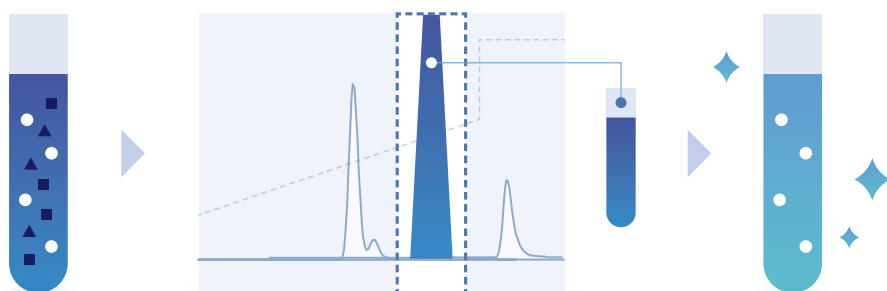


# Preparative LC/SFC Software Solutions



# Streamlining preparative purification workflows

## Maximizing laboratory productivity through software

Sample  
Preparation

Method Development

Analysis

Scale-up



### Shimadzu's preparative purification software platforms address a wide range of requirements.

Sample amount, target compounds, and system configuration vary significantly in preparative purification workflows.

Shimadzu's preparative purification software platforms support diverse workflows and are widely used in the pharmaceutical, chemical, environmental, and food industries.

### Widely used in research, quality control, and manufacturing, supporting a broad range of applications.



#### Pharmaceutical Industry

- Separation and purification of high-purity active pharmaceutical ingredients
- Identification and isolation of impurities



#### Food Industry

- Analysis of food additives, nutritional components, and pesticide residues
- Quality control and safety evaluation of food products



#### Chemical Industry

- Purity confirmation and component analysis of synthesized compounds
- Analysis of polymers and specialty chemicals



#### Environmental Field

- Analysis of hazardous substances and environmental contaminants
- Water quality testing and soil analysis

Preparative Separation

Purification

Collection



## Software lineup



### Open Solution

Automated scale-up from analytical to preparative workflows

- Preparative conditions can be quickly and efficiently selected based on analytical results
- Enables intuitive operation of preparative workflows



### Purification Solution

Significantly reduces the time required for concentration and drying

- After preparative separation, desalting and purification steps can be performed easily, reducing the time required for powderization
- High-purity samples can be collected through repeated injections



### LabSolutions MD

Seamlessly converts analytical methods to preparative methods

- Streamlines exploration of preparative conditions for difficult-to-separate samples
- Preparative conditions can be created based on analytical results



### Prep Solution

Efficient preparative fractionation using Stacked Injection

- Optimal preparative conditions can be evaluated while monitoring chromatograms during analysis
- The same sample can be repeatedly and efficiently fractionated

