dynamic
BIOSENSORS

switchSENSE®

Biophysical Analysis of Molecular Interactions with Electro-Switchable Biosurfaces

switchSENSE® is an automated biosensor chip technology that employs electrically actuated DNA nanolevers for the real-time measurement of binding kinetics (k_{ON}, k_{OFF}) and affinities (K_D). Interactions between e.g. proteins, DNA/RNA, and small molecules can be detected with femto-molar sensitivity. At the same time, protein diameters (D_H) are analyzed with 0.1 nm accuracy and conformational changes as well as melting transitions (T_M) can be measured using minimal amounts of sample.

This equipment opens unique possibilities for the functionalization of sensor surfaces, e.g. the fast and flexible exchange of DNA target sequences and the precise control of protein oligomerization. Applications for drug development and fundamental research include:

- **Size and Conformational Change:**
  Absolute size of proteins in nm and small molecule induced conformational changes.
- **DNA / RNA Binding Proteins:**
  Flexible exchange of DNA/RNA targets for binding and enzymatic activity studies in real-time.
- **From Small Molecules to Liposomes:**
  Measurement modes for the kinetic rates detection of very small or very large analytes.
- **Antibody Design:**
  Unique tools for bispecifics, ideal for high affinity partners with slow dissociation rates.