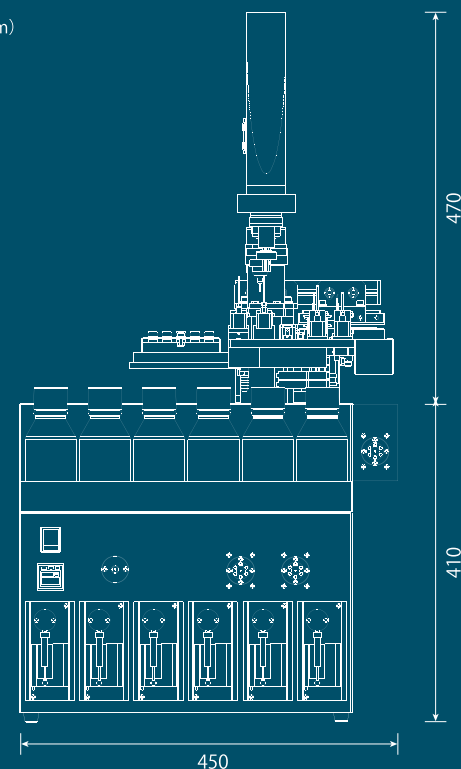


■ Dimensions (mm)



■ SPL-W100 specification

Size and Weight	main unit : W 400 mm D 600 mm H 470 mm (Height from top of pumping unit) 10Kg Pumping unit W450 mm D 600 mm H 410 mm 37Kg
Power Supply and Power Consumption	100 V (500 VA)
PC specs for software	since Windows7
Number of specimens processed	Maximum 50 samples
Liquid delivery method	Syringe type
Gas	Nitrogen gas or inert gas
Installation environment	Temperature : 18~28 °C Humidity : 40~70 %RH However, no condensation must occur An environment with few disturbing elements such as dust, vibration, space noise, corrosive gases, etc. is desirable.

Product specifications, appearance, configuration, etc. are subject to change without notice for improvement.  
Company names and product names in this catalog are registered trademarks or trademarks of the respective companies.



AiSTI SCIENCE CO., Ltd.

[Head office]  
18-3, ARIMOTO WAKAYAMA-CITY WAKAYAMA JAPAN  
TEL.+81-73-475-0033 FAX.+81-73-497-0033  
e-mail: as@aisti.co.jp

www.aisti.co.jp



Online SPE-LC  
interface

SPL-W100

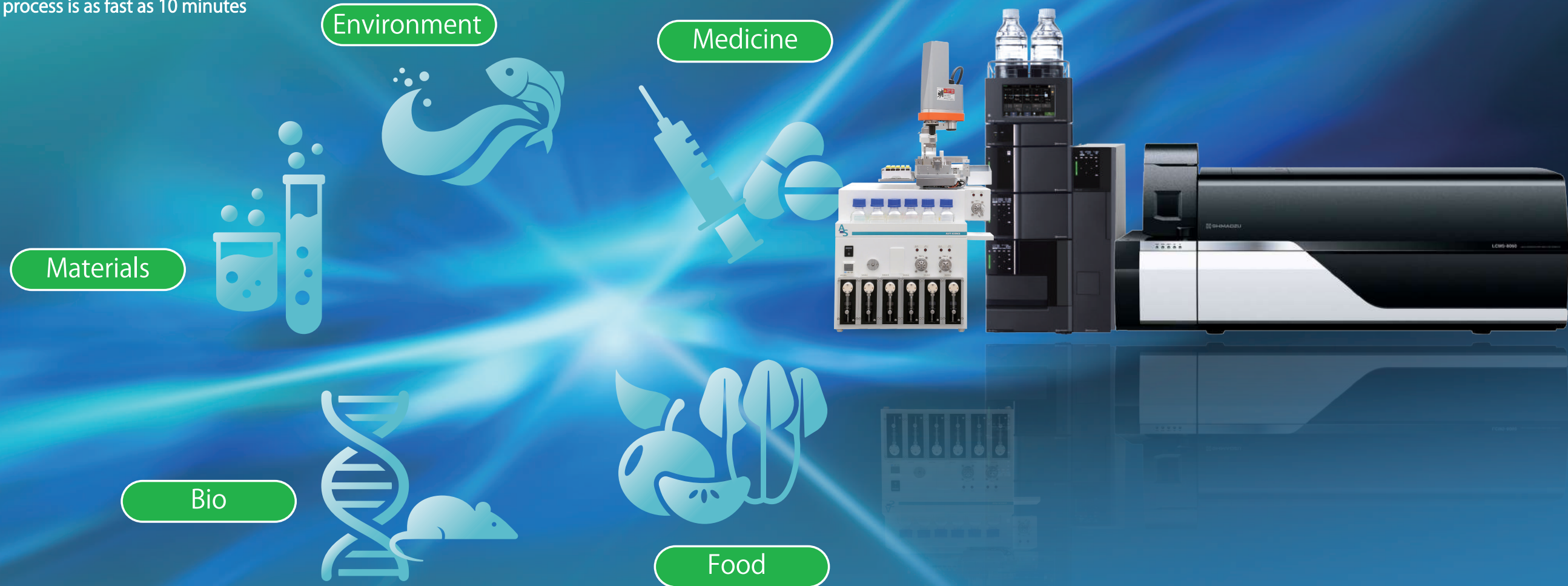




# SPL-W100 / online SPE-LC interface

Fully online LC pretreatment in a variety of fields  
Two new technologies bring out the best in LC performance  
in a revolutionary pretreatment system

- Solid-phase extraction system mounted on LC for fully automated on-line analysis from SPE conditioning to sample loading, elution, and LC injection
- Combines the advantages of conventional off-line pretreatment methods with on-line pretreatment methods
- Automatic pretreatment process is as fast as 10 minutes



## Two new technologies for "fully automated analysis"



# MiVS

Mixing Injection Valve System

- Mixing eluent and diluent in the valve while accumulating in the sample loop
- Introduce diluted eluate to LC column by switching flow paths
- pH adjusters and derivatization reagents can be added to the eluate from the solid phase

(Patented)



