

Oral Presentation

Why don't use MALDI-QqQ for small molecules analysis?

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Nowadays, the combination of Liquid Chromatography, API (Atmospheric Pressure Ionization as ESI, APCI and APPI) with Mass Spectrometry detection has been consolidated technology to analyze organic compounds with different chemical properties in a varieties of matrices (blood, plasma, serum, wastewater, forensic samples, formulations...), covering diverse applications. Besides the incredible versatility of the LC-MS systems, the recognized bottleneck is the Liquid Chromatography, which limited this technology in terms of throughput. The ionization techniques DESI and DART came aboard a few years ago to try to fill the throughput gap, and there is no doubt that hit the target.^{1,2} How about MALDI? Why don't use MALDI-MS/MS for small molecules analysis? By the facts, the MALDI technique has been successfully applied for tissue image and also became a powerful approach.³ The challenge to analyze small molecules by MALDI with a good signal, mainly for quantitative measurement, is dealing with chemical noise interferences in the low m/z range. Therefore, MS/MS is necessary to obtain good selectivity and consequently the adequate S/N. The introduction of MALDI ion source for QqQ systems allowed the qualitative and quantitative analysis of small molecules with high speed, pseudo molecular ion generation, freedom from carry-over and robustness.^{4,5} In this work we will show a example of quantitative analysis of antidepressants drugs in plasma, where samples can be analyzed in less than **3 seconds** at low LOD's levels.⁶ As figure of merit, this analytical method was fully validated according to the FDA guidelines for bioanalysis. Another example will show this technique applied for high throughput drug discovery screening.⁷

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