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Selenium isotope composition of serum samples using the MS/MS capabilities of the Neoma

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Precise measurement of Selenium abundance and even more isotope composition by ICP-MS, represents a significant challenge and requires instruments operating at their limits. With the advent of collision cells and Wien filters in the latest generations of MC-ICP-MS, this type of analysis has become more accessible. However, the chemistry involved remains complex and requires numerous adjustments.

Selenium has a low ionization efficiency, making hydride generation essential to improve transmission [e.g, 1,2,3,4]. In this presentation, we will illustrate different chemical strategies applied to serum samples, such as Se purification using thiol cotton fibers or powders [5], Se purification with classical ion exchange resins [6], and, no Se purification [7]. We will also discuss the configuration parameters of the Neoma in MS/MS mode with hydride generation and the use of the Isotope 2 autosampler. This setup allows for adjusting the pump rotation speed for hydride generation and independently controlling the sample flow rate.

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