

Leuven's imec and ICsense partner in European cancer lab-on-chip project

European research institute imec (Leuven, Belgium) and its project partners, among which the Leuven-based mixed-signal IC design house ICsense, have launched a European collaborative research project to build a lab-on-a-chip for the detection of tumor cells in blood.



The Miracle project (Magnetic Isolation and molecular Analysis of single Circulating and disseminated tumor cells on chip) is due to run for four years from Sept. 1 2010 and the partners are set to receive €7 million (about \$9 million) towards a total budget of €9.18 million (about \$11.8 million).

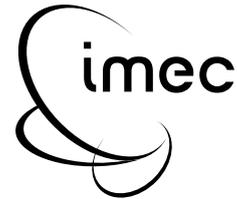
The creation of a microfluidic device able to isolate and detect circulating and disseminated tumor cells (CTCs and DTCs) in blood is a step towards faster and more cost-efficient diagnosis of cancer. The Miracle project aims at developing a fully automated and integrated microsystem to provide the genotype of CTCs and DTCs starting from clinical samples.

In a preceding joint project called Mascot, individual microfluidic modules for cell isolation, cell counting, DNA amplification and detection were developed. Based on this expertise and strengthened by additional partners, the development of a fully automated, lab-

on-chip platform to isolate, count and genotype CTCs is envisaged within the framework of the Miracle project.

For genotyping, genetic material, such as a mitochondrial RNA, will be extracted from the cells and multiple cancer related markers will be amplified based on multiplex ligation-dependent probe amplification followed by their detection using an array of electrochemical sensors.

Imec is project coordinator and is collaborating with the Universitat Rovira I Virgili (Spain), the Institut für Mikrotechnik Mainz, AdnaGen, ThinXXs and Consultech (Germany), MRC Holland (The Netherlands), the Oslo University Hospital (Norway), the KTH Royal Institute of Technology, Multi-D and Fujirebio Diagnostics (Sweden), the European Cancer Organization and ICsense (Belgium) and Labman (UK). ICsense will be responsible for the design of the IC for cancer cell detection and characterization through impedance spectroscopy. ■



About ICsense

ICsense is an ISO 9001:2000 certified IC design house, based in Leuven, Belgium, offering IC design services and ASIC turnkey solutions. The core business of ICsense is high-performance analog, mixed-signal and high-voltage integrated circuit design. ICsense has a key competence in sensor, actuator and MEMS interfaces, data-acquisition, power/battery management and high-voltage IC design. ICsense has a technical team of 25 engineers. ICsense is the preferred partner of several international companies, located in the Europe, the US and Canada, Australia and Japan.

About imec

Imec performs world-leading research in nanoelectronics. Imec leverages its scientific knowledge with the innovative power of its global partnerships in ICT, healthcare and energy. Imec delivers industry-relevant technology solutions. In a unique high-tech environment, its international top talent is committed to providing the building blocks for a better life in a sustainable society. Imec is headquartered in Leuven, Belgium, and has offices in Belgium, the Netherlands, Taiwan, US, China and Japan. Its staff of more than 1,750 people includes over 550 industrial residents and guest researchers. In 2009, imec's revenue (P&L) was 275 million euro.

