

SUCCESS STORY

HYPERGENES/European Network for Genetic-Epidemiological Studies : Building a Method to Dissect Complex Genetic Traits, Using Essential Hypertension as a Disease Model

Research area: FP7 – Cooperation/HEALTH – Molecular epidemiological studies in European population cohorts

Number of partners: 19 among which the University of Lausanne (UNIL)

Start date – End date: 2008-01-01 to 2011-12-31

Funding: € 10 213 420/UNIL: € 1 929 000

Type of contract: Large-scale integrating project (IP)



CARLO RIVOLTA



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“The Hypergenes research greatly widened our horizons.”

THE MYSTERIES OF GENETICS

A lecturer in the Department of medical genetics at UNIL, Carlo Rivolta obtained an FP7 Cooperation/HEALTH subsidy for his project Hypergenes centred on the definition of a genetic model of complex diseases, such as hypertension.

How did you become interested in genetics?

Struck by my resemblance to my grandfather, I was fascinated at a young age by the problems of genetics. Later on, I obtained my diploma in molecular genetics at the University of Pavia and I continued my education with a PhD in microbial genomics at UNIL. I perfected my bioinformatic skills at UNIL, and human genetics at Harvard. Since 2005 I have been back in Lausanne, where I continue my work in medical genetics, in collaboration with my former group in the United States and clinical units at the CHUV.

How did the project Hypergenes function?

Hypergenes was composed of several study phases. Firstly, we drew up the genetic map of a group of 4000 people, some suffering from hypertension, the others not. By comparing the two groups we were able to identify some areas of the genome associated with hypertension. During a following phase we studied a cohort of 8000 patients. This generated a gigantic volume of genetic information to process, derived from a base of over 4 billion DNA markers. Thanks to them we hope

to be able to obtain further information on the role of certain genes in connection with the disease.

And what would be the possible applications of this research?

Applications for the future are fuel for dreams: depending on the genetic elements particular to each person, determined by a simple blood sample, the patient could be prescribed a remedy that directly targets their specific defect. However, it will take some time before a general practitioner has at his disposal the tools to treat each patient according to their genotype.



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ABOUT THE PROJECT

Carlo Rivolta and a part of his team were hired for the project Hypergenes, together with another 18 partners. The subsidy granted by the European Union (HEALTH domain of the 7th Framework Programme) was more than 15 million CHF and UNIL obtained 3 million. The project lasted from 2008 to 2011. Globally, Hypergenes aimed at building up a methodology of genetic epidemiology for chronic, complex diseases using hypertension as a model. Professor Daniele Cusi and his team at the

University of Milan coordinated the project. The Lausanne and Milan teams functioned as twin teams in order to improve the fidelity of experimental results. Being able to compare analyses conducted on two different sites is scientifically very enriching.

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