

Protein Sequencer

PPSQ-51A/53A Gradient System



Protein Sequencer

PPSQ™ -51A/53A Gradient System

Higher Sensitivity and More Reliable Analysis of Protein N-terminal Amino Acid Sequences
FDA 21 CFR Part 11 Compliant

High-Sensitivity Analysis ▶ P. 4

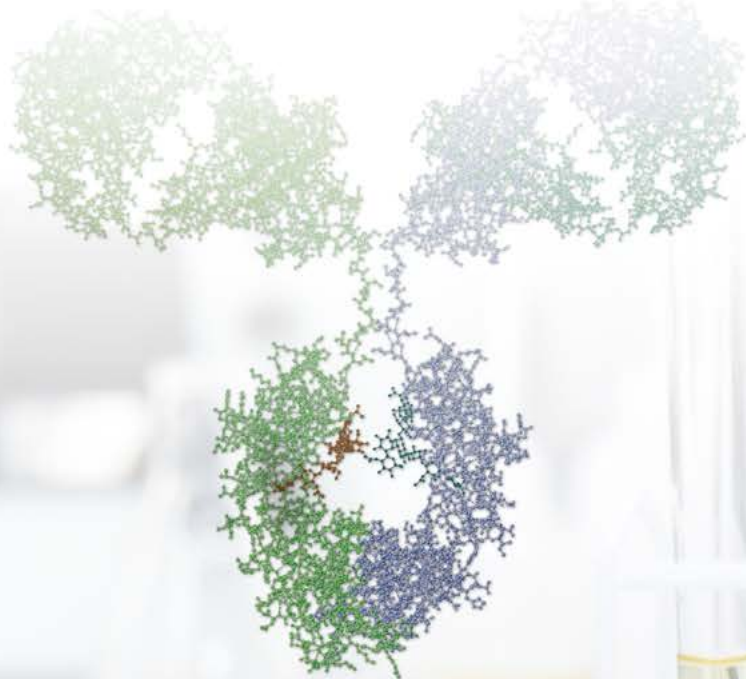
Gradient separation enables detection of trace PTH-amino acids.

Analysis Stability ▶ P. 4

Equipped with a high-performance detector and a solvent delivery pump that provides excellent pumping performance even in the micro flowrate range

Enhanced Functions for FDA 21 CFR Part 11 Compliance ▶ P. 6

Compliant with FDA 21 CFR Part 11 and PIC/S GMP Guideline when used with LabSolutions DB/CS

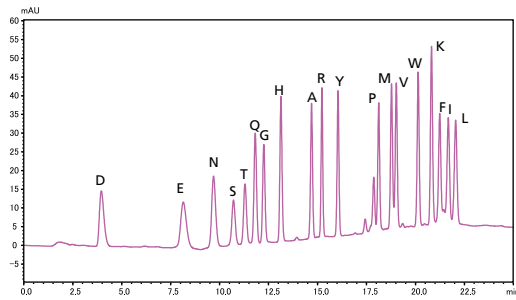




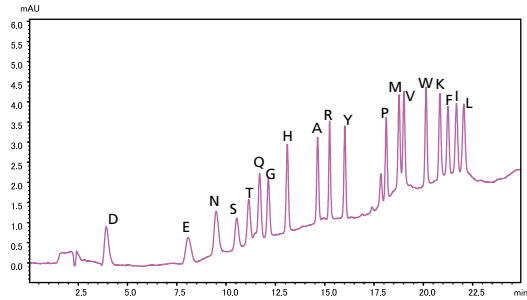
High-Sensitivity Analysis

A high-sensitivity flow cell enables high-sensitivity detection of PTH-amino acids, which allows for sequential analysis using trace samples.

