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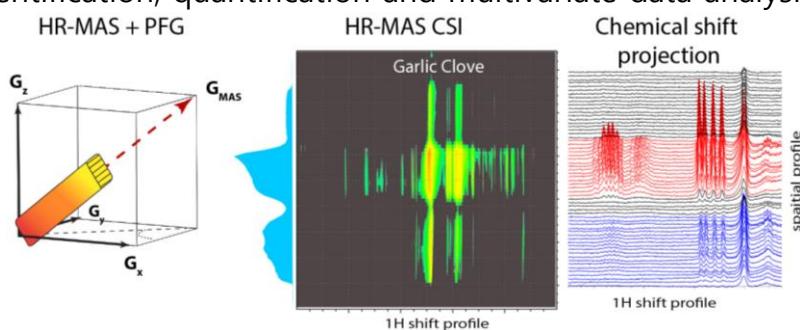
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SPATIAL METABOLIC NMR PROFILING BY HR-MAS CHEMICAL SHIFT IMAGING

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HR-MAS is a valuable NMR spectroscopic tool for metabolic profiling of biospecimens. It offers high resolution NMR spectra for identifying the metabolic compositions in heterogeneous samples such as biopsies and plant tissues. However, the HR-MAS experiments only provide the metabolic profile of an entire sample without any spatial distribution of the metabolites. Combining a pulsed-field gradient (PFG) for spatial encoding with HR-MAS for chemical shift acquisition, Fayon and his team[1] have introduced the possibility of HR-MAS chemical shift imaging (CSI) experiment for acquiring spatial metabolic profiles of a whole organism (i.e. head, body and tail), but the spectral quality is insufficient for an in-depth analysis. Here, we explore the HR-MAS CSI experiments with superior spectral quality on various specimens including biopsy and food tissues, proving the capability of a comprehensive profiling: identification, quantification and multivariate data analysis.

1. V. Sarou-Kanian, N. Joudiou, F. Louat, M. Yon, F. Szeremeta, et al. *Scientific Reports*, **2015**, *5*, 9872.