AARHUS
UNIVERSITY
DEPARTMENT OF BIOMEDICINE

Biophysical Immunology Laboratory

Thomas Vorup-Jensen
Vorup-Jensen@biomed.au.dk
Tara Bladt Master Student, Alex Ferapontov Research Assistent, Kristian Juul-Madsen PhD Student

Background

We propose that even a simple understanding of changes in the three-dimensional structure of disease-related oligomeric proteins will improve the disease descriptive capabilities of these species. We hypothesize, that a new technique based on light scattering, nanoparticle tracking analysis (NTA), can determine differences between samples at this ultrastructural level in complex media such as patient plasma samples. We want to develop a work load-efficient method that can characterize the ultrastructure of proteins, even in complex samples. This will generate new possibilities within blood testing diagnostics and thereby improve early stage treatment. We supplement this technique with surface plasmon resonance studying the binding kinetics of soluble proteins along with imaging flow cytometry studying the morphology and expression of cell-bound proteins.

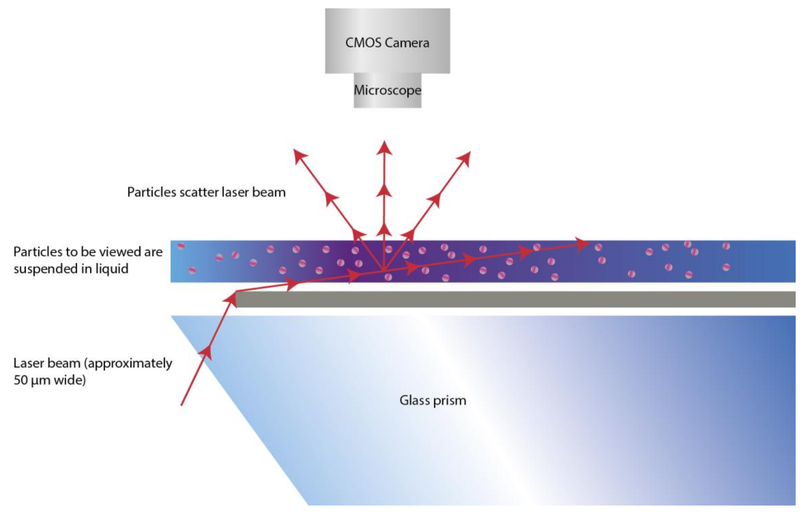
Projects and techniques

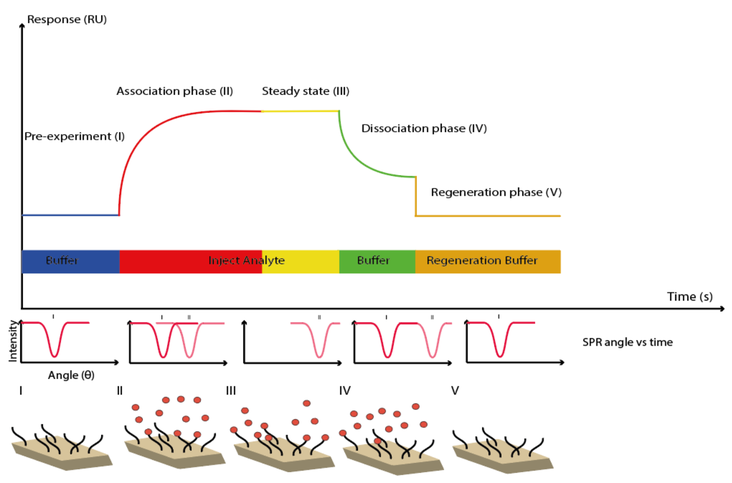
- Structural Characterization of Soluble Immunomodulatory Proteins for Diagnostic and Prognostic Purposes. **Nanoparticle Tracking Analysis**

- Receptor Localization and Morphology Studies of Immune Cells. **Imaging Flow Cytometry**

- Binding Kinetics of Soluble Adhesion-Receptors. **Surface Plasmon Resonance**

- Biological Therapy in Auto-Immune Diseases – Multiple Sclerosis and Rheumatoid Arthritis among others. **Bioethics**





[1] *Christiansen et al. Sci rep* 2017 Nov 15;7(1):15653

[2] *Christiansen et al. Biochim Biophys Acta. Mar 2017 1859(3):425-437*

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