



Alumni interview

Of stem cells

When were you at EMBL? Where are you now and what are you doing?

I was at EMBL between 1983 and 1998, as a Coordinator of the Differentiation Programme (which later became Cell Regulation). Now I have a lab at the Albert Einstein College of Medicine in New York. My interests have remained much the same: how do blood stem cells know what to become and what goes wrong in leukemia? When I came to Einstein, some five-and-a-half years ago, I had to start from scratch (none of my former coworkers joined me) and I also switched from chickens to mice. It was hard at first but has paid off: working with a new animal model, having new coworkers and being surrounded by colleagues interested in biomedical problems was a very positive change in my career.

What was the most exciting science that you were involved in while you were at EMBL?

We found – by accident – that erythroid-leukemia cells infected with an avian leukemia virus can be induced to differentiate into macrophages. This was accompanied by the downregulation of an erythroid transcription factor called GATA-1. When a new student, Holger Kulesa, began to work in my lab in 1993, I suggested to him to see what happens if he re-expresses the factor in these macrophages, hoping that now the cells would turn on red cell markers, but expected that they would otherwise retain their macrophage phenotype. Our jaws dropped when we noted that the cells went all the way: They had extinguished all macrophage markers in addition to becoming “red”! Follow-up experiments provided a molecular explanation for GATA-1’s versatility, namely that it can both activate and suppress specific gene expression programs, by entirely different mechanisms. The original finding has turned out to be a more general principle that also applies to other transcription factors and is currently guiding us in our attempts to

‘engineer’ blood cells from various sources, but without requiring stem cells, by enforced transcription factor expression.

There are still anecdotes being told about some of your adventures here.

There were a few. In the mid-1980s I organized a symposium on Oncogenes and Growth Control that later became a series. The part of being an organizer that I liked the most was designing the posters. The poster for the 1990 meeting was particularly fun: it showed a bunch of us (both sexes) from waist down in ascending order of body size, wearing “blue genes.” I remember that we had a hard time to get the picture done because we were laughing so much. Years later, we tried a reincarnation of the same theme for another conference of the series. At this time anti-oncogenes were *en vogue* and so we had another group picture taken, now without us wearing any ‘genes’. However, as one might imagine, this picture never made it into the public. Looking at the original poster I have since often asked colleagues to guess whose legs and rear end are whose. The answers tend to be remarkably accurate.

What was the overall situation of the Laboratory at that time? Were there crises that had to be dealt with? How were these overcome?

EMBL went through recurrent crises during my tenure, as several of the member states reexamined the missions of the Laboratory and its role in Europe. EMBL underwent a number of reviews and emerged, thankfully, unscathed. In fact, it grew through the addition of the EBI, and then I became an emissary to scout out the Monterotondo campus, a conglomerate of brand new labs that had been abandoned by an oil company and was now offered to EMBL by the Italian government. The rest is history.

Thomas Graf and onco-jeans

Thomas then (left), and Thomas now.



What influence has your time at EMBL had on your later career?

I am an “Emblod in exile.” I have tried to export the EMBL style to the Albert Einstein, and everybody at first seemed enthusiastic about the idea to create an attractive canteen and a café that is open all day (and would perhaps even serve beer!). Unfortunately nothing

much changed and I reluctantly had to accept that there is a big gap in the science culture between the US and Europe, and that grafts are not easily made. Luckily, I have been involved in helping to launch a new institute in Spain, the CRG in Barcelona. Only little of my input was needed to make it more like an EMBL clone.

What makes EMBL unique compared to other places you have been?

It's not only its internationality, which can be seen in a few other places, particularly in the United States. For example, the faculty of my present department in New York has only two Americans, out of 13, and it is as easy to exchange ideas and start collaborations as it was back at EMBL. However, here these exchanges almost never happen through chance encounters, such as during a chat in the café. I also miss the way everybody mixes at EMBL, regardless of status, and the lack of formality with which the young interact with the old. One of the things that I liked most about EMBL is that it was so open and transparent – everybody could enter and leave the laboratory (even the library) unchecked and no corner seemed to be off limits. And then there were lots of other things that I liked – and miss – the aesthetically-pleasing buildings, the lack of bureaucracy, the potatoes à la Graf, the crèche/kindergarten, the workshop, the parties... (not the weather, the Kleinstadt feeling, the sometimes perhaps excessive sense of belonging to an elite...)

How relevant is EMBL today and for the future of science in Europe/in the world?

That I leave to the statisticians. It is clear that EMBL is still among the very best – and I hope it will remain so for a long time to come.

