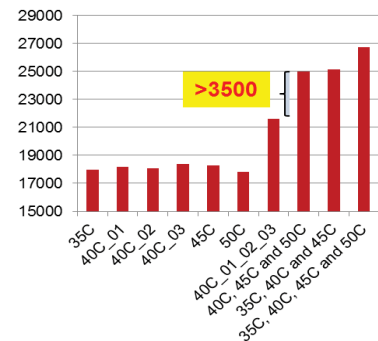
Instrument Parameters

- Max loading pressure 980 bar vs 280 bar
- Gradient overhead reduced from 1 hour to 25 mins or less
- Same setup (140 min MS acquisition)
- 10 runs per day vs 8 runs per day

40 °C (three replicates)



Peptides

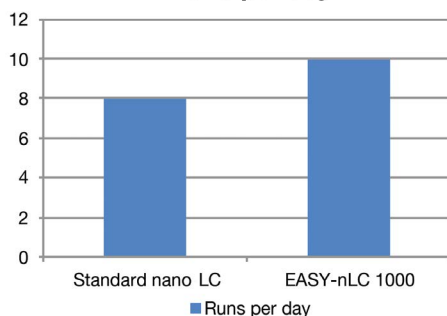


Additional IDs from Temperature-Controlled Replicates

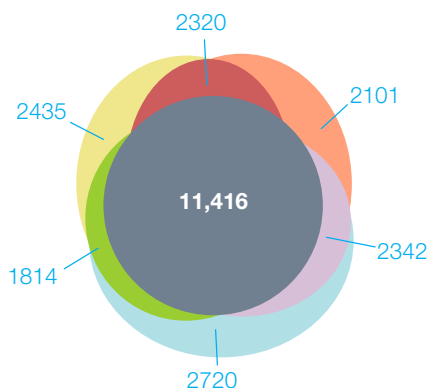
Combining triplicates run at different temperature (optimized for peptide ID) yields up to 15% more peptide IDs and up to 5% more protein IDs, compared to technical replicates run under identical conditions.

in complex samples

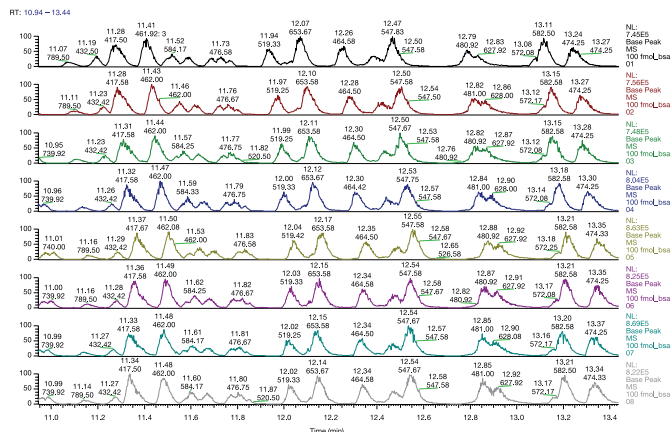
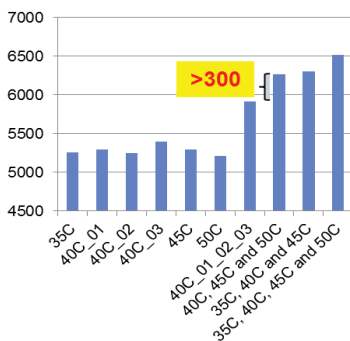
Runs per day



35 °C, 40 °C and 45 °C



Proteins



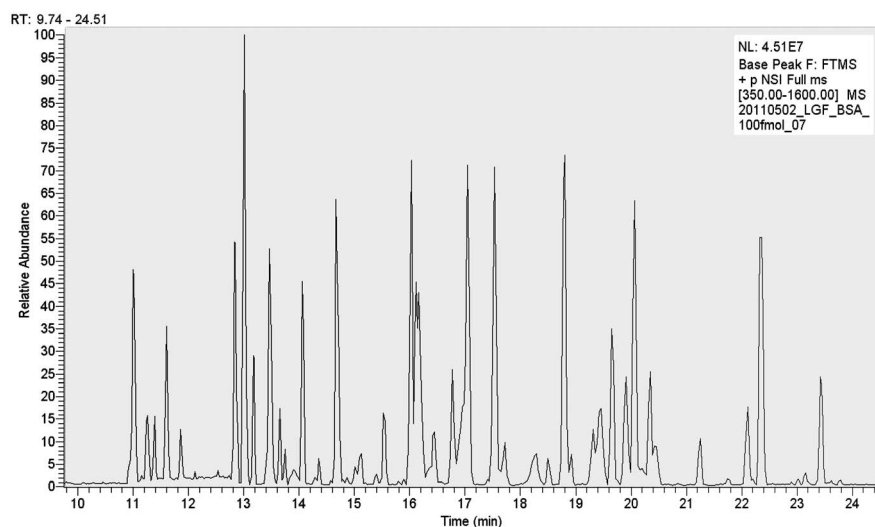
Multiple Tryptic Digest BSA Injections

Short gradients are used to illustrate

- Impressive RT RSD (0.2%),
- Sharp peaks (2.1s FWHM), resulting in
- High peak capacity under normal conditions

Instrument Parameters

- Thermo Scientific™ Velos Pro™ dual pressure ion trap mass spectrometer
- 1-column setup (10 cm, 50 µm ID, 1.9 µm C18)
- 5–35% ACN over 10 min
- Thermo Scientific™ Nanospray Flex Ion Source



Sharper Peaks – Better Separation

Split-free, ultra-high-pressure nanoflow LC allows for almost infinite freedom when:

- Matching inner diameter to optimal linear velocity for each resin
- Selecting column length and smaller beads to improve separation
- Reducing column ID to increase analyte concentration for nanoelectrospray ionization and improved detector sensitivity

Full compatibility with state-of-the-art LC/MS technology

The EASY-nLC 1000 system offers market leading performance and integrates seamlessly with all Thermo Scientific nanoESI sources and MS families



EASY-nLC 1000

For effortless sample introduction.
Order No. LC120



EASY-Spray Source

Order No. ES081



Nanospray Flex Source

Order No. ES071



Discovery

The ultrahigh resolution of the Thermo Scientific™ Orbitrap Elite™ mass spectrometer creates new possibilities in research and discovery.



Quantification

The benchtop Thermo Scientific™ Q Exactive™ mass spectrometer is a powerful HR/AM instrument to identify, quantify, and confirm.



Analysis

The Thermo Scientific™ Velos Pro™ is the pinnacle of ion trap mass spectrometry that delivers enhanced performance for complex sample analyses.



Targeted

The Thermo Scientific™ TSQ Vantage™ triple stage quadrupole mass spectrometer delivers the highest sensitivity with the lowest noise for the quantitative analysis of small molecules, peptides, biosimilars, and biologics.

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