Point-of-care blood test for early sepsis diagnosis

Patients with a full sepsis, but also with a developing, not yet manifest sepsis, show altered platelet function in advance. Using an agonist - e.g. a short, specific peptide - on full blood shows that parameters such as aggregation, reactivity, intracellular signaling and surface antigen exposition are reliably changed if compared to healthy persons and also to patients with infection but without sepsis. The severity of a patient's illness can be judged so that high-risk patients can be identifed and treated very timely in an age where overcrowding of ICUs and hospital wards is common.

simple full blood IVD test for sepsis

IP RIGHTS
EP, US patents pending
2020

The present innovation can be used for early identification of a developing or manifested sepsis from persons suffering from a non-septic infection or silent inflammation. It has been tested in a clinical study with 250 patients.
Potential applications are:
- Blood Quick-test kits for hospitals, medical practices, emergency departments
- Point-of-care test devices

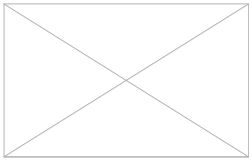
01 New diagnostic assay enables sepsis diagnosis up to 36h earlier than conventional biomarkers

02 Patient survival depends crucially on early diagnosis and treatment start

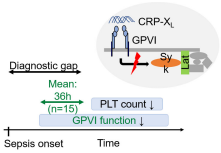
03 Simple, quick point-of-care test for emergency rooms & practices

04 Different readouts possible: ELISA, aggregometry, FACS, POC analyzer ...

REFERENCES:
Weiss et al., blood adv. (2022).
Weiss et al., Blood (2021).



The innovative sepsis IVD test is highly sensitive and specific. 14/15 sepsis patients show GPVI hyporeactivity at ICU admission



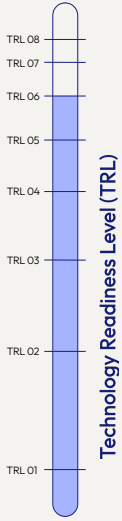
Diagnostic head start of 36 hours: GPVI dysfunction allows much earlier sepsis diagnosis than conventional biomarkers

CHALLENGE

The inventors know the need for better early diagnostics for sepsis from their own daily work at a university clinic. Since each hour that a sepsis is detected later means that 7% more patients will die, early diagnosis is absolutely crucial. Our clinical study includes 250 patients, with additional conforming evidence from other hospitals. The AUC of the inventive assay is 0.80 for sepsis vs. non-septic infection, and an impressive 0.98 for sepsis versus healthy control - much better than common biomarkers like CRP, lactate or PCT.

INNOVATION

For the inventive sepsis IVD test, patients' blood samples are stimulated with specific agonists. Readout is possible by ELISA, aggregometry, FACS, etc.. The test detects sepsis - threatening organ failure - regardless of the focus of infection, or source of infection, and can provide additional clinical information about disease severity and patient prognosis. The method allows medical personnel to make data-based decisions at a much earlier time point than based on conventional sepsis markers, e.g. about the need for close monitoring, or the transfer to an ICU, of high-risk patients.



01 Basic principles observed · **02** Technology concept formulated · **03** Experimental proof of concept · **04** Technology validated in lab · **05** Technology validated in relevant environment · **06** Technology demonstrated in relevant environment · **07** System prototype demonstrated in operational environment · **08** System complete and qualified

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