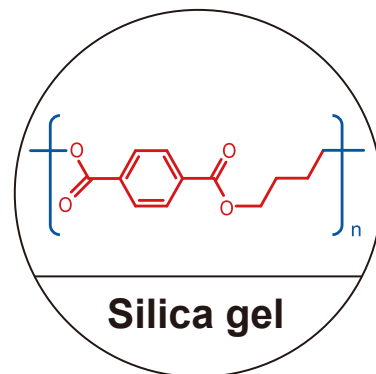


## DCpak P系列

DCpak P系列是聚合物結合矽膠基質的新概念分離管產品。  
相較於現有的小分子結構型分離管，DCpak P系列具有良好的耐受性，  
擴展了對同分異構化合物的分離應用範圍

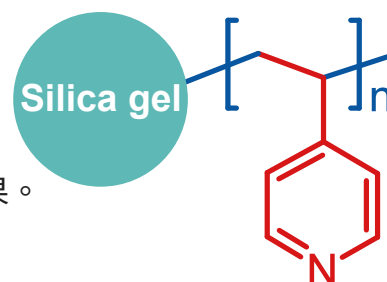
### DCpak PBT

這款產品採用了PBT(聚酯樹脂)作為官能基，以 $\pi$ 電子相互作用為基礎，具有優異的分子辨別能力。  
能夠用於分離以芳香化合物、雜環化合物為中心的多種化合物。  
同時也適用於分離不飽和度不同的化合物以及同分異構物。  
例：適合於順反異構體、咖啡因相關化合物、  
以及芳香取代異構體的分離。



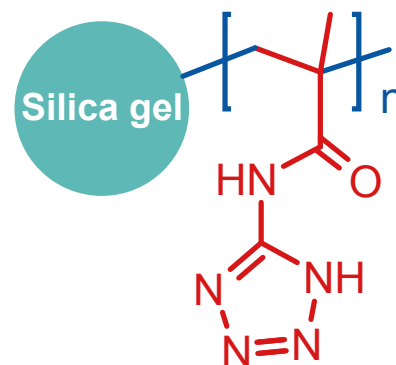
### DCpak P4VP

該款產品採用了Poly (4-VinylPyridine) 作為官能基。  
它具有獨特的高效分離能力以及耐用性。在SFC條件下分離酸性  
或鹼性化合物時，即使不添加任何酸鹼添加劑也能獲得良好的效果。

