Peptide/Protein Separation with Cationic Polymer Brush Nanosponges for MALDI-MS Analysis

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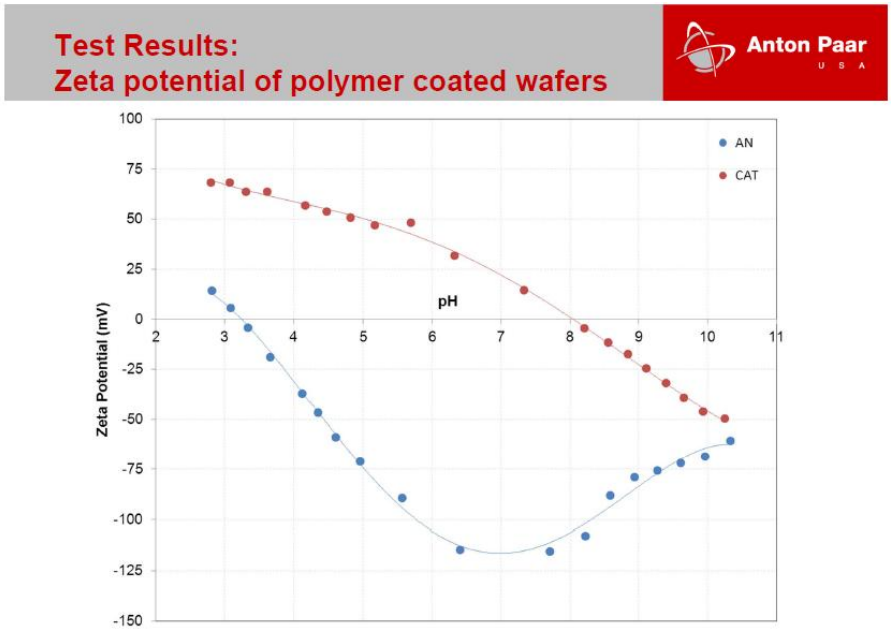

Figure S1. The zeta potential of the anionic (AN) and cationic (CAT) polymer brush sample. Note that the isoelectric point (IEP) of the AN sample is estimated at a pH 3.2, while the isoelectric point of the CAT sample is estimated at pH 8.0.

Procedure:[1]

The samples were affixed to the sample holder and held in place using a spacer. The samples were rinsed with 300 mL of distilled water followed by 300 mL of a 1.00 mM KCl solution. A pH ramp was performed from the pH of 1.00 mM KCl (~ pH 5.5) to a pH 3.0 using a 0.100 M HCl solution. The samples were again rinsed with 300 mL of distilled water and 300 mL of a 1.00 mM KCl solution. The electrolyte solution was replaced with a fresh batch of 1.00 mM KCl solution, and a pH ramp was performed to pH 10.0 using a 0.100 M NaOH solution. The zeta potential was calculated using the Helmholtz-Smoluchowski equation.

Helmholtz-Smoluchowski equation

$$\zeta = \frac{dI}{dp} \times \frac{\eta}{\varepsilon \times \varepsilon_0} \times \frac{L}{A}$$

***I* …streaming current**

***p* … pressure difference**

η … viscosity

ε … dielectric constant

ε_0 … vacuum permittivity

***L* … length**

***A* … cross-section**

K … Bulk conductivity

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[1] This measurement was performed by Anton Paar (USA)