



Fully automated wastewater monitoring for advanced and early disease detection

Wastewater-based detection of emerging diseases has been proven to be a powerful tool during the COVID-19 pandemic. Now it's high time to switch from a time-consuming manual and decentralized process to a fully-automated multiple-disease detection and surveillance system.

BACKGROUND

Wastewater naturally contains virus particles shed by infected humans. Monitoring of waste water allows for i) fast, ii) extensive, iii) anonymous (data protection) and iv) cost-efficient sampling of large parts of the population. Although this was an important tool for SARS-CoV-2 detection, the current decentralized structure leads to long transport routes from the sewage treatment plant to the laboratories and includes expensive hand-on times, and difficulties in comparing results from different labs working with different methods.

TECHNOLOGY

At acib, we aim at developing an advanced monitoring system for installation directly in the wastewater treatment plants which uses real time PCR to detect pathogenic nucleic acids in wastewater. An automated and closed system enables hands-off sample preparation followed by detection and identification of pathogen nucleic acids of various viruses e.g. SARS-CoV-2, Monkeypox, Influenza, Hanta-, Polio-Rota-, Norovirus, etc. In a further development step an online controllable oligo nucleotide synthesis unit, as well as a sequencing unit will be integrated to detect single virus variants. The detected real-time amplification signals are automatically analyzed, evaluated, and interpreted to provide health officials with real-time data. Such devices can also be used for analysis of wastewater from animal farms, as well as all kind of natural water bodies including drinking water reservoirs.

OFFER

acib is looking for industrial partners to further develop this technology in joint projects.

acib-EXPERTS:

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AVAILABLE FOR:

- Joint Research Project
- Contract Research
- Investments

DEVELOPMENT STATUS:

TRL 2
(Technology concept formulated)

KEYWORDS:

Public health
Wastewater monitoring
Pathogen detection
Disease control
Real-Time Surveillance
On-Site
Fully-Automated

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