

Press Information, September 2, 2019

The Machine of Life HOW GENES ARE SWITCHED ON

The 2019 Ernst Schering Prize of the Schering Stiftung is awarded to Patrick Cramer. The chemist and molecular biologist receives the prize for his research on transcription and gene regulation at the molecular and cellular levels.

Patrick Cramer brings true passion to his scientific work. "I have the great fortune of working on one of the most fascinating and fundamental biochemical processes – I am deciphering the machine of life!" he says.

This "machine of life" is the so-called RNA polymerase. It regulates protein production in our body by reading the genetic blueprint for a protein. This "reading process" is called transcription and is the fundamental cellular process that translates genetic information into life, and into our bodies. For proteins are the basic material of our cells and involved in a variety of functions in our body.



Professor Patrick Cramer is Director at the Max Planck Institute for Biophysical Chemistry in Göttingen. Over the last two decades he has studied the atomic structure of RNA polymerase and many of its complexes with partner molecules, contributing to the development of several experimental methods of analysis. In addition to elucidating many detailed structures, he was able to show how our genetic information is regulated and used in cells. It was through his research that many basic principles of the transcription process and its regulation could be understood and made visible, leading to improved research on cancer growth, which involves the deregulated transcription of the genetic material.

A [video](#), released today, further illustrates Cramer's research and provides insight into the experimental work of this exceptional researcher.

For his outstanding research, Prof. Dr. Patrick Cramer is awarded the **2019 Ernst Schering Prize**. A seven-member selection committee composed of international scientists chose Cramer's research from among 38 nominations. The 50,000-euro prize is one of the most prestigious German science awards. It is given annually by the Schering Stiftung and honors scientists worldwide whose pioneering research has yielded new, inspiring models or led to fundamental shifts in biomedical knowledge.

Professor Cramer was nominated for the Ernst Schering Prize by **Prof. Dr. Thanos Halazonetis** from the University of Geneva and **Prof. Dr. Peter Rehling** from the University Medical Center in Göttingen. Professor Rehling, who gives the introductory speech at the award ceremony, says: "Patrick Cramer is an outstanding scientist. I am delighted that his groundbreaking discoveries are honored with the Ernst Schering Prize. Cramer's laboratory provided unique insights into the transcription process. His research lays the foundations for a better understanding of the molecular mechanisms of gene expression."

Ernst Schering Prize Award Ceremony

September 24, 2019, 5:30 p.m.

Berlin-Brandenburg Academy of Sciences and Humanities | Leibniz Hall

Markgrafenstr. 38 | 10117 Berlin

Please register by September 15, 2019, at www.scheringstiftung.de/Preisverleihung2019

This year's award ceremony will be accompanied by **musicians of the Komische Oper Berlin**. The Dutch mezzo-soprano Maria Fiselier, considered to be one of the most promising new vocalists in Europe and acclaimed for her exceptionally warm and rich voice, will be accompanied by Daniela Braun, first-chair second violinist, and Frank Schulte, solo répétiteur and orchestra pianist at the Komische Oper Berlin.

Lectures by Patrick Cramer

September 25, 2019

Student Lecture: How Genes Function

Schulfarm Insel Scharfenberg, Berlin-Tegel (not open to the public)

September 25, 2019, 2 p.m.

Public Scientific Lecture: Mechanisms of Transcription Regulation

Max Delbrück Center for Molecular Medicine

Berlin Institute for Medical Systems Biology (BIMSB)

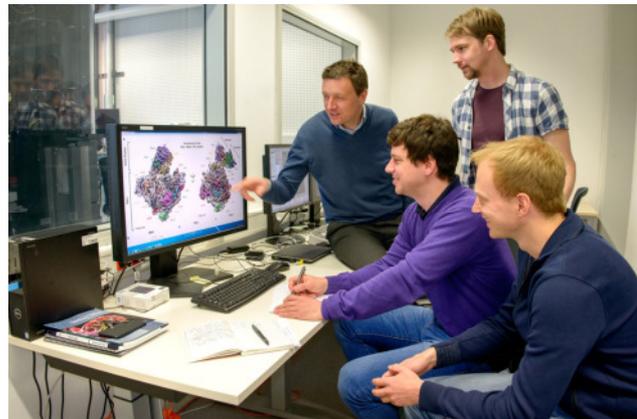
Room R 0.61

Hannoversche Str. 28 | 10115 Berlin

In English | No registration required.

Background Information

Patrick Cramer explores how genes are regulated in living cells. His lab studies gene transcription, the first step in the expression of genetic information. Transcription is the fundamental process regulating the development of organisms and enabling living cells to react to environmental cues. During transcription, copies of a gene are generated in the form of RNA molecules. These RNA molecules then serve as cellular templates for proteins. Using methods of integrated structural biology, Professor Cramer was the first to describe transcription as a dynamic molecular process in a movie. In addition, the Cramer laboratory works on illuminating the underlying mechanisms of gene regulation. These studies enhance our



understanding of diseases such as cancer, where transcription is deregulated. In the future, Patrick Cramer wants to investigate how transcription is regulated in stem cells and during the differentiation of cell types. To this end, the lab is developing methods to study transcription in its natural environment, chromatin.

Patrick Cramer was born in 1969 in Stuttgart and studied chemistry at the Universities of Stuttgart, Heidelberg, Bristol, and Cambridge. He conducted his doctoral research at the European Molecular Biology Laboratory (EMBL) in Grenoble from 1995 to 1998, and was a post-doctoral fellow at Stanford University, working with the later Nobel Prize laureate Roger Kornberg, from 1999 to 2001. He subsequently accepted a tenure-track professorship of biochemistry at the University of Munich (LMU). In 2004, he was appointed director of the Gene Center Munich at LMU, which he directed for ten years. Since 2014, he has been a director at the Max Planck Institute for Biophysical Chemistry in Göttingen. Cramer is also committed to teaching and science management; for example, he currently serves as Chair of EMBL Council.

Further Information

Press information, images, and a video explaining Professor Cramer's work are available at

<https://scheringstiftung.de/de/presse/>.

Andrea Bölling | Public Relations

Schering Stiftung | Unter den Linden 32-34 | 10117 Berlin | Tel. 030-20 62 29-60 |

boelling@scheringstiftung.de