



Curriculum Vitae Prof. Dr. Jean-Pierre Changeux

Name: Jean-Pierre Changeux

Born: 6 April 1936

Research Priorities: Molecular neurobiology, neuronal receptors, signal transduction, allosteric interaction, cognitive processes

Jean-Pierre Changeux is a French molecular biologist and neuroscientist whose research focuses on signal transmission in the nervous system. Through his work, he has found links between basic molecular mechanisms and the functions of the brain at cellular and higher levels.

Academic and Professional Career

- 2008 - 2010 Visiting Professor of Pharmacology, University of California (UC), San Diego, USA
- since 2006 Emeritus Professor, Institut Pasteur, Paris, France
- 1975 - 2006 Director, Receptors and Cognition Unit, French National Centre for Scientific Research (CNRS), Institut Pasteur, Paris, France
- 1975 - 2006 Professor, Collège de France, Paris, France
- 1975 - 2006 Professor, Institut Pasteur, Paris, France
- 1972 - 2006 Director, Molecular Neurobiology Research Group, Institut Pasteur, Paris, France
- 1967 - 1975 Deputy Director, Institute for Molecular Biology, Collège de France, Paris, France
- 1966 - 1967 Associate Visiting Professor, Vagelos College of Physicians and Surgeons, Columbia University, New York City, USA
- 1965 - 1966 Postdoctoral Fellow, UC, Berkeley, USA
- 1964 Doctorate (Doctorat ès sciences) (PhD), Chemistry of Metabolism, Institut Pasteur, Paris, France
- 1960 - 1967 Lecturer, Chemistry of Metabolism, Faculté des sciences de Paris, Paris, France

- 1958 - 1960 Laboratory Assistant (Agrégé préparateur) for Zoology, École normale supérieure (ENS), Paris, France
- 1958 Masters in Natural Sciences (“sciences naturelles”), ENS, Paris, France
- 1955 - 1958 Degree in Natural Sciences, ENS, Paris, France

Functions in Scientific Societies and Committees

- since 2007 Member, Conseil scientifique de l’Agence Internationale des Musées, France
Muséums, Paris, France
- since 2007 President, Ethical Vigilance Committee, Institut Pasteur, Paris, France
- 2000 - 2005 Member, Board of Governors, Institut Pasteur, Paris, France
- since 1999 President, Commission interministérielle pour la Conservation du Patrimoine Artistique National, France
- 1998 - 2003 Member, Comité de l’Énergie Atomique, Paris, France
- 1992 - 1998 President, Comité Consultatif National d’Éthique pour les Sciences de la Vie et de la Santé (CCNE), France
- 1991 - 1998 Member, Conseil du Développement européen de la science et de la technologie (CODEST), France
- 1990 - 1992 Member, Scientific Committee, European Science Foundation (ESF)
- 1990 - 1991 Member, Scientific Council, Human Frontier Science Program
- 1989 - 1992 Member, Scientific Council, Institut Pasteur, Paris, France
- 1989 - 1992 President, French Neuroscience Society, France
- 1988 - 1992 President, l’Action Concertée “Sciences de la cognition”, Ministère de la Recherche scientifique et technique, Ministère de l’Éducation nationale, France
- 1987 - 1989 Member, Conseil supérieur de la recherche et de la technologie, France
- 1983 - 1987 President, Scientific Council, INSERM, France

Project Coordination, Membership in Collaborative Research Projects

- 2008 Distinguished Lecture, Centennial Meeting on Ligand – Gated Ion Channels, American Society for Pharmacology and Experimental Therapeutics, San Diego, USA
- 2007 Benjamin W. Zwelfach Memorial Lecture, UC, San Diego, USA
- 2005 Jerry A. Weisbach Memorial Lecture, Rockefeller University, New York City, USA

- 2004 The Heller Lecture Series in Computational Neuroscience, Edmond & Lily Safra Center for Brain Sciences (ELSC), Hebrew University of Jerusalem, Jerusalem, Israel
- 2003 The Kenneth Myer Lecture, National Library of Australia, Canberra, Australia
- 2002 Wenner-Gren Distinguished Lecture, Wenner-Gren Foundations, Stockholm, Sweden
- 2002 Schueler Distinguished Lecture in Pharmacology, New Orleans, USA
- 2001 Annual Sterling Lecture, Albany Medical College, Albany, USA
- 2000 Friday Evening Lecture, The Marine Biological Laboratory, Woods Hole, USA
- 1999 Carl Friedrich von Siemens Foundation Lecture, Carl Friedrich von Siemens Foundation, Munich, Germany
- 1999 First Mind Brain and Behavior Lectures, Harvard University, Cambridge, USA
- 1999 Burroughs-Wellcome Lecture in Pharmacology, Washington, DC, USA

