

# NEWS RELEASE

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## Showa Denko's *Shodex*<sup>TM</sup> Launches New Hydrophilic HPLC Columns —Expanding product lineup for analysis of pharmaceuticals and foods—

Showa Denko (SDK) (TOKYO:4004) will launch two series of columns as new products of *Shodex*<sup>TM</sup>, which is SDK's business producing separation/analysis columns for high performance liquid chromatography (HPLC). One series consists of polymer-based columns for hydrophilic interaction chromatography (HILIC\*) which are suitable for separation of anionic biochemicals. The other series consists of columns for aqueous size exclusion chromatography (SEC\*\*) which are compatible with multi-angle light scattering (MALS) detector.

SDK will introduce these two product lines at Japan Analytical & Scientific Instruments Show 2015 (JASIS 2015) to be held at Makuhari Messe, Chiba, Japan, from September 2nd to the 4th.

In 1974, SDK developed separation/analysis columns for gel permeation chromatography (GPC\*\*\*) and branded them as "*Shodex*<sup>TM</sup>." Since then, SDK has been promoting product development specializing in columns with polymer-based packing materials. Generally speaking, polymer base generates lower level of noise than silica base and is suitable for high-sensitivity analysis using MALS detector or charged aerosol detector. SDK will continue expanding lineup of high-functioning columns, with focus on use in fields of pharmaceuticals and functional chemicals.

### 1) *HILICpak VT-50* : Columns which can analyze phosphorylated saccharides

In December 2014, SDK started to market "*HILICpak*" series, a series of columns for HILIC which can conduct high-sensitivity analysis of hydrophilic chemicals. The first subseries of *HILICpak* put on the market at that time was "*HILICpak VG-50*." This subseries uses highly-reproducible polyvinyl alcohol as packing material, and shows high recovery rate in analysis of reducing sugars, though the subline consists of amino-columns. *HILICpak VG-50* can perform high-sensitivity analysis of mannose and galactose.

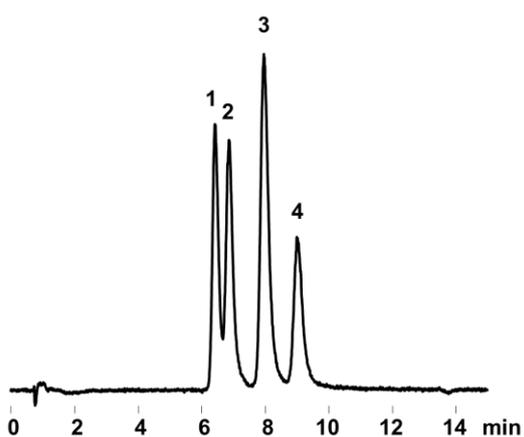
This time, SDK newly developed another subseries "*HILICpak VT-50*." This subseries can perform high-sensitivity analysis of anionic samples including phosphorylated saccharides, organic acids, and other medical substances. This product is suitable for measurement of metabolites in organisms. Thus we expect this product to be applied to development of pharmaceuticals and functional foods. SDK started to market *HILICpak VT-50* this August.

### 2) *OHpak LB-800* series: Columns for aqueous SEC, compatible with MALS

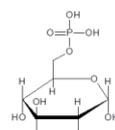
SDK's "*OHpak*" series, which consists of columns for aqueous SEC, uses hydrophilic polymer base as packing material, has lineup of various particle sizes, and responds to wide range of molecular weight.

“OHpak LB-800” column series, which is a subseries of OHpak SDK newly developed this time, is compatible with high-sensitivity MALS detector. By minimizing noise level, this new series enables MALS detectors to detect low molecule samples which are difficult to be detected by conventional columns. Thus, OHpak LB-800 series makes it easy to analyze additives to pharmaceuticals and conjugate vaccines which comprise bound proteins and polysaccharides. SDK will market OHpak LB-800 series in the coming September.

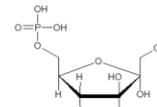
<A result of LC/MS analysis of phosphorylated saccharides >



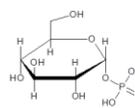
Sample : 1μM each, 5μL



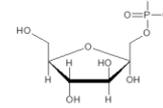
1. Glucose-6-phosphate (G6P)



2. Fructose-6-phosphate (F6P)



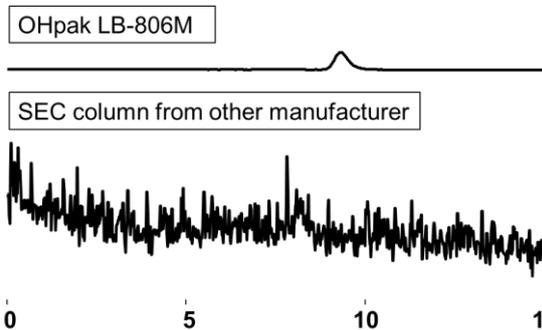
3. Glucose-1-phosphate (G1P)



4. Fructose-1-phosphate (F1P)

Column : Shodex HILICpak VT-50 2D  
 Eluent : 25mM HCOONH<sub>4</sub> aq./CH<sub>3</sub>CN=80/20  
 Flow rate : 0.3mL/min  
 Detector : ESI-MS (SIM Negative : m/z 259)  
 Column temp.: 60°C

<Comparison between results of detection of pullulan by MALS detectors>



Sample : Pullulan (MW : 12,000) 0.5%, 10μL  
 Column : Shodex OHpak LB-806M  
 SEC column from other manufacturer  
 Eluent : 0.1M NaNO<sub>3</sub> aq.  
 Flow rate : 1.0mL/min  
 Detector : MALS (Multi angle laser light scattering) (90°)  
 Column temp.: 30°C

[Notes]

- \* HILIC (hydrophilic interaction chromatography): A kind of normal phase chromatography, which extracts chemical compounds from samples injected into column in reverse order of hydrophilicity.
- \*\* SEC (size exclusion chromatography): A kind of chromatography, which separates and analyzes samples containing protein or other high molecules on the basis of relative molecular mass by utilizing micro-holes of polymer-based packing materials.
- \*\*\* GPC (gel permeation chromatography): A kind of chromatography, which separates and analyzes samples using organic solvent (tetrahydrofuran, chloroform, etc.) as eluent. GFC (gel filtration chromatography) is another kind of chromatography which uses aqueous solution as eluent.

For further information, contact:  
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