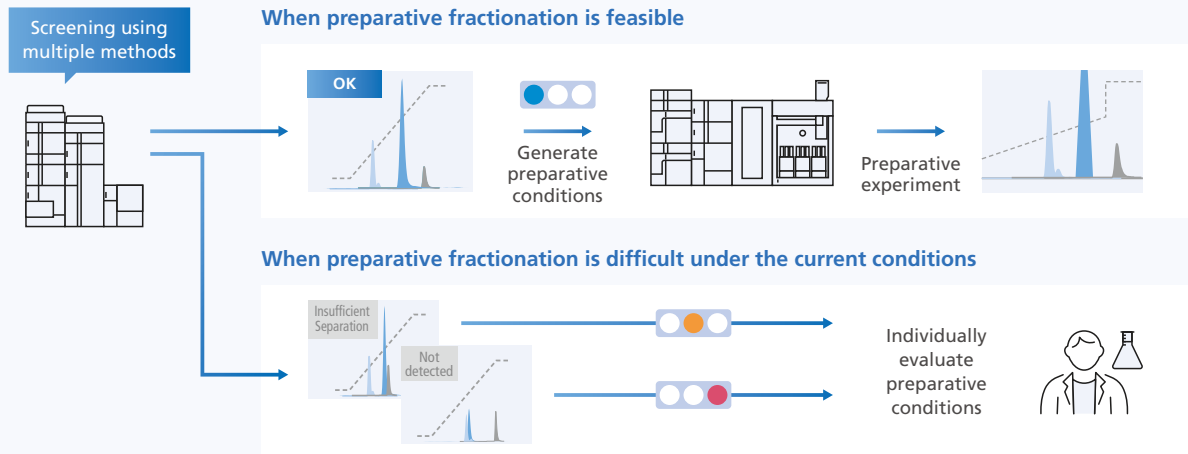


# Open Solution

For automation of scale-up decisions from analytical results to preparative conditions

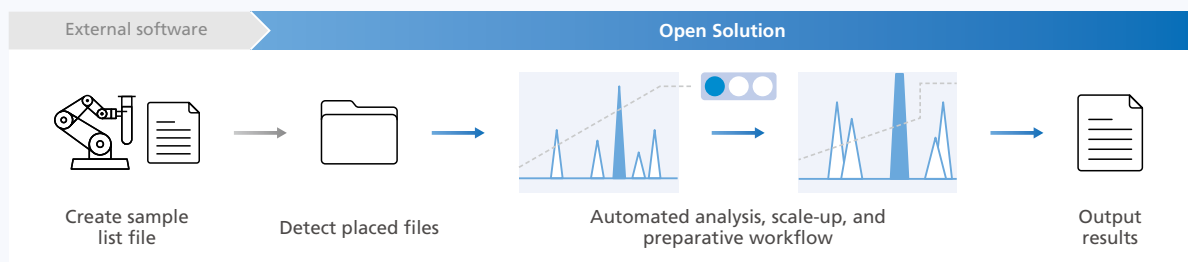
## Automatically calculates preparative conditions and determines fractionation feasibility

Based on screening results using multiple methods, Open Solution automatically calculates the initial solvent conditions and gradient settings required for preparative fractionation and automatically evaluates the separation performance. This significantly reduces the effort required for fractionation feasibility assessment and scale-up studies.



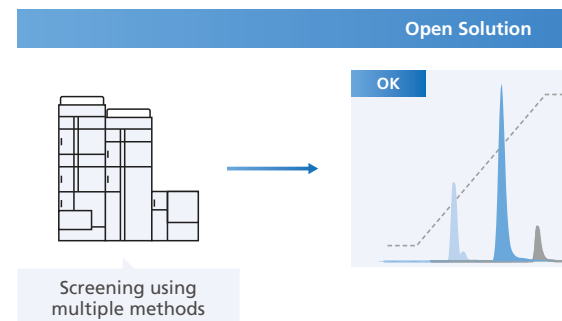
## Automated analysis execution using analytical conditions generated by pretreatment control software

Automatically detects analytical condition files generated by pretreatment systems, allowing analysis to be started immediately without manual input. Eliminating manual data entry and automating the entire workflow from pretreatment through analysis and preparative fractionation reduces the overall workload and minimizes the risk of operational errors.



## Efficient workflow from analysis → preparative fractionation → purification through integration of Open Solution and Purification Solution

Preparative conditions obtained through screening using multiple methods in Open Solution can be imported into Purification Solution to conduct preparative fractionation and purification processes. This enables efficient execution of the entire workflow from analysis through purification, while also reducing the time required for powderization of the collected fractions.



For details on other features, please refer to the Open Solution catalog (c191-e060) and the Nexera™ ASAPrep™ catalog (c190-e331).



