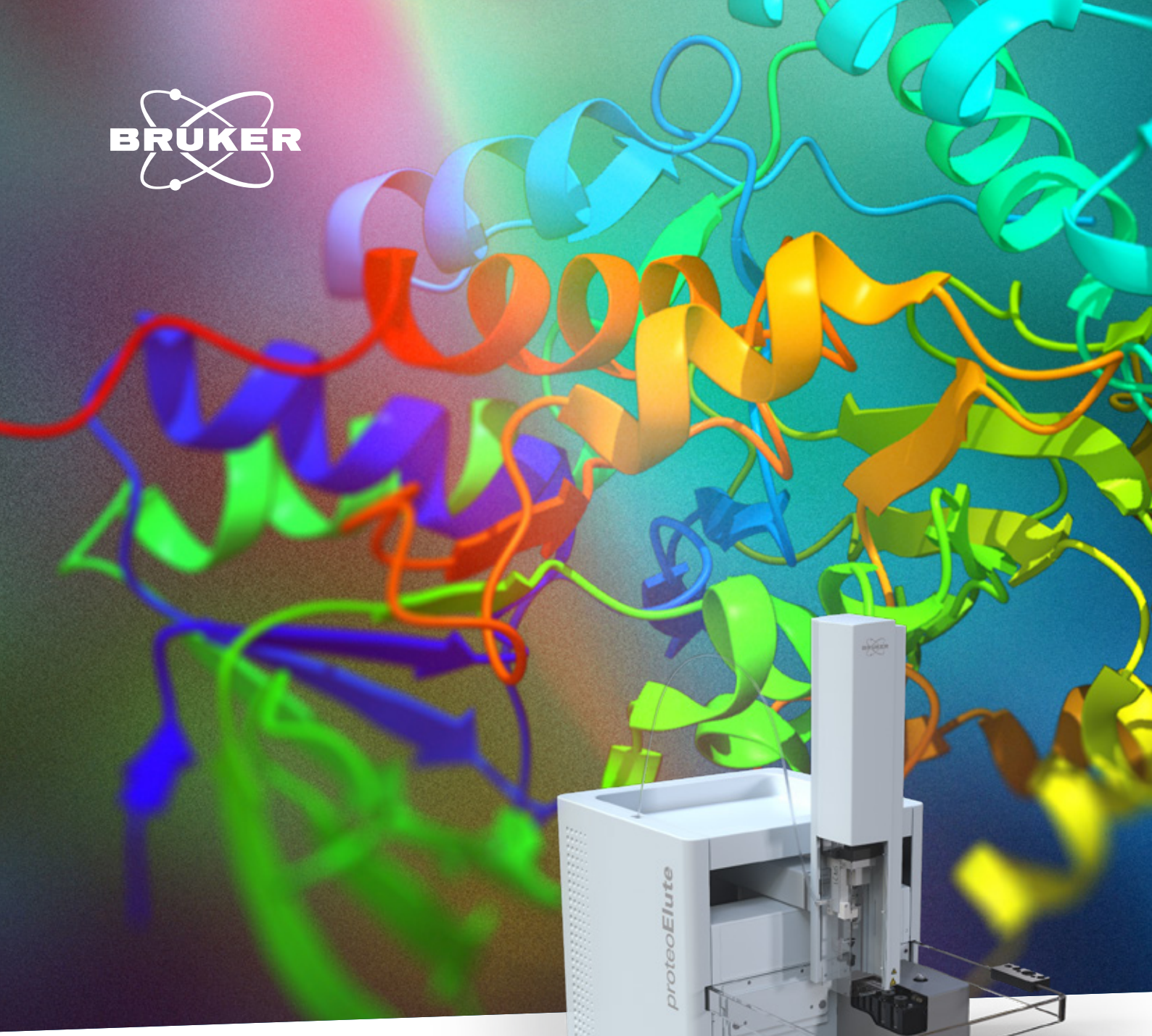


LIQUID CHROMATOGRAPHY

proteoElute™

Innovation You Can Trust, Precision You Can Rely On

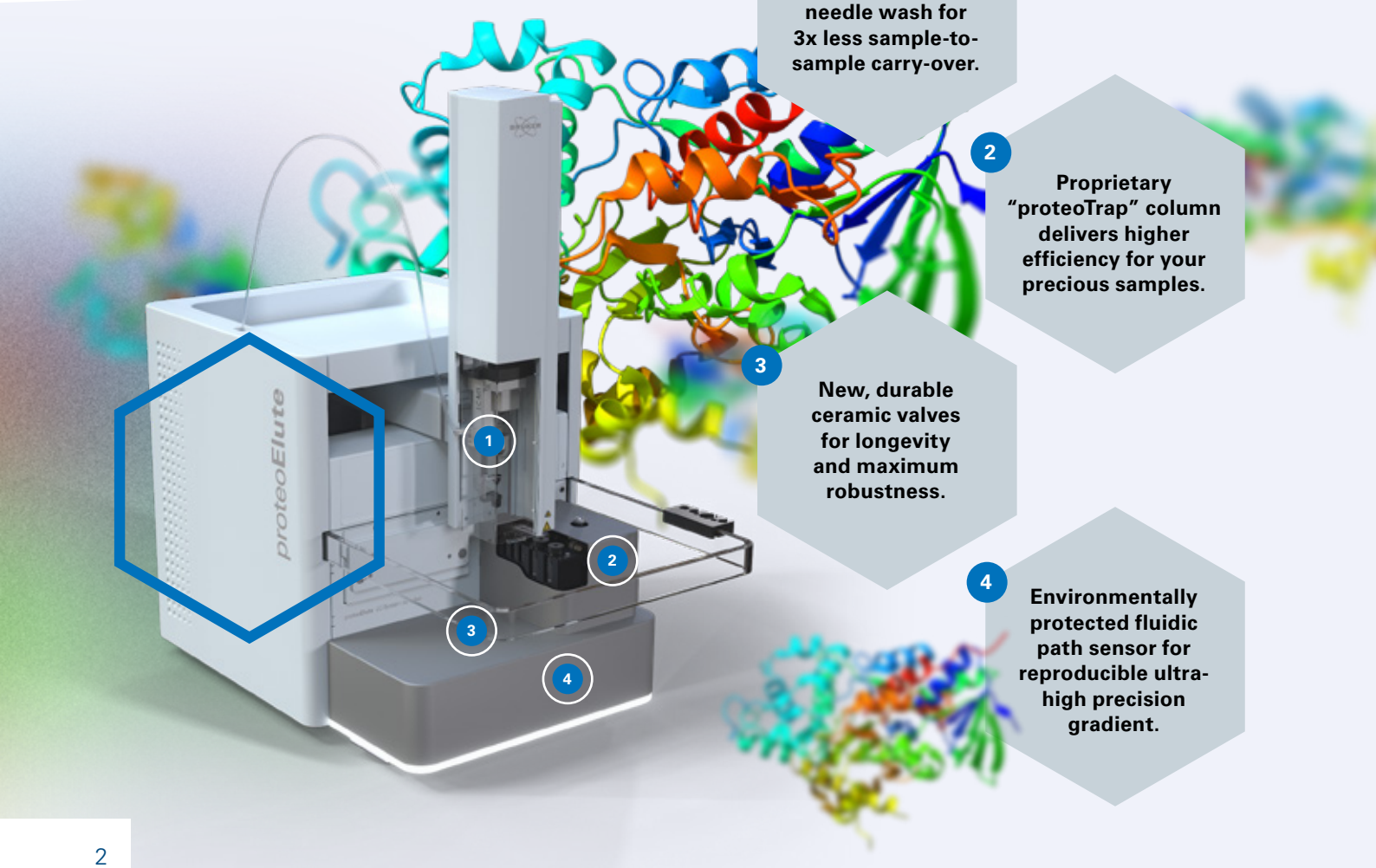
Innovation with Integrity

proteoElute – designed to deliver peace of mind

The proteoElute optimizes nanoflow workflows for high throughput and ultra sensitive multiomics experiments.