Analysis of Standard PTH-Amino Acid Mixture



10pmol



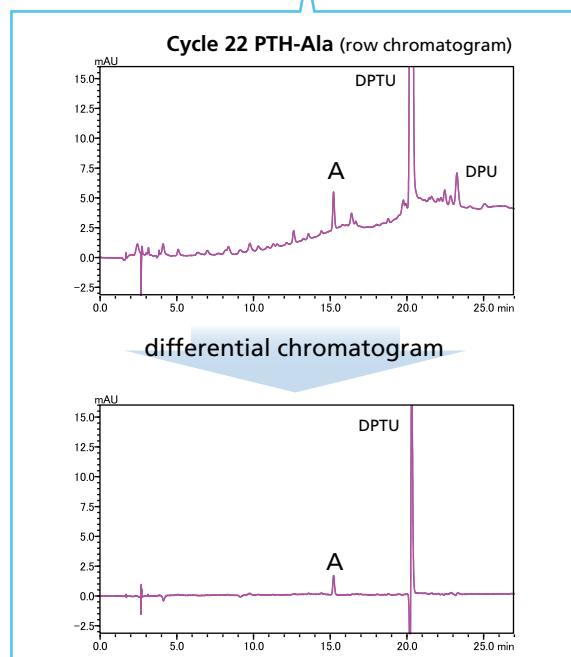
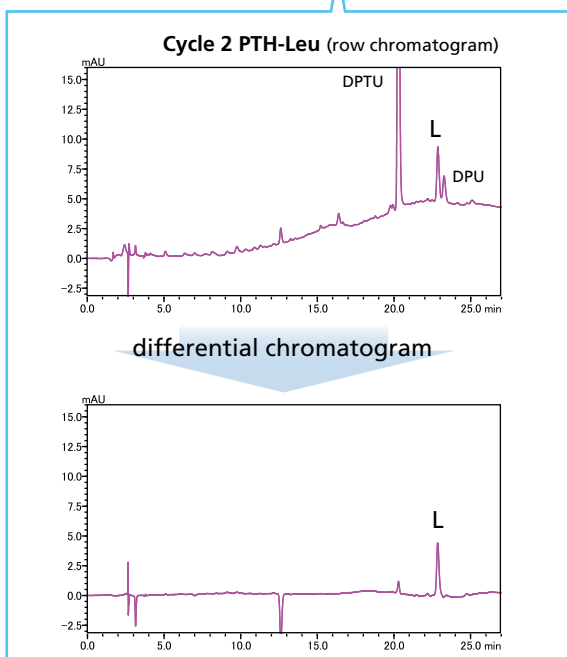
500fmol

Analysis Stability

This system has high analysis stability because it is equipped with a high-performance detector and a solvent delivery pump that provides excellent pumping performance, even in the micro flowrate range, combine to ensure high analysis stability. Because chromatograms with good reproducibility can be obtained, peaks detected in the previous cycle can be canceled by performing differential chromatogram processing. This enables easy identification of PTH-amino acids even from trace samples.

Analysis of Horse Myoglobin (10 pmol)

