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2-dimensional chromatography – mass spectrometry applications in clinical research

2D chromatography – efficient way to increase peak capacity. It is important for HPLC-UV applications requiring baseline peaks separation. In contrast, MS detection utilizes ions resolution by m/z and chromatographic (non-isobaric) peaks overlay is often in LC/MS/MS analysis. Typical benefits of 2D chromatography implementation in mass spectrometry are minimum of signal suppression, low and stable background and excellent peak shape. Given presentation we will be focused on three case studies: 1. The robust and routine method of sorbitol analysis from human plasma by LC/MS/MS. 2. Non-digest liberation of biomarkers from plasma: a unique two-stage ultrafiltration approach combined with 2D chromatography and mass spectrometry analysis. 3. Human C-peptide analysis by 2D RP-RP LC/MS. These case studies demonstrate additional unique advantages of 2D/column switching applications in mass spectrometry beyond mentioned above signal suppression/matrix effects minimization, background and peak shape improvements. Addition of switching valve and extra HPLC pump may contribute drastic improvements in LC/MS analysis.

Biography

Eduard Rogatsky completed his M.Sc in physical chemistry from Belarus State University, PhD in bioanalytical chemistry from Bar-Ilan University (Israel) in 1999, and postdoctoral studies at Albert Einstein College of Medicine, NY. He joined the faculty there in 2001, and is currently a Senior Associate Scientist and Director of Mass Spectrometry in the Biomarker Analytical Resource Core Laboratory, Einstein-Montefiore Institute for Clinical and Translational Research, Bronx, NY, USA.

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