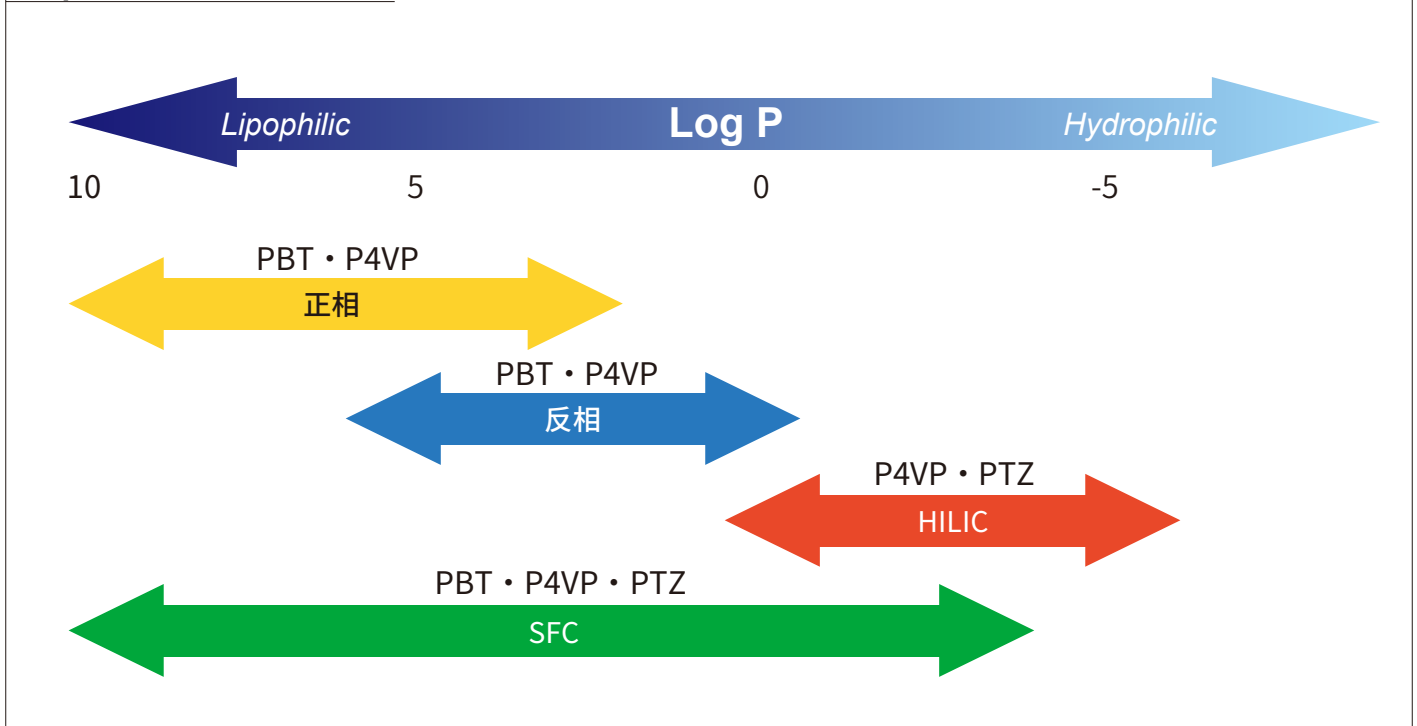


### DCpak PTZ

該產品的矽膠表面鍵合固定有高親水性的聚N-(1H-四氮唑-5-基)  
甲基丙烯醯胺，同時在填料表面形成了較厚的水層。  
因此，針對親水性化合物具有較強的保留作用和優異的選擇性。  
另外，在分離純化實驗中也顯示了優異的拆分能力，  
同時也可使用SFC模式。



## DCpak P 系列的推薦模式



## 正相

首要推薦的流動相是Hex/IPA=7:3 (v/v)  
 如果需要改善峰型，鹼性化合物的流動相可以添加0.1% (w/v)的DEA，  
 酸性化合物的流動相可以添加0.1% (w/v)的TFA。

## 反相

DCpak PBT相較於ODS分離管的保留性更強，  
 所以在配製流動相時需要增大有機溶劑(乙腈)的比例，  
 而DCpak P4VP可以使用與ODS分離管相同的分離模式。

## HILIC

首要推薦的流動相是乙腈/20mM醋酸銨緩衝液=9:1 (v/v)  
 水溶液比例越高，保留時間越短。

## SFC

首推的流動相是CO<sub>2</sub>/甲醇=8:2(v/v)

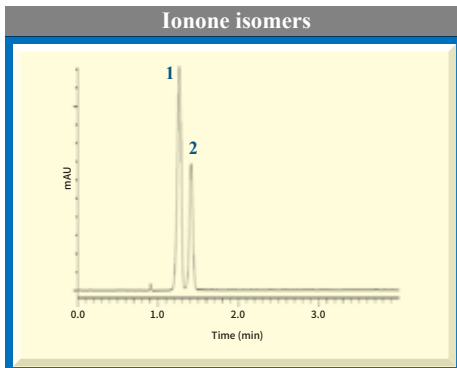
使用DCpak PBT時，如果需要改善峰型，  
 鹼性化合物的流動相可以添加0.1% (w/v)的DEA，  
 酸性化合物的流動相可以添加0.1% (w/v)的TFA。