Sequence: G-L-S-D-G-E-W-Q-Q-V-L-N-V-W-G-K-V-E-A-D-I-A-

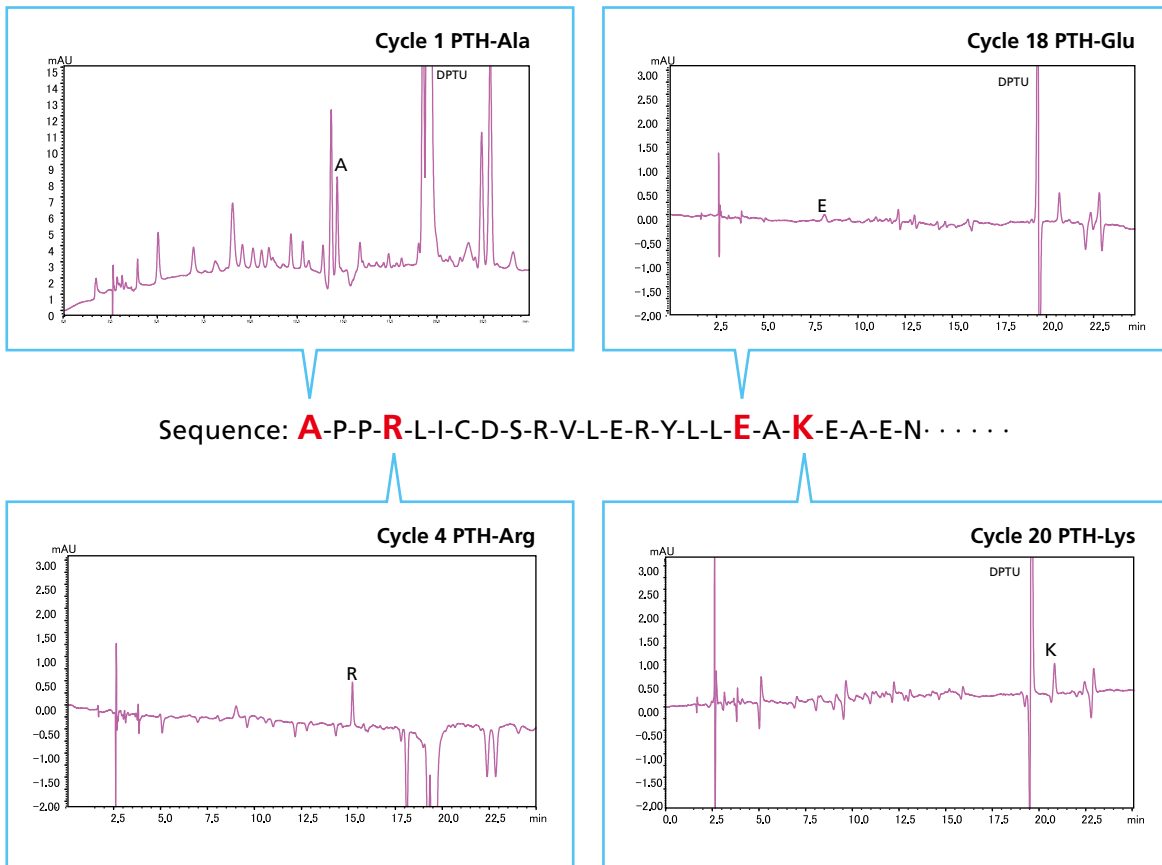


Example of High-Sensitivity Sequence Analysis Using Trace Samples

Erythropoietin Analysis

Erythropoietin is a hormone secreted by the kidney that stimulates red blood cell production.

Analysis of Erythropoietin (2 pmol)



Cycle 1: raw chromatogram, Cycle 4,18,20: differential chromatograms (EPO; CALBIOCHEM® cat#329871, Human, Recombinant)



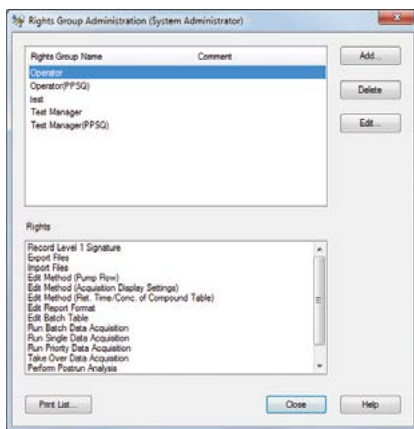
Enhanced Functions for FDA 21 CFR Part 11 Compliance

Instruments used in laboratories must comply with various regulations and guidelines, such as computerized system validation (CSV), FDA 21 CFR Part 11, PIC/S GMP Guidelines, Japanese Ministry of Health, Labour and Welfare guidelines on electronic records and electronic signatures, etc.

Numerous functions related to security policies, system policies, user authority, and user management enable compliance with these regulatory requirements and achieve more efficient system operations.

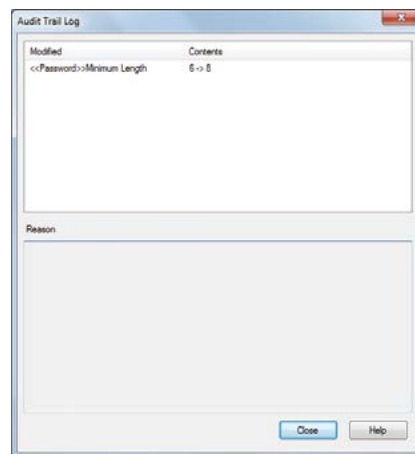
1 Security

Users are recognized from their user name and password and are managed in groups. Freely combining access authorities allows individual groups to be created. Clearly setting the access authority of each user prevents unauthorized setting changes, instrument operation, and data access.



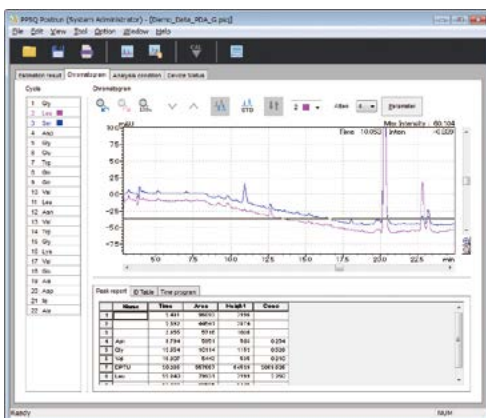
2 Audit Trail

Operation history such as logging in and out of the system, user/group changes, and the start and completion of measurement (audit trail) is recorded together with user name, date and time. The recorded operation history can be registered to a database so the history of the operation status and setting changes can be traced.



