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BACKTOTHEFRIDAY

SEBA ALMEDAWAR

Lab head in Retinopathies therapeutic area from Boehringer Ingelheim

The journey from academia to industry: the science behind the scenes

DAY	TIME	ONLINE
October 30th, 2020	15.00 H	

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ABSTRACT

During my masters studies I heard for the first time about stem cells and regenerative medicine. Somehow the fascinating idea of being able to generate any cell type or organ from one cell and use it to cure degenerative disease, was like a continuous voice at the back of my head telling me that this is what I should do. As I was faced with a decision after my PhD, whether to continue what I knew now best: yeast, cell cycle, cohesion…, or to follow that annoying voice, it was not as easy I thought! And yet, here I was in Dresden (Germany) and am now in Biberach (Germany) culturing human pluripotent stem cells and differentiating them to the amazing retinal pigment epithelial cells (RPE) for millions of purposes.

RPE is a monolayer of pigmented cells, which is indispensable for the function of the retina and vision. Defects in RPE functions; such as, phagocytosis, lead to retinal degenerative diseases, which can be inherited or acquired. Thus, recently the RPE cells gained a lot of attention as therapy target to replace the degenerated cells in the eye, or to find new compounds/targets that can be developed into therapy. In my previous lab we focused on obtaining pure RPE cells for transplantation studies. At the same time, we studied the pathology of retinitis pigmentosa blinding disease whose patients carry mutations in the MERTK gene. For that we obtained fibroblasts from patients, reprogrammed them to iPSC and differentiated them into RPE. We found out that the phagocytosis defect in those sick cells stems from their inability to extend ensheathing membranes and fragment the particles prior to internalization. We also performed a high throughput screen using RPE cells to identify stimulators of phagocytosis and identified hits which rescued the phagocytosis defect in MERTK deficient RPE cells. Thus, our work supports the potential of pluripotent stem cells and their progenitors to model degenerative diseases and identify new argets and therapy.

SEBA ALMEDAWAR

I finished my bachelor's studies at the American University of Beirut in 2005 and obtained a Master's degree in Molecular and Cellular Biology at the Lebanese American University in Byblos in 2008. Then, I moved to Spain to start my doctorate studies with Dr. Jordi Torres and obtained my PhD title in July 2013. In September 2013 I started my postdoctoral Studies in Dresden Germany with Prof. Dr. Elly Tanaka. In 2015 Prof. Tanaka announced the end of her lab in Dresden as she took a new position in the IMP in Vienna. I decided to stay in Dresden because I believed that moving will interrupt the project progress and I was confident that I have a chance to continue alone in Dresden.

My contract and the project ended in June 2016 and it coincided with maternity leave break. During that break I applied for further funding and obtained a 1,5 million euros grant from the German government, which allowed me to continue in Dresden for three more years as a group leader supervising two postdocs and two technicians. In 2018 the screening platform that was developed in my group was transferred to a pharmaceutical company. During the interaction with the scientists at the company I got exposed to research in industry and realized how interesting it can be. In 2019, I got an offer from Boehringer Ingelheim (a pharma company) to take an unlimited lab head position in the Retinopathies therapeutic area. It was a tough choice to leave academia and go out from the comfort zone again. However, the position was too good to say no and it was not a bad idea to leave when I still had a choice, so I embarked in the journey of research in industry, and what can I say…so far, it is beyond my expectations.

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