

## Metabolomics uncovers postmortem changes in brain important in preclinical drug development

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Understanding the human brain is the ultimate goal in neuroscience and a critical point in drug development for neurological diseases, but this is extremely challenging in part due to the fact that brain tissue obtained from autopsy is practically the only source of normal brain tissue, and also since changes at different levels of biological organization (genetic, molecular, biochemical, anatomical) occur after death due to multiple mechanisms. Here we used metabolomic and anatomical techniques to study the possible relationship between post-mortem time (PT) induced changes that may occur at both the metabolomics and anatomical levels in the same brains. Our experiments have mainly focused on the hippocampus of the mouse. In a first step we optimized the extraction conditions of metabolites from the tissue and later we used a multiplatform approach with GC-MS, CE-MS and LC-MS for obtaining better metabolite coverage. We found significant metabolomic changes at 2h PT, whereas the integrity of neurons and glia, at the anatomical/ neurochemical level, was not significantly altered during the first 5h PT for the majority of histological markers [1].

[1] Gonzalez-Riano C. *et al.*, Metabolomics and neuroanatomical evaluation of post-mortem changes in the hippocampus, *Brain Struct. Funct.* **2017**, in press (DOI: 10.1007/s00429-017-1375-5).