



18. November 2015

MTZ®-MPI-Award 2015 to Dr. Christian Helker

Award for doctoral thesis on novel aspects of blood vessel development by *in-vivo* analysis of endothelial cell migration

On November 19th, 2015, the MTZ®foundation will honour Dr. Christian Helker, who conducted an important doctoral thesis on molecular mechanisms of blood vessel development with Professor Dr. Wiebke Herzog at the Max Planck Institute (MPI) for Molecular Biomedicine. Since 2009, the MTZ®foundation endows young scientists at the MPI for Molecular Biomedicine with the MTZ®-MPI-Award on a yearly basis. In this way, the founding couple Monika and Thomas Zimmermann wants to foster young persons in their scientific career. The award prize is endowed with 2,500 Euros.

Invitation to the presentation

Representatives of the press are cordially invited to attend the presentation of the award. Awardee Dr. Christian Helker will explain his research in a short, generally eligible talk. Professor Dr. Wiebke Herzog will hold the laudatory speech. The founding couple, Monika and Thomas Zimmermann will present the certificate. After the presentation, at approximately 5:30 pm, you will have the opportunity to speak to the award winners and Mrs. and Mr. Zimmermann of the MTZ®foundation.

Date and time: November 19th, 2015, 4:45 pm
Ort: Auditorium, Max Planck Institute for Molecular Biomedicine
Röntgenstraße 20, 48149 Münster

Many diseases are characterized by abnormal or poor blood vessel formation. For example, chronic wounds are the result of insufficient blood vessel formation, while age-related macular degeneration is the result of abnormal expansion of blood vessels, which interfere with normal processes. Blood vessel formation is also a critical step in the growth and spreading of cancerous tumors, as tumors require a dedicated blood supply to provide the nutrients for growth.

If one would like to develop new therapies for these various disorders, it is extremely critical to understand the underlying mechanisms of blood vessel formation.

In the embryo, blood vessels develop from cells called angioblasts. These cells first need to move to the correct place where the respective blood vessels will form. The first two vessels (the aorta and cardinal vein) carry blood in and out of the heart.

“Traditionally, scientists have thought that the protein Vascular Endothelial Growth Factor (VEGF) was responsible for guiding the angioblasts to the midline of the body for blood vessel formation. Because VEGF is determining in the control of blood vessel development, the majority of current treatments target VEGF”, says Christian Helker.

However, Christian Helker has found in his studies with zebrafish embryos that angioblast migration to the midline is controlled by another yet sparsely characterized pathway. The proteins Apelin and Elabela can activate the Apelin-receptor in angioblasts and thereby govern the migration of the cells. “We have discovered that Elabela is the main signal governing

migration in the early zebrafish embryo”, says Helker. “However, in cases with insufficient Elabela, the Apelin hormone may compensate for this deficiency and still allow blood vessel development.”

If Apelin and Elabela influence blood vessel development also in other situations, these hormones would be potential targets in future development of therapeutic applications, especially for illnesses that are characterized by the growth of too many blood vessels but that do not respond to VEGF-targeted therapies, e.g. VEGF-resistant cancers.

Credit: Agency for Science, Technology and Research (A*STAR)

About Christian Helker

Christian Helker (31) studied Pharmaceutical Biotechnology at the Ernst-Abbe-Hochschule Jena. During his studies, he spent one semester as scientific assistant in the Center for Developmental Biology at RIKEN in Kobe, Japan. He completed his diploma thesis with Prof. Dr. Wiebke Herzog at the Max Planck Institute (MPI) for Molecular Biomedicine and the Westphalian Wilhelms-University (WWU) Münster. From 2010-2014 Christian Helker was a PhD student with Prof. Dr. Wiebke Herzog at the MPI for Molecular Biomedicine and the WWU Münster. He spent two months as a guest scientist at the Weizmann Institute of Science in Rehovot, Israel. Since June 2014 Christian Helker is a postdoc at the MPI für Herz- und Lungenforschung in Bad Nauheim.

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Dr. Christian Helker

christian_helker.jpg

Credit: MPI für Herz- und Lungenforschung