CASE STUDY

HEMETRON – BLOOD TESTS ENABLING PERSONALIZED TREATMENTS

Problem – Challenge

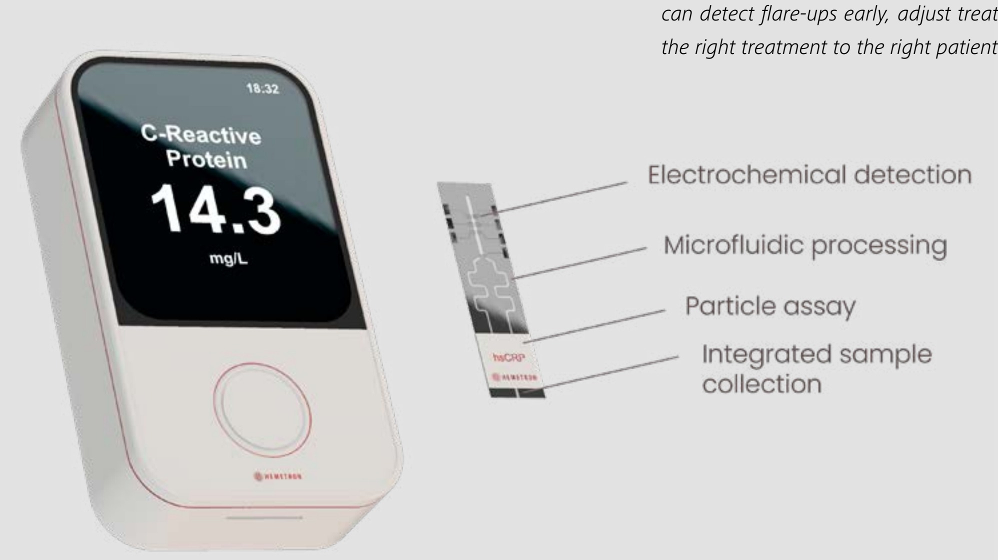
The ability to tailor treatments to each individual - based on how their body responds in real time - has the potential to dramatically improve outcomes, reduce side effects, and lower healthcare costs. But to truly personalize therapy, clinicians need continuous, objective insights into how a treatment is working for this patient - not just at the clinic, but every day. Today, most treatment decisions are still made with incomplete information. Doctors rely on infrequent check-ups, delayed lab results, and subjective symptom reports. As a result, treatment adjustments are often too late or too generic missing the chance to prevent complications or optimize care.

Solution

An at-home blood test for disease monitoring was developed, which yields quantitative, real-time data. A key component of the test unit are antibody coated gold nanoparticles. In case the disease target is present, the gold particles attach themselves via the antibodies to the target.

The electro-chemical read-out then quantifies the amount of gold as a proxy for the amount of disease targets. A noteworthy feature of the electrochemical procedure is that it completely avoids toxic oxidants for the dissolution of the gold particles. In addition, the hardware for the readout was developed to demonstrate translatability towards low-cost electronics. While the reader is reusable, the test strips are for single use.

The ETH spin-off Hemetron is commercializing the blood test for inflammatory rheumatic diseases. In rheumatology, frequent treatment monitoring is especially urgent. Autoimmune diseases like rheumatoid arthritis are dynamic and unpredictable, with inflammation levels that can change rapidly. Hemetron brings lab-grade monitoring into the home, giving rheumatologists a continuous stream of actionable data. They can detect flare-ups early, adjust treatments in time, and better match the right treatment to the right patient.



Hemetron's scanner for inflammatory rheumatic diseases: Patients receive a reusable reader and disposable test strips. Data sharing with the physician works seamlessly via smartphone app.