论文

基体辅助激光解吸质谱法在生物大分子质量研究中的应用

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摘要：

研究了基体辅助激光解析飞行时间质谱法(MALDI-TOF MS)测定蛋白和糖蛋白的实验条件,实测了重组人白细胞介素2、肿瘤坏死因子、粒细胞巨噬细胞集落刺激因子、白细胞干扰素α2b、白细胞干扰素α_1、促红细胞生成素、钙调蛋白及其片段、大鼠脑型一氧化氮合成酶和天然牛精液蛋白提取物的分子量和纯度,鉴定了蛋白质混合物中各单个成分,结果表明MALDI-TOF MS可有效地研究基因工程蛋白质和天然蛋白提取物等生物大分子的质量。

关键词： 基体辅助激光解析飞行时间质谱法 蛋白质 分子量

APPLICATION OF MATRIX-ASSISTED LASER DESORPTION IONIZATION TIME OF FLIGHT MASS SPECTROMETRY ON THE QUALITY STUDY OF BIOMACROMOLECULES

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Abstract:

The experimental conditions of matrix assisted laser desorption/ionization time of flight mass spectrometry (MALDI-TOF MS) in the analysis of proteins and glycoproteins were studied and were used to analyze the molecular weights and purity of nine recombinant bioactive proteins, such as interleukin 2, tumor necrosis factor α, granulocyte macrophage colony stimulating factor, interferon α_{2b}, interferon α_1, erythropoietin, calmodulin and its fragments, neural nitric oxide synthase, and a natural protein extracted from bovine semen. It was also applied to determine the objective protein and calmodulin in an unknown mixture. In addition, the single ingredient in protein mixtures was characterized by the MALDI-TOF MS. The results showed that the technique of MALDI-TOF MS can be employed to determine the quality of recombinant and natural proteins effectively and accurately.

Keywords: Proteins Molecular weight Matrix-assisted laser desorption/ionization time of flight mass spectrometry

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