

# Securely storing and interpreting the genome

April 19 2013, by Cécilia Carron

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At a time when sequencing the genome is becoming democratized, questions have arisen about the interpretation of these data and their secure storage. Sophia Genetics, an EPFL Science Park start-up, specializes in this. The company recently raised 2.8 million francs.

Complete sequencing of the genome will soon enable personalized treatments. Moreover, new [prescription drugs](#) based on [genetic markers](#) are coming on the market. Given the drastic reduction on the cost of [DNA analysis](#), it may even be possible before long to know each person's predisposition to certain diseases, allergies, and food intolerances. Riding on this wave in medicine, Jurgi Camblong, Pierre Hutter and Lars Steinmetz have founded a start-up to securely store this data, which promises to be considerable (one genome contains 3 billion letters or [nucleotides](#)!). Reading the data will be made easier with new software.

Launched in September 2012, this new bioinformatics tool is already being used by a dozen hospitals and laboratories in Switzerland. With it, a DNA sample can be taken during a [medical examination](#) and sent to a specialized laboratory for extraction. The young company based at the Ecublens Science Park has raised 2.8 million francs for development.

## View a patient's DNA in the blink of an eye

Once sequenced, the data is transmitted to Sophia Genetics for bioinformatics analysis. The [geneticist](#) then has access to a [visualization tool](#) to help interpret the data. Other applications for viewing and performing electronic biopsies of all parts of the genome are currently

being developed.

How is it possible to ensure that a person's [genetic information](#) will not be disclosed, for example to insurance companies and employers? The company has worked to standardize and automate the analysis and storage of data in two data centers in Switzerland. With the laboratory of Professor Jean-Pierre Hubaux at EPFL, the start-up is developing a high security storage that may be necessary in the future. One of the main elements of confidentiality is to provide the patient with a cryptographic key that comes in two parts for each sequencing. The patient would give one part to Sophia Genetics and the other to the physician so that the data could only be read when the patient has given consent.

Sophia Genetics aims high: to cover 80% of the Swiss market in the field of diagnostics by the end of the year and then extend to the European market, which could reach 500 million francs by 2015. Jurgi Camblong believes that users have a vested interest in having a web host and a common software in order to standardize laboratory procedures.

Provided by Ecole Polytechnique Federale de Lausanne

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