ARREST-TB: Accurate, Rapid, Robust and Economical diagnostic technoliogieS for Tuberculosis

This visionary project addresses the key needs of patients, clinicians and the World Health Organisations stated deliverables of affordable, reliable and point-of-care molecular TB diagnostics, with the vision of removing the need for centralised facilities and offering remote primary care diagnosis coupled with telemetry for "cloud based" notification to ensure public health and surveillance interventions. The core technology deliverables will include: Rapid screening of TB infection (within 30 mins): We will develop low-cost portable optical devices and chemical molecular probes for accurate and rapid 'triage tests' to allow 'no-wash' detection of Mycobacteria 'in-field' in sputum at costs comparable with or lower than existing microscopy-based methods. This technology has the aim of replacing current sputum-based microscopy methods. Rapid molecular identification of drug resistance (within 2 hours): We will develop novel low-cost assays based on molecular methods that will allow accurate and rapid screening for the Mycobacterium tuberculosis complex in sputum and drug-resistant tuberculosis, thus providing rapid screening of at risk groups for TB as well as identification of drug resistance profiles. Biomarkers for early diagnosis and assessing treatment response: A higher risk element is the development of point-of-care diagnostics for quantification of microRNAs (that are known to be modulated during progression from latent to active TB and during treatment progression), directly from small blood samples. We will ensure that the technologies are economically viable in the context of resource poor settings – indeed the whole project will be driven by practical need and local resourcing constraints – NOT imposition. Thus it will require negligible initial costs for implementation, minimal training and expertise, with the running costs less than 1/10 th of current detection technologies, thereby addressing a key objective of the work program.

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Find out more: **https://cordis.europa.eu/project/id/825931**