

Interview with Prof. Michael J. Pankratz

Director, Molecular Brain Physiology and Behavior



“... choosing a different career? No, I’m having too much fun right now ...”

It was time for the next LIMES internal newsletter and we wanted to know more about the man behind the glasses and flip-flops. Prof. Pankratz opened his office door, an organised mess of papers were pushed to one side - just enough space to put down our note pad and pen. We settled into the interview and heard interesting stories about chickens, swabian girls, connectomics and nutrition.

Interview by the LIMES communication office, 26th August 2014

Where did you grow up and what brought you to Germany?

I was born in Seoul, South Korea. My mother and I immigrated to the United States when I was nine, where she remarried an American who happened to be of German heritage (which explains my distinctly Un-Korean last name). I came to Germany to do a post-doc with Herbert Jäckle when he was a young group leader in Tübingen.

Obviously you like Germany enough to call it home. How long have you been here and what made you stay?

Over 25 years. I actually had no intention of staying so long. I had a very unsuccessful PhD period, so I thought my only chance afterwards would be to take little steps. Plus, I always wanted the experience of living in Europe. So the plan was to do a short post-doc in Germany in a relatively small but promising lab, and then do a second “real” post-doc back in the US. Then Herbert’s lab took off like a rocket and my own project started working out unexpectedly well, so I decided to stay longer. Oh yeah, there was one other factor---a blonde Swabian girl joined the lab few months after I got there...

Why did you become a scientist/What ignited your passion for research?

I was interested in the natural sciences ever since I was a child. But I got hooked on biology in the 9th grade after reading a book on the discovery of the Rous Sar-

coma Virus, which causes tumor in chickens (Peyton Rous received the Nobel Prize for this work). I became so fascinated that I bought little chicks (kept them in our basement), and ordered the virus from the American Type Culture Collection (with my father’s checkbook after forging his signature). When I told a researcher at a local university about it, he completely freaked out and told me to hand over the as-yet unopened vial of the virus immediately.

And the chicks?

My parents gave them away to a local farm.

Do you ever wish you could go back in time and choose a different career?

No. I know it sounds clichéd, but it’s a privilege to make a living doing what you really love doing. Having said that, I had a chance before going to grad school to work on a major new edition of James Joyce’s *Ulysses*. My English professor at the time asked me whether I would be interested in participating, and funny enough, it was being spearheaded by a German professor in Munich. I was very tempted but in the end decided not to. Several years later, I came across the finished edition at a bookstore and I have to say, there was a pang of regret for not having taken that unique chance. So that’s one “career-like” decision I would take back. But choosing a different career? No, I’m having too much fun right now.

In a highly competitive profession, it must be hard to stay motivated and continue to come up with new questions. What do you think are the key ingredients for a successful research career?

This is a toughie. Because doing research is full of uncertainties, it's difficult to stay with it for the long haul if you don't have a passion for it. It also of course depends on the metric by which you define "success". But for grad students or post-docs, I would emphasize two ingredients. One is the ability to focus on getting your next experiment to work. I don't mean getting some pre-conceived hoped-for positive results, but just getting the experiments done in a rigorous way. The other is talking to people whose experiments are working better than yours.

Your family is still living in Karlsruhe. How do you maintain a work/life balance?

I guess a difficult issue is trying to find where the fulcrum is at different stages of your career. I don't think I could've done such a commute 15 years ago. But an important general lesson for me has been to keep plugging away at one side even when the other side is not going well. If your paper gets rejected, or your experiments fail for the umpteenth time, or there is a lab conflict, you have to go home and still try to do the normal things; and if things are not going well at home or outside the lab, you still have to show up and try to get the experiments done.

You have been a group leader at the LIMES since 2008. What are the hot topics currently being investigated in your lab?

Connectomics for one. Trying to map out the complete synaptic connections of a brain. We're part of a major international effort to map the fly larval brain. This can be seen as being part of a broader global effort to map the human brain. Another one emerged as part of our participation in the Cluster of Excellence and concerns how the immune system alters brain function and animal behavior. I've always thought that the brain had to solve two major problems, food and sex. But now I realize that it has to solve a third---not getting killed while trying to solve the first two.

How will the brain project impact the future?

You could start by listing the devastating diseases of the nervous system that could be alleviated by having a better understanding of brain structure and function--Alzheimer's, Parkinson's, ALS, the complex psychiatric disorders. You can also see this as an amazing endeavor to understand how organized groups of cells enable us to perceive the world, show emotion, have thoughts, remember and act. Some people have compared the sequencing of the human genome to the moon landing. I was never a fan of this analogy, not for scientific reasons but humanistic. Whereas genome organization is a modern concept, the moon has been something mythical, something unreachable since ancient times. Like the mysteries of human mind and behavior. So I think the brain project is a closer fit to the moon landing project.

In addition to studying the brain, your lab is doing nutrition research. How did you get into that field?

Somewhat by chance. When we initiated our study of how brain controls feeding behavior in *Drosophila* many, many years ago, we first isolated mutants that couldn't feed properly. But we quickly realized that we didn't have the tools at the time to figure out what was going on in their brains. So a former graduate student in the lab, Ingo Zinke, decided to see if they had defects in nutritionally-regulated genes. And that turned into a whole little world of its own. We were in fact the first European lab to use *Drosophila* Affymetrix chips, if anybody remembers that dinosaur technology.

“... it's important for good scientists to become engaged in nutrition research and public policy.”

What do you think about the current standing of nutrition information transferred to the public?

Eggs, good or bad?... I have a June 2014 issue of TIME magazine whose cover story reads "Eat Butter. Scientists labeled fat the enemy. Why they were wrong." This reminded me of a front page New York Times story back in 2002 titled "What if It's All Been a Big Fat Lie?," which describes the flimsy scientific evidence certain key government dietary recommendations were based on. Then there's the famous "Food Pyramid", being taught at public schools all over the country, the problem being that it's not clear now what foods should occupy what level of the pyramid.

My feeling is that much of the recommendations to the public are based on bad or inadequate data. One could cite any number of "scientific studies" to support any agenda you want. For drugs, the target audience is relatively much smaller, i.e. those who have a certain condition, but nutrition affects everybody. That's why it's important for good scientists to become engaged in nutrition research and public policy. It's an extraordinarily important area that affects society at all levels: financial, health, educational, scientific.

The topic of nutrition is relevant to people in every day life. What is the most important thing you would like to tell people about nutrition?

Despite the vast amount of writings and discussions out there, it's amazing how little we know about how different combinations and concentrations of things we eat affect our body. A clarification is nowhere in sight. Now add the globalization factor---in most Asian countries, you basically eat the same thing for breakfast, lunch and dinner; in most Western countries, you usually eat different things. What's better? Don't have a clue. So my advice---do what my mother always tells me, eat a balanced meal.