

# TriSep<sup>®</sup>-3000

electrokinetic high performance liquid chromatography (eHPLC)

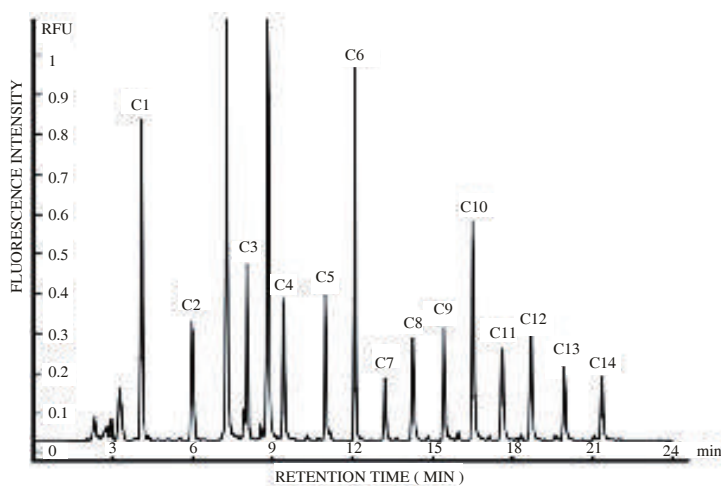
— New way in micro-separation

Perfect combination of nano-LC and CE



## Advantages

- ◆ Separation of charged and non-charged components at the same time
- ◆ Ultra high efficiency with the use of very small particles
- ◆ Low consumption of solvent and sample
- ◆ Fast speed of separation
- ◆ pCEC, nano-LC and CE, all in one
- ◆ Ready to couple with  $\mu$ UV,  $\mu$ LIF,  $\mu$ ECD,  $\mu$ ELSD,  $\mu$ MS



Analysis of 14 fatty amines by eHPLC- LIF

- ◆ Column: 100  $\mu\text{m}$  i.d.  $\times$  20 cm, 3  $\mu\text{m}$  C18
- ◆ Mobile phase A :  
10% (v/v) ACN + 10% 40 mM  
 $\text{NaH}_2\text{PO}_4$  + 100  $\mu\text{L}$  1%  $\text{H}_2\text{PO}_4$  +  $\text{H}_2\text{O}$
- ◆ Mobile phase B :  
65% (v/v) ACN + 10% 40 mM  
 $\text{NaH}_2\text{PO}_4$  + 100  $\mu\text{L}$  1%  $\text{H}_2\text{PO}_4$  +  $\text{H}_2\text{O}$
- ◆ Gradient elution
- ◆ Pressure: 10 MPa
- ◆ Voltage: 5 kV
- ◆ Ex.: 473 nm
- ◆ Em.: 520 nm

## Auxiliary tools

### TS-1 thermal stripper

Complete a 2 mm capillary window within 5 seconds

### ElectroPak<sup>®</sup> - capillary columns

High column efficiency, high resolution, high sensitivity

- ◆ Diverse bonded phases
- ◆ Smaller particle size (sub 2  $\mu\text{m}$ ) with ID (50-320  $\mu\text{m}$ )
- ◆ Suitable for nano-LC, micro-LC, CE, eHPLC and LC-MS



US Patent 5, 453, 163



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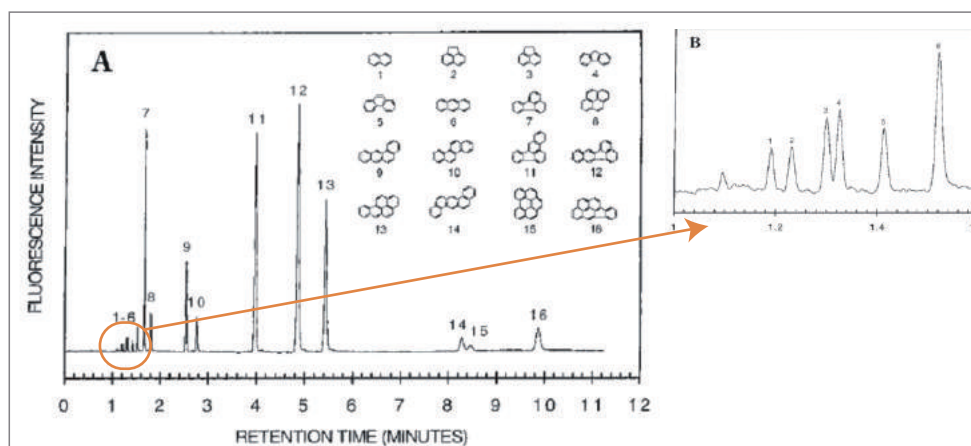
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## Specifications

Modules	Parameters
High voltage power supply	Output: 0 - ±30 kV, 0 - ±300 μA, 4 W or 15 W Stability: ≤1.5% (with 3 min)
UV/Vis Detector	Deuterium lamp Wavelength range: 190-700 nm, Spectral width: 8.0 nm Precision: ±1.0 nm, Accuracy: ±0.1 nm Baseline drift: < 2.0×10 <sup>-4</sup> AU/h Baseline noise: < 5.0×10 <sup>-6</sup> AU LOD: ≤1.0×10 <sup>-6</sup> g/mL
Thermostat	4.0-50°C, Accuracy: ± 0.1°C
Solvent delivery system	Flow range: 1.0 μL/min-10 mL/min Accuracy: ±1.0%, Precision: 0.1% Pressure: 1.0-40 MPa

