

SepaFlash™ FP

Low Temperature Evaporative Light Scattering Detector

SepaFlash™ FP LT-ELSD

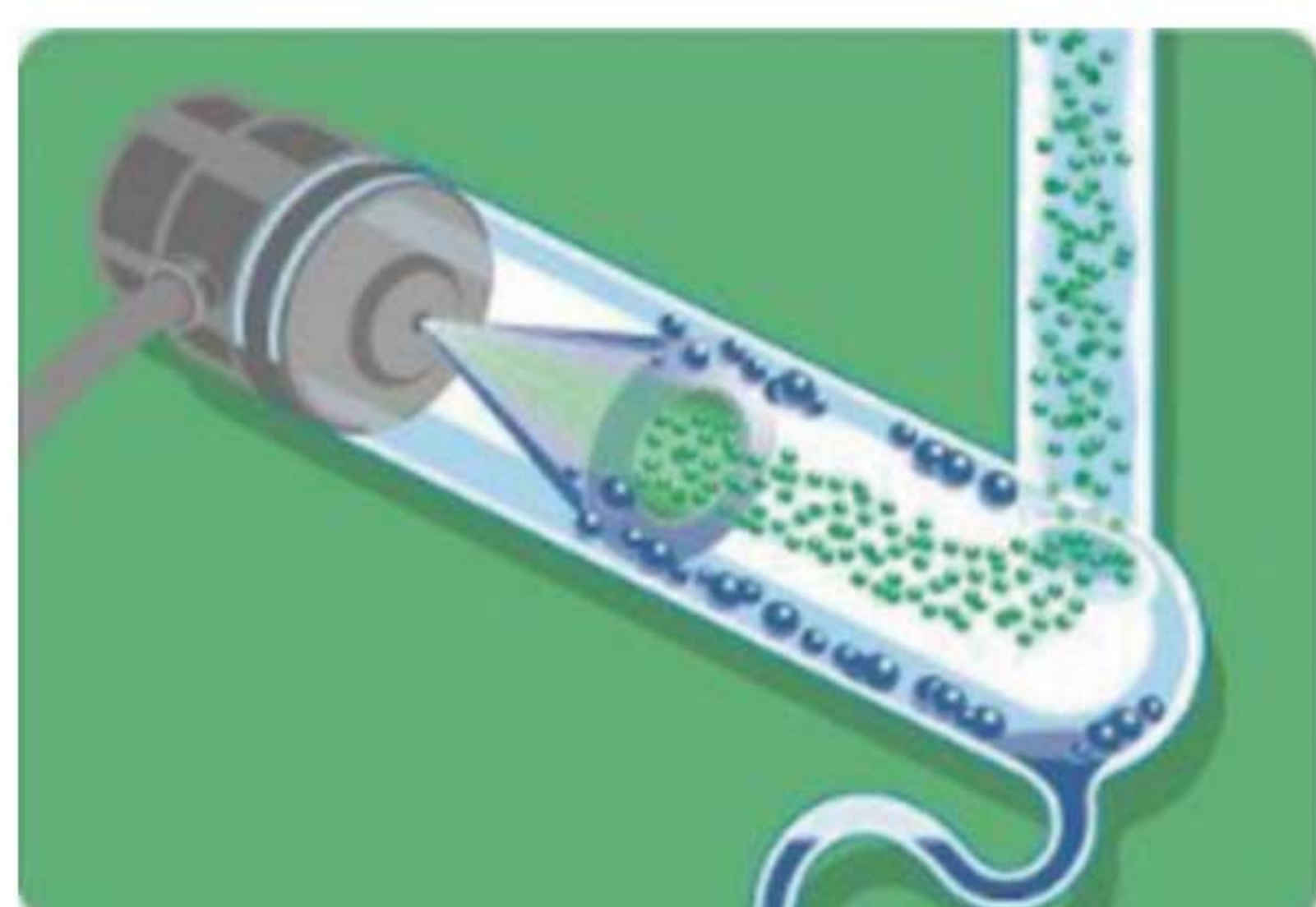
- Mass-type, highly sensitive universal detector for preparative liquid chromatography
- Meet the demand of detection for the analytes without any chromaphoric group or electroactive group, such as carbohydrates, phospholipids, amino acids, fatty acids, steroids, saponins, polymers, etc.
- The design of low temperature technology achieves high sensitivity and low noise
- Optimized design which is particularly suitable for the detection of thermal unstable or semi-volatile compounds
- Compatible with gradient elution
- Simple operation, remote control via an iPad app



The Detection Principle

Step 1: Nebulization

The eluent from the column is mixed with an inert gas and goes through the narrow orifice of a nebulizer to generate a homogeneous mist. This fine mist is composed of droplets of mobile phase containing the compound of interest.