# HYBRID SPE-LC

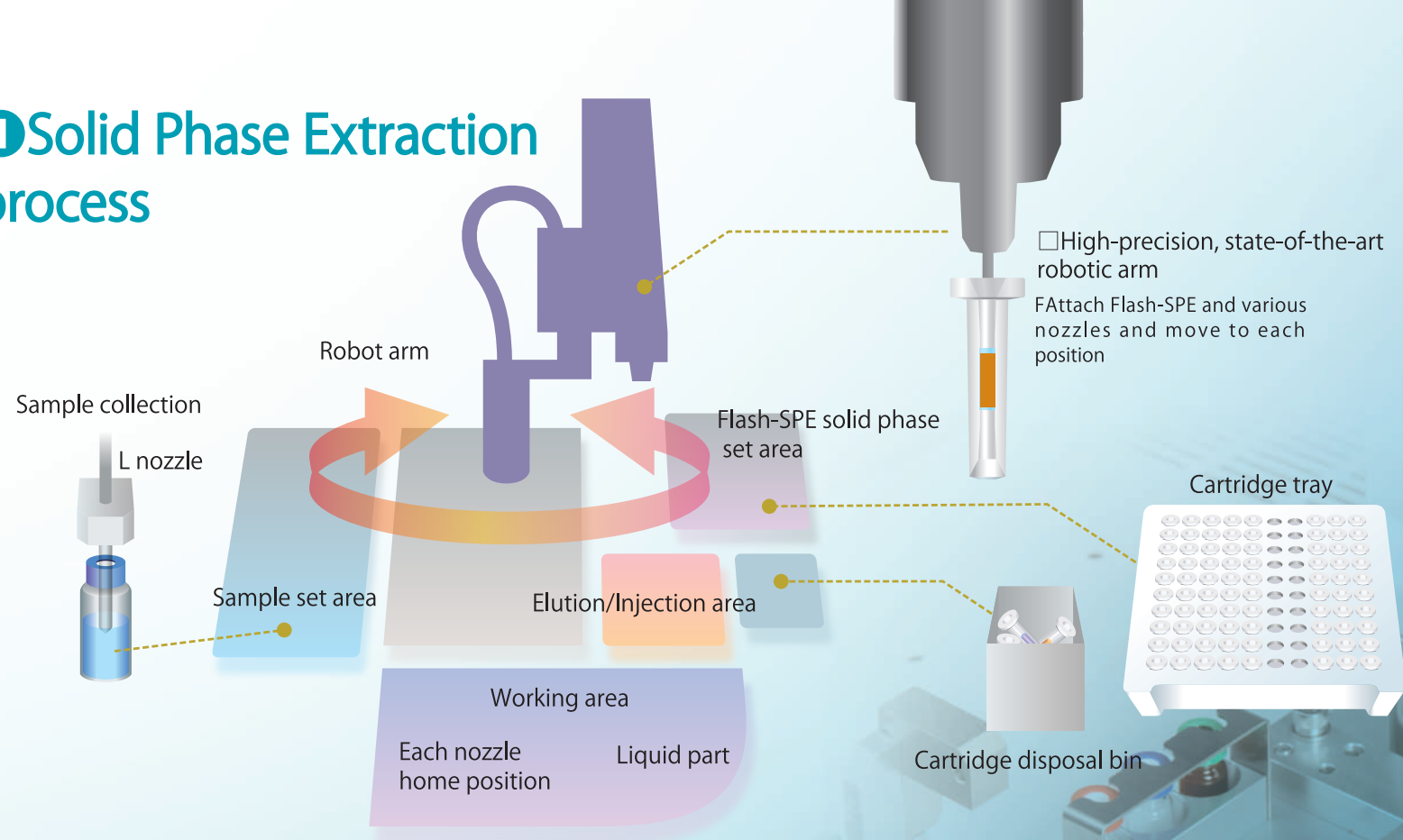
- Combines the respective offline and online benefits of traditional SPE-LC
- Off-line advantages of not contaminating the valve when loading the sample into the solid phase
- On-line advantages of introducing the entire eluate from the solid phase into the LC



