

NEWS ITEM 05/2019

University Medical Center Groningen (UMCG), TAmiRNA GmbH & Vivomicx BV announce their collaboration to unmask the molecular signature of sepsis induced multi organ failure.

Vienna, Austria and Groningen, The Netherlands (June 2019)

UMCG, TAmiRNA, and Vivomicx today announced their collaboration to unmask the molecular signature of sepsis induced multi organ failure and shed light on diagnosis and therapeutic options. Sepsis is the body's response to infection. Sepsis kills and disables millions of patients worldwide. The role of the microvasculature in all organs has been identified as central, yet understudied in the pathophysiology leading to Multi Organ Failure (MOF) in critically ill patients with sepsis.

This translational project combines cutting edge molecular research at the level of kinome, gene expression, and microRNome in samples of patients who suffered from sepsis and of animal models of this disease. In both human and mouse lungs and kidneys we will enrich the samples for microvasculature using laser microdissection (LMD) and next analyze the status of the cellular signal transduction status (kinome) and microRNA levels in an unbiased -omics approach, with dedicated mRNA levels as reference.

Our new approach will identify, evaluate, and validate molecular targets in, and biomarkers of failing kidneys and lungs in sepsis and provide an microvasculature, organ specific molecular signature of sepsis related organ dysfunction. This project will deliver a blueprint for a novel approach in drug development for use in other complex diseases in which zooming in on cell types in tissues that matter enables the unmasking of the molecular basis of disease.

UMCG is a 1339 bed Academic Medical Center in the Netherlands, providing top level medical care to approx. 3 million inhabitants of the Northern & Eastern Netherlands and Northern Germany. On top of that UMCG provides education to 3,500 medical students & delivers state of the art R&D to the medical community via 1,000 researchers. In research the UMCG is focusing on 'healthy ageing'.

TAmiRNA specializes in technologies for profiling levels of blood-circulating microRNAs and developing multi-parametric classification algorithms ("signatures"). TAmiRNA uses these technologies to develop minimal-invasive diagnostic tests for drug development, early diagnosis and prognosis of disease, and as companion diagnostic tests to support treatment decisions.

[Vivomicx](#) has developed validated protocols to analyze preclinical and clinical tissue samples using Laser Dissection Microscopy in combination with quantitative RT-PCR analysis for in-depth analysis of gene expression in subsets of cells. Using this technology we unmask the molecular identity of cells in the tissue context. In this way we determine e.g., whether target molecules are expressed in cells of interest in diseased tissue and which responding molecules can serve as genuine biomarkers of disease activity/drug effects.

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