使用DCpak P4VP時，  
 可以通過在流動相中添加0.1%(w/v)的醋酸銨或者甲酸銨來改善峰型。

# DCpakPBT

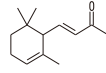
## α、β-Ionone的分離案例

SFC

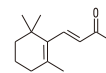


化合物結構式

1. α-Ionone



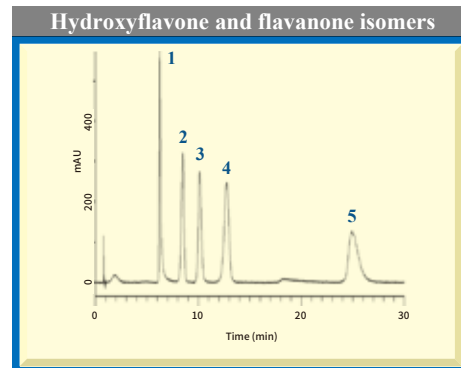
2. β-Ionone



Column : DCpak PBT 4.6mm×250mmL, 5μm  
 Mobile phase : CO<sub>2</sub>=100%  
 Flow rate : 4.0mL/min  
 Temperature : 25°C  
 Back pressure : 150 bar  
 Detection : UV 220 nm  
 Injection : 5 μL(500mg/L in MeOH)

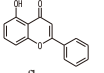
## flavanone類結構的分離案例

SFC

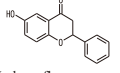


化合物結構式

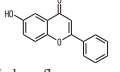
1. 5-Hydroxyflavone



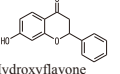
2. 6-Hydroxyflavone



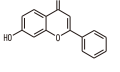
3. 6-Hydroxyflavone



4. 7-Hydroxyflavone



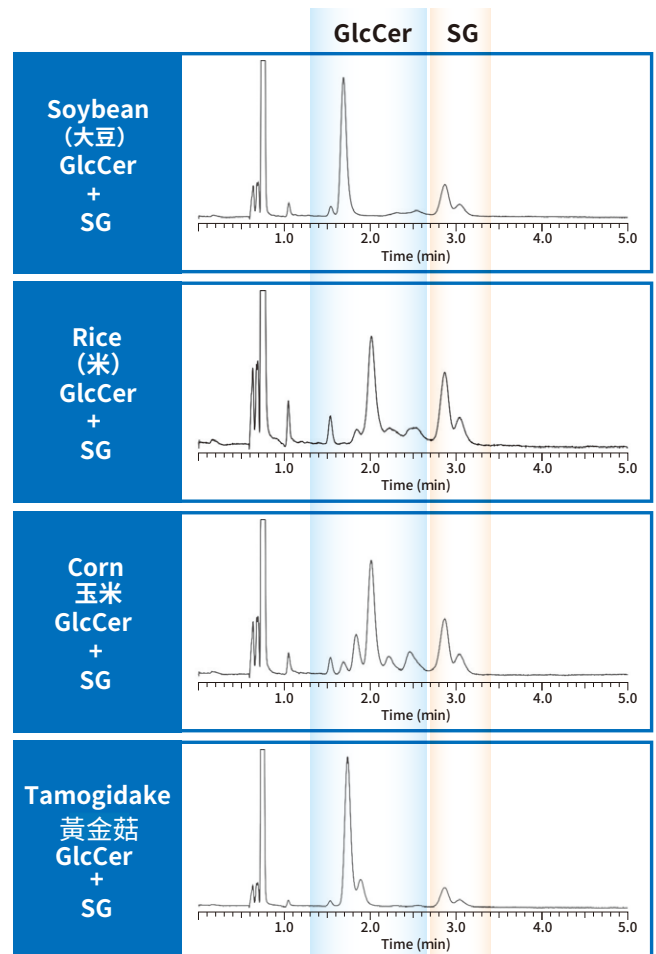
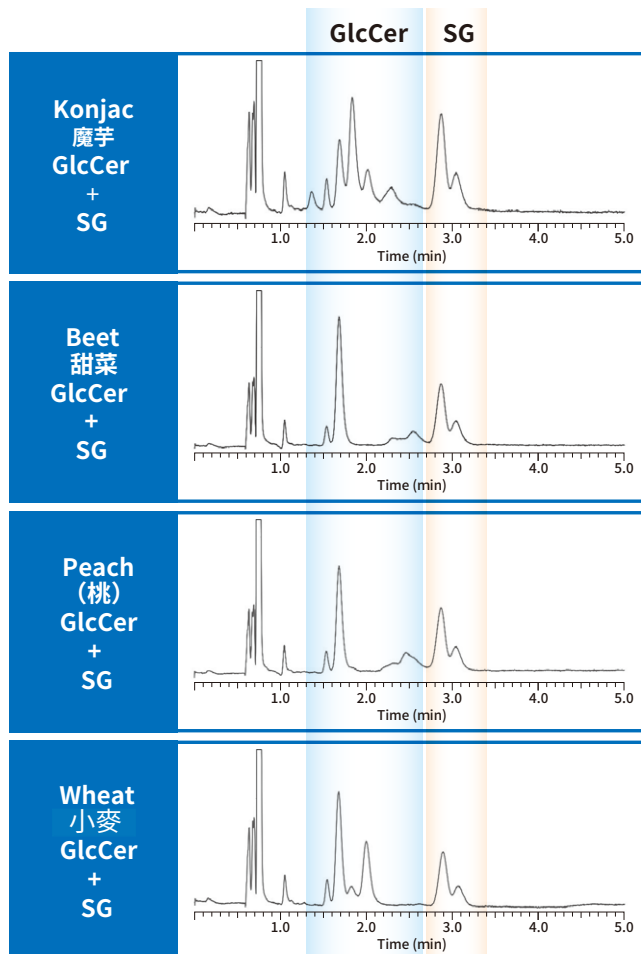
5. 7-Hydroxyflavone



