

2D and 3D nanostructure based sensing layers in analytical assays

➤ **Redox-active molecular thin layers in the detection of biological interactions**

Thin layers consisting of redox-active, biological site-specific conjugates are applied as sensing interfaces, where the molecular recognition and the signal generation can proceed in one step, which allows the formation of highly sensitive and easily miniaturized sensor constructions.

➤ **Metallic, polymeric, and supramolecular nanostructures as sensing elements**

Metallic, conductive polymeric and supramolecular nanostructures offer versatile tools in sensor platforms with possible combinations of electrochemical, optical and acoustic signal detection.

Ongoing projects

- H2020 MSCA RISE–SAFEMILK 101007299 – Innovative technology for milk safety (2021–2025) – *participant*
- TKP2021-EGA-31 - Bionanotechnological applications of natural soft materials for a sustainable and healthy environment (2021-2025) – *participant*

Completed projects

- GINOP-2.3.2-15-2016-00017 – Bionanotechnological studies for the promotion of effective disease-detection, development of novel pharmaceutical agents and production of bio-inspired intelligent nanomaterials (2016–2021) – *participant*
- GINOP-2.2.1-15-2016-00023 – Research and development of new galenic pharmaceuticals and the implementation of their manufacturing process and infrastructure (2016–2021) – *participant*
- NVKP-16-1-2016-0007 – Research and development on the basis of materials science for the realization of medical diagnostics based on extracellular vesicles (2017–2020) – *participant*
- H2020 MSCA RISE – FORMILK 690898 – Innovative technology for the detection of enzyme activity in milk (2016-2019) – *participant*
- HUSK/1101/1.2.1/0285 – Novel methods in quality control of dairy products – Application of modern bioanalytical tools (2012–2014) – *coordinator*
- FP7 EXCELL 214756 – Exploring Cellular Dynamics at Nanoscale (2008–2012) – *participant*
- 100753 PD OTKA – Biomimetic nanosensors for proteolytic process monitoring (2012–2016) – *principal investigator*