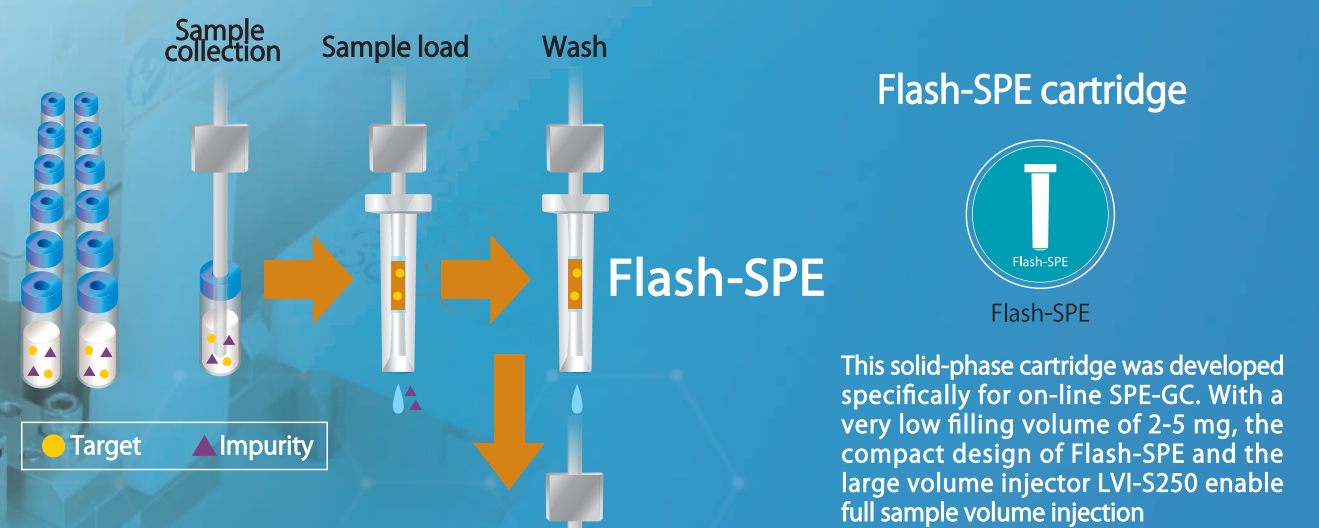
HYBRID ONLINE  
SPE-LC



## ① Solid Phase Extraction process

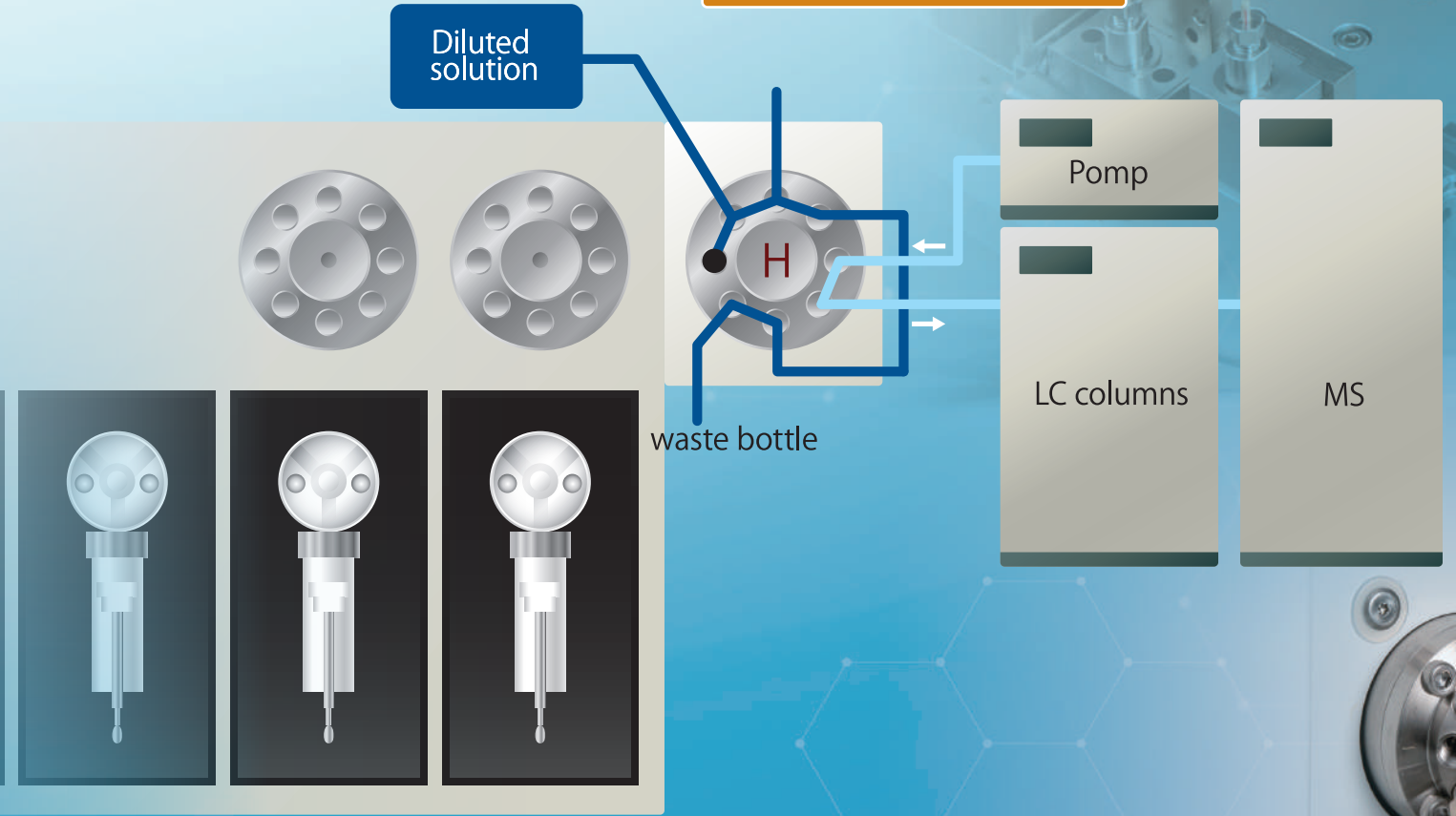


**Scaled-down solid-phase extraction process, dramatically shortened processing time, and higher accuracy**

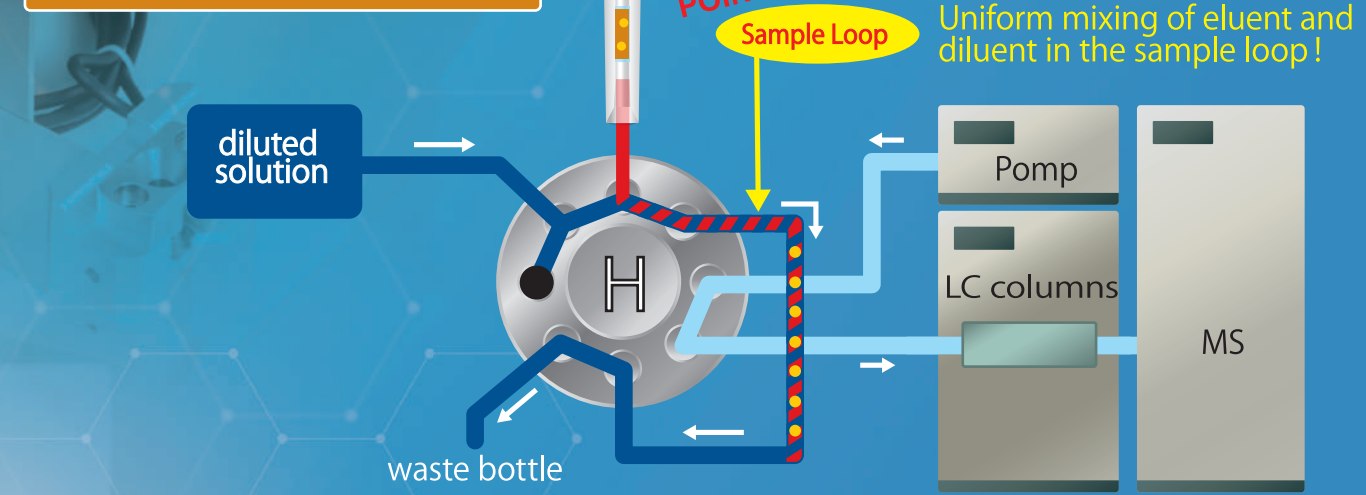


## ② Elution & Mixing

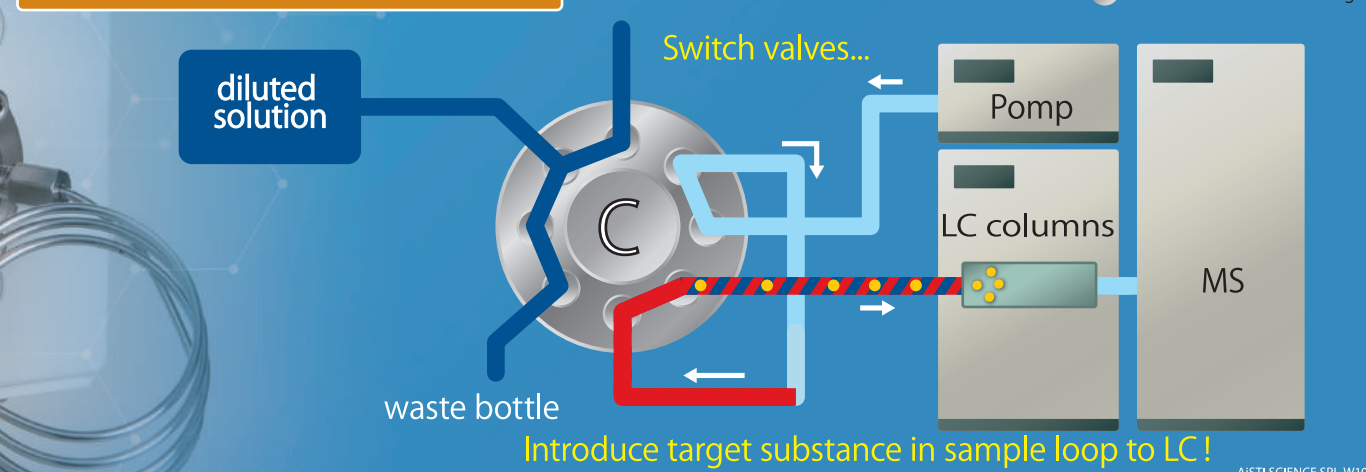