With innovative TwinScape™ technology that continuously monitors key instrument parameters in real-time, the proteoElute delivers peace of mind when analyzing precious samples. It is engineered to deliver increased inert robustness through biocompatible ceramic valve technology coupled to strategically integrated porous metal filters across the pressurized solvent lines. And the best part is its environmentally friendly design mindset, helping you to minimize hazardous waste.

- **Reduced PTFE content**
- **Up to 80% reduced solvent consumption per injection cycle**
- **Ships in 100% recycled packaging**



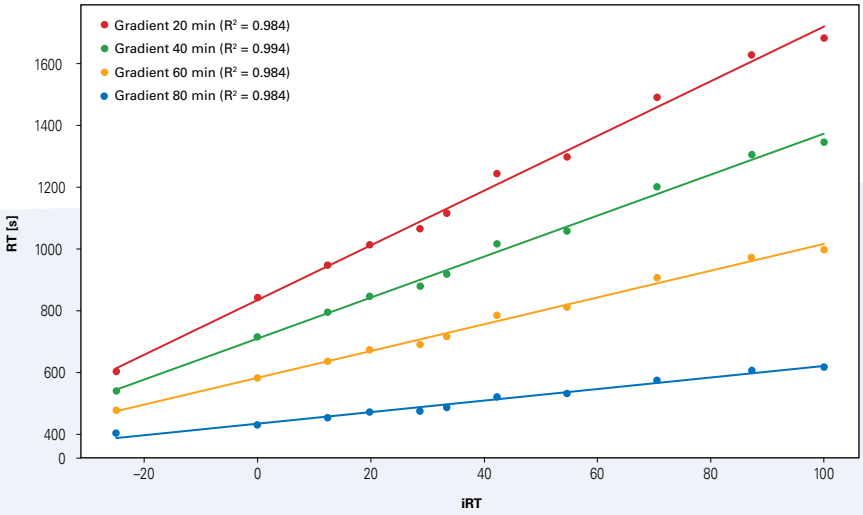
1. **Innovative injector port and injection needle wash for 3x less sample-to-sample carry-over.**
2. **Proprietary "proteoTrap" column delivers higher efficiency for your precious samples.**
3. **New, durable ceramic valves for longevity and maximum robustness.**
4. **Environmentally protected fluidic path sensor for reproducible ultra-high precision gradient.**

David Gómez-Varela

Director of the Center of Excellence for Metaproteomics, University of Vienna

"The proteoElute nano UHPLC system is a robust and reliable chromatography system for analyzing very complex microbial samples. The innovative injection procedures ensure fast and reproducible injections with effective injection path cleaning, thereby reducing carryover and potential false identifications. These features of the proteoElute enabled us to tackle two significant challenges in Metaproteomics, the measurement of hundreds of samples with a low carryover and with quantitative reproducibility, and the analysis of ultra-low amounts of bacterial samples (sub-picogram levels)."

Robust Gradient Versatility With Precision



iRT peptides injected onto a PepSep® Advanced column. Linear gradient from 0-90% acetonitrile, 0.1% formic acid. Retention times plotted against iRT values and fit by linear regression

Designed For Use With Trap Columns

For the proteoElute, Bruker has developed the proteoTrap, a new trap column in collaboration with GL Sciences. The carefully selected stationary phase effectively traps hydrophilic and hydrophobic analytes leading to increased sequence coverage and identification rates.

Designed for simplicity: it seals with just two MarvelXact finger tight capillary clicks! No more need to re-tighten or increase the sealing torque over time.

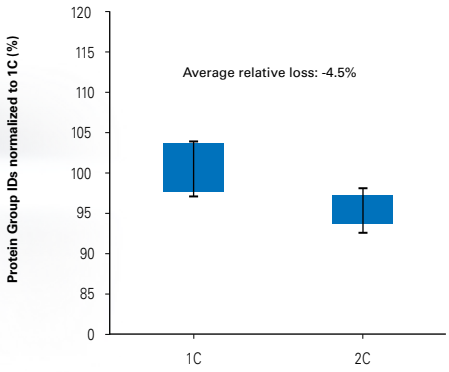
In low-input proteomics, sample recovery from limited material such as single-cells, core needle biopsies, or trace biofluids is particularly important. The Bruker proteoTrap enables maximum sample recovery, delivers separation column protection, and maintains system robustness and optimized performance.

