Detection of Tuberculosis in urine samples by a specific metabolic signature.

BACKGROUND
Current diagnostic tests for tuberculosis disease are either slow or unreliable. Culturing of the M. tuberculosis can take up to 8 weeks. In some cases it proves impossible to culture the bacteria. In addition obtaining samples to detect the presence of the M.tuberculosis often requires invasive procedures. The detection of DNA from the bacteria by molecular methods is also an alternative, but it requires specific equipment, trained technicians and it is not available in all laboratories.

The tuberculin skin test (TST), based on the detection of delayed type hypersensitivity (DTH) response to an intradermal administration of a Purified Protein Derivative of the M.tuberculosis, takes less time but it is less reliable because of the widespread use of BCG as a vaccine against tuberculosis, individuals who have been vaccinated with BCG can react positively to a TST. In addition a large proportion of people with active tuberculosis are not detected by a TST. TST does not distinguish between latent tuberculosis and active tuberculosis and therefore has low specificity and sensitivity.

Other diagnostic methods comprising incubation of a blood sample from an animal with mycobacterial antigens to detect a cell-mediated immune-response or using antibodies to mycobacterial antigens produce false negative results due to low sensitivity of these antigens.

In view of the above it is a need to provide diagnostic methods for the diagnosis of tuberculosis with increased specificity and sensitivity in non-invasive biological samples. The need is particularly important for the diagnosis in geographic areas where time and equipment are limited, areas where TB is a widespread health problem.

TECHNOLOGY DESCRIPTION
We present a set of metabolic biomarkers present in urine whose relative level can diagnose tuberculosis. The presented method with the current technology has a TB predictive value of 100%.

These metabolic markers can thus be used in a non-invasive diagnostic method for identifying and classifying patients.

ADVANTAGES:
- Non invasive method
- 100% predictive value for TB
- Adaptable for identification of metabolites in a diagnostic test easy to carry and use.

CURRENT STAGE OF DEVELOPMENT
Tested in clinical environment with available technology. Adaptation of the method to suited technology for diagnosis for the use in remote geographic areas is under development.

GOAL
Looking for companies interested in license -in or in the collaboration with the research team in the development of the final diagnosis test.

PATENT
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