OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Proteomics & Bioinformatics
July 15-17, 2013 Courtyard by Marriott Philadelphia Downtown, USA

# Affinity proteomic plasma profiles in diseases and ageing

**Jochen M. Schwenk**
Royal Institute of Technology, Sweden

The growing number biobanks opens new possibilities to screen for protein biomarkers in plasma for diagnostics and patient care. To systematically explore protein profiles from body fluids, antibody suspension bead arrays have been developed with antibodies from the Human Protein Atlas (www.proteinatlas.org, [1]) to analyze non-fractioned, biotinylated and heat-treated samples. Per day 384-plexed bead arrays [2] generate up to 150,000 immunoassays and this single-binder approach has so revealed interesting candidates from in plasma in the context of prostate cancer [3] and renal impairment [4]. Recently, the assay has been applied to other body fluids but also to larger scaled, hypothesis-free efforts: (i) A pilot study using 4,600 antibodies to profile a total of 600 samples from 20 disease such as cancer, cardiovascular and neurodegenerative diseases. (ii) Samples from 384 blood donors aged 5-85 were analyzed with 7,600 antibodies to identify the profiles' age and/or gender associations. (iii) A recent focus has been the analysis of serum and plasma from cancer (384 samples, 5 cancer types) and cardiovascular disorders (384 samples, 4 categories) using 10,000 antibodies. To address off-target binding susceptibility of single-binder assays, candidate antibodies are being involved in sandwich assay developments and independent sample cohorts are being accessed to further describe the involvement of a biomarker candidate in a disease context. The overall strategy thus encompasses to statistically identify, replicate and verify antibody-derived profiles for further experimental and biological investigations, including also other body fluids.

## Biography

Jochen M. Schwenk is Associate Professor in Translational Proteomics at the KTH - Royal Institute of Technology in Stockholm, Sweden. He is a Group Leader within the Human Protein Atlas and Biobank Profiling at the Science for Life Laboratory. He studied Biochemistry at the University of Tuebingen, Germany and joined Prof. Mathias Uhlén and the Human Protein Atlas for his postdoctoral work, funded by the Wallenberg Foundation and F.Hoffmann-La Roche. Today his group is working on high-throughput and multiplexed methods for protein profiling body fluids with antibodies from the Human Protein Atlas.

jochen.schwenk@scilifelab.se