

Press Release

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New Nexera Prep Better Prep!

**Provides high efficiency, saves space and enables multi-sample processing /
Customer- and application-specific solution /
Time-saving by simplified, fast operation**

Shimadzu, one of the world leaders in analytical instrumentation, has announced the release of its new Nexera Prep Series Preparative Purification Liquid Chromatograph (LC). “Preparative HPLC” is a process in which specific substances are separated and purified from samples. The new Nexera Prep Series provides better prep processes for extraction of functional and impurity components, as well as purification of target compounds in the pharmaceutical, chemical and food industries. This product dramatically improves productivity via flexible scalability and an efficient, user friendly preparative workflow.

Customer- and application-specific solution

The Nexera Prep Series consists of multiple related products with the LC units as the core. Users select a pump, autosampler and detector to build a system according to the purpose of the preparative work. Systems can be configured using related products such as the LH-40 Liquid Handler, FRC-40 Fraction Collector, Shim-pack Scepter LC Column for Analysis and Preparative Work, and Column Hub.

Preparative purification is generally performed following a multi-step workflow, which requires experience and time:

1. Selection of system configuration and preparative column size based on the amount of purified sample or injection volume required
2. Selection of fraction collector and container size according to the intended purpose
3. Investigation of separation conditions in analytical scale
4. Optimization of preparative LC conditions
5. Confirmation of the purity of collected fractions

In addition to these steps, in some cases salts need to be removed or solvent needs to be evaporated after purification, requiring additional time and effort.

Time-saving by simplified, fast operation

The Nexera Prep Series reduces the time spent on examining conditions using the software's fractionation simulation function. It also enables simplified, fast operation in transition from analytical to preparative scale, with a column portfolio that covers a wide range of sizes. Furthermore, Shimadzu's unique UFPLC (Ultra Fast Preparative and Purification LC) high-purity purification system reduces the time required for powderization via the elution of desalted target components with an organic solvent. This product satisfies a number of user demands, such as efficient desalting and powderization, multi-sample and multi-fraction analysis, effective separation at low cost and the ability to check the purity.

Specifically, the product can be used for the following purposes:

- Concentration and purification of immunosuppressive agents
- Preparative work for impurities in degradants of medicinal agents
- Separation and purification of functional components from natural materials
- Consecutive analysis to separate and purify polymers and their additives and confirm the purity

The Nexera Prep Purification LC System provides new features to simplify the preparative workflow:

1. Reduces the time required for investigating conditions

With the fractionation simulation function of the LabSolutions analysis software and the Shim-pack Scepter LC column for analytical and preparative HPLC, which offers excellent scalability, the product reduces the time required for investigating preparative work conditions. The LH-40 Liquid Handler can be used both, as a fraction collector and as an autosampler for large-volume injection with liquid surface detection function (option). It also enables seamless purity checks through re-injection (option) of collected sample after fractionation.

Additional features including a sample rescue protocol to collect the sample from the system if an error occurs after an injection, a function to automatically extract the target peaks only, and high-purity preparative purification using detector signals from up to four channels, enable more efficient operation.

2. UFPLC high-purity purification system

Samples must be in a state of concentrated solution or dry powder to analyze their structure or to store them. When a solution contains water, it takes time to dry and concentrate it. When a salt such as trifluoroacetate has been added, it remains in the crystal of the compound, lowering the purity and negatively influencing pharmacokinetic studies and other tests. Shimadzu's unique, automated UFPLC purification system introduces fractions containing the target compound, separated in a preparative column, into a trap column. Salt and water are then washed off and elution is induced with an organic solvent. This reduces the time required for drying, providing compounds with a high level of purity.

3. Flexible system scalability

Both the LH-40 Liquid Handler and FRC-40 Fraction Collector are designed to save installation space, requiring only half the space of other vendors' products. They support containers of a form and size suitable for the recovered quantity. Up to six units can be connected, so up to 3240 10 mm diameter test tubes can be placed. Using the new Column Hub, up to six columns and four flow-line switching valves can be installed, enabling the compact configuration of various systems.

Web summary

Shimadzu has announced the release of its new Nexera Prep Series Preparative Purification Liquid Chromatograph (LC). It provides better prep processes for extraction of target compounds and impurities during drug discovery in the pharmaceutical industry and purification of functional components in the chemical and food industries.

This product improves productivity dramatically via efficient preparative workflows using LC or LC-MS methodology.



Figure 1: The new Nexera Prep Purification LC System improves productivity tremendously



Figure 2: The LH-40 Liquid Handler (left) can be used both as a fraction collector (right) and as an autosampler for large-volume injection with the liquid surface detection function

Web link: www.shimadzu.eu/nexera-series.eu



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