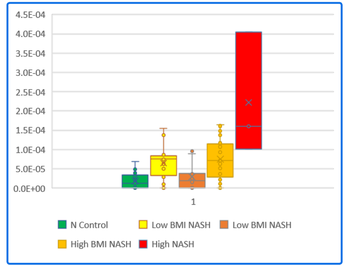
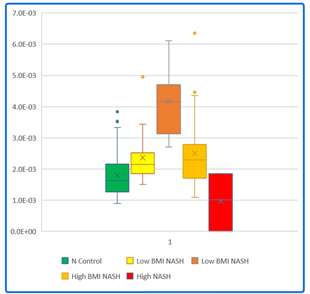
OMEGA Scan and LC-OMEGA Plasma Discovery for Chronic Liver Disease

Metabolic profiles are generated using our advanced analytical platforms such as OMEGA Scan and LC-OMETA can be used to gain insight of alterations into a disease or condition such as liver disease. Given the multiple metabolic pathways and processes governed in the liver, the effects of a disease liver on system biology including the microbiome, the complex relationshsips in advanced liver disease may be reflected in plasma metabolic profiles. Such studies have the potential to be beneficial in clinical settings as early diagnosis markers, monitoring disease changes and treatment progression.

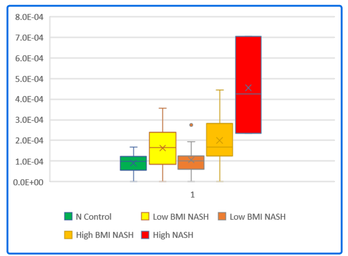
Our OMEGA-Scan advanced allows for a comprehensive recording of polar metabolites in plasma or serum, including known and novel metabolites such as those from microbiome. Our LC-OMEGA scan advanced adds considerably more metablites (Lipids) from a wide range of classes reflecting fatty acid metabolism, bile acid metabolism steroid metabolism and much more. Our HMT scientists combine this data with clinical data to discover biomarkers for disease and patient subytypes. Patients can be resolved both my their endogenous metabolism, but also my changes in their microbiome that may effect both disease progression and treatment response. These analyses being done after each sample is checked for quality and stablity.



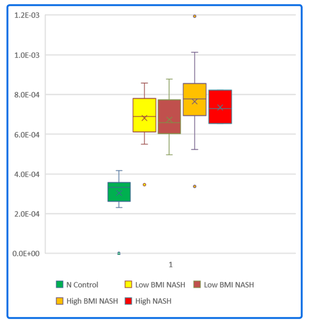
This biomarker reflect REDOX status. The highest oxidative stress is seen with the patients with the advanced liver disease (Red) compared to healthy controls (Green). While those patients with less advanced disease are separated by BMI. Those with lowest BMI and early disease (yellow) have least oxidative stress, while those with higher BMI are divided by level of disease.



This biomarker reflects an important oncometabolite that is also involved in different core metabolic processes, including serine synthesis and lysine degradation and commonly a mitochondrial metabolite. The pattern of this metabolite may reflect a subtype of liver disease with a mitochondrial dysfunction.



This biomarker reflects an important The pattern of this metabolite is similar to REDOX markers thus is dependent upon disease progression and BMI. This metabolite represents an end product of fatty acid gamma oxidation.



Unlike these other biomarkers, this metabolite shows no variation by BMI or disease progression and more indicative of liver abnormality. While the other biomarkers reflect precise metabolite pathways, this metabolite is linked to the microbiome, but is this the gut microbiome or refective of bacteria in a dysfunctional or fatty liver?