Column : DCpak PBT 4.6mm×250mmL, 5μm  
 Mobile phase : CO<sub>2</sub>/(MeOH/AcOH/H<sub>2</sub>O)\*=97/3(v/v)  
 \*MeOH/AcOH/H<sub>2</sub>O= 1000/1/1(v/v)  
 Flow rate : 4.0mL/min  
 Temperature : 40°C  
 Back pressure : 150 bar  
 Detection : UV 210 nm  
 Injection : 5 μL(each 200 mg/L in MeOH)

## 各種植物原料裡GlcCer和SG的分離案例

SFC



Column : DCpak PBT, 4.6mm×150mmL, 5μm  
 Mobile phase : CO<sub>2</sub>/MeOH+20mM Ammonium acetate=85/15  
 Flow rate : 3mL/min  
 Temperature : 20°C

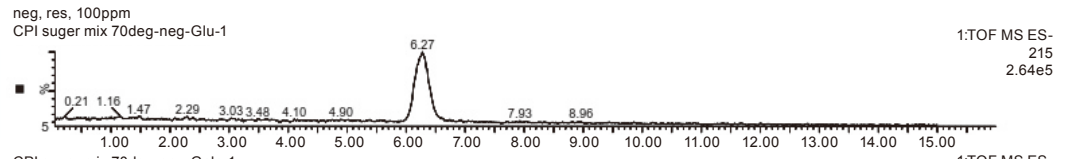
Detection : UV 200nm  
 Injection : 3μL, Conc.: 2mg/mL  
 BPR : 10Mpa

