

特别策划

## 基质辅助激光解吸电离质谱和电喷雾电离质谱在辣根过氧化物酶糖肽结构分析中的应用

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**摘要** 糖链结构的质谱解析是今后糖蛋白分析中的重要研究内容, 其中完整糖肽的分析, 由于可以同时获得糖基化位点和对应糖链的结构信息, 更具有重要意义和研究前景。本工作对质谱软电离技术在完整糖肽分析中的应用进行了研究, 其中包括了基质辅助激光解吸电离(matrix-assisted laser desorption ionization, MALDI)和电喷雾电离(electrospray ionization, ESI)技术。通过平行使用两种串联质谱(tandem mass spectrometry, MS/MS)分析策略: MALDI-MS/MS和ESI-MS/MS对目标糖蛋白——辣根过氧化物酶进行分析, 并讨论了其互补性。结果表明, MALDI和ESI技术各有优劣, 结合串联质谱分析, 可获得糖肽的糖链结构信息; 两条路线互补使用, 在揭示蛋白质糖基化修饰(位点和结构)的研究中十分必要。

**关键词** [基质辅助激光解吸电离质谱](#) [电喷雾电离质谱](#) [串联质谱](#) [液相色谱](#) [辣根过氧化物酶](#) [糖肽](#)

## Combination of matrix-assisted laser desorption ionization and electrospray ionization mass spectrometry for the analysis of intact glycopeptides from horseradish peroxidase

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### Abstract

The mass spectrometric analysis of glycan composition and structure is a difficult but essential part in future study following the present glycoprotein identification. Intact glycopeptides analysis is an attracting field, in considering its capability to provide glycosite and corresponding glycan structure information at the same time. Mass spectrometry has been proven to be an important and a key tool for glycan analysis over the past few years. Making use of two soft ionization techniques—matrix-assisted laser desorption ionization (MALDI) and electrospray ionization (ESI), through tandem mass spectrometry (MS/MS) analysis, the information for glycans of the glycopeptides can be obtained in the investigation. Meanwhile, by comparing the MALDI-MS/MS and ESI-MS/MS approaches using model glycoprotein (horseradish peroxidase, HRP), the complementary results have been verified experimentally. We believe that the combination of the two techniques is necessary and will provide useful information for the understanding of protein glycosylation.

**Key words** [matrix-assisted laser desorption ionization \(MALDI\)](#) [electrospray ionization \(ESI\)](#) [tandem mass spectrometry \(MS/MS\)](#) [liquid chromatography \(LC\)](#) [horseradish peroxidase](#) [glycopeptide](#)

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