



Curriculum Vitae Professor Dr Patrick Cramer

Name: Patrick Cramer
Born: 3 February 1969



Image: MPI für Multidisciplinary Sciences

Research Priorities: Molecular biology, gene transcription, gene regulation, RNA polymerases, three-dimensional structure of enzymes

Patrick Cramer is a chemist and molecular biologist. He researches how cells read out information stored in the genome (gene transcription). He was able to visualize the three-dimensional structure of one of the largest enzymes in the cell nucleus and identified essential parts of the transcription mechanism.

Academic and Professional Career

- since 2023 President, Max Planck Society, Munich, Germany
- since 2017 Honorary Professor, Georg-August-Universität Göttingen, Goettingen, Germany
- since 2014 Director, Max Planck Institute for Biophysical Chemistry, Goettingen, Germany
- 2010 - 2013 Director, Department of Biochemistry, Ludwig-Maximilians-Universität München (LMU), Munich, Germany
- 2004 - 2013 Director, Gene Center Munich, LMU, Munich, Germany
- 2004 - 2014 Professor of Biochemistry, LMU, Munich, Germany
- 2001 - 2003 Tenure-track Professor of Biochemistry, LMU, Munich, Germany
- 1999 - 2001 Postdoctoral fellow, Stanford University, Stanford, USA
- 1998 Ph.D. in Biochemistry, Heidelberg University, Heidelberg, Germany and European Molecular Biology Laboratory (EMBL), Grenoble, France
- 1995 - 1998 Predoctoral Fellow, EMBL, Grenoble, France

- 1994 Diploma in Chemistry, Heidelberg University, Heidelberg, Germany
- 1989 - 1995 Chemistry studies, University of Stuttgart, Stuttgart and Heidelberg University, Heidelberg, Germany, and University of Bristol, Bristol and University of Cambridge, Cambridge, UK

Functions in Scientific Societies and Committees

- since 2017 Coordinator, International Max Planck Research School for Genome Science
- since 2017 Member, Advisory Editorial Board, Molecular Systems Biology
- 2017 - 2019 Member, Scientific Advisory Board, Advanced Innovation Center for Structural Biology, Tsinghua University, Beijing, China
- 2017 Co-Organizer, Conference on Chromatin and Epigenetics, European Molecular Biology Organization (EMBO)
- since 2016 Member, Editorial Board, Cell
- since 2016 Member, Scientific Advisory Board, Max Delbrück Center for Molecular Medicine, Berlin, Germany
- since 2016 Vice-Spokesperson, Göttingen Graduate School for Neurosciences, Biophysics & Molecular Biosciences, Goettingen, Germany
- 2016 - 2019 Chair, Council, EMBL, Heidelberg, Germany
- 2015 - 2019 Reviewing Editor, eLife
- 2015 - 2019 Member, Otto Bayer Prize Award Committee, Bayer Science and Education Foundation, Leverkusen, Germany
- 2014 - 2017 Member, Perspective Commission, Max Planck Society, Munich, Germany
- 2014 Ad hoc Member, Scientific Advisory Board, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland
- 2013 Member, Review Panel, Berlin Institutes of Health (BIH), Berlin, Germany
- 2012 - 2019 Member, Council, EMBL, Heidelberg, Germany
- 2012 - 2014 Confidential Tutor, Stiftung Bayerische EliteAkademie, Munich, Germany
- 2011 - 2014 Initiator, Coordinator, Bavarian Research Center for Molecular Biosystems, Munich, Germany
- since 2011 Member, Scientific Advisory Board, Biochemistry Center Heidelberg, Heidelberg, Germany
- since 2010 Member, Editorial Board, Transcription
- since 2010 Member, Scientific Advisory Board, Center for Structural Systems Biology, Hamburg, Germany