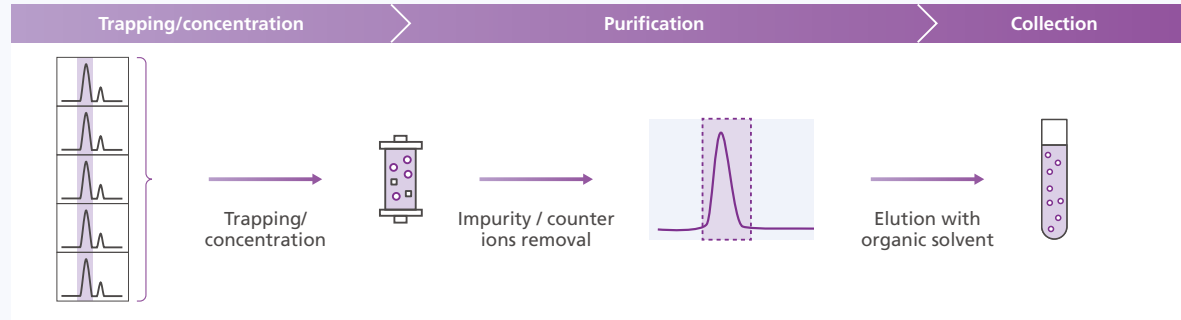
# Purification Solution

For efficient reduction of downstream powderization time

## Automatically executes the entire workflow from trapping and concentration to purification and collection, streamlining the preparative purification process

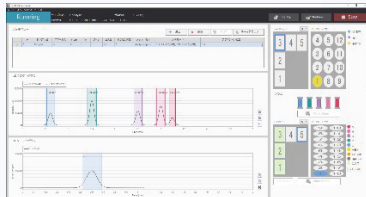
Purification Solution is compatible with the ultra-fast preparative purification LC system, Nexera UFPLC, which automatically and continuously executes the entire process from sample trapping through collection. By using ready-to-use methods, the operations required for trap purification and preparative purification are minimized, improving overall workflow efficiency.

### Ultra-fast preparative purification LC system: Nexera UFPLC™

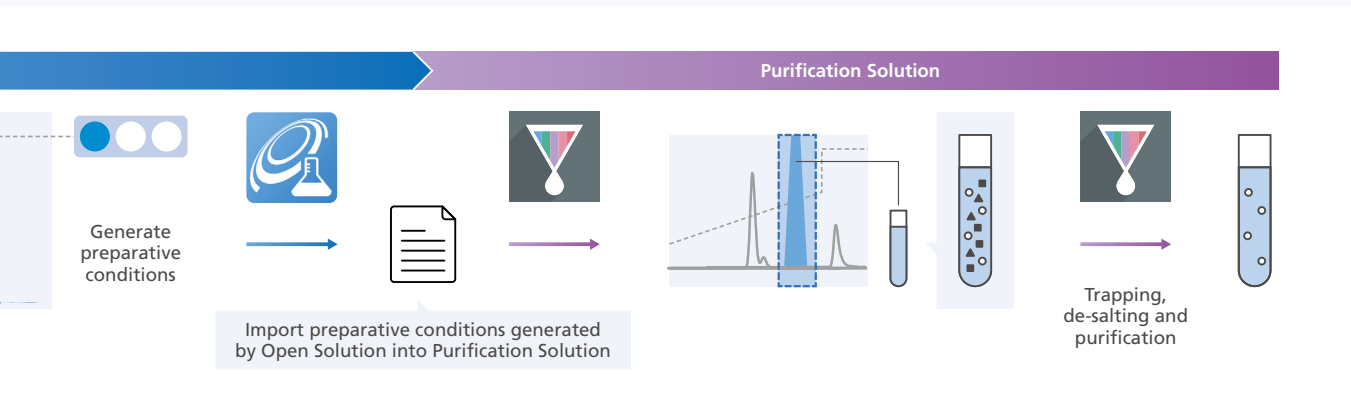
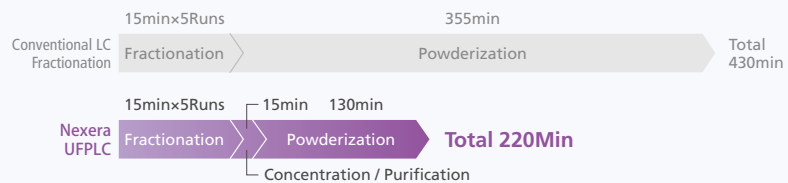


## Sample collection that reduces downstream powderization time

Target components contained in multiple injections are trapped to enable high-purity sample collection. In addition, collecting samples under conditions with a high organic solvent ratio significantly shortens the time required for downstream powderization.



