Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae
Professor Dr Christiane Nüsslein-Volhard

Name: **Christiane Nüsslein-Volhard**
Date of birth: **20 October 1942**

Research Priorities: genetic control of pattern formation, gradient theory, Drosophila melanogaster, zebrafish Danio rerio, colour pattern formation in fishes

Christiane Nüsslein-Volhard is a developmental biologist and geneticist. Her research focuses primarily on the genetic and molecular basis of embryonic development in animals. The underlying question is how a complete organism develops from an egg cell and which genes and proteins are involved. In 1995, she received the Nobel Prize in Physiology or Medicine together with Edward B. Lewis and Eric F. Wieschaus "for her fundamental insights into the genetic control of early embryonic development".

Academic and Professional Career

since 2014	Director Emeritus, Max Planck Institute for Developmental Biology, Tübingen, Tübingen, Germany
since 1991	Honorary Professor, University of Tübingen, Tübingen, Germany
1985 - 2014	Scientific Member, Max Planck Society (MPG), Munich, Germany
	Director, Department of Genetics, Max Planck Institute of Developmental Biology, Tübingen, Germany
1981 - 1984	Leader, Independent Research Group, Friedrich Miescher Laboratory (FML), MPG, Tübingen, Germany
1978 - 1980	Group Leader, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
1977	Research Grant, German Research Foundation (DFG), Institute of Biology I (Zoology), University of Freiburg, Freiburg, Germany

1975 - 1976	Research Grant, European Molecular Biology Organisation (EMBO), Biozentrum Basel, Switzerland
1973	PhD in Genetics, University of Tübingen, Germany
1969 - 1974	Diploma and Doctoral Thesis, Max Planck Institute for Virus Research, Tübingen, Germany
1964 - 1969	Diploma in Biochemistry, University of Tübingen, Tübingen, Germany
1962 - 1964	Study of Biology, Chemistry, and Physics, Goethe University Frankfurt/Main, Frankfurt/Main, Germany

Functions in Scientific Societies and Committees

2013 - 2021	Chancellor, The Order Pour le Mérite, Federal Republic of Germany
2009 - 2014	Member, University Council, University of Tübingen, Germany
2009 - 2013	Vice-Chancellor, The Order Pour le Mérite, Federal Republic of Germany
2008	President, Society of German Natural Scientists and Physicians (GDNÄ), Germany
2005 - 2012	Member, Scientific Council, European Research Council (ERC)
2005 - 2012	Managing Director, FML, MPG, Tübingen, Germany
since 2004	Founder, Chairperson, Christiane Nüsslein-Volhard Foundation to support Women in Science with Children (CNV), Tübingen, Germany
2003 - 2009	Secretary General, European Molecular Biology Organisation (EMBO), Heidelberg, Germany
2001 - 2007	Member, National Ethics Council, Federal Republic of Germany
1995 - 2007	Senate Member, MPG, Munich, Germany

Project Coordination, Membership in Collaborative Projects

2016 - 2022	Advanced Grant, “Danio pattern”, ERC
2001 - 2005	Project “Structural and functional analysis of the genome of the zebrafish Danio rerio, a model organism for biomedical research”, DFG, Germany

Honours and Awarded Memberships

since 2020	Honorary Senator, MPG, Munich, Germany
2019	Schillerpreis der Stadt Marbach, Marbach, Germany

