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In three steps towards motility

Mehdi Goudarzi received the MTZ®-MPI-Award 2012 for his outstanding research on the deciphering the mechanisms controlling germ cell migration

On November 8th 2012, the MTZ®foundation will honour Mehdi Goudarzi for his outstanding scientific work. He is a PhD student with Professor Dr. Erez Raz, who was a Max Planck Fellow at the Max Planck Institute (MPI) for Molecular Biomedicine form 2007-2012. Since 2009, the MTZ®foundation endows a young scientist 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.

With the award-winning work "Identification and regulation of a molecular module for bleb-based cell motility", which was published in Developmental Cell in July 2012, Mehdi Goudarzi and colleagues from the lab used zebrafish germ cells to decipher the processes that form the basis for migration of single cells. Germ cells are among the few cell types exhibiting motility. During development, germ cell precursor cells migrate from the place where they were born to the gonads, the position where they give rise to sperm and egg. Because zebrafish embryos develop outside of the mother and are translucent, germ cells can be more easily studied in those embryos. The cellular processes facilitating the migration of cancer cells are quite similar to those identified in germ cells. These results could thus be important in cancer research: when motility can be halted, metastasis could be prevented.

"For their movement, cells need basically three components: 1) a driving force, 2) the ability to change shape, and 3) friction", explains Goudarzi. "Similar to a motor that produces kinetic energy, a car that is boosted by the motor, and a street on which the car can drive, such processes also take place in germ cells," says Goudarzi. In the last years, Raz and his colleagues had discovered proteins that are responsible for the single processes. The work by Goudarzi, Banisch et al first put these three distinct processes in germ cells out of action and then initiated them again, one after the other. By this, the minimal set of processes needed for motility in germ cells were deciphered . Goudarzi is convinced: each cell type regulates the motility components a bit differently. "These would thus have to be investigated for each cell type" says Goudarzi. For his future work, Goudarrzi will however focus on other scientific questions that are concerned with how gene expression is regulated in other cell types.

Mehdi Goudarzi (32) studied Microbiology and Cell and Molecular Biology in Iran. Goudarzi was then admitted to the International Max Planck Research School "Molecular Biology" in Göttingen in 2006. Within this frame work, Goudarzi gained lab experience in the Department of Professor Dr. Erez Raz at the MPI for Biophysical Chemistry in Göttingen. Raz accepted the offer of a professorship at the Westphalian Wilhelms University Münster in 2007 and Goudarzi followed him to start his PhD studies. In 2013, Goudarzi will complete his PhD at the Institute for Cell Biology in the Center for Molecular Biology of Inflammation at the Westphalian Wilhelms University Münster and then intends to take a position as a postdoctoral fellow at Harvard University in the USA.

Professor Dr. Erez Raz was associated to the MPI for Molecular Biomedicine as a Max Planck Fellow from September 2007 until August 2012. The Max Planck Fellow program strengthens the cooperation between university researchers and scientists of the Max Planck Society (MPS). Since

February 2012, Raz is External Scientific Member of the MPS – an exceptional and important distinction that connects Raz and his research even closer to the MPI for Molecular Biomedicine.

Publication

M Goudarzi*, TU Banisch*, MB Mobin, N Maghelli, K Tarbashevich, I Strate, J van den Berg, H Blaser, S Bandemer, E Paluch, J Bakkers, IM Tolić-Nørrelykke, E Raz
Identification and regulation of a molecular module for bleb-based cell motility.
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Pressefoto

A photo of Mehdi Goudarzi can be requested by telephone or via e-mail to Dr. Jeanine Müller-Keuker.

MTZ®-MPI-Award 2012
Award winner Mehdi Goudarzi

Credit: MPI Münster / JMK