Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Angela M. Gronenborn

Image: Markus Scholz | Leopoldina

Name: **Angela M. Gronenborn**
Born: **11 May 1950**

Research Priorities: NMR-spectroscopy, structure analysis, proteins, HIV infection, macromolecular complexes

Angela M. Gronenborn is a chemist and pioneer in the field of multidimensional solution NMR spectroscopy (Nuclear Magnetic Resonance). She researches the structure and cellular interactions of proteins. Some of the first NMR protein structures that were registered in the Protein Data Bank (PDB) came from her laboratory. One focus of her work are the proteins involved in HIV infections.

Academic and Professional Career

since 2006	Professor, Department of Bioengineering, University of Pittsburgh, Swanson School of Engineering, Pittsburgh, USA
since 2006	Director, Pittsburgh Center for HIV Protein Interactions (PCHPI), Pittsburgh, USA
since 2005	UPMC Rosalind Franklin Professor and Head, Department of Structural Biology, School of Medicine, University of Pittsburgh, Pittsburgh, USA
2005	Professor, Department of Pharmacology, School of Medicine, University of Pittsburgh, Pittsburgh, USA
2004	Visiting Professor, Department of Pharmacology and Director, Structural Biology Program, School of Medicine, University of Pittsburgh, Pittsburgh, USA
since 1996	Senior Biomedical Research Service (SBRS), National Institutes of Health, USA
1991 - 2005	Head, Structural Biology Section, Laboratory of Chemical Physics, National Institutes of Health, Bethesda, USA

1988 - 2005	Senior Researcher, Laboratory of Chemical Physics, National Institutes of Health (NIH), Bethesda, USA
1987	Habilitation in Physical Biochemistry, Ludwig-Maximilians-Universität München, Munich, Germany
1984 - 1988	Head, Biological NMR Group, Max Planck Institute of Biochemistry, Martinsried, Germany
1979 - 1984	Researcher, Divisions of Molecular Pharmacology and Physical Biochemistry, National Institute for Medical Research, Mill Hill, London, UK
1978	Postdoctoral Fellow, Division of Molecular Pharmacology, National Institute for Medical Research, Mill Hill, London, UK
1978	Ph.D. in Organic Chemistry, University of Cologne, Cologne, Germany
1975	Diploma, University of Cologne, Cologne, Germany
1969 - 1975	Degree in Chemistry, University of Cologne, Cologne, Germany

Functions in Scientific Societies and Committees

Member, Advisory Board, Max Planck Institute for Multidisciplinary Sciences, Göttingen, Germany

Editor, FEBS Journal

Project Coordination, Member in Collaborative Research Projects

2019 - 2023	Project “Structural characterization of interacting and aggregating cataract-associated crystallins”, National Science Foundation (NSF), USA
2017 - 2021	Principal Investigator, Project “Development of Fluorine Nuclear Magnetic Resonance (NMR) Spectroscopy as a Versatile Probe of Structure and Chemical Environment in Proteins”, NSF, USA
2011 - 2014	Project “Conformation and Dynamics of Cataract Mutants of human gammaD crystallin”, NSF, USA
2007 - 2022	Principal Investigator, Project “Allosteric regulation of SIRT1 by a PACS-2 and DBC1 regulatory hub”, NSF, USA

Honours and Awarded Memberships

2021	Biophysical Society’s 2021 Founders Award, Biophysical Society, Rockville, USA
2020	E. Bright Wilson Award, Spectroscopy, American Chemical Society, USA

2019	Richard R. Ernst Prize, Magnetic Resonance, Euromar Conference, The Netherlands
2019	Mildred Cohn Award, Biological Chemistry, American Society of Biochemistry and Molecular Biology, USA
since 2018	Member, American Academy of Arts and Science, USA
2015 - 2018	Einstein Visiting Fellow, Einstein Foundation, Berlin, Germany
since 2014	Member, German National Academy of Sciences Leopoldina, Germany
2014	Life Sciences Award, Carnegie Science Foundation, Washington D.C., USA
since 2010	Member, Norwegian Academy of Science and Letters, Norway
since 2008	Fellow, International Society of Magnetic Resonance
since 2007	Member, US-National Academy of Science, USA
2006	Award for Excellence in Magnetic Resonance, Eastern Analytical Symposium and Exposition, Spring Lake, USA
since 2002	Fellow, American Association for the Advancement of Science (AAAS), USA
1992	Director's Award, NIH, Bethesda, USA
since 1990	Fellow, Royal Society of Chemistry, London, UK
1989	Scientific Achievement Award, Washington Academy of Sciences, Washington D.C., USA

Research Priorities

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NMR spectroscopy is one of the main analysis methods in chemistry and is extremely versatile. It allows molecule structures to be depicted in three-dimensional form and the interactions between molecules to be explained. Angela M. Gronenborn developed NMR methods for the structural analysis of proteins and macromolecular complexes. Using these methods she investigates the structure and interactions of viral and cellular proteins as well as their role in HIV-1 infections, one of the two known HI viruses. Her laboratory was able to identify the structures of some HIV and HIV-associated proteins, including the barrier-to-autointegration factor (BAF), the negative regulatory factor (NEF), and proteases. Angela M. Gronenborn wants to use the specific combination of data from solution and solid-state NMR, x-ray crystallography and cryo-electron microscopy to deliver further explanations about the virus' structure. In doing so, she aims to obtain new insights for the development of medication.

In other work, she researches the structural foundations of carbohydrate recognition by lectins. In addition to NMR and other types of spectroscopy, Angela M. Gronenborn and her team also carry out in-vivo studies. They research on living cells to investigate, in particular, the molecular structures and interactions linked to diseases.