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About € 4.5 Million Funding for Group Leaders at the MPIB

The European Research Council (ERC) encourages excellent basic research in Europe in order to promote visionary projects and open up new interdisciplinary science areas. Three young group leaders of the Max Planck Institute of Biochemistry (MPIB) in Martinsried near Munich succeeded in obtaining one of the coveted "ERC Starting Grants". Spread over a period of five years, Esben Lorentzen, Andreas Pichlmair and Frank Schnorrer will receive € 1.5 million each for their research projects. Due to their scientific achievements until now they were the winners against several thousand competitors. At the beginning of this year, the European Research Council already honored an MPIB-scientist, when Director Elena Conti received the "ERC Advanced Grant".

Delivery Service for Cilia

Tiny hair-like structures (cilia) are found on the surface of most cells in the body, where they serve to move the cell, process external signals and coordinate the correct arrangement of the inner organs during development of the organism. To do this, cilia have to be supplied with the right building blocks. This is taken over by a complex transport system which is called intraflagellar transport (IFT). Defects in the IFT can lead to severe physical and mental disorders. Together with his research group "Structural Biology of Cilia", **Esben Lorentzen** investigates how the system works. Using X-ray crystallography, the scientists could already decipher the structure of a subunit of the IFT complex, and others shall follow. These results could help avoid mistakes in the composition of the cilia and thus prevent the development of diseases.

Targeting Viruses

When viruses enter our body across our mucosa, the immune system reacts promptly. Immune cells recognize the pathogens via signal molecules on the cell's surface and initiate the appropriate maneuver. These molecular sensors for viruses are the research focus of **Andreas Pichlmair** and his research group "Innate Immunity". If the viruses are successful and enter the cell, the pathogens take command and make the cellular metabolism work for them. It is still not known in detail how viruses alter the genetic activity and the protein production of the infected cells. To identify



modified proteins and elucidate their importance for viral replication, Andreas Pichlmair and his colleagues utilize mass spectrometry among other methods.

Flying Power Packs

The fruit fly *Drosophila melanogaster* possesses different kinds of muscles and therefore can perform various behaviors such as crawling, running and, of course, flying. With the help of targeted gene modifications, the scientists in **Frank Schnorrer's** research group "Muscle Dynamics" investigate how muscles of the fruit fly develop at the right place in the body and how the contractile machinery within the muscles is assembled properly. By performing more than 25,000 flight tests, the scientists identified the essential switch gene "Spalt", which enables *Drosophila* to fly. It initiates the development of the special flight muscles, which can contract 200 times per second. "Spalt" and its related genes are not only important for the development of the flight muscles in insects, but probably also for the proper functioning of human heart muscles. In the future, Frank Schnorrer wants to understand how flight muscles achieve their special properties through the influence of "Spalt".

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