



# HICHROM

Chromatography Columns and Supplies

LC COLUMNS  
GL Sciences  
Titansphere

Catalogue 9

## Hichrom Limited

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## Titansphere®

- Titanium dioxide (TiO<sub>2</sub>) phase
- Amphoteric ion-exchange properties
- Stable between pH 2 – 12
- Excellent for extraction of phosphopeptides
- Available as capillary columns, cartridges, pipette tips and bulk material

Titansphere® consists of porous spherical particles of titanium dioxide, with a smooth and alkaline surface that displays amphoteric ion-exchange properties. Titansphere products are specifically designed for biological applications involving phosphopeptide extraction. Capillary columns, extraction cartridges, bulk material and PhosTiO extraction kits (see page 311) can all be supplied.

### Selective Extraction of Phosphopeptides

Titansphere has been found to be extremely effective in the selective isolation of phosphopeptides. Phosphopeptides, in particular those containing serine, threonine and tyrosine residues, are of interest in biochemistry and proteomics, but are frequently present in low abundance. Selective extraction of these phosphopeptides can be achieved under acidic conditions using Titansphere. They can then be desorbed in alkaline conditions, without dephosphorylation occurring.

### Titansphere Phase

Nature of Phase	Spherical TiO <sub>2</sub>
Particle Size (µm)	5, 10
Pore Size (Å)	100
Surface Area (m <sup>2</sup> /g)	100
pH Range	2 - 12

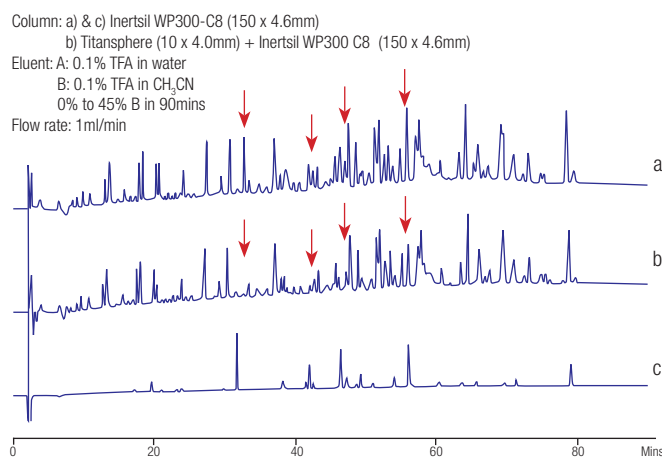


Figure 19. Extracted peptides from tryptic digest of casein with Titansphere

Titansphere is particularly useful in 2D chromatographic separations, where it is used as a precolumn or trap column prior to on-line column switching to a reversed-phase or ion-exchange analytical column and UV or MS detection. Figure 19 shows the selective extraction of phosphopeptides from a tryptic digest of casein. Figure 19(a) represents the tryptic peptides analysed on Inertsil WP300-C8 alone, whereas Figure 19(b) represents the same sample with a Titansphere precolumn (trapping the phosphopeptides) and Inertsil WP300-C8. Figure 19(c) indicates the phosphopeptides extracted by Titansphere, re-analysed on Inertsil WP300-C8.

## Ordering Information

### Capillary EX<sup>1,2</sup> Columns (5µm)

Length (mm)	Diameter (mm)			Price
	0.3	0.5	0.7	
50	5020-11537	5020-11637	5020-11737	
150	5020-11587	5020-11687	5020-11787	

<sup>1</sup> Use with Cap-EX connection kit 5020-01880

<sup>2</sup> Capillary EX-Nano columns are also available on request

### Non-metal (PEEK) Cartridges

Description	Cartridge Column Dimensions (mm)				Price
	10 x 1.0	10 x 2.1	10 x 3.0	10 x 4.0	
Kit (1 holder + 2 cartridges)	5020-19995	5020-19895	5020-19795	5020-19695	
Cartridges <sup>3</sup> (2/pk)	5020-19945	5020-19845	5020-19745	5020-19645	

<sup>3</sup> Use with holder 5020-08650 for non-metal cartridge column

### PEEK extraction column, loose beads and pipette tips

Description	Catalogue No.	Price
PEEK lined column with PEEK frits (2.0 x 0.3mm)	5020-11895	
Titansphere 5µm loose beads (500mg)	5020-75000	
Titansphere 10µm loose beads (500mg)	5020-75010	
MonoTip TiO <sub>2</sub> (8/pk)	5010-21006	
MonoTip TiO <sub>2</sub> (24/pk)	5010-21007	
MonoTip TiO <sub>2</sub> (96/pk)	5010-21005	

Please see page 311 for details of GL Sciences PhosTiO kits.