### Processing Time Comparison: Conventional LC Fractionation and Nexera UFPLC



For details on other features, please refer to the Nexera Prep catalog (c193-e034).



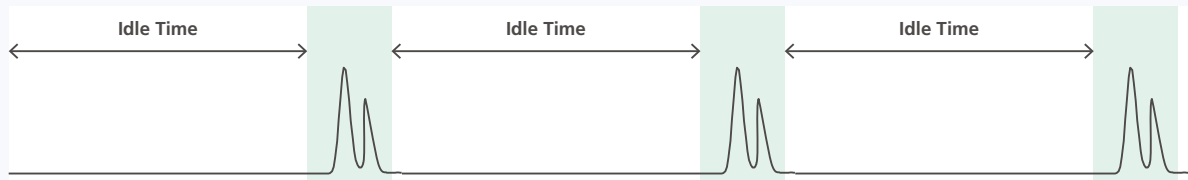
# Prep Solution

For efficient evaluation of preparative conditions while adjusting parameters during data acquisition

## Efficient repeated fractionation of the same sample using Stacked Injection

Stacked Injection is a technique in which the next injection is performed while analysis is still in progress, thereby improving analytical efficiency per unit time. By reducing switching and equilibration time between analyses, it increases processing efficiency in preparative workflows.

Conventional Workflow

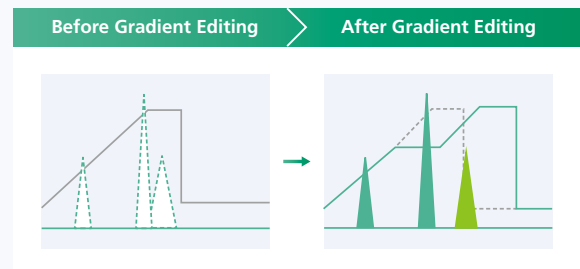


Workflow Using Stacked Injection



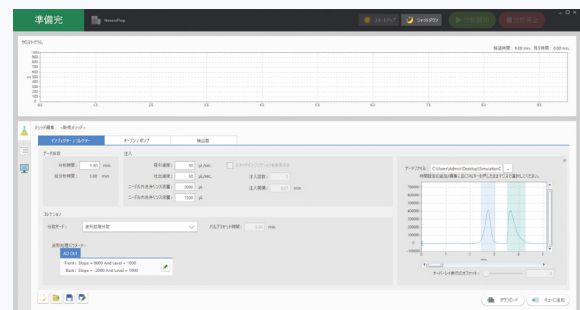
## Easily explore improved separation conditions by adjusting parameters during data acquisition

With Prep Solution, parameters such as oven temperature and pump flow rate can be adjusted during data acquisition. In addition, gradients can be edited using mouse operations, enabling efficient exploration of preparative conditions that deliver improved peak separation.



## Consistent, intuitive operation of preparative workflows across LC and SFC systems

Prep Solution can control the analytical LC/SFC switching system, Nexera UC/s, the preparative SFC system, Nexera UC Prep, and the preparative LC system, Nexera Prep. The focused user interface enables a consistent and intuitive workflow across all systems, ensuring efficient and reliable preparative work.



For details on other features, please refer to the Nexera Prep catalog (c193-e034).



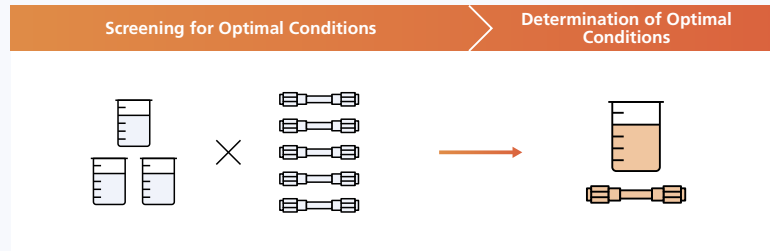
# LabSolutions MD

For easy creation of optimal preparative conditions based on separation assessment

