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# An interview with Magdalena Götz

Magdalena Götz is the Director of the Institute for Stem Cell Research at the Helmholtz Center and Professor at the Ludwig-Maximilians-University in Munich, Germany. Her developmental work in neurogenesis has identified radial glial cells as the source of neurons in the developing brain. Magdalena joined *Development* as Editor in 2010, and she agreed to be interviewed about her scientific inspirations and about finding a place for adult stem and progenitor cells within developmental biology.

**When did you first become interested in science?**
I have always loved biology, and in school I was truly inspired by my biology teacher. In our rather non-innovative school system, we had a young American biology teacher who made us actually think and do things, and I was simply fascinated.

**What was your PhD about and how did it inform your subsequent career choices?**
My PhD was on development of the cerebral cortex and investigated how specific cell types develop and form their specific connections. This work laid the basis for many research questions, which I continued to pursue into much later stages. For example, it led to the isolation of specific progenitor subtypes in order to understand stem cell and progenitor heterogeneity, and the molecular specification of these subtypes. The new questions that arose from my PhD project also determined how I chose my postdoc lab, and many of the basic questions from this time still keep us busy now.

**Did you have a mentor or someone who inspired you in your early career?**
After my inspiring biology teacher in school, my PhD supervisor, Jürgen Bolz, was also key in shaping my way. His readiness to discuss science at any time was certainly very important to further fuel my enthusiasm for understanding how the cerebral cortex develops. My interest in developmental biology was originally inspired by a course at the Max-Planck Institute for Developmental Biology in Tübingen and by the fascinating questions of axon growth and regeneration studied by Friedrich Bonhoeffer and Claudia Stürmer.

Typically, I have always been inspired by people we call 'Querdenker' in German – i.e. people whose thoughts and ideas are contrary to common beliefs and who follow their own ideas entirely independent of the field. Therefore, people like Nils Birbaumer in Tübingen and Rüdiger Wehner in Zürich were important for me to see that following your own way and ideas is the way to go.

**You spent a year in Switzerland as a student: how did this time abroad shape your research interests?**
The year I spent in Zürich during my studies was particularly fruitful in the sense that I got a very good idea about my own main scientific interests, which I owe to the neurobiology course there and to the scientific talks, which covered a broad range of neurobiology. This was probably key in not only broadening my horizon but at the same time in focusing on developmental biology. I was lucky enough to work with inspiring scientists throughout my career, such as during my postdoc with Jack Price in London and with Peter Gruss in Göttingen. During my time as group leader, the scientific interactions with Yves-Alain Barde were particularly important and influential for me.

**What advice would you give to young scientists about starting their own lab?**
I would advise them to follow original ideas rather than going with the mainstream.

**How did your research interests in neurodevelopment lead to your current work in adult neurogenesis and adult neural stem cells?**
After our discovery that radial glial cells are more than merely supporting cables for migrating neurons, but actually divide and even generate neurons – our key discovery that was published first in *Development* – I wanted to further test this concept in the adult brain. The work from Arturo Alvarez-Buylla demonstrating adult neural stem cells as cells with glial identity has further inspired our move to the adult brain to investigate glial cells as progenitors in the developing and adult forebrain.

## I think the field of adult neurogenesis needs more developmental biology

**Where is the field of adult neurogenesis heading in the next decade?**
I think the field of adult neurogenesis needs more developmental biology. Indeed it is a form of development in the adult organism and this was one motivation for joining *Development* as an Editor.

Key questions in this area relate to issues of cell lineage and fate specification, which need to be tackled by novel techniques that will allow unequivocal conclusions to be reached that are based on single-cell analysis, rather than indirect conclusions being drawn from population responses.

**What are the potential medical applications of your own work?**
The potential to reactivate neurogenesis after brain injury may be applicable to a wide range of neurological and neurodegenerative diseases.

**Interview by Eva Amsen***
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**What has been your most surprising discovery?**

That virtually all progenitor cells in the developing cerebral cortex during neurogenesis are radial glial cells. This finding prompted the idea that if so many progenitors are radial glia at the time of neurogenesis, they may actually generate neurons – an idea I then set out to test when I started my own lab.

**What is the role of *Development* within your field?**

I am working in both embryonic and adult neurogenesis. While *Development* is certainly a highly considered journal in the field of developmental neurobiologists, in the field of adult neurogenesis it is, in my view, under-represented, which shall hopefully change with time.

**Now that you're an Editor of *Development*, what are you most looking forward to in this job?**

I am looking forward to supporting the field of adult stem and progenitor cells at *Development* and thereby hopefully contribute to bringing exciting developments in this area to the attention of its readers. I also think it's important to further implement developmental questions and tools for lineage analysis, as well as concepts on fate decisions and commitment, in the field of adult neurogenesis and progenitors.

**How do you relax outside of work?**

I am an addicted reader and read wherever I am. I also love hiking – including over long distances, such as from Munich to Venice or from Basel to Geneva – as well as sailing along beautiful coastlines.

**To work on finding out new things in any field you have chosen yourself is the best work I could ever imagine**

**If you weren't a scientist, what career would you have chosen?**

I am afraid I am not good at anything else and I always wanted to be a scientist and never ever considered any other career. To have the liberty to work on finding out new things in any field you have chosen yourself is the best work I could ever imagine and the one and only thing I always wanted to do.