- 2010 - 2011 Member, Council, Bavarian State Government, Munich, Germany
- 2009 - 2013 Member, Scientific Advisory Board, Max-Planck-Institute for Developmental Biology, Tübingen, Germany
- since 2009 Member, Editorial Board, EMBO Journal
- since 2008 Member, Selection Committee, Heinz-Maier-Leibnitz Prize, German Research Foundation (DFG), Germany
- 2008 - 2009 Member, Scientific-Technological Council, Bavarian State Government, Munich, Germany
- 2007 - 2013 Member, Research Board, LMU, Munich, Germany
- 2007 - 2009 Dean, Faculty of Chemistry and Pharmacy, LMU, Munich, Germany
- 2005 - 2007 Member, Advisory Board, Department Chemistry and Biochemistry, LMU, Munich, Germany
- 2004 - 2006 Member, Scientific Advisory Board, Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland
- 2002 - 2013 Member, Advisory Board, Department Chemistry and Pharmacy, LMU, Munich, Germany
- since 2001 Reviewer, scientific institutions and foundations, e.g. DFG, Germany, National Science Foundation (NSF), USA, National Institutes of Health (NIH), USA, Wellcome Trust, London, UK and European Union (EU)
- since 2000 Reviewer, Scientific Journals, e.g. Science, Nature, Cell

Project Coordination, Membership in Collaborative Research Projects

- since 2019 Spokesperson, Clusters of Excellence (EXC) 2067 "Multiscale Bioimaging: from Molecular Machines to Networks of Excitable Cells (MBExC)", DFG, Germany
- since 2019 Applicant, Subproject "Molecular mechanisms of functional phase separation in eukaryotic gene transcription", Priority Programmes (SPP) 2191, DFG, Germany
- 2016 Investigator, Advanced Grant, European Research Council (ERC)
- 2016 - 2019 Applicant, Subproject "High-resolution mapping and quantitative modeling of cooperative RNA binding in mRNPs", SPP 1935, DFG, Germany
- since 2015 Head, Subproject "Integrated structural biology of the Mediator complex", Collaborative Research Centre (SFB) 860, DFG, Germany
- 2013 - 2015 Head, Subproject "Structure of RNA polymerase II transcribing a nucleosome", SFB 1064, DFG, Germany
- 2012 - 2019 Participating Researcher, Graduate Schools (GSC) 1006 "Graduate School of Quantitative Biosciences Munich (QBM)", DFG, Germany

- 2011 - 2015 Head, Subproject "Structure and function of RNA polymerase I and initiation factor Rrn3", SFB 960, DFG, Germany
- 2010 Investigator, Advanced Grant, ERC
- 2008 - 2014 Coordinator, SFB 646 "Networks in Genome Expression and Maintenance", DFG, Germany
- 2008 - 2011 Subproject "Structural analysis of RNA polymerase I and a minimal RNA polymerase initiation complex" („Strukturanalyse der RNA-Polymerase I und eines minimalen RNA-Polymerase-Initiationskomplexes“), Research Unit (FOR) 1068, DFG
- 2006 - 2019 Participating Researcher, EXC 4 "Nanosystems Initiative Munich (NIM)", DFG, Germany
- 2006 - 2013 Member, Executive Board, EXC 114 "Center for Integrated Protein Science Munich (CIPSM)", DFG, Germany
- 2005 - 2015 Head, Subproject "Integration of genome-associated processes by the RNA polymerase II-Mediator complex", SFB 646, DFG, Germany
- 2005 - 2016 Spokesperson, SFB 646 "Networks in Genome Expression and Maintenance", DFG, Germany
- 2004 - 2009 Applicant, Project "Structural mechanisms of chromatin transcription", DFG, Germany
- 2003 - 2006 Member, Transregio (TRR) 5 "Chromatin – Assembly and Inheritance of Functional States", DFG, Germany
- 2001 - 2013 Applicant, Project "Structure of RNA polymerase II transcription complexes", DFG, Germany

