Eurofins publishes robust method to analyse SARS-CoV-2 in wastewater samples, providing early warning of potential COVID-19 outbreak at a given site

14 July 2020

A study undertaken by Eurofins scientists has resulted in a robust method to analyse SARS-CoV-2 in wastewater samples, allowing for early detection of virus presence at a given site, before the virus spreads too broadly or as a way to monitor the effectiveness of containment measures put in place. https://www.medrxiv.org/content/10.1101/2020.07.10.20150573v1

As part of the study, Eurofins team of scientists used wastewater samples which had been collected during the COVID-19 pandemic in Denmark. They were able to detect the virus in a sample taken three days before patient 0 was identified in the country.

The findings of this study are particularly relevant for municipalities, production facilities, hospitals, nursing homes etc. At those sites, wastewater testing, offered as part of the Eurofins COVID-19 Sentinel™ programme, can give an early indication of the presence of SARS-CoV-2, therefore allowing for relevant containment measures in order to avoid an outbreak of the disease. With a growing understanding of the very significant role pre-symptomatic and asymptomatic virus carriers play in the pandemic, early detection of virus presence on a site is a vital first step to identifying the potential carrier(s) and putting increased measures in place to contain the disease. As the method developed by Eurofins is semi-quantitative, it also offers a strong tool to monitor the development of an outbreak over time and the efficacy of the containment measures put in place when an outbreak is detected.

During this research project, a reliable semi-quantitative method was developed and validated including stability, reproducibility and dilution linearity studies. Analysis was performed on both the supernatant and solid phases of wastewater samples with virus RNA detected in either one of the phases only or in both phases. In particular, 19% of samples tested positive in the solid phase but negative in the liquid phase. As a consequence, it appears that testing both supernatant and solid phases improves sensitivity. When conducting wastewater analysis as part of the Eurofins COVID-19 Sentinel™ offering, both are tested thus ensuring higher accuracy in early virus detection.

Based on part of the study carried out in a Danish hospital, the wastewater testing method is expected to be able to detect a community COVID-19 prevalence rate as low as 0.02%-0.1% (i.e. between 2 virus shedders per 10,000 persons and 1 virus shedder per 1,000 persons).

This waste water testing method comes as yet another powerful tool in the Eurofins COVID-19 Sentinel™ suite of tests to help with the identification and containment of the COVID-19 pandemic. In real life over the last few weeks without requiring human testing, the Eurofins COVID-19 Sentinel™ programme has demonstrated its capacity to detect the presence of the SARS-CoV2 virus on a site, before the affected employee had symptoms and knew of his/her infection.

The Eurofins COVID-19 Sentinel™ programme therefore provided valuable information that was at that point still unknown to both employee and employer.

Notes to Editors:

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