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News & Views

Profile: Professor Axel Ullrich

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Professor Axel Ullrich has played many roles—all of them significant—in the biotechnological explosion that has occurred in cancer medicine during the past three decades. He has been part of the development process for many of the most innovative drug treatments. In the early 1980s, his work was instrumental in the development of humulin, a human insulin produced using gene-based technology; he later went on to work on herceptin, the now widely used antibody treatment for breast cancer. With a career bridging academia and the private sector, he is also unusual in the professional links he has been able to forge and maintain. In this profile, Margaret Harris Cheng finds out how Professor Ullrich has managed to achieve so much.

If you wanted to put a human face on the biotechnology explosion of the past three decades, Professor Axel Ullrich would be a very good place to start.

From work which led to ‘Humulin’, human insulin produced using gene-based technology – the first commercial application of such technology in the early eighties; to developing Herceptin, a gene-based compound used to target metastatic breast cancer cells in the nineties; starting up successful biotech companies throughout the nineties and developing the first tyrosine kinase inhibitor, Sutent (now used to treat leukaemias and other malignancies), in the early part of this century; Professor Ullrich has been instrumental in transforming basic biotechnological science into useable therapies.

“I have always been split between basic research and company commercial drug development” he told *Molecular Oncology*.

Tracking down Professor Ullrich was not so easy. Though he is officially the Program Director of the Singapore Oncogenome (SOG) Project at the Institute of Medical Biology (IMB), Agency for Science, Technology and Research (A*Star), in Singapore, and it was there that we sought him, he actually lives and works in Germany.

“I live this double life...quite a few Singaporeans believe I still live there.” he said, speaking from his home in Martinsried, Germany.

While he remains head of the Oncogenome Project in Singapore, Professor Ullrich said the bulk of his work is now at the Max Planck Institute of Biochemistry where he is Managing Director and is pursuing response prediction to multi-targeted kinase inhibitors.

He is glad to have now returned to the country of his birth and childhood (he was born in Lauban in 1943) but says it was a place he felt he had to leave after gaining his PhD in Molecular genetics from the University of Heidelberg. So in 1975 he took up a postdoctoral fellowship at the University of California’s Department of Biochemistry and Biophysics in San Francisco.

His friends and colleagues told him not to go. “They said, oh you are crazy-these are difficult times. You have to stay on here.”

“So I was lucky”.

A little bit more than lucky-not only did he get results, he found ways to apply them. Within three years of arriving in America he took up his first commercial appointment-with Genentech. And by 1991 he had learned enough to co-found his own successful biotechnology company-Sugen Inc, in San Francisco.

But it was the government sponsored blossoming of Singaporean biotechnology that has recently taken up much of Professor Ullrich’s time, energy and vision. Having been one of the early advisers to Singapore’s government research body, A*STAR, as it tried to develop Singapore into a biotechnology leader, Professor Ullrich agreed to come to Singapore to run the Oncogenome Project.

He was not the only biomedical rock star attracted to Singapore. In the past few years, A*STAR has assembled the biomedical equivalent of the Real Madrid football team, many of whom run research laboratories in other parts of the world at the same time, as does Professor Ullrich. But just as Real Madrid’s management and supporters expected the goals and wins to flow immediately, so too many Singaporeans expected rapid results from their biomed stars.

“In Singapore the project I started was application oriented. It was an extremely interesting idea and still is...a cancer genome analysis project looking for new targets for cancer drug development. As with much science what you intend to find does not appear-but we are making the best of it.” said Professor Ullrich.

“The Singapore scene is a little complex...At Max Planck I have all the power I need to do whatever I want. There is a very big cultural difference: in the Biopolis I am dependent on the support of a number of people.”

Though still officially running the Singapore Oncogenome project, Professor Ulrich says he has cut the number of trips to Singapore significantly. “Even though I feel very good in aeroplanes-I sleep better in the air than I do in my own bed-its hard to have a disrupted life like that. I commuted between California and Germany for four years because I left my personal life in California.”

Having spent the last three decades in the midst of the biotechnology revolution in the US, Europe and now Asia, does Professor Ullrich have any sense of where it is going, which region is going to push forward fastest and furthest in the next decade?

“Singapore and Asia – with the exception of Japan – has a lot of catching up to do. They also have a lot to learn-that you cannot do everything with money. Human creativity cannot be induced with money.” (This is akin to heresy in commerce-based Chinese societies like Hong Kong and Singapore where parents spend fortunes on everything from brain boosting baby milks to intensive music training for toddlers to ensure their children grow up ‘gifted’.)

“The biotech industry is a different story (from basic research). The basic codes, legal codes are different in the US versus Germany and this influences the ability to raise money. These two are covered by rules but there are big geographical differences. In the basic research component, Europe is not far behind. Europe can hold up very well.

Professor Ullrich speaks from extensive experience when he talks of codes and rules governing biotechnology start-ups. “I have started up four companies. The first one was started in the US, three others in Germany.”

It has been said of him that he was born in the right time, at the right place. But Professor Ullrich does not feel it is as simple as that, pointing out that the nineteenth century was a wonderful time for German science. “I think there are always times when something exciting is happening and you have to have that instinct...and it has to match your interests and talents. One has to have a certain instinct to be in the right place at the right time.”

And what about those colleagues he left behind in Germany, the ones who told him not to take risks with his career by going to America in the seventies. Does he feel sorry that they missed out on the biochemical waves he has been catching and riding so skilfully? Not at all.

“I’m not responsible for them!” he laughed. “Too bad for them!”

Figure 1 – Professor Axel Ullrich.

Career highlights: Axel Ullrich (Figure 1) was trained as a biochemist at the University of Tübingen and earned a Ph.D. degree in Heidelberg (Germany) in Molecular Genetics (1975). After a postdoctoral tenure at the University of California in San Francisco, he joined Genentech, Inc in 1978. Since 1988, he has been Director of the Department of Molecular Biology at the Max Planck Institute for Biochemistry in Martinsried (Germany) and, in addition, since 2004, has been Research Director of the Singapore OncoGenome (SOG) project.

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