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BRANCH BIOANALYTICS AND BIOPROCESSES IZI-BB

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1 *Lateral-Flow Strip*

EQUIPMENT-FREE DETECTION OF PATHOGENS ON LATERAL-FLOW STRIPS

The on-site detection of pathogens remains a challenge for analytics. The developed test addresses this very point by combining a sensitive and specific DNA-amplification and the established technology of lateral-flow-strips. In an initial step, a defined target region of a DNA strand gets amplified by isothermal amplification. The DNA-amplification method used (RPA) is analogous to PCR, but does not require any analytical equipment for the reaction. Modified primers allow the detection of a pathogen on the test strip without further reaction steps. The color change on the test line indicates the presence of pathogenic organisms or parasites.

Results can then also be qualitatively evaluated without equipment, only by the naked eye. The methodology is comparable with the widely spread and well known application of pregnancy or drug tests. A multiplexing – the simultaneous amplification of multiple DNA-sequences in one reaction – is also possible. For instances, this permits the differentiation between pathogenic an apathogenic organisms or the precise characterization of germs (e.g. antibiotic resistances, toxinproducing bacteria, subtyping). The presented analysis tool can be adapted to a specific analytic task and allows the simple, equipment-free detection of pathogens in less than 20 minutes.

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