

特别策划

Ti-SBA-15介孔材料用于磷酸化肽的高效富集

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摘要 结合基质辅助激光解吸飞行时间质谱(MALDI-TOF MS)检测技术,考察了Ti-SBA-15介孔材料对 β -酪蛋白酶解产物中磷酸化肽的选择性富集性能。实验结果显示,含Ti和Si物质的量比为0.08的Ti-SBA-15介孔材料可选择性地对 β -酪蛋白酶解产物中的磷酸化肽进行选择富集;对于 β -酪蛋白和牛血清白蛋白物质的量比为1:100的蛋白质酶解混合液,Ti-SBA-15仍能实现对其磷酸化肽的有效富集。上述结果表明,作为一种多孔、高比表面积的磷酸化多肽的选择性吸附材料,Ti-SBA-15有望在磷酸化蛋白质组的分析中得到广泛的应用。

关键词 [Ti-SBA-15介孔材料](#) [磷酸化肽](#) [选择性富集](#) [基质辅助激光解吸飞行时间质谱](#)

Applications of Ti-SBA-15 mesoporous material in high performance enrichment of phosphopeptides

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Abstract

A titanium-incorporated SBA-15 mesoporous material (Ti-SBA-15) was synthesized via the co-condensation of tetraethyl orthosilicate (TEOS) and tetrabutyl titanate using surfactant P123 as the template. Due to the existence of Ti in the framework of SBA-15, the synthesized Ti-SBA-15 was applied as the selective adsorbent of phosphopeptides from the complex tryptic digest of β -casein. The matrix assisted laser desorption/ionization time of flight mass spectrometry (MALDI-TOF MS) analysis showed that the phosphopeptides of β -casein digest could be selectively enriched by the Ti-SBA-15 with Ti/Si molar ratio of 0.08, even under the interference of bovine serum albumin (BSA) with the molar ratio of β -casein to BSA up to 1:100. It can be concluded that the Ti-SBA-15 showed the specific adsorption toward the phosphorylated peptides, which provides great potential in the specific capture of phosphopeptides.

Key words [titanium-incorporated SBA-15 mesoporous material \(Ti-SBA-15\)](#) [phosphopeptides](#) [selective enrichment](#) [matrix assisted laser desorption/ionization time of flight mass spectrometry \(MALDI-TOF MS\)](#)

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