

# Spatial metabolic NMR profiling by HR-MAS chemical shift imaging

Covadonga Lucas-Torres, Alan Wong

► **To cite this version:**

Covadonga Lucas-Torres, Alan Wong. Spatial metabolic NMR profiling by HR-MAS chemical shift imaging. VIII Ibero-American NMR meeting - 6th Iberian NMR Meeting - 9th GERMN - 4th Portuguese RNRMN Meeting, Jun 2018, Lisbon, Portugal. cea-02327994

**HAL Id: cea-02327994**

**<https://hal-cea.archives-ouvertes.fr/cea-02327994>**

Submitted on 23 Oct 2019

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

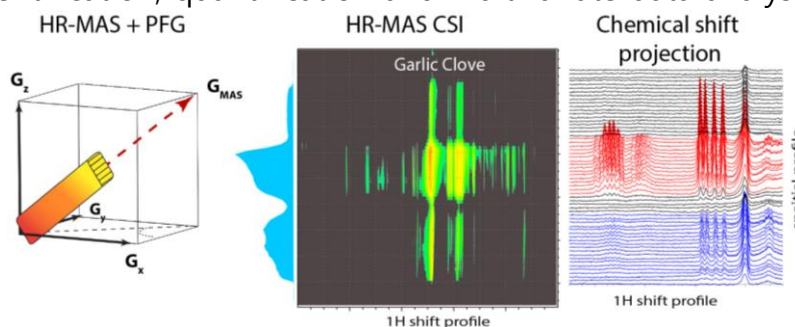
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# SPATIAL METABOLIC NMR PROFILING BY HR-MAS CHEMICAL SHIFT IMAGING

Covadonga Lucas-Torres<sup>a</sup>, Alan Wong<sup>a</sup>

<sup>a</sup> NIMBE, CEA, CNRS, Université Paris-Saclay 91191 Gif-sur-Yvette, France  
*Covadonga.lucas-torres-perez@cea.fr*

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<sup>1</sup> 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.  
*Financial aid: Agence Nationale de Recherche française ANR-12-JSV5-0005-01, ANR-16-CE11-0023-01.*