myocardium. Due to this close proximity, EAT acts as metabolic transducer for different mediators that easily diffuse from EAT to vessel wall and myocardial tissue. In line, clinical studies reported the association of EAT thickness not only with VAT, MetS and relative clinical features, but also with atherosclerosis and myocardial diseases (i.e. atrial fibrillation and heart failure).

## S4-L8 | Clinical relevance of genetic modifiers of chronic liver injury

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Fatty liver disease (FLD) belongs to the most frequent conditions in hepatology. Indeed, more than 20% of adult Europeans suffer from fatty liver and the incidence of this condition is predicted to increase even further. A subgroup of patients with FLD will also develop liver fibrosis, which is a common hallmark of chronic liver diseases. Both hepatic lipid accumulation, as well as, liver scarring have for long been expected to be modulated by the inherited predisposition. In the recent years genetic variants in several genes, for example PNPLA3, TM6SF2 and MBOAT7, have been linked to the progression of chronic liver diseases. Prosteatotic and/or profibrotic variants in these genes were first detected in large genome-wide association studies (GWAS) and afterwards these associations were replicated in the following candidate gene analyses. In particular carriers of the *PNPLA3* p.I148M variant have been proven to be at risk of severe liver steatosis, fibrosis, cirrhosis and hepatocellular carcinoma (HCC) rendering variant *PNPLA3* a common genetic risk factor for progressive liver injury. Interestingly, the same variant also seems to modulate the response to the FLD-therapies. The most recently detected splice variant rs72613567 in hydroxysteroid 17-β dehydrogenase 13 (HSD17B13) seems to, in turn, reduce the risk of severe hepatic phenotypes. In my talk I will present the current knowledge on the genetic background of hepatic steatosis and fibrosis, discuss the effects of the known variants on the disease progression as well address the potential use of genetic analyses in the clinical work-up of patients with chronic liver diseases.

## S4-L9 | Neuroprotective effects of anthocyanins are mediated by gut microbiota

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The microbes that collectively inhabit the gut, the gut microbiota, constitute the largest and most diverse community in the body. Besides having an important role in the regulation of host energy metabolism, the gut microbiota can also influence neurodevelopment, modulate behavior and contribute to the development of neurological disorders. High-fat (HF) diets are thought to disrupt the profile of the gut microbiota in a manner that may contribute to the neuroinflammation and neurobehavioral changes observed in obesity. Accordingly, we hypothesized that by preventing HF-diet induced dysbiosis it is possible to prevent neuroinflammation and the consequent neurological disorders.

Anthocyanins are flavonoids found in berries that exhibit anti-neuroinflammatory properties in the context of obesity. Our group has demonstrated that anthocyanins can modulate gut microbiota composition and counteract high-fat (HF) diet induced dysbiosis. In addition, we have shown that the modifications in gut microbial environment are partially related with the anti-neuroinflammatory properties of anthocyanins. Through fecal metabolome analysis, we unraveled the mechanism by which anthocyanins participate in the bilateral communication between gut and brain. Anthocyanins alter host tryptophan metabolism increasing the production of the neuroprotective metabolite kynurenic acid. These findings strongly suggest that dietary manipulation of the gut microbiota by anthocyanins could attenuate the neurologic complications of obesity, expanding the classification of psychobiotics to anthocyanins.

Regarding their bioavailability, the clinical trial conducted by our group indicated that anthocyanins are extensively metabolized in the liver after absorption. Furthermore, it showed, for the first time, that ethanol enhances cyanidin metabolism, potentiating its conversion into methylated derivatives, especially in overweight and obese individuals.

These results should prompt the attention of the scientific community to the fact that the kinetic of these compounds is influenced by body composition and deserve special considerations since obese individuals might be the ones who would benefit the most from anthocyanins intervention.