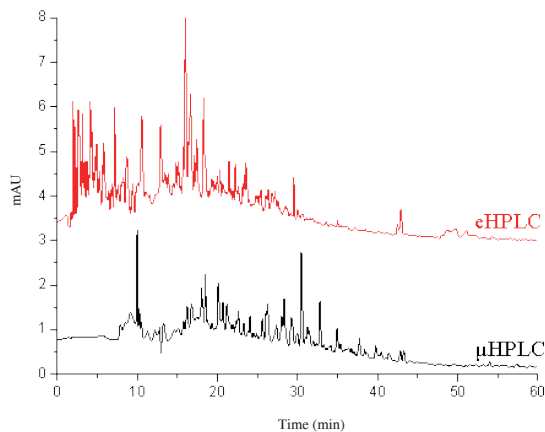
## Applications

eHPLC can be widely used in pharmaceutical, biological, environmental analyses and food safety, chiral separation as well as in university & research institute.



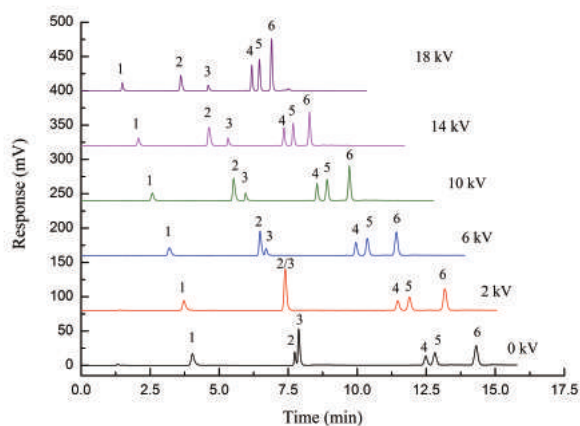
Rapid separation of 16 PAHs by eHPLC-LIF

- ◆ Capillary column: 100 μm i.d. × 20 cm, 1.5 μm C18
- ◆ Mobile phase: 65% (v/v) CH<sub>3</sub>CN/35% 2 mM TRIS
- ◆ Voltage: 29 kV, Sample: 20 nL
- ◆ Detector: LIF, Ex.: 257 nm, Em.: 400 nm



Analysis of BSA digest by eHPLC-UV

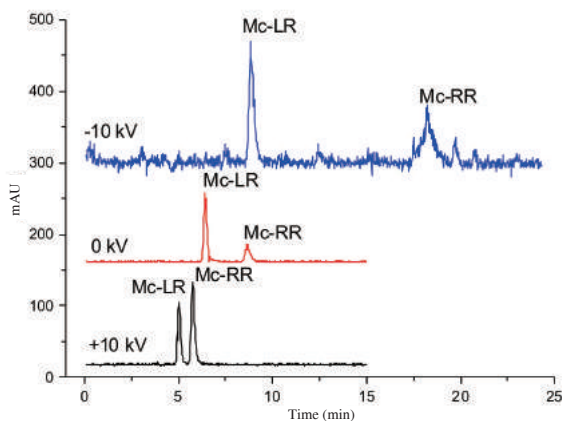
- ◆ Column: 100  $\mu\text{m}$  i.d.  $\times$  25 cm, 1.9  $\mu\text{m}$  C18
- ◆ Mobile phase A: ACN + 0.1% FA
- ◆ Mobile phase B: H<sub>2</sub>O + 0.1% FA
- ◆ Gradient elution
- ◆ Flow rate: 0.1 mL/min
- ◆ Column temperature: 25  $^{\circ}\text{C}$
- ◆ Detection wavelength: 214 nm
- ◆ Pressure: 17 MPa
- ◆ Injection volume: 3.5 nL
- ◆ Voltage: 15 kV



Separation of Chinese traditional medicine by eHPLC- $\mu$ ELSD

1. platycodin 2. peimisine 3. oleanolic acid  
4. sipeimine 5. peimine 6. peiminine

- ◆ Column: 150  $\mu\text{m}$  i.d.  $\times$  15 cm, 3  $\mu\text{m}$  C18
- ◆ Flow rate: 1.02  $\mu\text{L}/\text{min}$
- ◆ Mobile phase A: CH<sub>3</sub>CN
- ◆ Mobile phase B: 10 mol/L methane acid-triethylamine
- ◆ Voltage: 10 kV
- ◆ Sample: 20 nL
- ◆ Detector: ELSD
- ◆ Gas flow rate: 0.4 L/min
- ◆ Evaporative temperature: 40  $^{\circ}\text{C}$



Analysis of Microsystin LR and RR by eHPLC-MS

- ◆ Column: 100  $\mu\text{m}$  i.d.  $\times$  25 cm, 1.8  $\mu\text{m}$  C18
- ◆ Flow rate: 0.1 mL/min
- ◆ Pressure: 10 MPa
- ◆ Sample: 0.01 mg/mL Mc LR and RR
- ◆ Detector: MSD

- ◆ Mobile phase: ACN/H<sub>2</sub>O (V/V=70/30) + 0.1% FA
- ◆ Column temperature: 25  $^{\circ}\text{C}$
- ◆ Injection volume: 1.0  $\mu\text{L}$
- ◆ Voltage: 10 kV