# DCpak P4VP

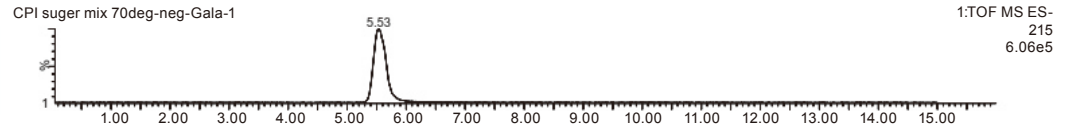
## 糖的分離案例

LC-MS/MS HILIC

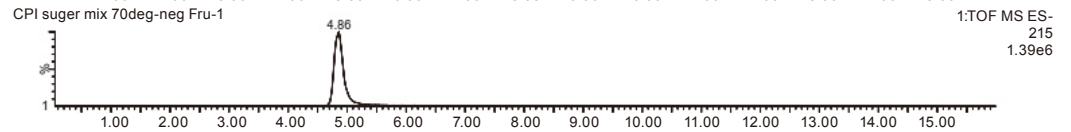
葡萄糖 Std,  
100ppm



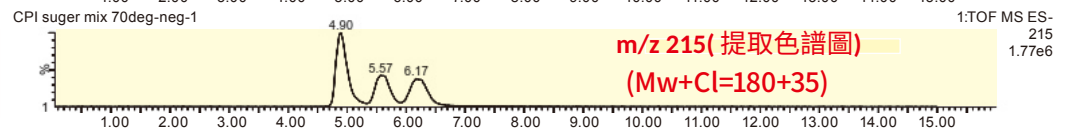
半乳糖 Std,  
100ppm



果糖 Std,  
100ppm



3種混合, 330ppm

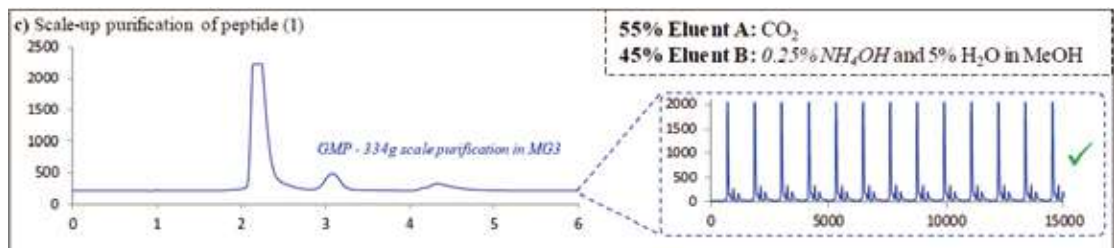
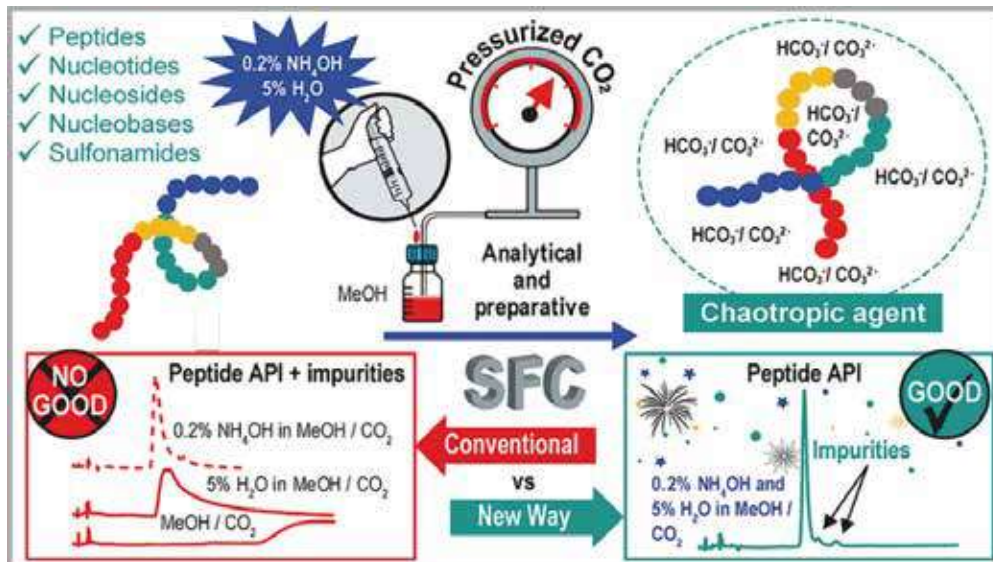