### STEP ① Preparation



### STEP ② Elution & Mixing



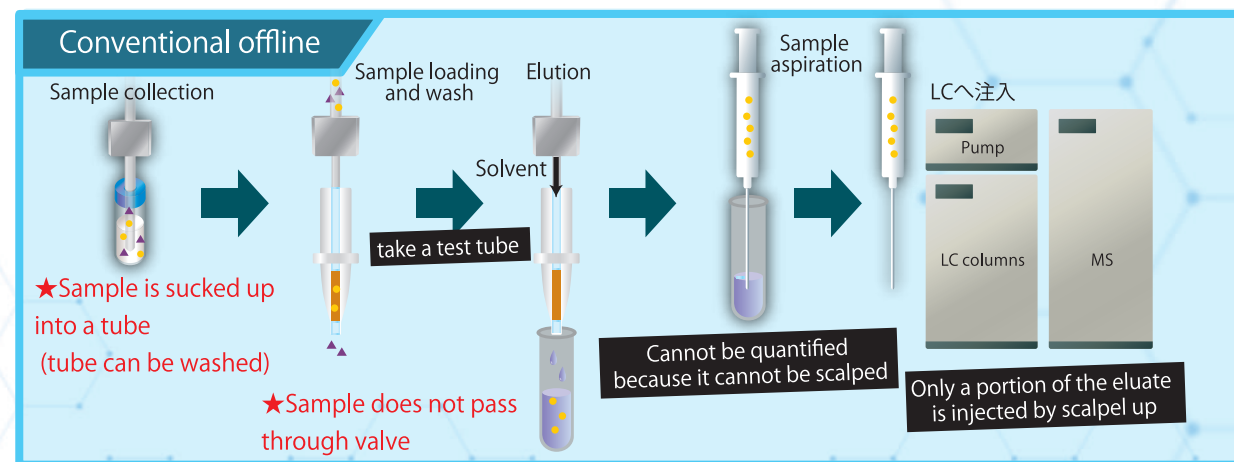
### STEP ③ Introduced to LC



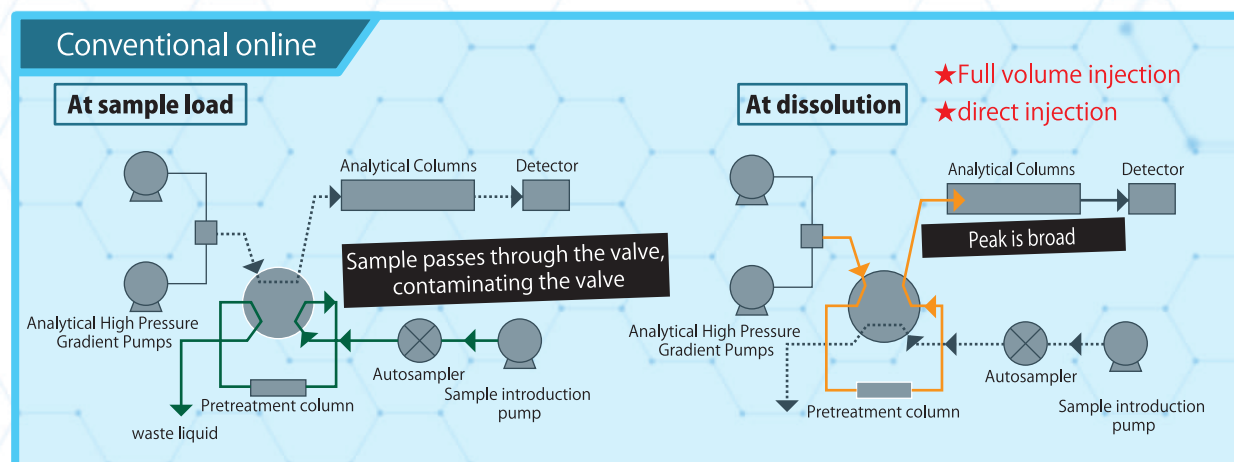
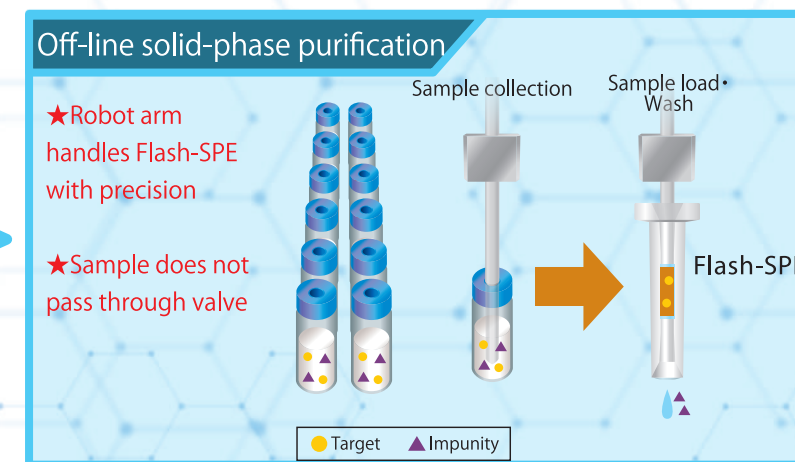
**MiVS** takes LC into new territory  
Mixing Injection Valve System



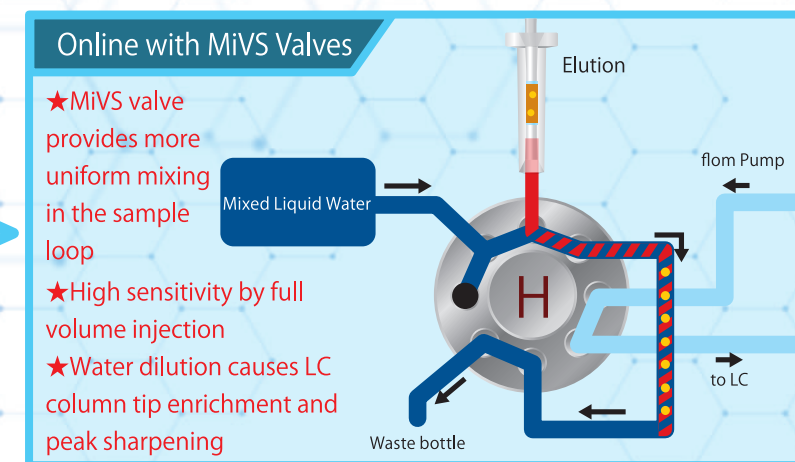
## Hybrid Online SPE-LC Combines traditional offline/online benefits



