

A pocket-sized medical lab being tested at the CHUV

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Credit: Alain Herzog

The device – a sort of Swiss army knife of medical tests – was created by Qloudlab, a start-up based at EPFL, and is currently undergoing certification at the CHUV hospital. This miniature laboratory is a quick,

easy and inexpensive way to monitor various health parameters either in hospital or at home.

Fitting a medical laboratory into one's pocket is no magic trick. All it takes is a clever combination of embedded electronic systems, modular sensors and a mobile app. The product, sleek in design, is easy to carry around because it fits in the palm of one hand. And like a Swiss army knife, it can be adapted to meet specific needs. "Thanks to interchangeable connectors, it will eventually be able to run the gamut of blood, urine and saliva tests and measure a number of parameters," said Arthur Queval, the founder of Qloudlab, an EPFL spin-off.

A portable laboratory

The first test panel, targeting lipids, is currently undergoing certification in the laboratories of the CHUV (the University Hospital of Lausanne). If the results are conclusive, the device could be marketed early next year. The prototype, already finished and tucked into its carrying case, appears to be waiting for its first patient.

The product, called Sceptre, is part of a new class of point-of-care diagnostics – as opposed to laboratory analyses – that has been gaining in popularity in recent years. But, with its little carrying case, it is smaller and easier to handle than other products, while at the same time inexpensive and just as fast. Point-of-care diagnostics save time – which speeds up the decision-making process for follow-up treatment – and require smaller analytical samples. "It takes around 30 times less blood for a new generation test than for a laboratory test," said Queval. The device developed by this start-up, which came out of the EPFL's Laboratory of Microengineering, will be competitive since its tests are expected to cost about the same as those done by existing devices. In other words, around half the cost of the corresponding [laboratory test](#).

A user-friendly platform to read the results

Once the sample is taken, this high-tech wonder sends the results in several minutes via Bluetooth to a mobile phone, tablet or computer, for which specific platforms have been developed. "Being able to run a test and use the results effectively by virtue of a clean and intuitive user interface affords a certain level of comfort that is still quite rare with tests currently on the market," said Queval. The company founder originally intended to develop tests that would be run directly from mobile phones before changing strategy in view of financial and regulatory concerns. The user has the option of storing the [test](#) results on a secure server specially designed for medical data. This will allow a doctor to monitor the patient remotely and access the results of different tests in one database.

The tests developed by the start-up are initially intended to be used by medical professionals. Other tests could then be added for use by healthy people keen on monitoring specific parameters like cholesterol, [coronary risk factors](#) or exercise-related indicators.

Provided by Ecole Polytechnique Federale de Lausanne

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