

Identifying markers of COVID-19 infection using blood tests

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Researchers from the Institute of Biomedicine of Seville (IBIS) have presented a study carried out in the Clinical Biochemistry Service of the Virgen del Rocío University Hospital which identifies the values for six biochemical biomarkers that indicate a patient may be infected with SARS-CoV-2 (COVID-19). The key novelty of this study, led by Dr. Juan Miguel Guerrero, head of service and IR of the IBIS Molecular NeuroImmunoendocrinology group, lies in the fact that it was carried out using a blood test and can provide a determination in about 60 minutes.

The [coronavirus](#) continues to concern society and occupy researchers and health professionals. Research remains key to achieving not only a vaccine but also a rapid diagnosis of the disease. The Laboratory of the Virgen del Rocío University Hospital in Seville has identified the values of six biochemical biomarkers which indicate the patient may be infected with the coronavirus.

Specialists at the Clinical Biochemistry service evaluated the routine blood tests of more than 200 people conducted in the ED to detect infection.

Specifically, they analyzed the accuracy of each [biomarker](#) to differentiate between patients infected with COVID-19 and those who aren't. The researchers behind the study have established six criteria linked to suspected COVID-19 infection using the blood lymphocyte and eosinophil count, and the levels of ferritin, lactate dehydrogenase, C-reactive protein and d-dimer in plasma. Ninety-one percent of patients infected with COVID-19 met one or more of these biomarker criteria. It is thus possible to rule out a coronavirus infection with a high degree of probability in patients who meet none of these criteria.

All hospitals have the facilities to test for these biomarkers using quick, automated analysers (in less than 60 minutes). These laboratory criteria, combined with [medical history](#) and imaging tests, can be very useful to screen patients with suspected COVID-19.

For this study, the researchers collaborated with the company Blueberry Diagnostics, creating an [algorithm](#) that uses artificial intelligence to identify patients infected with COVID-19 with a sensitivity of 100% and a specificity of 100%. A second algorithm has been developed that can detect those patients with a more serious prognosis from the disease, thus making it possible to prioritize their treatment and reduce the mortality rate. The algorithms have since been turned into [decision trees](#) which are to be released through a public license so that any hospital can analyze them in its own laboratory.

More information: Jose Santotoribio et al. Evaluation of Routine Blood Tests for Diagnosis of Suspected Coronavirus Disease 2019, *Clinical Laboratory* (2020). DOI: [10.7754/Clin.Lab.2020.200522](https://doi.org/10.7754/Clin.Lab.2020.200522)

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