Offline Advantages



Online Advantages

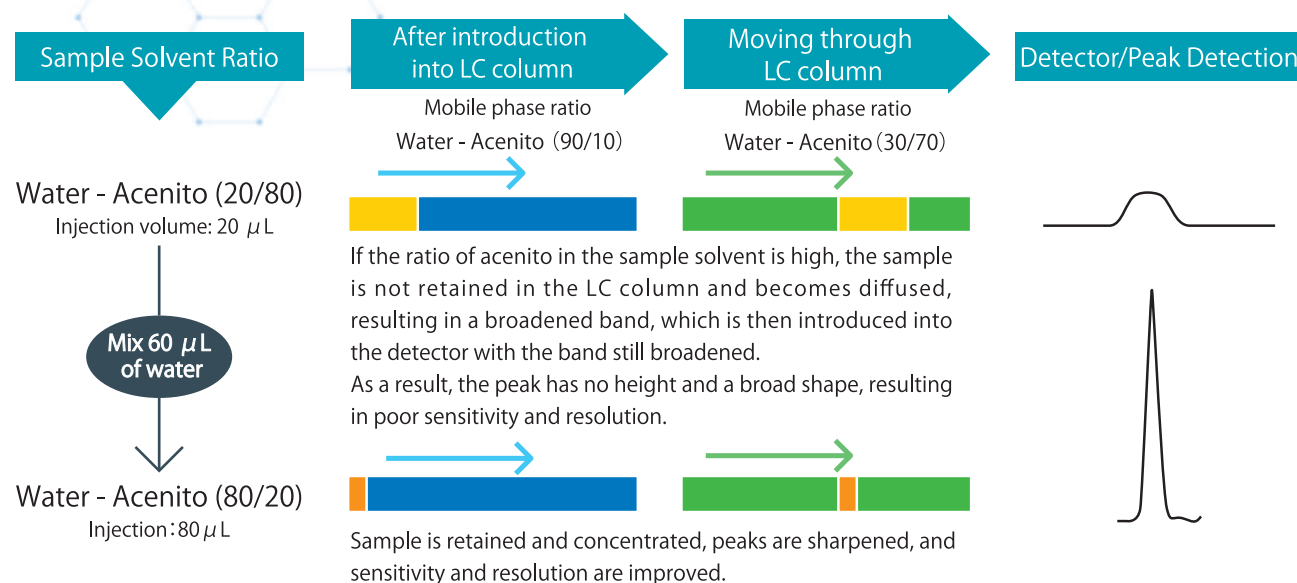


### AISTI TRI.SYSTEM

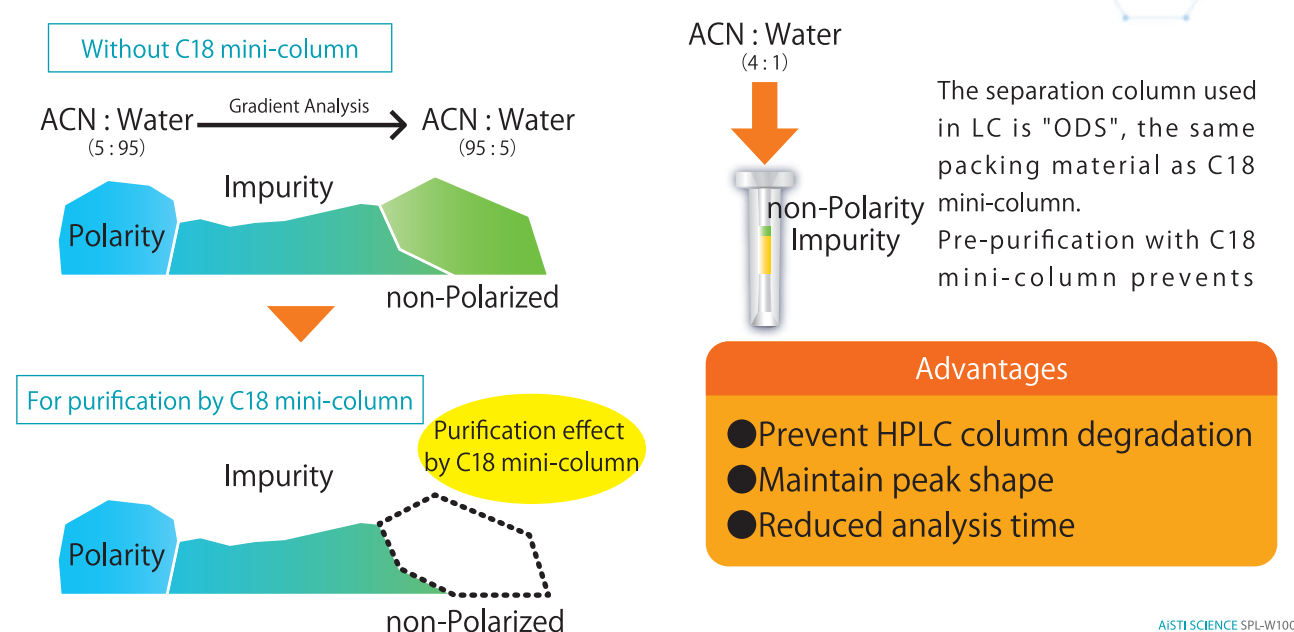
We realize "speed-up", "labor saving", "cost reduction", and "high accuracy" of solid phase extraction process.

- The maintenance frequency of the LC-MSMS will be reduced.
- Fewer contaminants reduce the impact on LC-MSMS and maintain analytical accuracy
  - HPLC column degradation is reduced and peak shape is maintained.
  - MS can be less degraded
- The reduction of foreign substances reduces the effects of ionization inhibition and ionization acceleration. In trace analysis, increasing the amount of concentration (loading) in the solid phase enables highly sensitive analysis.
- Any foreign substances that increase with the concentration of the solid phase can be removed by washing the solid phase, etc.
- The time required for HPLC to remove foreign substances can be shortened, thereby reducing the measurement time.
- Analysis time can be shortened by eliminating the influence of foreign substances.
- Fewer adulterants prevent false identifications.

### Sharp peak shape due to LC column tip enrichment



### C18 purification reduces burden on LC analytical columns





# Neonicotinoid analysis in river water

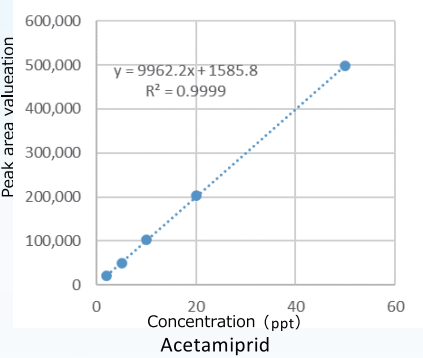
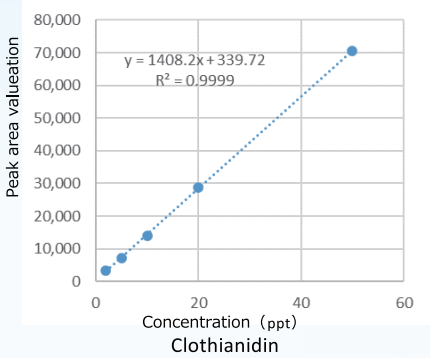
This system was used to analyze neonicotinoids in river water. One mL of the collected river water was placed in a vial and set in this system for measurement.