Column : DCpak P4VP, 2.1mm×150mmL, 3μm  
Mobile phase : H<sub>2</sub>O/MeCN=10/90  
Flow rate : 0.21mL/min  
Temperature : 70°C  
Detection : Q-TOF MS (ES negative mode)  
Injection : 1μL, Conc. : 100ppm×3 in H<sub>2</sub>O/MeCN=10/90

## 環狀肽的分離案例

SFC

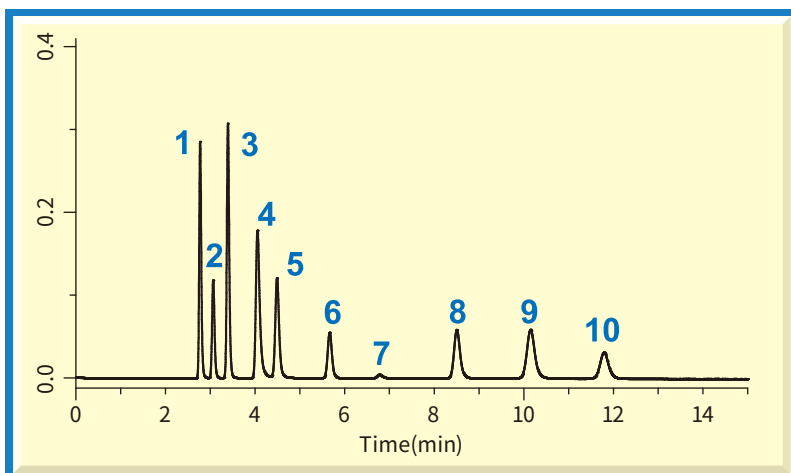
E. L. Regalado, et al. Anal. Chem. 91 (2019) 13907–13915.



Column : DCpak P4VP, 30mm×250mmL, 5μm  
Mobile phase : 55% CO<sub>2</sub>-45%(0.25%NH<sub>4</sub>OH and 5%H<sub>2</sub>O in MeOH)  
Flow rate : 130mL/min  
BPR : 100bar,  
Stack Injection : 3.83min  
Cycle processing : 30g per 24 hour day to deliver 209g output (98.7% purity) from 334g crude