Simple and User-Friendly Data Analysis Function

Reprocessing of chromatograms, overlay of multiple chromatograms, and automatic estimation of amino acid sequences necessary for sequence analysis can be easily performed using dedicated protein sequencing software.



● The estimated sequences and sequence analysis results such as yield are displayed.



● Sequences can be easily identified on the screen by overlaying multiple chromatograms and moving chromatograms while they are overlaid.

Specifications

Main Unit	PPSQ-51A/53A
Reaction method	Edman degradation
Reaction time	PPSQ-51A: 46.5 min/cycle PPSQ-53A: 48 min/cycle
Number of reactors	PPSQ-51A: 1 PPSQ-53A: 3
Sample immobilization method	Glass fiber disk (8 mm dia.) or PVDF membrane
Reactor temperature control range	10 °C above room temperature to 60 °C
Converter temperature control range	10 °C above room temperature to 70 °C
Number of reagents/solvents	7
Reagent/solvent delivery method	Nitrogen gas pressure
Dimensions	W510 × D500 × H540 mm
Weight	PPSQ-51A: 43 kg PPSQ-53A: 45 kg

Solvent Delivery Module	LC-20AD
Flow rate setting range	0.0001 to 10 mL/min
Dimensions	W260 × D420 × H140 mm
Weight	10 kg

Detector	SPD-M30A
Wavelength setting range	190 to 700 nm
Dimensions	W260 × D500 × H140 mm
Weight	12 kg

Oven	CTO-20AC
Temperature control range	10 °C above room temperature to 60 °C
Dimensions	W260 × D420 × H415 mm
Weight	23 kg

Control PC	
OS	Windows 10 Professional 64 bit

Note: In the interests of product improvement, these specifications may change without notice.

Note: Windows is a registered trademark of Microsoft Corporation in the U.S. and other countries.

Standard Configurations

PPSQ-51A System

Configuration	PPSQ-51A (main unit)
	LC-20AD (two)
	SPD-M30A
	CTO-20AC
	DGU-20A _{3R}

PPSQ-53A System

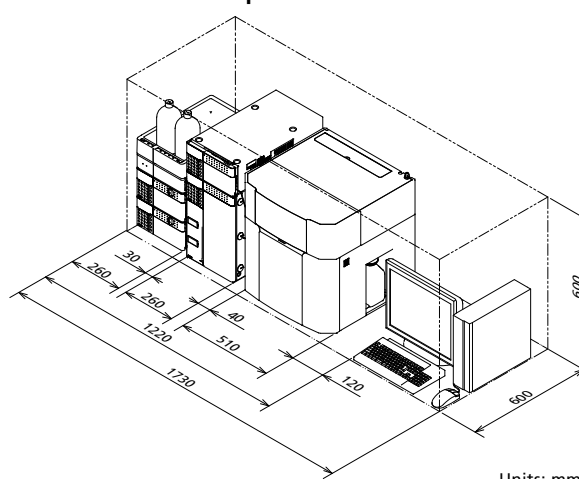
Configuration	PPSQ-53A (main unit)
	LC-20AD (two)
	SPD-M30A
	CTO-20AC
	DGU-20A _{3R}

Other Items Provided by User

Installation space	Desktop: W1,800 × D600 × H600 mm min. Weight: Approx. 120 kg
Power supply	120-230 VAC, 50/60 Hz, 1,500 VA max.
Nitrogen gas	Purity: 99.9999% min. A cylinder pressure regulator and gas tubing (10 m) are provided as standard accessories.
Exhaust equipment	In order to provide an exhaust for gases produced by waste liquids, an exhaust tube must either be connected to exhaust equipment or vented outside. An exhaust tube (20 m) is provided as a standard accessory.

Note: The required installation space and power supply may change according to the PC and display used.

Installation Example



Units: mm

PPSQ-51A Single Reactor



Offers highly cost-effective performance.

PPSQ-53A Triple Reactor (Supports consecutive analysis of three samples.)



Using a triple reactor makes it possible to save time and effort, and gives greater freedom in the formulation of analysis programs.

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