with Iodoacetic acid (IAA)[2]. VH samples were collected upon vitrectomy and analysed by means of ^{1}H NMR spectroscopy. 40 molecules were identified and quantified, with lactate being the most abundant in both conditions. Upon comparison, 17 molecules showed statistical differences between groups and could potentially be further investigated as photoreceptor degeneration biomarkers. Overall, ^{1}H NMR spectroscopy was capable of profiling both CSF and VH in pigs, and of highlighting important quantitative differences between age groups or experimental groups, allowing to gain more knowledge regarding this important experimental species.

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Metabolomics as a tool to improve phenotyping: Experiences with the biomedical pig

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Abstract

Animal models are constantly been set up, and pivotal step in such process is an in-depth genetic and phenotypic characterization. When it comes to qualitative/quantitative profiling of biological fluids, metabolomics-based approaches, in particular ^{1}H NMR spectroscopy, have been proved to be highly reliable in different species. Hereby, we report the used of the above-mentioned technique to characterize Cerebrospinal fluid (CSF) and Vitreous Humor (VH) of biomedical pigs. For the first study we investigated the composition of Cerebrospinal Fluid (CSF) harvested form healthy newborn (5 days old) and young (30 and 50 days old) piglets and evaluated any difference between age groups related to Blood-Brain-Barrier maturation[1]. On each sample, 30 molecules were observed above their limit of quantification. Only 11 molecules showed significant differences between P5 and P50 animals, giving some insights to the ever changing selectivity of the barrier. In second study, we investigated the composition of the VH in the standard pig and in a photoreceptor degeneration model induced