

A SURFACE MODIFIED TARGET FOR MALDI-TOF MS

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Matrix assisted laser desorption/ionisation time-of-flight mass spectrometry (MALDI-TOF MS) since its development has been extensively used in the qualitative analysis of biomolecules. The quality of the MALDI mass spectra obtained is fundamentally governed by the effective co-crystallisation of the matrix, analyte mixture and the surface on which they are distributed during sample preparation. Several alternative sample preparation methodologies have appeared in efforts to reduce the segregation of analyte from the matrix during the sample drying as observed when using the conventional dried droplet approach. This is particularly noticeable when hydrophobic samples such as lipoproteins are examined.

In efforts to improve the surface distribution and co-crystallisation, alternative surfaces to the traditional stainless steel have also been reported. These include a range of metals as well as thin film nitrocellulose, nylon, polypropylene and chromatography media (C_{8/18}) and more recently carbon filled polyethylene. In addition, a range of substrate specific target modifications are now available.

Here we describe the film fabrication of MALDI targets possessing a range of polarities. These are based on broad scale surface modifications to a flat carbon filled polyethylene film and are suitable for use with a range of sample/matrix combinations. An instrument for production of controlled surface modifications based on electrical discharge is used to produce surface modifications.