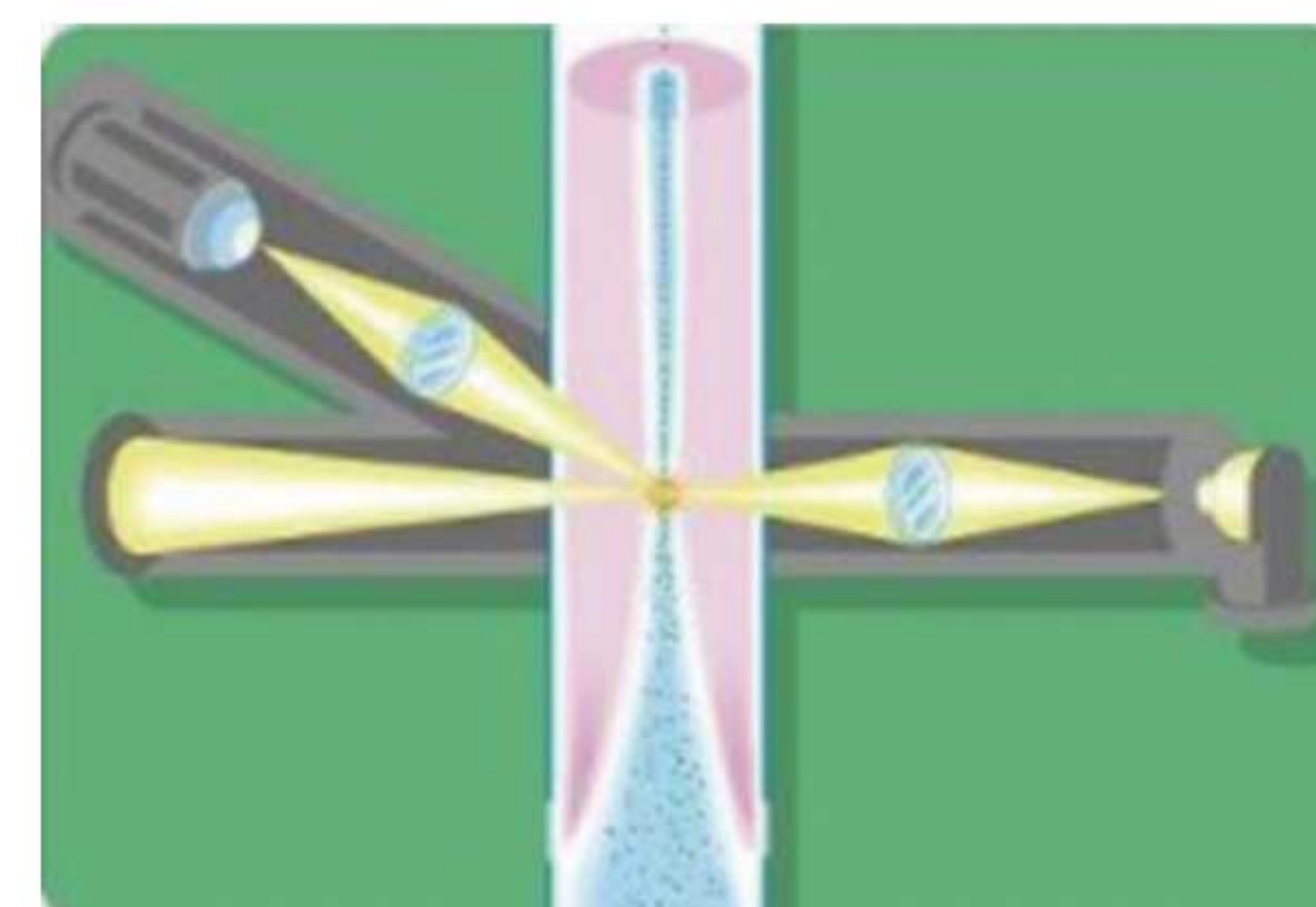
Step 2: Evaporation

The nebulized eluent goes through a heated drift tube to evaporate the mobile phase. Solute molecules are obtained from the mist using a heated evaporation (drift) tube and then transferred into the flow cell of the detector.



