## Characterising polar biomarkers using supercritical fluid chromatography - nuclear magnetic resonance spectroscopy (SFC-NMR)

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One of the approaches for the analysis of complex mixtures is to separate the compounds of interest from the complex sample matrix, or from each other, prior to the analysis. In our previous work, we have developed the coupling of supercritical fluid chromatography (SFC) with nuclear magnetic resonance spectroscopy (NMR) for the analysis of nonpolar complex samples. [1] We now show that the SFC-NMR setup can also be used to analyse polar samples in complex matrices, by making a few adaptations in the setup.
In-line SFC-NMR analysis of two N-acetylhexosamine stereoisomers was demonstrated, namely N-acetyl-mannosamine (ManNAc) and N-acetyl-glucosamine (GlcNAc). ManNAc is a metabolite that is present at elevated concentrations in patients suffering from NANS mediated disease. With our SFC-NMR setup it was possible to distinguish between the polar stereoisomers. Until now, this was not possible with the standard mass based analysis techniques.

Reference

[1] Van Zelst et al., Analytical Chemistry, 2018, **90**, 10457.