C18-patterned substrates for efficient mass spectrometry of neuropeptides

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For more than a decade, researchers have studied the investigating cell-to-cell signaling peptides (SPs) using various analytical methods. SPs have been known to have important role in the physiological mechanisms. Current studies have been chosen wash-off or using Zip-Tip for desalting. Zip-Tip is intended for purifying and concentrating femtomoles to picomoles of protein, peptide or oligonucleotide samples prior to analysis, providing better data quality. However, in this procedure, losing peptide is still happened. My approach is using C18-Au coated patterned wafer where a droplet of peptide-containing salty solution is split into a donut-shape during the evaporation. In this platform peptides are concentrated onto the central C18-Au region while salts are deposited in the donut-shaped silicon area. In this method, more accurate mass analyzing with matrix-assisted laser desorption/ionization (MALDI) would be possible. We also demonstrate this approach by analyzing peptide secrete using Aplysia bag cell neurons as a model.