

MICRO-ADSORPTIVE SAMPLE PREPARATION FOR MASS SPECTROMETRY

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Advancements in Mass Spectrometry (MS) instruments over the last 5 years have reduced the amount of sample required and increased the molecular weight analysis range. As the result of these improvements, MS has emerged as a major analysis technique for biomolecules in the areas of proteomics and functional genomics. Subsequently, there has been a significant increase in the number of samples that need to be devoid of contaminants, such as salts and detergents. Elimination of these contaminants from proteins, peptides and oligonucleotides is critical because of ionization suppression. In many cases, sample preparation has become the bottleneck in the acquisition of high quality mass spectra. To address this problem, we present data on the use of micro-adsorptive pipette tips (ZipTip®) containing chromatographic media (C₁₈, C₄ and metal chelate) for sample clean-up prior to MALDI-TOF MS. Due to the liquid handling capability of the small pipette tip format (10 µl), it is well suited for low volume applications. The devices can be used for simple desalting or fractionation at the micro-scale. Furthermore, adsorbed solutes can be eluted and spotted directly onto a target plate. Several reversed phased applications are presented. In addition, the effectiveness of ZipTip containing metal chelate media for the capture of phosphopeptides or purification of his-tagged proteins is demonstrated. Excellent mass spectra are obtained from a variety of samples.
