

Sensitive electrospray mass spectrometry analysis of one-bead-one-compound peptide libraries labeled by quaternary ammonium salts.

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Streszczenie

A rapid and straightforward method for high-throughput analysis of single resin beads from one-bead-one-compound combinatorial libraries with high resolution electrospray ionization tandem mass spectrometry (HR ESI-MS/MS) is presented. The application of an efficient method of peptide derivatization by quaternary ammonium salts (QAS) formation increases ionization efficiency and reduces the detection limit, allowing analysis of trace amounts of compounds by ESI-MS. Peptides, synthesized on solid support, contain a new cleavable linker composed of a Peg spacer (9-aza-3,6,12,15-tetraoxa-10-on-heptadecanoic acid), lysine with ϵ -amino group marked by the N,N,N-triethylglycine salt, and methionine, which makes possible the selective cleavage by cyanogen bromide. Even a small portion of peptides derivatized by QAS cleaved from a single resin bead is sufficient for sequencing by HR ESI-MS/MS experiments. The developed strategy was applied to a small training library of α chymotrypsin substrates. The obtained results confirm the applicability of the proposed method in combinatorial chemistry.

Słowa kluczowe

Derivatization of peptides, ESI-MS/MS, Fixed target tag, Linker design, OBOC, Quaternary ammonium salts

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