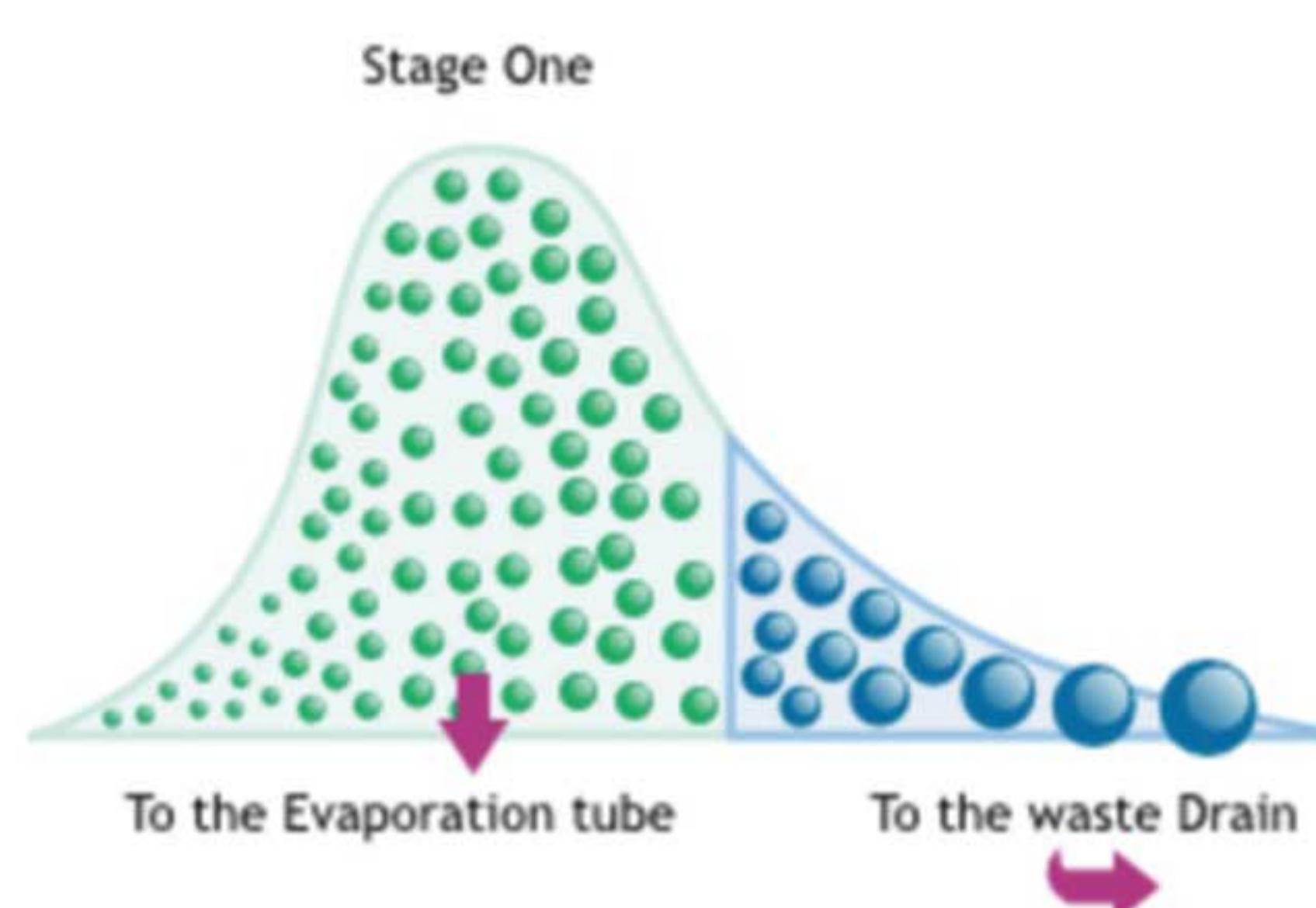
Step 3: Detection

The stream of solute particles enters a flow cell which includes a light source and a photodiode. The light emitted by the light source collides with the solute particles, and the scattered light is detected by the photodiode and converted into an electrical signal.



Low-Temperature Detection

The unique design of SepaFlash™ FP LT-ELSD nebulization cell allows the selection of the droplets as a function of the size. Large droplets, which are more difficult to evaporate, are responsible for an increased noise level. In the glass nebulization cell, the largest droplets are simply discarded, so that the temperature can be lowered, without compromising the sensitivity (signal to noise ratio).



