SEMINAR

Quantitative Analytics of Biomolecular Interactions using *Microscale Thermophoresis* (MST)

AND

Protein Stability Screening, Quality Control and High-Resolution Biophysical Characterization with *nanoDSF*

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In the first part, the presentation gives an overview of **Microscale Thermophoresis (MST),** a new technology for the measurement of biomolecule interactions. The term Microscale Thermophoresis refers to the directed movement of molecules in optically generated *microscopic temperature gradients*. Microscale Thermophoresis allows **quantification of binding affinities** of proteins, nucleic acids and small molecules as well as measurement of enzymatic activities. In addition, functional studies of small molecule inhibitors are possible. The readout method of the interaction analysis is based on fluorescence: fluorescently labeled proteins/peptides/nucleic acids can be used as well as intrinsic tryptophan fluorescence or proteins expressed with GFP/YFP/RFP.

In the second part, the presentation will cover **nanoDSF** – advanced Differential Scanning Fluorimetry technology. It detects smallest changes in the fluorescence of tryptophan and tyrosine present in virtually all proteins. The fluorescence of tryptophans and tyrosines in a protein is strongly dependent on close surroundings. By following changes in fluorescence, chemical and thermal stability can be assessed in a **truly label-free fashion**. The dual-UV technology by NanoTemper allows for rapid fluorescence detection, providing an **unmatched scanning speed and data point density**. Since no secondary reporter fluorophores are required as in conventional DSF, protein solutions can be analyzed independent of buffer compositions, and over a concentration range of 200 mg/ml down to 5 µg/ml. This allows for the analysis of detergent-solubilized membrane proteins, as well as for highly concentrated antibody formulations. **NanoDSF** is the method of choice for easy, rapid and accurate analysis of protein folding and stability, with applications in protein engineering, membrane protein research, formulation development and quality control.

The seminar will cover:

1) Technical details and benefits of the Microscale Thermophoresis and nanoDSF.
2) Examples of MST and nanoDSF measurements which show its versatility.
3) Bonus section devoted to newest device in NanoTemper Technologies family: **SEISMOS NT.X** for analysis of binding kinetics utilizing non-optical approach of **Surface Acoustic Wave (SAW).**

When? 5th November 2015, 15.00 – 17.00

Where? Namik Kemal University, Faculty of Science and Arts, Main Conference Hall, Tekirdağ

Hosted by**: Dr. Cenk Aral**

If you are interested or have any question, please send email to:

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