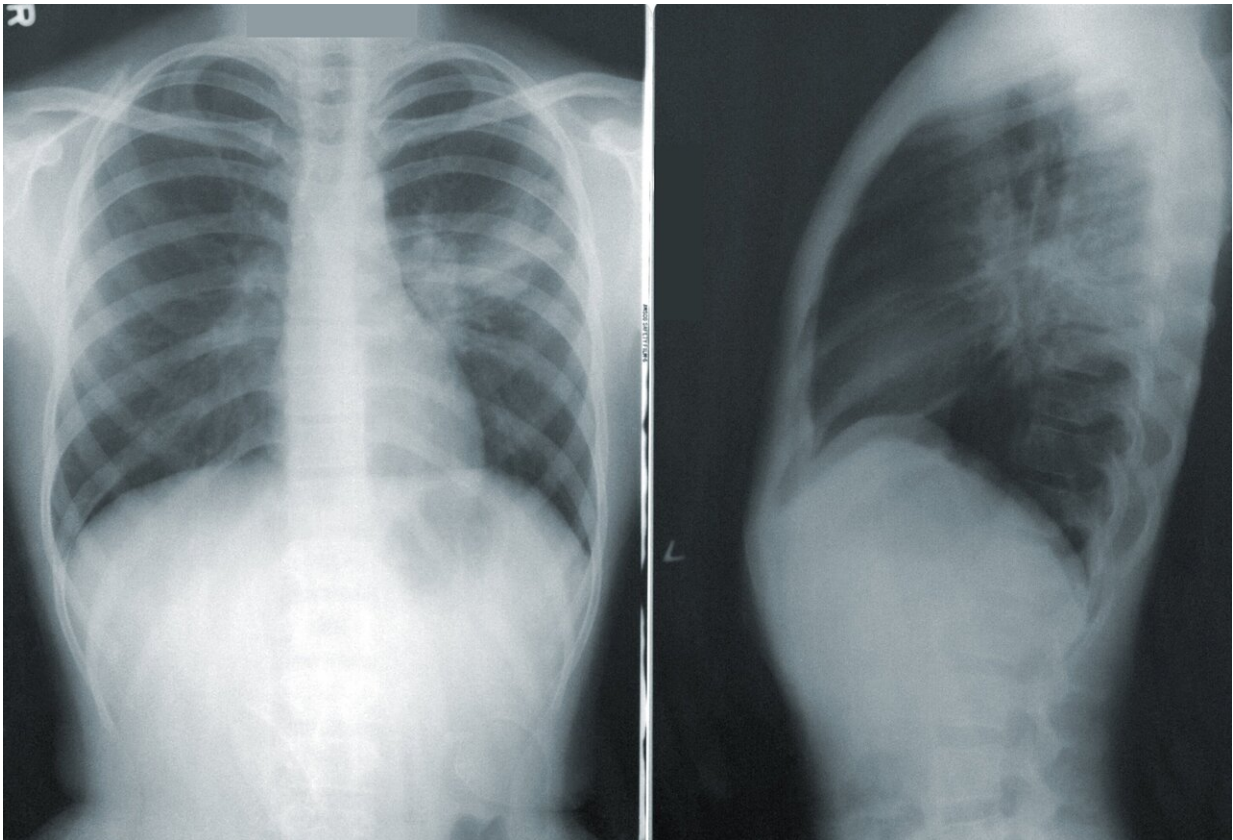


New method can detect fungus that causes severe pneumonia

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Research staff of the University of Valencia (UV) and the Foundation for the Promotion of Health and Biomedical Research of the Valencian Community (FISABIO), among other institutions, have developed a very

sensitive and fast in-vitro method for the diagnosis of infection by *Pneumocystis jirovecii*, a fungus that causes severe pneumonia. The system was created by Andrés Moya, Genetics professor at the UV and researcher at the department of Genomics and Health of FISABIO, Susana Ruiz and Nicole Stephanía Pesantes Sáenz.

Pneumocystis jirovecii is one of the most important opportunistic fungi (microorganisms that take advantage of a weakened [immune system](#)), which causes a severe pneumonia with a high mortality rate. The new system consists of a kit with the necessary reactive agents to detect the pathogen with a PCR test in real time.

The method most commonly used today in the laboratory to detect this pneumonia is the nested PCR technique. However, as Andrés Moya notes, "the opening of the tubes between both rounds of PCR increases the possibility of contamination and also leads to false positives. Furthermore, obtaining a reliable result can take up to eight or 10 hours. This is why a single cycle PCR is preferable to a nested PCR in laboratories, especially clinical ones. A real-time PCR applied to extracts from clinical samples makes it possible to obtain a much faster (between one and two hours) and reliable result, as the possibility of contamination decreases. Furthermore, this technique makes it possible to quantify the pathogen. A PCR in real time is also more sensitive than a conventional one."

To develop this method, the research team used 54 samples of lung tissue obtained from autopsies performed on infants who died from sudden death in Chile. The Andalusian Health Service, the University of Chile and the Center for Research and Advanced Studies at the National Polytechnical Institute (CINVESTAV, Mexico) also took part in the study.

The pneumonia caused by fungus *Pneumocystis jirovecii* represents a

serious issue, especially for immunosuppressed patients infected with HIV. Furthermore, it also plays a key role in the pathogenesis of COPD (Chronic Obstructive Pulmonary Disease), which is the fourth cause of mortality in the world; and also in the neonatal respiratory distress syndrome, the main cause of morbidity and mortality in premature children.

This [detection system](#) was recently registered in the Spanish Office for Patents and Brands under the ownership of the FISABIO Foundation (which owns 55% of it), the University of Valencia, the Andalusian Health Service, the University of Chile and the Center for Research and Advanced Studies at the National Polytechnic Institute (Mexico City).

"A large part of these institutions," says Moya, "are part of Ibero-American Network CYTED for the study of Pneumocystis, with experts on the effects and on the basic research and methods for the detection of the pathogen, as well as excellent coordination. It has been a long journey that has finally come to fruition because now we have a very reliable procedure for the fast detection of the fungus, with clear clinical implications, particularly in Latin American countries."

Provided by Asociacion RUVID

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