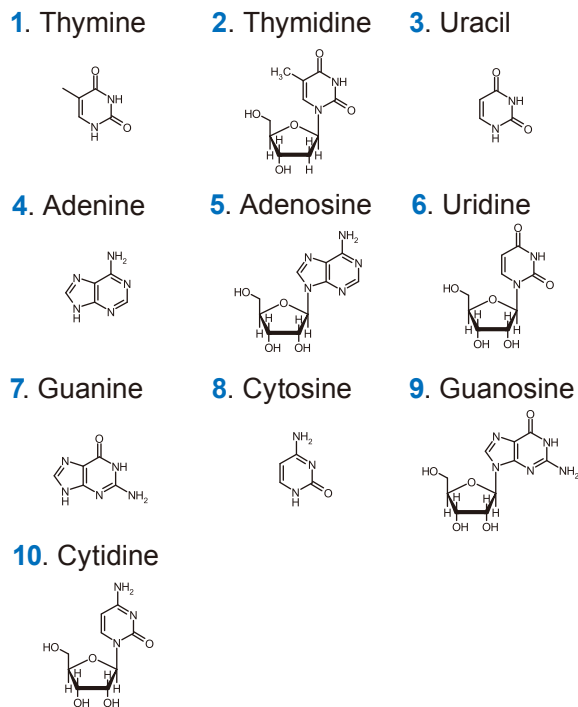
# DCpakPTZ

## 核苷鹼基的分離案例

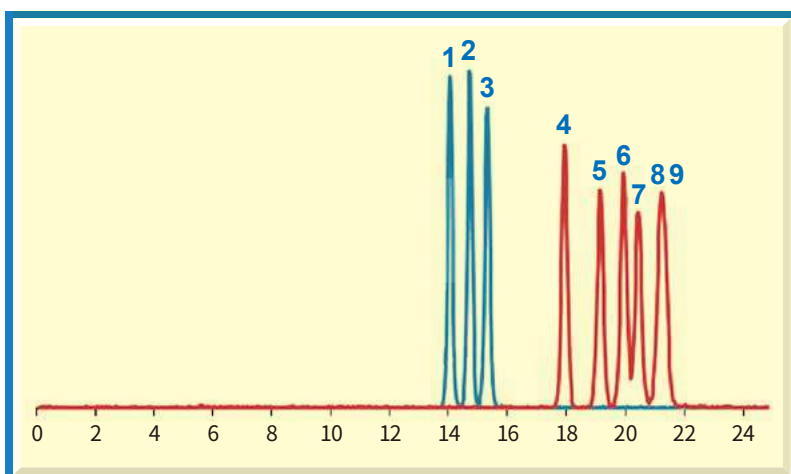
**HILIC**


Column : DCpak PTZ, 4.6mm×150mm, 3μm  
 Mobile phase : MeCN/20mM Ammonium acetate buffer(pH4.7)=80/20(v/v)  
 Flow rate : 1mL/min  
 Temperature : 25°C  
 Detection : UV254nm

### 化合物結構式

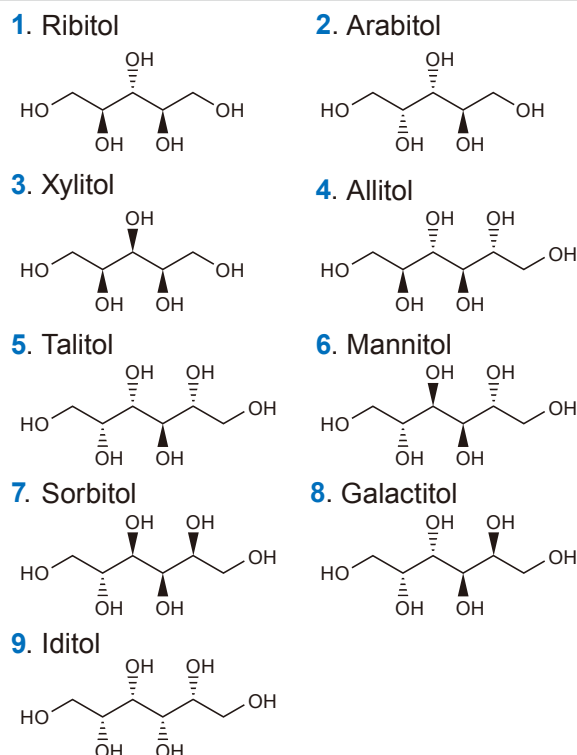


## 糖的分離案例

**LC-MS/MS** **HILIC**


Column : DCpak PTZ, 4.6mm×250mm, 3μm  
 Mobile phase : MeCN/20mM Ammonium acetate buffer=75/25(v/v)  
 Flow rate : 1mL/min  
 Temperature : 25°C  
 Detection : LC-MS/MS  
 : SRM transitions(m/z) : carbon number5 : 151→8 (blue)  
 carbon number6 : 181→89 (red)

### 化合物結構式



## DCpak系列產品的論文資訊

## ■ DCpak PBT

Mode	樣品及摘要	文獻
SFC	色譜柱的基本特性和分離案例	Poly (butylene terephthalate) based novel achiral stationary phase investigated under supercritical fluid chromatography conditions J. Chromatogr. A 1549 (2018) 85-92, Open Access K. Nagai, T. Shibata, S. Shinkura, A. Ohnishi
SFC	蜂花粉中多酚的分離	Polymeric stationary phases based on poly(butylene terephthalate) and poly(4-vinylpyridine) in the analysis of polyphenols using supercritical fluid chromatography. Application to bee pollen J. Chromatogr. A 1572 (2018) 128-136 L. Toribio, S. Arranz, A. M. Ares, J. Bernal
反相	各種芳香類化合物的分析	Retention Behavior of Various Aromatic Compounds on Poly(butylene terephthalate) Stationary Phase in Liquid Chromatography Chromatography 2020, 41, 129-136 K. Nakagami, Misato Amiya, Keiichi Shimizu, Ohjiro Sumiya, Ryota Koike, Ikuo Ueta, Yoshihiro Saito