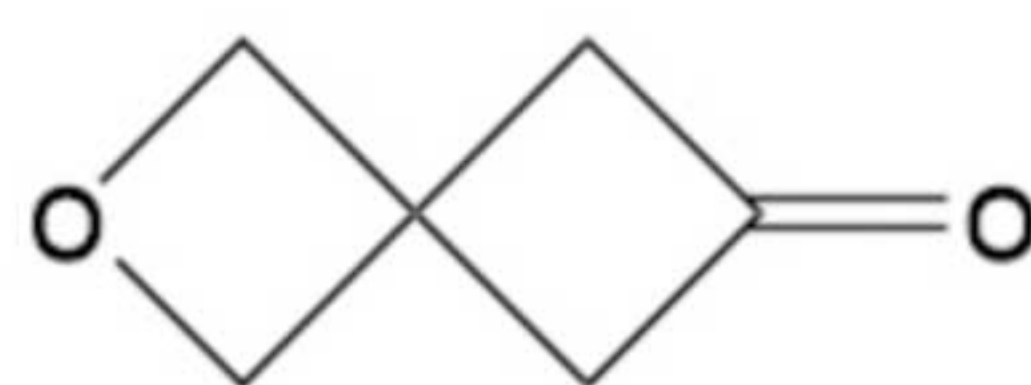
This diagram illustrates the selection of the droplets as a function of the size. The mist of droplets is created by the nebulizer, and is composed of droplets of various sizes. The nebulization cell acts as a real Size Exclusion Selector, so that the droplets of largest dimension (in blue on Figure) are evacuated to the waste. Only droplets which are below a size limit are allowed to flow through the drift tube.

Most of our competitors' ELSDs do not select droplets and require higher temperatures to reach acceptable levels of noise during the analysis, resulting in much lower sensitivities for semi-volatile and thermo-labile compounds.

Selection of the droplets is a unique feature of SepaFlash™ FP LT-ELSD and provides the real Low-Temperature evaporation, and the best sensitivity for all compounds.

Application Note

The chemical structure of a pharmaceutical intermediate is shown as Figure 1.



2-oxaspiro[3.3]heptan-6-one

Figure 1. The chemical structure of a pharmaceutical intermediate.

According to its chemical structure, this compound has no UV absorption. Therefore the commonly used UV detector cannot be used for real-time monitoring of the sample during the flash separation procedure. However, as a universal detector, ELSD could meet the demand instead of UV detector.

The experimental settings are listed in the Table 1. Figure 2 shows the flash chromatogram of the sample.

Instrument	SepaBean™ machine T	
Flash Cartridge	12g SepaFlash® Standard Series flash cartridge (irregular silica, 40-63µm, 60Å, Order number: S-5101-0012)	
Detector	UV:254 nm , 280 nm SepaFlash™ FP LT-ELSD	
Mobile Phase	Solvent A: Petroleum Ether Solvent B: Ethyl Acetate	
Flow Rate	System: 30 mL/min Split flow for ELSD: 0.5 mL/min	
Sample Load	600 mg	
Gradient	CV	Solvent B (%)
	0	0
	11	18
	15	18
	21	34
	24	34

Table 1. The experimental settings of the flash purification.