Filler: C18  
Cleaning solution: 2% ACN-water  
Dissolution solution: ACN-water (2/1)  
Load: 200 µL  
Measurement device: LC-MSMS

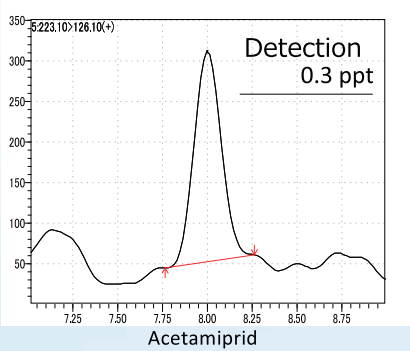
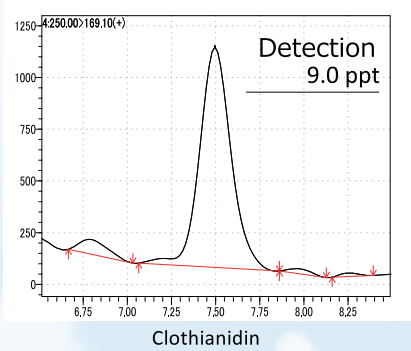
## Spike and Recovery Test

NO.	constituent name	River water, 10ppt added, peak area value							RSD %	recovery rate %
		1	2	3	4	5	6	Ave.		
1	Nitenpyram	114,371	108,447	100,857	102,730	109,253	105,747	106,901	4.6	91
2	Thiamethoxan	15,295	15,282	11,831	14,101	15,157	16,181	14,641	10.4	116
3	Imidacloprid	24,911	22,741	22,148	22,380	23,060	23,131	23,062	4.3	108
4	Clothianidin	33,644	36,114	33,552	33,385	35,224	32,348	34,045	4.0	124
5	Acetamiprid	109,719	99,658	104,738	107,115	105,946	102,750	104,988	3.3	96
6	Thiacloprid	128,199	133,633	133,158	130,063	131,737	125,731	130,420	2.3	98

## Calibration curve



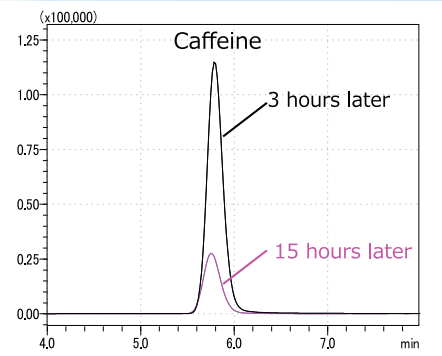
## MRM quantitative ion chromatograms and quantitative values of detected pesticides



# Urinary caffeine analysis

This system was used to analyze caffeine in urine after drinking coffee. 50 µL of collected urine was added to a vial containing 950 µL of water, set in this system, and measured.

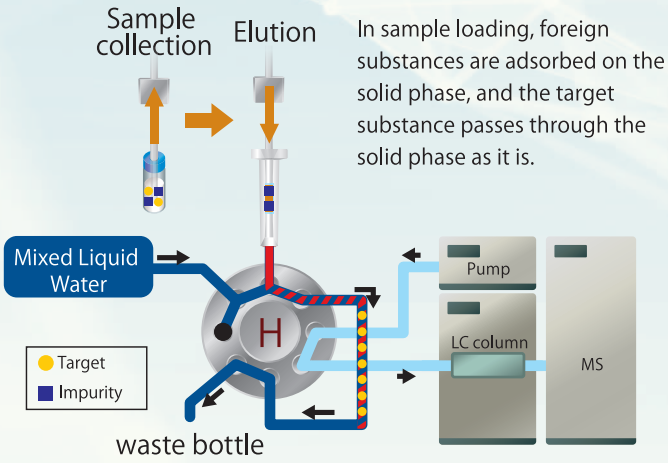
Filler: C18  
Cleaning solution: 2% ACN-water  
Dissolution Solution: ACN-water (1/1)



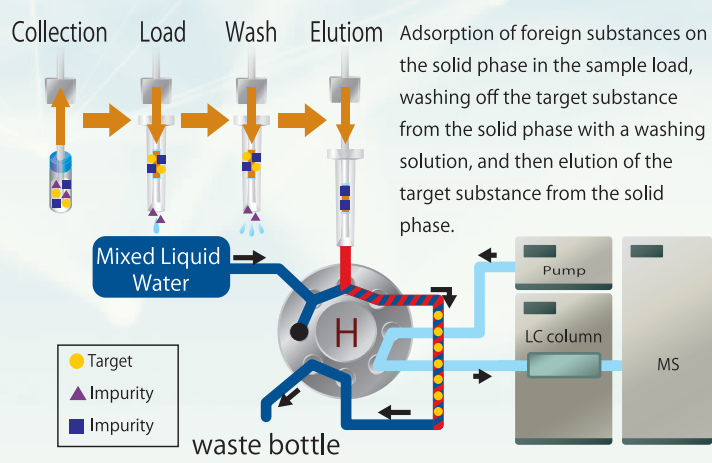
MRM quantitative ion chromatograms of urinary caffeine obtained with this system