## ■ DCpak P4VP

Mode	樣品及摘要	文獻
SFC	基本分離特性和應用案例	Poly (4-vinylpyridine) based novel stationary phase investigated under supercritical fluid chromatography conditions Journal of Chromatography A, 1572 (2018) 119-127, Open Access K. Nagai, T. Shibata, S. Shinkura, A. Ohnishi
SFC	吡啶基聚合物固定相的相互作用解析醫藥品分析的應用	Characterization of novel polymer-based pyridine stationary phases for supercritical fluid chromatography Chromatographia, 82 (2019) 143-152 C. West, E. Lemasson, K. Nagai, T. Shibata, P. Franco, S. Berti n, P. Henning, E. Lesellier
SFC	使用氨水對肽和極性醫藥品的分析案例	Chaotropic Effects in Sub/Supercritical Fluid Chromatography via Ammonium Hydroxide in Water-Rich Modifiers: Enabling Separation of Peptides and Highly Polar Pharmaceuticals at the Preparative Scale Anal. Chem. 91 (2019) 13907-13915 J. Liu, A. A. Makarov, R. Bennett, I. A. H. Ahmad, J. DaSilva, M. Reibarkh, I. Mangion, B. F. Mann, E. L. Regalado
SFC	高血壓治療相關藥物案例	Facile separation of four co-formulated ternary antihypertensive drug combinations with a customized elution protocol using supercritical fluid chromatography Microchemical Journal 159 (2020) 105594 Pranav A. Pandya, Priyanka A. Shah, Pranav S. Shrivastav

## ■ DCpak PTZ

Mode	樣品及摘要	文獻
HILIC	基本的分離特性和應用案例	1H-Tetrazole-5-amine Immobilized on Substituted Polymer Gel/Silica as a New Stationary Phase for Hydrophilic Interaction Chromatography Chromatographia, 81 (2018) 349-357 M Douša
HILIC	標記聚糖的分析	High-performance liquid chromatographic separation of 8-aminopyrene-1,3,6-trisulfonic acid labeled N-glycans using a functional tetrazole hydrophilic interaction liquid chromatography column J. Chromatogr. A 1566 (2018) 44-50 S. Yamamoto, M. Kinoshita, T. Ikegami, S. Suzuki
HILIC	肽的分離案例	Universal retention standard for peptide separations using various modes of high-performance liquid chromatography J. Chromatogr. A 1588 (2019) 163-168 N Klaassen, V Spicer, OV Krokhin
HILIC	基本的分離特性 葡萄糖以及同分異構體的 應用案例	Retention characteristics of poly(N-(1H-tetrazole-5-yl)-methacrylamide)-bonded stationary phase in hydrophilic interaction chromatography J. Chromatogr. A 1609 (2020) 460500 X. Fu, M. Cebo, T. Ikegami, M. Lämmerhofer
HILIC	單糖、二糖的分析 熱力學的考察	Separation of carbohydrate isomers and anomers on poly-N-(1H-tetrazole-5-yl)-methacrylamide-bonded stationary phase by hydrophilic interaction chromatography as well as determination of anomer interconversion energy barriers J. Chromatogr. A 1620 (2020) 460981 X. Fu, M. Cebo, T. Ikegami, M. Lämmerhofer

\*1. Particle: 3um, 5um

2. ID: 2.1 / 3 / 4.6 / 10 / 20 mm

3. Length: 50 / 100 / 150 / 250 mm

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