



Research Institute of Molecular Pathology

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IMP Scientist Alex Stark awarded an ERC Consolidator Grant

Alex Stark, group leader and newly-appointed Senior Scientist at the Research Institute of Molecular Pathology (IMP), has been awarded a Consolidator Grant (worth approx. 2 Mio. Euros) by the European Research Council to study gene regulation.

Alex Stark's passion is to answer fundamental questions in the complex field of gene regulation. His work at the Research Institute of Molecular Pathology (IMP), located in the Vienna Biocenter (VBC), is focused on studying regulators of gene expression by combining systematic genome-wide experiments and computational analyses. The ultimate goal of his research is to "crack" the regulatory code according to which genes are switched on and off in different tissues and organs, and to understand how gene regulatory networks define cellular and developmental programs.

An important step towards achieving this goal was the development of a technology called STARR-seq (self-transcribing active regulatory region sequencing) by the Stark-lab in 2013. This method allows the direct identification of DNA sequences that can switch genes on, called enhancers, and at the same time measures their activity quantitatively in entire genomes.

Initially, STARR-seq was used to find regulatory regions in cells of the fruit fly *Drosophila*. The ambitious and technically challenging project funded by the ERC will now apply the technology to human cells, adapting the method to the mammalian genome and optimizing it along the way. The aim is not only to identify enhancers but to systematically study how their activity changes, for example, when cells switch on specific sets of genes to differentiate into specialized cell types, or when changes in the genome transform healthy cells into cancer cells. Thus, the study also hopes to elucidate previously unknown disease mechanisms, since a large number of diseases are associated with changes in gene regulation, which might be caused by defects in enhancer function.

Since joining as a group leader in 2008, the Research Institute of Molecular Pathology has provided an environment for Alex, which allowed him to grow into a leading expert in the field of gene regulation, after three postdoc-years at the Broad Institute of MIT & Harvard and CSAIL MIT. In 2009, he received an ERC Starting Grant – which was a major push forward in establishing and enlarging his international research team. In 2014, Alex Stark was also identified as a "Highly Cited Researcher" by Thomson Reuters. "Highly Cited Researchers" are scientists whose publications are most often cited in academic journals indicating their influence in their respective fields.

A crucial success factor for Stark's research is the availability of cutting edge research infrastructure, one of the biggest assets the IMP can provide. "In order to be internationally competitive in my field, it takes both a brilliant team and a first-class infrastructure, which the IMP provides. Importantly, the IMP allows us to focus on questions we are curious about – which is a real privilege! We enjoy an outstanding atmosphere and the spirit of discovery here at the IMP and the VBC", says Alex Stark.



Alex Stark
Photo: IMP

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The scientific work of Alex Stark and his team has been repeatedly recognized in the field of gene regulation; now, his second success within the ERC funding scheme, moving from the Starting- to the Consolidator Grant, will allow him to continue working on central questions in this exciting area.

“The success of the IMP is based on outstanding researchers, just like Alex. We are proud that he accepted our offer to become a Senior Scientist at the IMP earlier this year. I am absolutely convinced that Alex will contribute significantly to make us even stronger scientifically and his new leading role will foster the pioneering atmosphere that the IMP stands for”, comments Jan-Michael Peters, Scientific Director of the Research Institute of Molecular Pathology.

The Research Institute of Molecular Pathology (IMP) in Vienna is a basic biomedical research institute largely sponsored by Boehringer Ingelheim. With over 200 scientists from 35 nations, the IMP is committed to scientific discovery of fundamental molecular and cellular mechanisms underlying complex biological phenomena. Research areas include cell and molecular biology, neurobiology, disease mechanisms and computational biology. The IMP is located at the Vienna Biocenter (VBC).

Grants provided by the European Research Council (ERC Grants) are considered one of the strongest indicators of scientific excellence in basic research. At the Vienna Biocenter, researchers from the four academic research institutes dedicated to curiosity-driven research (GMI, IMBA, MFPL, IMP) have so far secured 29 ERC Grants, more than entire European states have in total.

Links:

IMP: <http://www.imp.ac.at>

European Research Council: <http://erc.europa.eu>

Vienna Biocenter: <http://www.viennabiocenter.org>

Thomson Reuters: <http://highlycited.com>

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