A trap column not only protects the analytical column and extends its lifetime but also enables on-column enrichment for improved analyte detection. Integrating a trap column into your nano- or micro-flow LC–MS workflow enhances robustness, reduces downtime, and maintains the sensitivity needed for confident identification of proteins, peptides, and post-translational modifications—even at ultra-low concentrations. Bruker's new trap column delivers intelligent protection and optimized performance for your low-input proteomics needs.

1920747 - Bruker proteoTrap | 1920778 – Installation kit for Bruker proteoTrap

Bruker proteoTrap

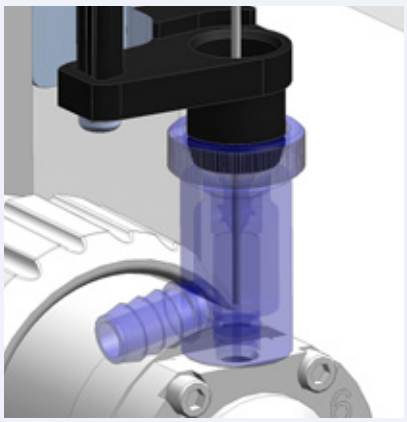
0.25 x 5 mm

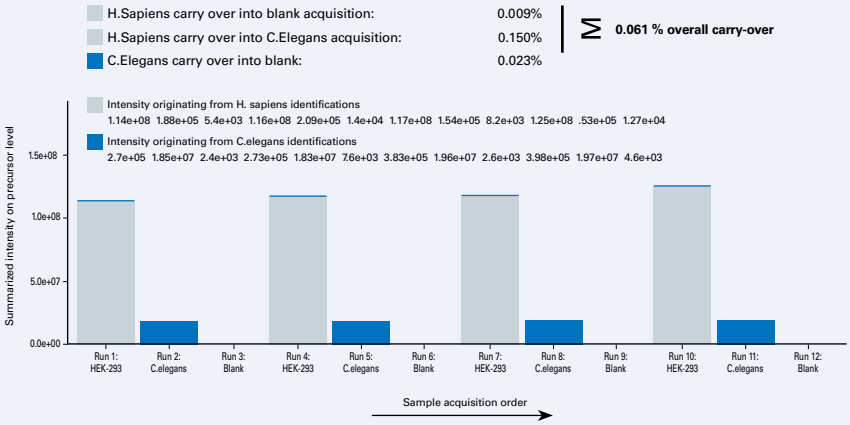


Conditions: 50 ng K562 sample, 1 µL injection, PepSep Advanced column, Bruker proteoTrap. Data analyzed with Spectronaut 19

Designed for Reduced Carryover

The proteoElute system offers enhanced injection precision through a newly designed wash port and optimized washing routine, to minimize sample-to-sample carryover. Ideal for low input applications such as single-cell proteomics and immunopeptidomics, this system ensures reliable results. The innovative piston wash pump and the new injection port design significantly reduces hazardous organic waste, achieving up to 80% reduction in solvent consumption and minimizing environmental impact.





W. Hayes McDonald

Associate Director, Department of Biochemistry, Vanderbilt University

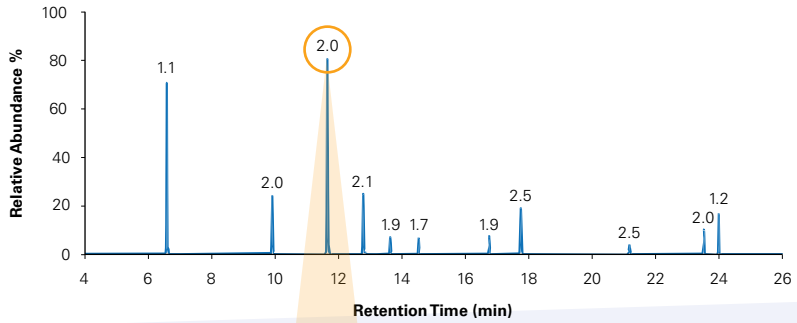
"The combination of the new proteoElute UHPLC pump platform along with updated PepSep columns and the Bruker proteoTrap column allows you the flexibility to perform any state-of-the-art proteomics workflows. Its robustness allows you the confidence to execute them at scale."

