



Interview with Jan-Willem Hoste

Antelope diagnostics

What is the most exciting aspect of the Antelope technology?

The possibility to bring clinical grade diagnostics into the hands of families, consumers and first-line healthcare professionals. At the moment, the technology is not there to radically change healthcare systems and provide immediate information on your health. This holds for consumers, nurses or doctors or general practitioners (GPs). For example, you can't screen yourself for an STI (sexually transmitted infection), nor can a GP immediately test if you need antibiotics or not. Today, it is necessary to send your sample to a centralized clinical lab. Offering that lab-quality analysis at a factor of 1000 of the price, will allow access where you need it, e.g. at home. The impact of this on the healthcare system and the reduction of the global cost for the society can potentially be immense.

Where does this technology come from?

It originates from the photonics research group at UGent, that has been delivering cutting-edge research on a.o. integrated photonics and photonic chips. This specific bio-sensing technology has 10 years of research under its belt, under guidance of Professor Bienstman. When the basic sensing technology was mature enough, the Antelope team further developed technology and application aspects at UGent.

How do you feel about the match with Mycartis?

After the research period, we raised funding at VLAIO and UGent for a two-year incubation track with the goal of building a system, developing a business proposition and raising additional capital to bring the technology to the market. We did an extensive round of pitching for various VCs and angels and found a great match with Mycartis and its investors. We realized that bringing a medical product to the market requires specific expertise, know-how and facilities. Being able

to raise both the necessary funding and source these elements in via Mycartis is a win-win situation. Basically we are able to accelerate and increase our chances to be successful with our developments.

What about competition, how do you position yourself amongst them?

It is the combination of three aspects that is unique to this technology: lab-quality, low-cost and ease-of-use. Usually having a low-cost test which is easy to use (as e.g. a pregnancy test) would not allow the same performance as lab-based tests. This makes sense, since the machines used in the labs often cost tens of thousands of dollars. Many point-of-care devices focus on miniaturizing technologies that work in a lab setting, leading to some technological limitations. Reversely, being able to build a sensing technology and an architecture from the ground up having lab-quality, low cost and ease-of-use in mind gave us an advantage.

What is the value for society for a technology like Antelope?

The costs of the healthcare system are skyrocketing, particularly in US and Europe. In 2016, US spent \$9,403 per capita on healthcare costs. With the society growing older this is only going to increase. We need to rethink our healthcare system and expenditure and technology can play a big role in cutting costs without giving in on quality of life. Imagine the costs for a system where a patient needs to take half a day off to visit a doctor, where the doctor needs to take a blood sample, send it to a lab, have it analyzed by expensive machinery by highly trained professionals and suggests a therapy. Imagine that the same test can be done at home with the data sent to the doctor that can determine a therapy straight away. Everybody wins: the patient, the doctor and the healthcare system.

ANTELOPE DX

Antelope is an immuno-diagnostic platform in development, that aims to offer clinical lab performance with the ease-of-use of a pregnancy test at a consumer price tag. The technology originated from UGent.

The platform consists of a disposable cartridge and a very small reader module. The heart of the technology is a silicon photonic chip inside the cartridge. This single use test can measure different parameters simultaneously targeting the quality of the large clinical analyzers. ANTELOPE Dx will make it possible to get clinical grade diagnostics at home or at the doctor's office within minutes.

The Unique Selling Proposition (USP) of the technology is "lab-quality analysis with the ease-of-use of a pregnancy test and at a consumer price-tag". The accomplishment of this USP lies dominantly in the architecture of the Antelope Consumable. As proven by similar photonic chip technologies, a silicon photonic sensor is capable of lab-quality analysis. This technology typically requires 1) expensive optical & fluidic equipment in the read-out and 2) sample pretreatment, resulting in high cost and reduced ease-of-use. The Antelope patented innovation on the photonic chip eliminates both limitations, leading to a **passive photonic chip** that hosts all of the complexities of the system. Functional elements that normally reside on the read-out device and which are expensive (e.g. bulky fluidics, fluid handling, read-out optics) are thanks to the Antelope technology integrated on the photonic chip. The fact that the Antelope photonic chip is passive further substantially reduces the cost of goods. A passive photonic chip only guides light, it does not create or detect light. This significantly reduces the cost and complexity of packaging & assembly compared to an active photonic chip.

"We believe the Antelope technology will connect the dots: affordable and easy to use, yet without compromising on quality"

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