2016	Advanced Grant, ERC
since 2010	Member, French Académie des Sciences, France
2007	Honorary Doctorate, Weizmann Institut, Rehovot, Israel
2006	Honorary Doctorate, University of Geneva, Switzerland
2005	Honorary Doctorate, University of Oxford, Oxford, UK
	Honorary Doctorate, University of Sheffield, Sheffield, UK
2005	Great Cross with Star and Sash, Federal Republic of Germany
2002	Honorary Doctorate, University College London, London, UK
	Honorary Doctorate, Ochanomizu University Tokyo, Tokyo, Japan
2001	Honorary Doctorate, The Rockefeller University, New York City , USA
since 1997	Member, The Order Pour le Mérite for Sciences and the Arts, Federal President of Germany
1996	Great Cross with Star, Federal Republic of Germany
1995	Nobel Prize in Physiology or Medicine (shared with Eric Wieschaus and Edward Lewis), Nobel Assembly at the Karolinska Institutet, Sweden
1994	Cross of Merit 1st Class, Federal Republic of Germany
1993	Honorary Doctorate, Universität Freiburg, Freiburg, Germany
	Honorary Doctorate, Harvard University, Cambridge, USA
1993	Ernst Schering Prize, Ernst Schering Research Foundation, Berlin, Germany
1992	Louis-Jeantet Prize for Medicine, Geneva, Schweiz
1992	Dr. Otto Bayer Prize, Bayer AG, Leverkusen, Germany
1992	Mendel Medal, Genetics Society, London, UK
1992	Otto Warburg Medal, German Society for Biochemistry and Molecular Biology (GBM), Germany
1992	Louisa Gross Horwitz Prize, Columbia University Irving Medical Center (CUIMC), New York City, USA
1991	Honorary Doctorate, Utrecht University, Utrecht, Netherlands
	Honorary Doctorate, Princeton University, New Jersey, USA
since 1991	Member, German National Academy of Sciences Leopoldina, Germany
since 1990	Foreign Member, National Academy of Sciences (NAS), USA
since 1990	Foreign Member, Royal Society, UK

1990	Rosenstiel Medal, Brandeis University, Waltham, USA
1989	Carus Medal, German National Academy of Sciences Leopoldina, Germany
1988	Alice and Joseph Brooks International Lecture on the Neurosciences, Harvard Medical School (HMS), Boston, USA
1986	Franz Vogt Prize, Justus Liebig University Gießen (JLU), Gießen, Germany
1986	Gottfried Wilhelm Leibniz Prize, DFG, Germany

Research Priorities

Christiane Nüsslein-Volhard is a developmental biologist and geneticist. Her research focuses on the genetic and molecular development analysis of animals, particularly the fly Drosophila melanogaster and the zebrafish Danio rerio. She has received numerous awards, honorary doctorates and prizes for her discovery of genes that control animal and human development and for the verification of shape-forming gradients in the fly embryo. In 1995, she was awarded the Nobel Prize in Medicine or Physiology together with Edward B. Lewis and Eric F. Wieschaus.

Together with Eric Wieschaus, Christiane Nüsslein-Volhard discovered about 120 genes in systematic studies at the EMBL in Heidelberg that have important functions in shaping the fly embryo, especially its division into segments. Identifying and describing these genes has contributed significantly to understanding general mechanisms of pattern formation during animal development. Many of the new genes also play important roles (in modified form) in vertebrate development and in carcinogenesis.

As head of research at the FML in Tübingen, Christiane Nüsslein-Volhard discovered further molecular factors already present in the egg that form the basis for the development of embryonic axes and the first subdivisions in the egg. She was the first to document the existence of gradients of shape-forming substances that activate different genes in a concentration-dependent manner and thus lead to an increase in spatial complexity during development.

Since 1992, her research group has been mainly concerned with the evolution and genetics of the zebrafish Danio rerio. Her systematic genetic studies have contributed significantly to establishing this fish as a new and powerful model system in vertebrate genetics. Recently, her research has focused on the genetic basis of forming the external shape of the adult fish, the variation of which plays a significant role in the evolution of shapes. In particular, her research group is investigating the genetic basis of stripe formation as a model for the development of colour patterns in vertebrates. Molecular interactions between the three colour cell types (black melanophores, yellow xanthophores and silver reflecting iridophores) play a decisive role.

In 2004, Christiane Nüsslein-Volhard established the CNV Foundation for the Promotion of Science and Research. The foundation's mission is to provide financial support for women with children during their doctoral studies to allow them more freedom and mobility for a career in science.