

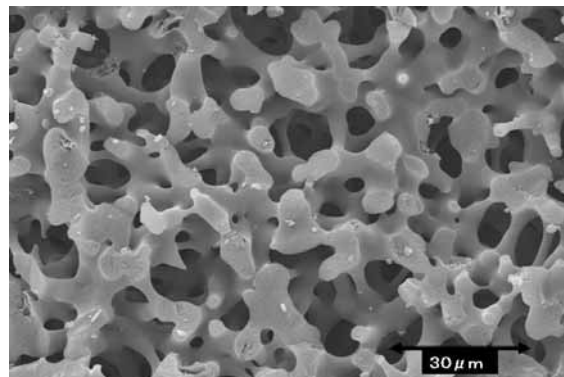
Titania-coated Monolith extraction tip (MonoTip™TiO) for purification of phosphopeptides

MonoTip TiO is available to purifies and enrich phosphopeptides before MALDI-MS and LC-MS analysis. Monolith is consisted of double pore structure with having continuous through-pores and skeletons which have meso-pores. Monolith skeletons make network structure. <below>The unique monolith structure contributes to low pressure-drop and strong analyte-to-surface interactions.

In the field of HPLC, it is reported that the column packed titanium dioxide (TiO₂) particles was applied to the HPLC analysis of phospho-compounds. (1~4)
We developed novel procedure utilized titania-coated monolithic silica for micropurification of phosphorylated peptides. (5~6)

MonoTip TiO is enable selective capture of phosphopeptides from a comparatively large background of unmodified peptides.

MonoTip TiO is a highly efficient and versatile tool to purify phosphorylated peptides form proteolytic digests prior to mass analysis. (7)



1. Pinkse MW, Uitto PM, Hilhorst MJ, Ooms B, Heck AJ, *Anal chem.* **2004**, 76, 3935-43
2. Kuroda I, Shintani Y, Motokawa M, Abe S, Furuno M, *Anal Sci.* **2004**, 20, 1313-93
3. Kimura Y, Shibasaki S, Morisato K, Minakuchi H, Nakanishi K, Matsuo M, Amachi T, Ueda M, Ueda K, *Analytical Biochem.* **2004**, 326, 262-266
4. Sekiguchi Y, Mitsuhashi, N, Mimura T, *Plant Biotechnology* **2004**, 21, 143-150
5. Miyazaki S, Miah MY, Morisato K, Kuroha T, Nakanishi K, *J Sep Sci.* **2005**, 28, 39-44
6. Miyazaki S, Morisato K, Ishizuka N, Minakuchi H, Shintani Y, Furuno M, Nakanishi K, *J. Chromatogr A.* **2004**, 1043, 19-25
7. Miyazaki S, Morisato K, Suzuki K, Nakanishi K, Ueda M, *53rd ASMS*, **2005**

Feature

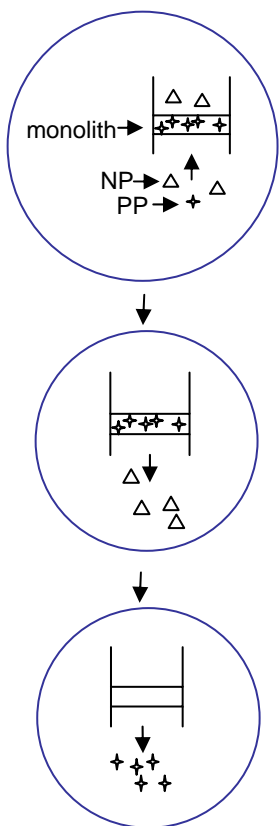
- : Faster sample preparation
- : Low Sample Loss
- : High selectivity



MonoTip™ TiO

Monolith	: Titania-coated High purity sol-gel silica gel
Specific surface area	: 200m ² /g
Through pore size	: 10~20mm
Meso pore size	: 20nm
Tip volume	: 200mL
Sample capacity	: 15ug <Tyrosine Phosphopeptide>

Scheme of Purification of phosphopeptides



Wet tip

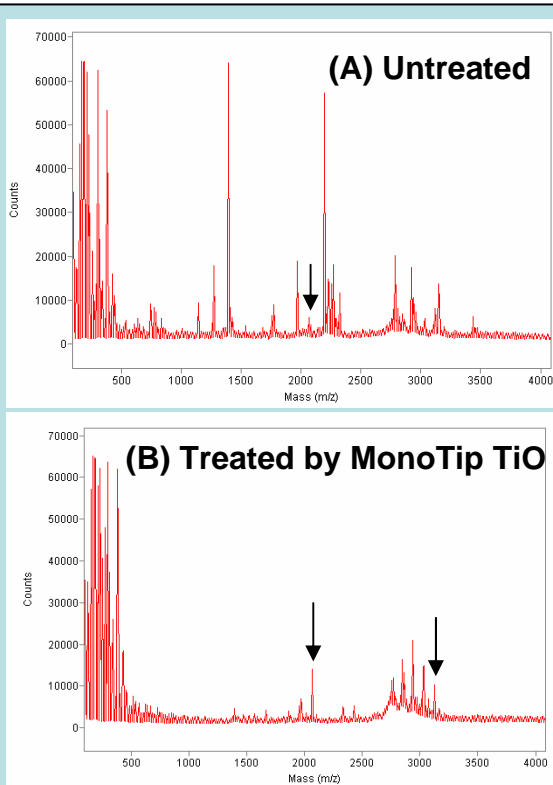
Equilibrate

Apply sample

Rinse tip

Elute sample

NP: non-phosphopeptide
PP: phosphopeptide



MALDI-TOF/MS spectra
of tryptic digest of beta-casein
Arrow indicate phosphopeptides (m/z:2061, 3122)

MonoTip TiO was eluted phosphopeptides with not only phosphate buffer (pH7.0) but dilute base (0.5-5% ammonium). Base elution enabled direct MS analysis without having to remove salt over RP microtips, thereby saving time and analyte.

Moreover, mild base could be favorable for phosphopeptide analysis by ESI-MS in the negative mode. MonoTip TiO offers advantages, in terms of both selectivity and recovery, including base elution.

Ordering Information

Description	Catalog No.
MonoTip TiO, 96EA./Box	5010-21005
MonoTip TiO, 24EA./Box	5010-21007
MonoTip TiO, 8EA./Box	5010-21006

“ Based on monolithic technology, Merck KGaA, Darmstadt, Germany ”