Honours and Awarded Memberships

- since 2024 Foreign Member of the Royal Society, UK
- 2023 Maximilian Orden for Science and Art, Free State of Bavaria, Germany
- 2023 Shaw Prize in Life Science and Medicine, Shaw Prize Foundation, Hong Kong, China
- 2021 Gregori Aminoff Prize, Royal Swedish Academy of Sciences, Sweden
- 2021 Hector Science Award, Hector Foundation II, Karlsruhe, Germany
- 2021 Louis-Jeantet Prize, Fondation Louis Jeantet, Geneva, Switzerland
- since 2020 International Member, National Academy of Sciences (NAS), USA
- 2020 Otto Warburg Medal, Gesellschaft für Biochemie und Molekularbiologie (GBM), Frankfurt am Main and Biochimica et Biophysica Acta (BBA), Elsevier, Amsterdam, Niederlande
- 2019 Ernst Schering Prize, Schering Stiftung, Berlin, Germany
- 2016 Centenary Award, British Biochemical Society, UK
- 2015 Class of 1942 James B. Sumner Lectureship, Cornell University, Ithaca, USA

- 2015 Arthur Burkhardt-Preis, Arthur Burkhardt-Stiftung für Wissenschaftsförderung, Bayreuth, Germany
- 2015 Guest Professor, Karolinska Institutet, Stockholm, Sweden
- 2012 Cross, Cross of Merit, Federal Republic of Germany
- 2012 Paula und Richard von Hertwig-Preis, Verein der Freunde und Förderer des Helmholtz Zentrums (VdFF), Munich, Germany
- 2012 Vallee Visiting Professorship, The Vallee Foundation, Boston, USA
- 2011 Feldberg Prize, Feldberg Foundation, London, UK
- since 2010 Member, Max Planck Society, Munich, Germany
- 2010 Medal of Honour, Robert Koch Institute, Berlin, Germany
- since 2009 Elected Member, EMBO
- since 2009 Member, German National Academy of Sciences Leopoldina, Germany
- 2009 Ernst Jung-Preis für Medizin, Jung-Stiftung für Wissenschaft und Forschung, Hamburg, Germany
- 2009 Hansen Family and Early Excellence in Science Awards, Bayer Science and Education Foundation, Leverkusen, Germany
- 2008 Bijvoet Medal, University of Utrecht, Utrecht, Netherlands
- 2007 Steinhofer Lecture, University of Freiburg, Freiburg, Germany
- 2007 Research Professorship, LMUexcellent, Munich, Germany
- 2007 Philip Morris Forschungspreis, Philip Morris Stiftung, Munich, Germany
- 2006 Gottfried Wilhelm Leibnitz Prize, DFG
- 2004 10th Eppendorf Award for Young European Researchers, Eppendorf AG, Hamburg, Germany
- 2002 GlaxoSmithKline Science Award, (GlaxoSmithKline Wissenschaftspreis), GlaxoSmithKline Foundation (GlaxoSmithKline Stiftung), Munich, Germany
- 2000 Young Investigator, EMBO
- 2000 Future Investigator Award, Molecular Structure Corporation (MSC), The Woodlands, USA

Research Priorities

Patrick Cramer is a chemist and molecular biologist. He researches how cells read out information stored in the genome (gene transcription). He was able to visualize the three-dimensional structure

of one of the largest enzymes in the cell nucleus and identified essential parts of the transcription mechanism.

In the tissues of the body, many different proteins fulfil very different tasks. The proteins are produced according to instructions that are stored in the genome. In order to synthesize new proteins, the instruction in the DNA must be read. For this gene transcription, the cells use certain enzymes, so-called RNA polymerases. Patrick Cramer wants to understand how these polymerases work and elucidate the mechanisms of gene transcription and gene regulation.

Together with his team, Cramer has identified the three-dimensional structure of RNA polymerase II of yeast cells and was able to show which cellular factors control it. He was the first to describe the three-dimensional atomic structure of a polymerase in a mammal, the cow. He also recorded the first film of transcription in atomic resolution.

Patrick Cramer wants to further investigate RNA polymerase in mammalian cells and find out how genes are switched on and off at the molecular level and how their activity is controlled. With his research, he wants to completely understand the regulation of gene transcription. To achieve this, he uses structural biological methods such as X-ray crystallography and electron microscopy, as well as methods of bioinformatics and functional genomics. Cramer has expanded the research field of life sciences and contributes to the fields of genome biology and molecular systems biology.