

**PUBLICATION IN NATURE MEDICINE REVEALS NEW
DIAGNOSTIC TOOL TO IDENTIFY ACTIVE TUBERCULOSIS
QUICKLY AND EFFECTIVELY**

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A new diagnostic tool allowing quick and reliable identification of patients with active tuberculosis has been developed by a Lausanne University Hospital (CHUV) –based research team led by Prof. Giuseppe Pantaleo. Published yesterday in the prestigious journal Nature Medicine, this discovery, based on specific profiles of the immune system, will offer clinical benefit to patients and should contribute to the development of effective vaccines against tuberculosis.

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Tuberculosis (TB) remains one of the most pressing public health priorities for the 21st century, with over one third of the world population infected. Active TB disease is a major issue both for the patients who require specific treatment and at a population level, since these patients are contagious. Diagnosis of active TB disease (from latent asymptomatic infection) requires several clinical, radiological, histo-pathological, bacteriological and molecular parameters.

The new diagnostic tool developed by Pr. G. Pantaleo and Dr. A. Harari allows sensitive and highly specific identification of patients with active TB disease. The study, initially designed to identify parameters of the immune response correlated to protection against TB, led to the observation that functional signatures of immune responses, i.e. the cytokines involved such as TNF- α , IL-2 and IFN- γ , were indeed correlated to the different stages of tuberculosis disease.

The originality of this flow cytometry-based assay is that the read-out is focused on the immune response and not on microbiological parameters, thus explaining its reliability and quickness. "This assay and the functional signatures of TB-specific immune responses are not only relevant for discriminating between active TB disease and latent infection but may be also instrumental in monitoring the response to TB therapy", says Prof. Pantaleo. "The flow cytometry-based assay requires specific equipment and skillful laboratory personnel. However, further technological development is already under way to make the assay widely accessible", says Dr Harari.

This assay is currently implemented in Lausanne as a service for clinicians in Switzerland. These observations expand the current knowledge of the immune response against TB, thus contributing to improved diagnosis and to the development of effective vaccines.

The research published involved investigators in Switzerland and South Africa. The research program was supported by the Lausanne University Hospital (CHUV) and the Swiss Vaccine Research Institute.