

Ernst Hafen: a sized-controlled career

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Ernst Hafen started his research career in 1979 as a diploma student in Walter Gehring's laboratory at Basel University Biocentre. It was in the same laboratory that he completed his PhD thesis from 1980 to 1983. The aim of this project was to improve a technology of *in situ* hybridisation, that is, a method of directly visualising gene activity in the embryo *in toto*, and to apply it to observing the development of *Drosophila melanogaster*, the tiny fly to be seen around overripe fruit in all kitchens. At that time, this same laboratory was in the forefront of cloning of a variety of genes, not only of great interest in themselves but which also turned out to be a paradigm for developmental genetics. Ernst Hafen participated in what is now known as the Basel Saga, and immediately applied his improved technology to these newly identified genes.

For all of us working in this field at that time this set of experiments was seen as a true revolution, and I vividly recall the day we saw the cover page of *Cell*, in 1984, showing these amazing stripes in the developing fly embryo. The picture really brought gene activity into the game, showing that localised transcription was the underlying principle of processes as fundamental as animal segmentation. It also highlighted the concomitant, now classical genetic dissection of these processes by Janni Nusslein and Eric Wieschaus. This period in Basel was indeed an unusually productive one for a graduate student with publications in the *EMBO J.*, *Nature* and *Cell*. Ernst was of course lucky enough to be in Basel with the right people at a time when key discoveries were being made. But far from being a mere spectator, he actually played a major role in these advances. The people involved were, in particular, his friends Bill McGinnis and Mike Levine.

After this remarkable start, Ernst Hafen left for a postdoc at the University of California at Berkeley, where he worked in the renowned laboratory of Gerry Rubin. This is where he became acquainted with the *Drosophila* eyes, a wonderful genetic model system by which to observe the determination of cell fate at the single cell level. During this period he was able to clone and characterise *Sevenless*, one of the key genes involved in the control of photoreceptor cell fate. This again was a crucial contribution to the field, and, I suspect, a crucial contribution for himself, since with this gene he entered the broad field of signal transduc-

tion through the presence of a tyrosine kinase domain in *Sevenless* protein. At about the same time, Ernst Hafen was recruited as assistant professor at the University of Zürich. There, between 1988 and 1991, he continued to analyse the function of *Sevenless* and of other genes in this signalling pathway leading to eye cell type determination, in a series of experiments carried out in conjunction with his student Kony Basler. This resulted over two years in a phenomenal series of publications which many laboratories could only dream of producing in 25 years!

In the years that followed Ernst applied cutting edge genetics to dissecting out this signalling pathway and uncovering many important aspects of it – novel aspects of course, but also the demonstration that what was known to occur in mammalian cultured cells was applicable to the entire developing organism, and hence that the *Drosophila* embryo was a key system for the understanding of human biology and pathology. This period is labelled with acronyms such as ras, raf, map, sos, dos, fos, jun etc. and also brought his promotion to an associate professorship in 1992, with an already impressive curriculum. In 1997, he became a full professor of Zürich University.

I imagine an important year for Professor Hafen was 1999, when he published two papers which saw him giving a sort of a new twist to his research. The first was a collaboration with the laboratory of George Thomas, at the FMI, and was concerned with the role of the *Drosophila* S6 kinase as a regulator of cell size. In the meantime, the Hafen laboratory reported the function of the insulin receptor substrate CHICO in the control of cell and organ size. Since then he has been extremely active in the rather novel and fascinating field of research that is the control of cellular and organismic growth, including of course the genetic basis of lifespan and the effect of dietary restriction. Why and how do we have the size we have? Why and how do we live the length of time we do? These are of course fundamental questions which go far beyond mere scientific interest, and which have been the source of Ernst Hafen's inspiration over the past few years, again leading to several essential discoveries and publications.

I hope I have by now made it clear that Professor Hafen is indeed a very distinguished scientist of the front rank, who has contributed enor-

mously to the sum of knowledge in these various fields of research. Hence it is no surprise we are here today to present him with this prestigious prize.

Yet Ernst Hafen is not only a brilliant scientist. Indeed, in all these years he has never ceased to be involved in numerous other activities for which he should also be honoured. First of all, Ernst is a scientist with a high sense of civic duty. His efforts and the time spent in various committees, most notably at the FNRS and in other European funding agencies, are remarkable and an activity for which many of us should be grateful to him. Along the same lines, Ernst Hafen is always ready to organise collaborations and networks, to bring people together and to communicate his science to a wide audience. Over the years he has organised several international meetings which have helped to keep Switzerland on the map. Some 5 years ago, with his close colleague Kony Basler, he started a new and parallel career as a businessman. Remarkably, they both found the time and energy to launch the Genetics Company, a startup company whose aim was to develop molecules of therapeutic interest using their know-how and competence in *Drosophila* genetics and centred on the fact that all animals essentially function in the same way.

One really does wonder how our laureate was able to carry on all these various activities at the same time, and I think I have an explanation. Ernst is an accomplished sportsman. He runs marathons, climbs mountains, he bikes and snowboards. These are the signs of true competitors, and I suspect that part of his scientific success is based on these same principles. Competition is not everything for Ernst Hafen, however, and his kindness and friendship are appreciated by all his close colleagues worldwide. This is the reason why I am particularly glad to be here today, to celebrate his achievements with the prestigious Otto Naegeli Prize of the Bonizzi-Theler Foundation. Our congratulations to you, Ernst, for this well deserved prize, which honours an already exceptional scientific career. I am convinced that the years to come will maintain and reinforce our laureate's leading position worldwide.

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