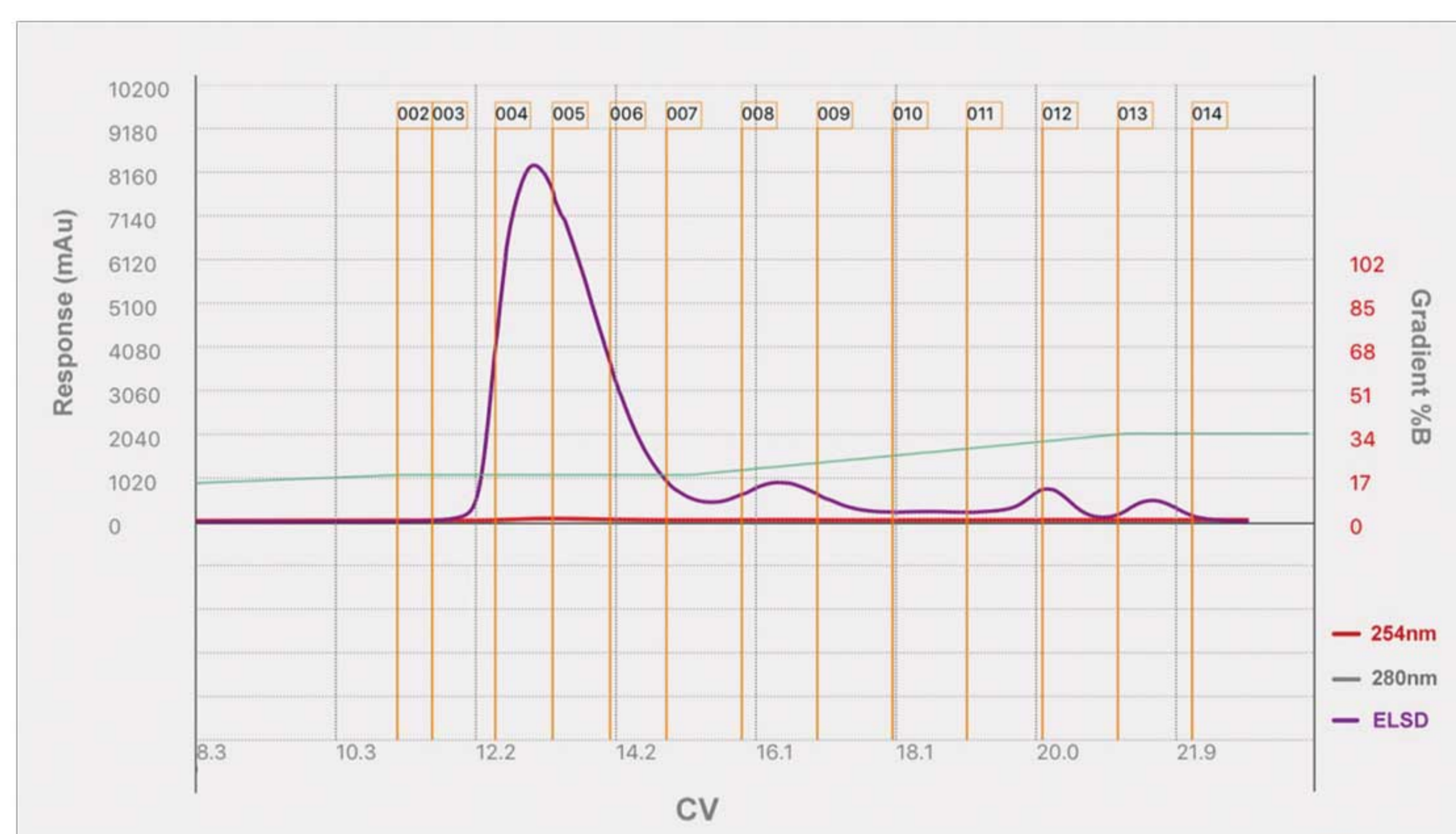


Figure 2. The flash chromatogram of a pharmaceutical intermediate.

Ordering Information

TECHNICAL SPECIFICATIONS		Part Number	Description
Detection	Photodiode	DX-ELSD20-000	SepaFlash FP stand alone
Light Source	Blue LED Built-in Elapsed Time Counter	DX-N20-050	Nebulizer for SepaFlash FP
Temperature Range	Ambient to 100 °C	DX-LS20-020	Light source for SepaFlash FP
Eluent Flow Rate	100 µL/min to 5 mL/min	DX-G20-260	Glassware for SepaFlash FP
Typical Sensitivity	100 ng	DX-TPSW20-245	Transparent plastic shield window
Analog Output	0 - 1 Volt	DX-DTA20-270	Drain tube assembly complete (Including fitting, seal and tubing)
Gas Supply	Nitrogen or Air 2.0 bar (less than 3L/min)	DX-BPNK20-265	Black plastic nuts (13 & 30 mm) kit, including seals
Selection & Display	OLED Display and Keypad	DX-SK-350	Starting kit
System Control	Remote control by SepaBean™ software		
Dimension (W x H x D)	250 x 330 x 530 mm		
Weight	15 kg (33 lb)		



Santai Technologies Inc.

Address: No. 78 Qingyang Road, Xinbei District, Changzhou, Jiangsu Province, China

Website: www.santaitech.com

CHINA

Main Office: +86 519 8515 0175

Fax: +86 519 8515 3561

Order mail: order@santaitech.com

Support mail: support@santaitech.com

CANADA

Tel: +1 418-580-0437

Order mail: ca_order@santaitech.com

Support mail: ca_support@santaitech.com

INDIA

Tel: +91 937-181-2696

Order mail: in_order@santaitech.com

Support mail: in_support@santaitech.com