Method to predict susceptibility to SARS-CoV-2 and COVID-19 severity

CSIC and the Ramon y Cajal hospital have developed a novel method that is able to predict the susceptibility to be infected by SARS-CoV-2 and to predict the development of severe COVID-19 symptoms, by using the level of activity of the angiotensin-converting enzyme 2 (ACE2) biomarker in saliva.

Industrial partners from the pharmaceutical industry are being sought to collaborate through a patent licence agreement.

An offer for Patent Licensing

Prediction for COVID-19

Due to the rapidly evolving pandemic situation, there is a pressing need for methods to predict both the susceptibility of individuals to be infected by SARS-CoV-2 as well as methods to prognose the severity of COVID-19 in individuals already infected. Said methods ideally should be quick and easily performed in samples readily obtained from subjects.

This invention refers to a procedure wherein the capacity of the enzymatically active domain of ACE2 to hydrolyze or catalyze the cleavage of an appropriate target substrate, is detected and measured. This substrate comprises a fluorescent molecule and a quencher molecule. The metabolization by the ACE2 leads to the release of the fluorescence probe from the quencher molecule and therefore the emission of fluorescence, which is easily detectable and quantifiable.

The present invention allows stratifying the risk of adverse COVID-19 clinical outcomes or the risk of being infected by SARS-CoV-2 from a single saliva sample.

Main innovations and advantages

- The method can be performed in a single or batch assay.
- The method can be easily automatized.
- The method does not need complex equipment or expensive reactive.
- A simple Kit can be constructed based on this method.

Patent Status
Priority patent applied

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