PepSep Columns: Precision and Performance in Proteomics

For optimal performance of your proteoElute, PepSep columns are the perfect partner.

Discover unparalleled precision in peptide separation with the reversed-phase HPLC C18 PepSep columns. Designed to deliver deeper sequence coverage, higher sample throughput, and exceptional robustness, PepSep columns meet the demands of even the most challenging samples. Robust and user-friendly, PepSep columns ensure consistent, reliable results, making them the ideal choice for all your proteomics applications.

Achieves precise separations for improved data clarity



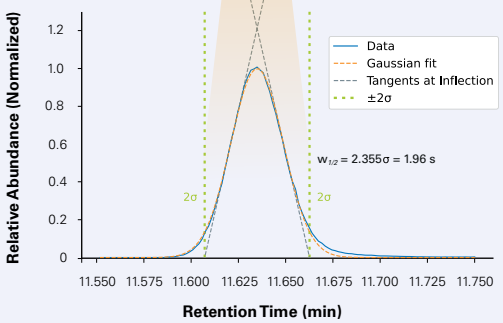
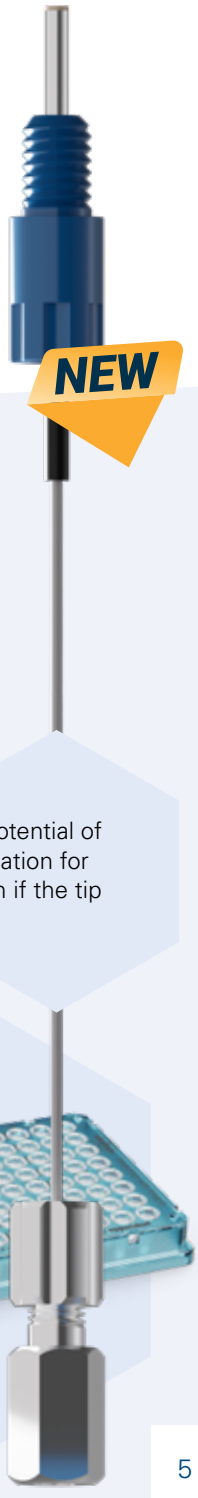


Figure 1. Retention times and peak widths of Biognosys iRT Kit peptides (1 µL injection volume, 1/300 dilution of stock solution) on a PepSep Advanced column (25 cm x 75 µm x 1.5 µm) coupled to nanoElute 2 and timsTOF Ultra, using a 22-minute active gradient.

FWHM determination of Peak 3 using Gaussian Fit and Width Measurements

FWHM (Peak 3): 1.96 s
Tailing (Peak 3): 1.06

Average FWHM (Peak 1-11): 1.89 s
Average Tailing (Peak 1-11): 1.04



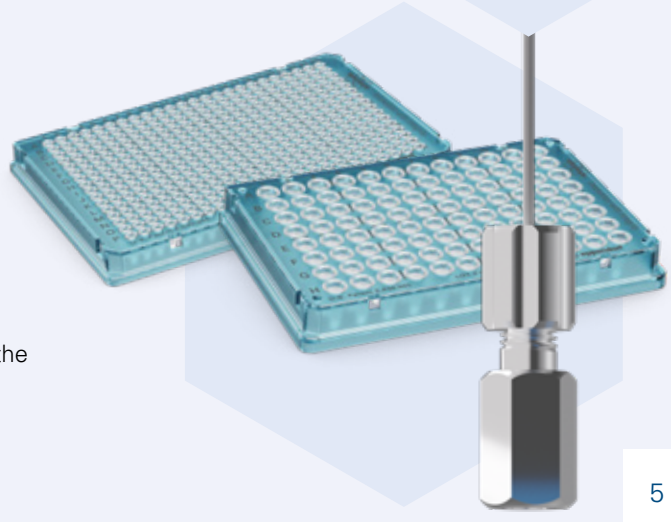
The newest addition to the PepSep suite of columns, the PepSep Advanced, helps you leverage the full potential of your proteoElute system. Sharper peaks and better resolution lead to higher sensitivity—a perfect combination for your proteomics LC-MS workflow. The use of CSI emitters allows you to continue using your column even if the tip becomes clogged. Simply replace the emitter and keep your PepSep Advanced column running.