## Automatically screens mobile phases and columns optimized for preparative purification

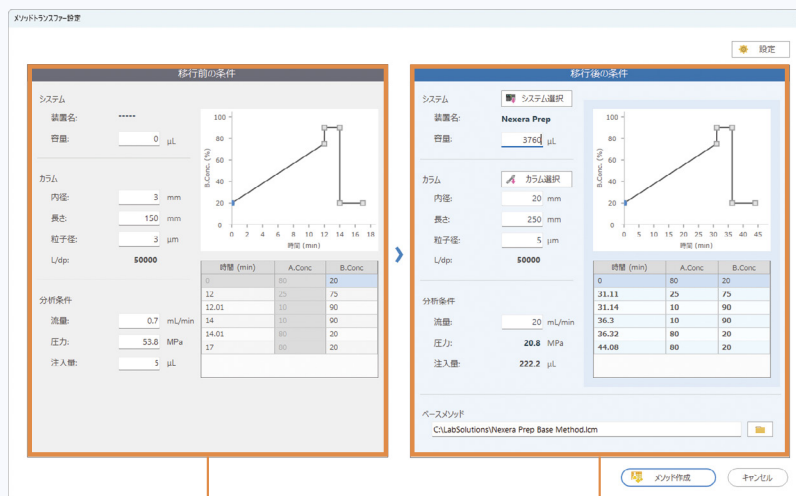
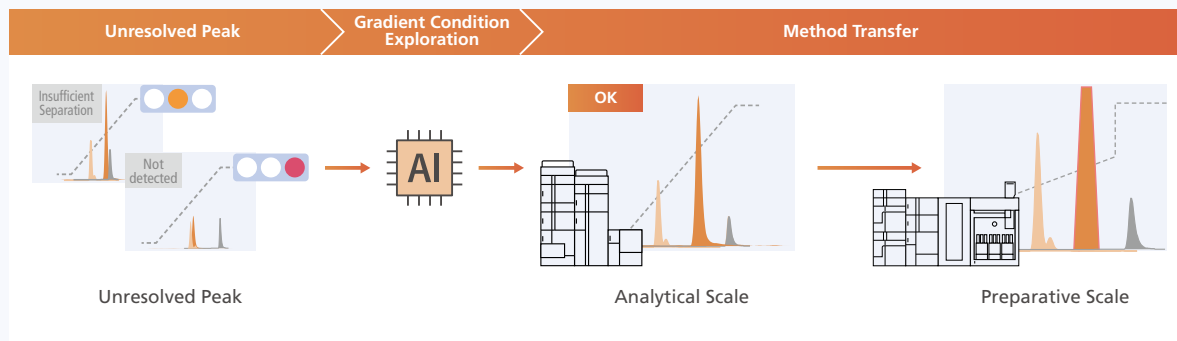
Mobile phases and columns are automatically switched, enabling continuous and automated execution of the screening process. By selecting an experimental design, conditions can be narrowed and executed efficiently, allowing more effective screening compared to exhaustive testing.

### Identification of Optimal Conditions Using LabSolutions MD



## Easily scales up analytical conditions using the method transfer function









Through gradient condition exploration, methods capable of separating previously unresolved peaks are automatically identified. The optimal method obtained can then be converted to the preparative scale through automatic parameter calculation, enabling intuitive and consistent creation of preparative fractionation methods.



Analytical Conditions → Scaled-Up Preparative Conditions

For details on other features, please refer to the Nexera Prep catalog (c193-e034) and the LabSolutions MD catalog (c190-e278, c190-e308).

## Software Lineup

Product Name	Recommended System	URL
 <b>Open Solution</b>	Nexera ASAPrep	<a href="#">Product</a> 
 <b>Purification Solution</b>	Nexera UFPLC	<a href="#">Product</a> 
 <b>Prep Solution</b>	Preparative SFC / Preparative LC	<a href="#">Product</a> 
 <b>LabSolutions MD</b>	Method Scouting System	<a href="#">Product</a> 

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