# The SPL-W100 can be applied to a variety of uses!

## Purification

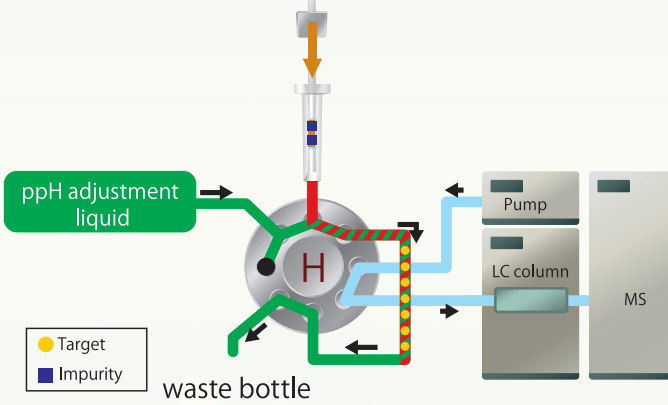


## Retention + Purification

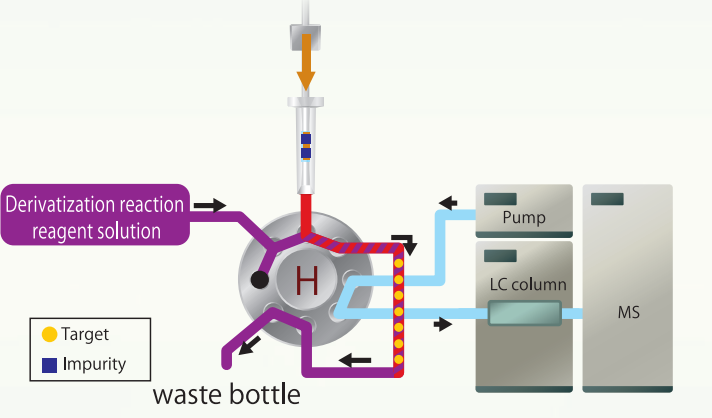


Analysis

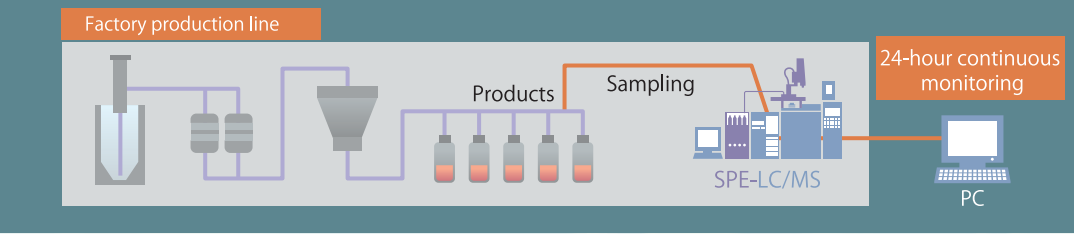
## pH adjustment



## Derivatization reaction

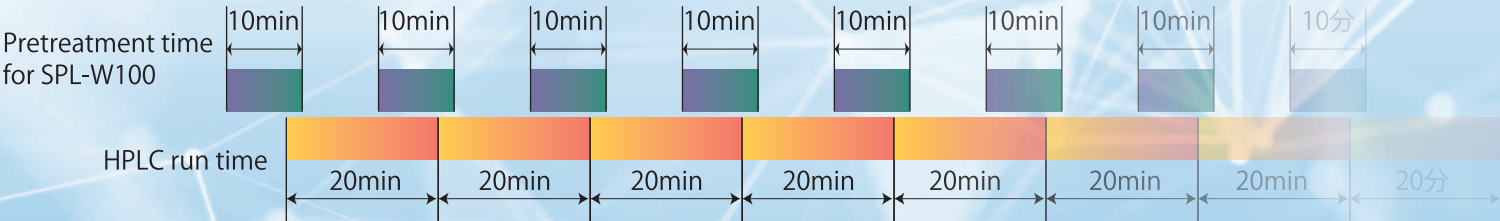


## 24-hour online monitoring of factory production lines



It is effective for crisis management, such as checking products and products in each production line and process in factories, quality control, and wastewater check.