PepSep Advanced and Eppendorf Plates

1919826 PepSep Advanced	25 cm x 75 µm x 1.5 µm

1906116 Bruker LC 384 well plate	(Packs of 25 plates)
1906118 Bruker LC 96 well plate	(Packs of 25 plates)
1915286 Heat sealing foil for well plates	(100 pieces)

For optimal performance, we offer our tested microplates for the proteoElute system. All dimension are readily available in the system to get you up and running in no time.



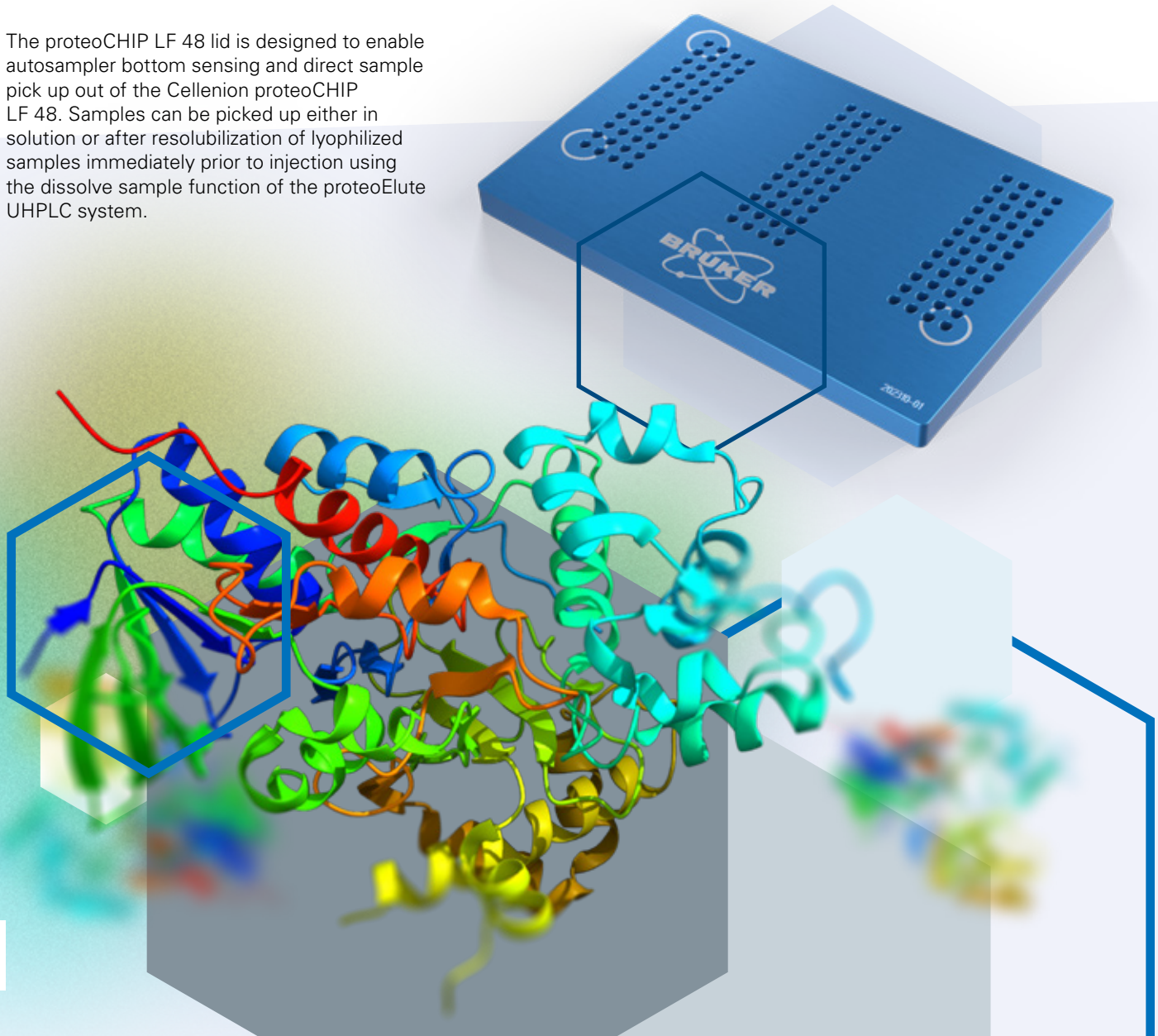
Florian Meier-Rosar

Research Group Functional Proteomics, Jena University Hospital

"Our laboratory investigates proteomes and post-translational modifications on an increasingly large scale, requiring liquid chromatography that is robust, fast and highly sensitive. The proteoElute system is designed to meet these requirements while providing full flexibility to tailor chromatographic methods. Moreover, its advanced autosampler capabilities open up exciting possibilities to develop innovative multi-omics workflows."

ProteoCHIP LF 48 for Extreme Sensitivity Single Cell Multiomics applications

The proteoCHIP LF 48 lid is designed to enable autosampler bottom sensing and direct sample pick up out of the Cellenion proteoCHIP LF 48. Samples can be picked up either in solution or after resolubilization of lyophilized samples immediately prior to injection using the dissolve sample function of the proteoElute UHPLC system.



TwinScape Digital Twin Technology

