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## Max Planck Foundation pledges one million euros to scientists

**Two Research Groups from the Max Planck Institute of Biochemistry in Martinsried are set to receive approximately one million euros from the Max Planck Foundation to fund an innovative research approach. F.-Ulrich Hartl, an expert in neurodegenerative diseases, and Ralf Jungmann, who has developed the super-high resolution microscopy method DNA-PAINT, plan to combine their expertise. The researchers would like to make the complex network of proteins involved in the pathological process of Alzheimer's disease visible. DNA-PAINT can visualize the unknown molecular interactions at a high spatial resolution, thereby providing the basis for the development of new therapeutic approaches.**

Agglutinated protein molecules, that is protein aggregates in the neurons, have been identified as crucial factors in the pathological process of neurodegenerative diseases like Alzheimer's. It is suspected that the agglutinated proteins interact with other proteins and in this way impair vital functions in the cells. This eventually results in the death of the neurons and the progression of the disease. Together with his team, F.-Ulrich Hartl has been researching the processes involved in protein aggregation and the complex phenomena of protein folding and protein interactions in healthy and diseased cells for many years.

Thanks to the new microscopy method DNA-PAINT it is now possible to make the individual interactions between proteins that lead to the formation of protein aggregates visible under the microscope. The super-resolution DNA-PAINT method has now attained a resolution of approximately 10 nm in cells. This corresponds to the length of 100 hydrogen atoms placed side-by-side. Functional proteins range between approximately 4 and 25 nm in size. This means that the number of proteins involved in the process can be counted.

In addition to this funding from the Max Planck Foundation, Jungmann, who leads the junior research group "Molecular Imaging and Bionanotechnology" at the Max Planck Institute of Biochemistry and Ludwig-Maximilians-Universität München (LMU Munich), was awarded one of the European Council's prestigious Starting Grants a few weeks ago. The ERC Starting Grant will provide him with a further 1.5 million euro for the further technical development of the DNA-PAINT method





for biomedical applications. The LMU reported on the awarding of the ERC grant (in German): [www.uni-muenchen.de/forschung/news/2016/erc\\_starting\\_grants.html](http://www.uni-muenchen.de/forschung/news/2016/erc_starting_grants.html)).

This combination of the latest microscopy technique and cutting-edge expertise in the field of Alzheimer's researcher promises new insights and foundations for future efforts to combat the disease.

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