

NANODEM AND HEMOSPEC: TWO NOVEL EUROPEAN PROJECTS FOR POCT

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NANODEM (“Nanophotonic device for multiple therapeutic drug monitoring”) is STREP project, started in October 2012, the aim of which is the development of a novel therapeutic drug monitoring point-of-care-testing device for the measurement of immunosuppressants and related metabolites in transplanted patients. The identification of the right dosage of the administered drugs in the first week after the transplantation as well as after the patient dismissal is a crucial request coming from physicians. The new device will allow the measurements of therapeutic drugs and metabolites characterized by a narrow therapeutic range and serious potential side effects. Clinical benefit will be an optimized dosage of the respective therapeutic drug. The patient will be connected to the device by an intravenous microdialysis catheter to allow 48-h online measurements. Based on this minimally-invasive approach, the therapeutic drugs and related metabolites will be monitored at short time intervals.

The HEMOSPEC project (“Advanced spectroscopic hemogram for personalized care against live threatening infections using an integrated chip-assisted bio-photonics system”) is a starting project with the objective of the development of a highly innovative technological platform for early, fast and reliable medical diagnosis of infectious diseases using only minimal amounts of patient’s blood. Infectious diseases and sepsis as a severe and potential medical condition in which the immune system overreacts and finally turns against itself, are a worldwide problem. Sepsis emerges as a major complication of an infection acquired either among patients hospitalized in an Intensive Care (Unit) or among patients admitted in the emergency department. The mortality of sepsis ranges from 7% within the less severe cases to almost 50% in cases of septic shock. The final device will in one assay simultaneously determine four different biomarker concentrations (procalcitonin, C-reactive protein, interleukine 6 and suPAR) in the blood plasma as well as provide a detailed Raman spectroscopic fingerprint of the leukocytes.

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