TwinScape provides continuous oversight of your LC-MS system's health and performance. This powerful software solution helps you proactively monitor both the liquid chromatography (LC) and mass spectrometry (MS) components to ensure reliable, high-quality operation over time.

For LC systems, TwinScape tracks key performance indicators such as pressure stability, flow consistency, gradient integrity, and autosampler behavior. As part of routine QC runs, it also displays LC pump pressure readings, helping to identify early signs of blockages, leaks, or flow deviations.

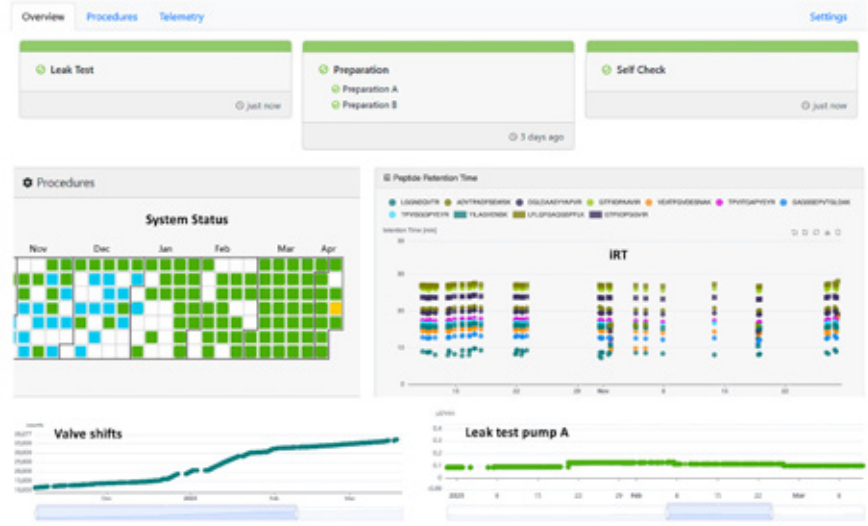
TwinScape collects and stores QC data, enabling powerful comparisons over time—even across different instruments, LC-MS combinations, or methods.

This allows users to verify long-term stability, detect subtle trends, and maintain confidence when analyzing critical biological samples.

Running in the background, TwinScape monitors system health independently of QC data. Using AI-driven algorithms, it detects anomalies and early warnings on your instrument—automatically alerting our service team to help prevent failures, reduce downtime, and keep workflows running smoothly.

You can access a clear system overview anytime via a secure web interface. With TwinScape, you gain confidence that your LC-MS system is performing as it should—so you can stay focused on science, not interruptions.

