

SUCCESS STORY

GEOMETRYCELLCYCLE / Geometric Control of the Cell Cycle in the Fission Yeast

Research area: FP7 – European Research Council / Cellular and Developmental Biology (LS3)
Beneficiary: Prof. Sophie Martin

Host institution: University of Lausanne (UNIL)
Start date – End date: 2010-09-01 to 2015-08-31
Duration: 60 months
Funding: € 1 500 000
Type of contract: ERC Starting Grant



SOPHIE MARTIN



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“My dream would be that being a woman in a lab simply seems normal.”

THE MYSTERIES OF CELL ORGANISATION

To understand the origins of life better, such is the goal of Sophie Martin's research on "cellular polarity", or the spatial organisation of cells. In 2009, the associate professor at the University of Lausanne's Department of Fundamental Microbiology obtained the European Research Council's (ERC) subsidy for her research: "*The Geometric Control of the Cellular Cycle of Yeast*". She endeavours to understand how cells control their proliferation and generate their size, neither too big nor too small.

What made you first realize research was your vocation?

When I was at high school I wanted to become an architect, because I liked the spatial dimension of this profession. Then I did different training courses in biology, which I enjoyed and I decided to pursue a career as a biologist. Today, I study in particular the spatial dimension of cells and I have found out that biology is not that far from architecture after all, with the difference that in cells space is organised naturally, I don't construct it myself. However, the deciding element in my career as a researcher was my meeting with Susan Gasser, one of the few women researchers at that time. That's when what I do became a passion.

Why did you become particularly interested in yeast?

It's a simple organism offering a wide range of genetic tools. The genes can be activated, coloured and manipulated, in

order to test our hypotheses. It's a tool that allows a quick entry into the experimental procedure. When I did my postdoc at New York's Columbia University I started my research on the organisation of cells in fission yeast or *Schizosaccharomyces pombe*, which shares 70% of its genes with human beings.

What are the advantages of the European financing?

It's welcome for a scientist like me. It allows me to feed my reflection and ideas, and it's one of the few subsidies that supports a group of researchers without imposing artificial collaboration conditions between countries.

What's your advice to young researchers?

In order to succeed in this job the most important is to not build barriers, and above all, to enjoy the work you are doing.



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ABOUT THE PROJECT

Sophie Martin and her team work on cellular polarity, in other words on the spatial organisation of cells. And on one question in particular: when do cells reach an ideal size in order to divide? Because if they're too small they will progressively shorten when dividing, and vice versa. Cells have an internal control that enables them to measure their own size and divide at the most appropriate moment: molecules placed at their extremities that inhibit molecules in their centre. As long

as the cell is small, their proximity keeps them from dividing, therefore the cell may grow. After a certain time, the molecules at the extremities are too far from those at the centre, they can't control them any longer and the cell may therefore divide. Sophie Martin's project presently employs approximately ten researchers.

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