



Project Number: 610389

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Development of a low-cost point-of-care test for Tuberculosis detection

Deliverable D7.3b: Newsletters sent to user group

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Revision **[1.0]**

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Description of the second newsletter release

The second newsletter deals with the results of the integration phase at the end of year 2. It was sent out in October 2015 to about 50 people and is reproduced below.



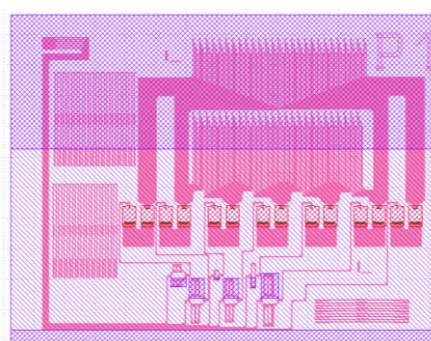
Development of a low-cost point-of-care test for Tuberculosis detection

Welcome to the second issue of the Pocket project newsletter! In the last year, we have made important progress towards our goal of realising a cheap and sensitive point-of-care test for TB detection. On an unoptimised lab setup, we can easily detect our biomarkers at a concentration below 500 pg/ml, and by optimising chemistry and introducing labels, it should be straightforward to go even lower. Moreover, we have working prototypes of both the microfluidic cartridge and the readout instrument. We are excited to share some of our latest results with you, as we prepare for a set of field trials for the Pocket technology during the last year of the project.

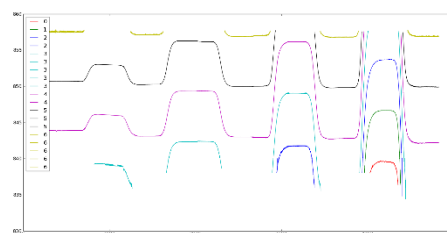
SiN photonics technology

Imec has continued to refine its high-contrast silicon nitride fabrication platform, such that a large number of chips can be fabricated at low cost, with integrated cladding to cover the reference part of the sensor.

UGent has optimised and published a record compact-footprint on-chip spectrum analyser with a 1nm resolution.



The photonics biosensor with integrated spectrum analyser was fabricated and the bulk limit of detection was evaluated. With a LOD of $7 \cdot 10^{-7}$ RIU, this is much better than our required milestones, and the possibility to push this even further still exists.



Antibody cocktail

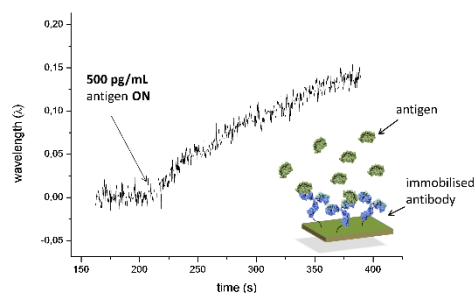
Lionex has been hard at work to further optimise their antibodies for the TB biomarkers, which turn out to be very stable and selective with dissociation constants in the range 10^{-8} – 10^{-9} . They will

plan an important role in creating a sensitive and selective test.

Surface chemistry

Imec has developed a wafer-scale vapour-phase silanisation protocol which enable large-volume throughput. CSIC has developed the surface chemistry on top of this to optimally attach the antibodies and minimise the non-specific adsorption.

Preliminary biosensor experiments show that antigen concentrations of 500 pg/ml are very much above the noise of our setup.



Microfluidics

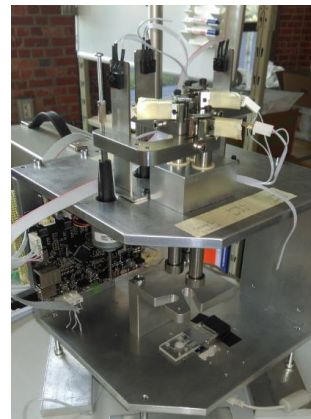
Microfluidic ChipShop has developed a novel packaging approach to integrate the silicon nitride chips directly in a polymer fluidic cartridge, while leaving parts of the



chip exposed for easy optical access.

Instrumentation

Trinean has constructed a first prototype of the readout instrument, which is currently being optimised.



Field tests

Ethical permission for the field tests has been obtained in two sites in Africa and India. Moreover, sample collection has already been started, and ELISA tests suggest that our targeted biomarkers do indeed appear at sufficient concentration.

Finding out more

For more information about the project, consult our website www.pocket-proj.eu.

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