Continuous monitoring data from a proteoElute system in TwinScape



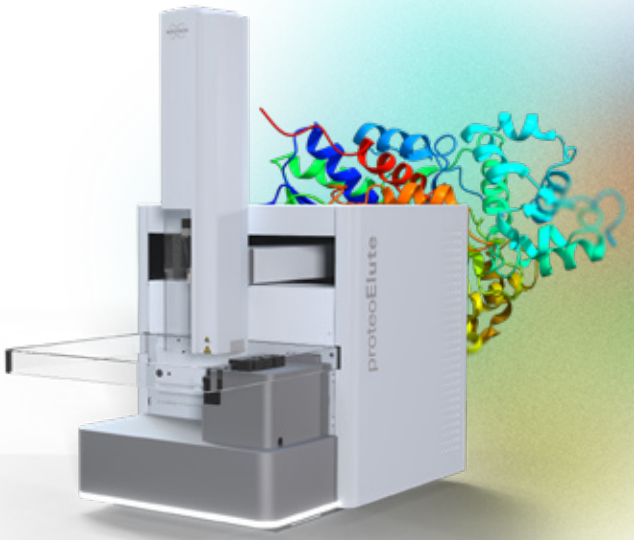
Extracts from the twinscape web interface. From top to bottom: system overview, system status with traffic lights, iRT retention time plot, valve shifts, leak test pump A.

Mario F. Mirabelli

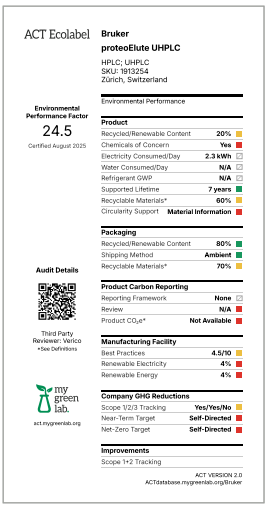
Head of NanoLC Solutions, Bruker Switzerland AG

"The synergistic interplay of solid and robust new hardware and a powerful new HyStar software plug-in is the foundation for the excellent performance of the new LC system. The control software was expanded to take full advantage of the new hardware components, reducing carryover and solvent consumption, while increasing the sample throughput with new elution modes. We allow maximum transparency to our users, with system performance that can be monitored via TwinScape."

proteoElute™ – Design to discover more biological insight



Benefit	Feature
Robust Operation	Ceramic valves, High- and Low-Pressure filters
Self-check Features	Fully automated system check during idle time and sample table
Reduced Overhead Time	New elution modes
Environmentally Protected Fluidic Path	Reproducible ultra-high precision gradient
Advanced TwinScape Integration	System monitoring and proactive maintenance
Reduced Carryover	3x less with the new Bruker injection port
Reduced Solvent Consumption	Up to 5x less with the new wash procedures
New proteoTrap Column	Minimize sample loss during trapping/elution
ACT 2.0 Label	Removal of most fluorinated plastic, reduced system weight


ACT Ecolabel

Bruker
proteoElute UHPLC
HPLC; UHPLC
SKU: 1913254
Zürich, Switzerland

Environmental Performance Factor
24.5
Certified August 2025

Environmental Performance

Product
Recycled/Renewable Content 20%
Chemicals of Concern Yes
Electricity Consumed/Day 2.3 kWh
Water Consumed/Day N/A
Refrigerant GWP N/A
Supported Lifetime 7 years
Recyclable Materials* 60%
Circularity Support Material Information

Packaging
Recycled/Renewable Content 80%
Shipping Method Ambient
Recyclable Materials* 70%

Audit Details

Product Carbon Reporting
Reporting Framework None
Review N/A
Product CO_2e* Not Available

Third Party Reviewer: Verico
*See Definitions

Manufacturing Facility
Best Practices 4.5/10
Renewable Electricity 4%
Renewable Energy 4%

my green lab
act.mygreenlab.org

Company GHG Reductions
Scope 1/2/3 Tracking Yes/Yes/No
Near-Term Target Self-Directed
Net-Zero Target Self-Directed

Improvements
Scope 1+2 Tracking

ACT VERSION 2.0
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