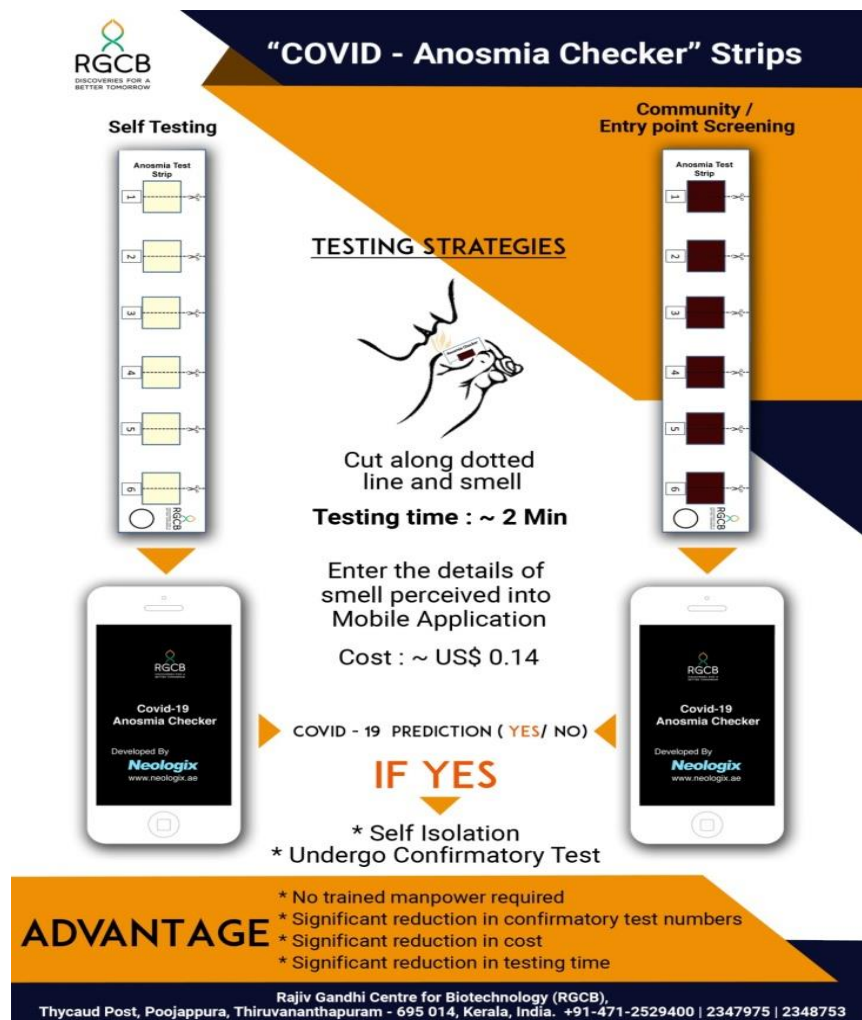


COVID-Anosmia Checker: A quantitative, rapid and low-cost alternative tool for mass screening of COVID-19 developed by DBT-RGCB

The COVID-19 curve can be flattened by adopting mass screening protocols with aggressive testing and isolating infected populations. The current approach largely depends on RT-PCR/rapid antigen tests that require expert personnel resulting in higher costs and reduced testing frequency. Alternatively, to effectively quantitate the loss of smell that is a prominent marker of COVID-19, Dr. Jackson James and team from DBT's Rajiv Gandhi Centre for Biotechnology (RGCB), Trivandrum in collaboration with Dr. Balarama Kaimal's group from Saveetha Medical College Hospital, Chennai developed a paper-based odor strip.



The “COVID-Anosmia checker”, spotted with gradients of coffee and lemon grass oil was validated in healthy and COVID-19 positive subjects. A trial screening to identify SARS-CoV-2

infected persons was also carried out to check the sensitivity and specificity of the screening tool. It was observed that COVID positive participants were hyposmic (partial loss of smell) instead of being anosmic (complete loss of smell) when they were subjected to smelling higher odor concentration. Their tool identified 97% of symptomatic and 94% of asymptomatic COVID-19 positive subjects. Further, it was possible to reliably predict COVID-19 infection by calculating a loss of smell score with 100% specificity.

This tool was further coupled with a mobile application, which takes the input response from the user, and can readily categorize the user in the appropriate risk groups (low-risk, medium-risk and high-risk) thereby considerably reducing the testing cost. It can be used by individual without necessary expertise and can be easily used in difficult to reach geographical locations or for screening at airports or border entry points. An individual can repeatedly self-test at home to check for the suspected onset of COVID-19. The primary screening using the '*COVID-Anosmia checker*' is swift and takes only ~2 minutes to complete the test and costs ~US\$ 0.14 for manufacturing each test strip. A pre-print version of the manuscript with complete details is hosted in the non-profit pre-print server medRxiv.

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Contact details:

Dr. Jackson James, Scientist-F, Neuro-Stem Cell Biology Lab,

E-mail: jjames@rgcb.res.in

Communication Officer: Dr. Anish N P, RGCB,

E-mail: anishnp@rgcb.res.in