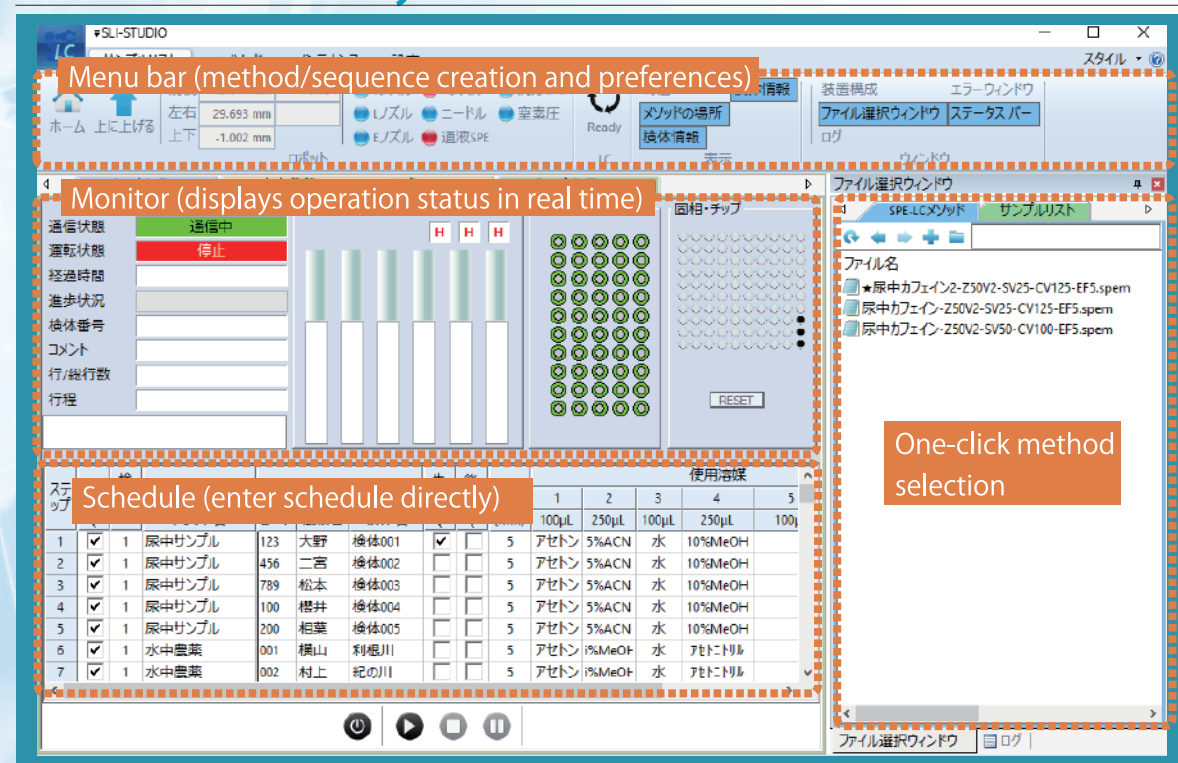
## Analysis Cycle Time





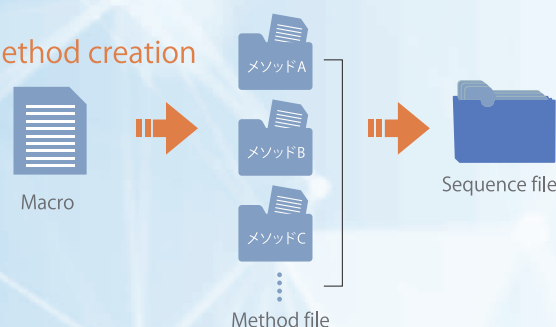
# Software

Intuitive and easy to use software

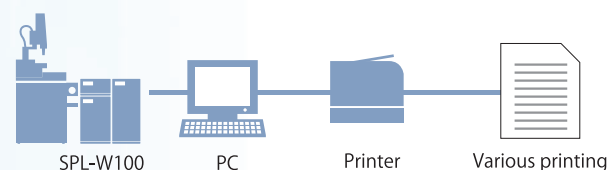


Ability to create your own methods

Free method creation



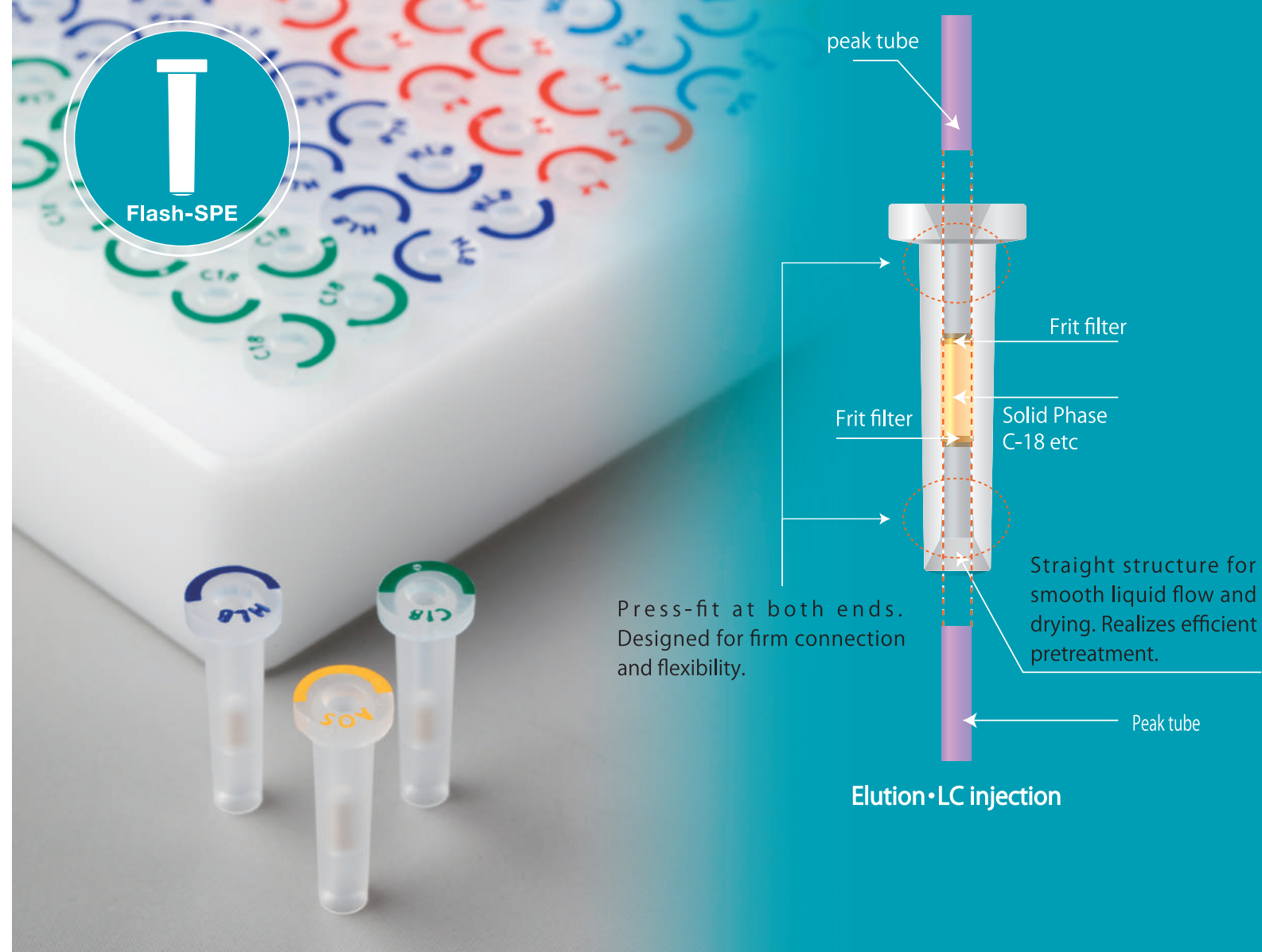
Various log functions to record operational status



- ☐ Printing function  
Printing sequences, logs, etc., to help manage documents and equipment
- ☐ Operation & Error Log  
Log files are automatically saved in one-month increments for easy management

Sample ID	Sample Name	Volume	Solvent	Injection Volume	Injection Time	Injection Pressure	Injection Temperature	Injection Status	Injection Error
1	尿中サンプル	123	大野	検体001	5	アセトン	5%ACN	水	10%MeOH
2	尿中サンプル	456	二宮	検体002	5	アセトン	5%ACN	水	10%MeOH
3	尿中サンプル	789	松本	検体003	5	アセトン	5%ACN	水	10%MeOH
4	尿中サンプル	100	櫻井	検体004	5	アセトン	5%ACN	水	10%MeOH
5	尿中サンプル	200	相澤	検体005	5	アセトン	5%ACN	水	10%MeOH
6	水中農薬	001	横山	利根川	5	アセトン	1%MeOH	水	7%MeOH
7	水中農薬	002	村上	紀の川	5	アセトン	1%MeOH	水	7%MeOH

Time	Event	Details
2020/11/03 20:28:30	溶媒	1:アセトリル 2:0.1%ギ酸水 3:1ACN-1W 4:2%
2020/11/03 20:36:09	終了しました	
2020/11/03 20:41:30	SPEシーケンス1.spesが終了しました	
2020/11/04 08:14:45	SPEシーケンス1.spesを開始しました	
2020/11/04 08:14:46	STEP:01を開始しました	
2020/11/04 08:14:46	検体:1	
2020/11/04 08:14:46	メソッド名:★尿中カフェイン2-Z50V2-SV25-CV125-E	
2020/11/04 08:14:46	コード:	
2020/11/04 08:14:46	依頼者:	
2020/11/04 08:14:46	検体名:	
2020/11/04 08:14:46	溶媒:1:アセトリル 2:0.1%ギ酸水 3:1ACN-1W 4:2%	
2020/11/04 08:22:30	終了しました	
2020/11/04 08:30:46	STEP:02を開始しました	
2020/11/04 08:30:46	検体:2	
2020/11/04 08:30:46	メソッド名:★尿中カフェイン2-Z50V2-SV25-CV125-E	
2020/11/04 08:30:46	コード:	
2020/11/04 08:30:46	依頼者:	
2020/11/04 08:30:46	検体名:	
2020/11/04 08:30:46	溶媒:1:アセトリル 2:0.1%ギ酸水 3:1ACN-1W 4:2%	
2020/11/04 08:38:22	終了しました	



## Flash-SPE solid-phase cartridge (patented)

Solid-phase cartridges for on-line SPE-GC

Low filling volume for lean analysis

- Linear structure for smooth flow of samples and solutions
- Simple structure optimized for automation
- Small solid-phase fill volumes of 2 to 5 mg
- Piping connections at both upper and lower ends