Honours and Awarded Memberships

- 2018 Albert Einstein World Award of Science, World Cultural Council
- 2016 International Research Prize, Olav Thon Foundation, Oslo, Norway
- 2010 Pasarow Award for “Extraordinary achievements in neuropsychiatric research”, Robert J. and Claire Pasarow Foundation, Santa Monica, USA
- 2008 Neuronal Plasticity Prize, Foundation Ipsen, Boulogne-Billancourt, France
- 2008 CINP Pioneer Award, The International College of Neuropsychopharmacology (CINP)
- 2007 Award in the Neurosciences, National Academy of Sciences (NAS), USA
- 2006 Golden Eurydice Award, International Forum of Biophilosophy
- 2006 Dart/NYU Biotechnology Award in Basic Biotechnology, NYU Grossman School of Medicine, New York City, USA
- 2005 Lewis Thomas Prize for Writing about Science, Rockefeller University, New York City, USA
- 2002 Karl Spencer Lashley Award in Neuroscience, American Philosophical Society, USA
- 2001 Balzan Prize for Cognitive Neurosciences, International Balzan Prize Foundation
- 2000 Langley Award for Basic Research on Nicotine and Tobacco, Washington, DC, USA
- 1999 Linus Pauling Medal, Stanford, USA
- 1999 Neuropsychopharmacology Award, European College of Neuropsychopharmacology (ECNP)

- 1997 Prize Jean-Louis Signoret in Neuropsychology, Foundation Ipsen, Boulogne-Billancourt, France
- 1997 Grand Prix, Fondation pour la Recherche Médicale, Paris, France
- 1996 Max Delbrück Medal, Max Delbrück Center for Molecular Medicine (MDC), Berlin, Germany
- 1994 Sir Hans Krebs Medal, Federation of European Biochemical Societies (FEBS)
- since 1994 Member, American Academy of Arts and Sciences, USA
- 1994 Goodman and Gilman Award in Receptor Pharmacology, American Society for Pharmacology and Experimental Therapeutics (ASPET), USA
- 1994 Camillo Golgi Medal, Accademia Nazionale dei Lincei, Italy
- 1993 Thudichum Medal, Biochemical Society, London, UK
- 1993 Louis-Jeantet Prize for Medicine, Louis-Jeantet Foundation, Geneva, Switzerland
- 1992 Science for Art, Prix d'Honneur, Louis Vuitton Foundation (LVMH), Paris, France
- 1992 International Prize Amedeo e Frances Herlitzka for Physiological Sciences, UK
- 1992 Gold Medal, CNRS, Paris, France
- 1991 Carl Gustaf Bernhard Medal, Royal Swedish Academy of Sciences, Sweden
- 1990 Bristol Myers Squibb Award for Distinguished Achievement in Neuroscience Research, Bristol Myers Squibb Foundation, New York City, USA
- 1988 Rita Levi-Montalcini Award, Fidia Research Foundation, Washington, DC, USA
- since 1988 Member, Academia Europaea
- 1986 F.O. Schmitt Medal and Prize, Neuroscience Research Program, Rockefeller University, New York City, USA
- 1985 Ciba Geigy Drew Award in Biomedical Research, Ciba AG, Basel, Switzerland and Drew University, Madison, USA
- 1983 Prix Broquette-Gonin, Académie française, France
- since 1983 Member, Royal Swedish Academy of Sciences, Sweden
- since 1983 Member, National Academy of Sciences (NAS), USA
- 1982 Richard Lounsbery Prize, NAS, USA and Académie des Sciences, France
- 1982 Wolf Prize in Medicine, Wolf Foundation, Herzliya, Israel
- 1978 Canada Gairdner International Award, Gairdner Foundation, Toronto, Canada
- 1977 Alexandre Joannidès Prize, Académie des Sciences, France

- 1976 Member, Accademia di Medicina di Torino, Turin, Italy
- since 1974 Member, German National Academy of Sciences Leopoldina, Germany

Research Priorities

Jean-Pierre Changeux is a French molecular biologist and neuroscientist whose research focuses on signal transmission in the nervous system. Through his work, he has found links between basic molecular mechanisms and the functions of the brain at cellular and higher levels.

From an early stage in his career, Changeux was interested in investigating how neurons in the brain communicate with one another. While working towards his doctorate, the molecular biologist focused on the regulation of enzymes, which led to him uncovering the concept of allosteric interaction. This involves a signal acting on one site on an enzyme and triggering a conformational change, which brings about substrate binding on a topographically distinct site.

Changeux was the first to identify a neurotransmitter receptor regulated by an ion channel, namely the nicotinic acetylcholine receptor. Together with his team, he characterised the receptor and discovered that it is made up of five subunits. Changeux's team also identified the binding site of acetylcholine. Today, his findings on the receptors of acetylcholine, which he isolated from the electric organs of several fish species, constitute fundamental scientific knowledge. Changeux went on to extend his research on lower vertebrates so that it encompassed higher vertebrates, including humans.

During his work on mice, Changeux discovered that mutations in the ion channel disrupt the functioning of the receptor. Loss-of-function mutations affecting the acetylcholine receptor lead to deficits in cognitive learning and accelerate the ageing process. This research demonstrated that higher functions such as long-term memory, attentiveness, emotions and dependency are strongly linked to the neuronal mechanisms regulated by the nicotinic acetylcholine receptor.

Changeux also coined the now established concept of "receptor diseases". Drawing on this notion, scientists were later able to demonstrate that there are links between schizophrenia and mutations in a subunit of the acetylcholine receptor and that Alzheimer's disease is characterised by a deficit in acetylcholine due to the loss of nerve cells.

In the 1990s, Changeux used his knowledge of the acetylcholine receptor to investigate its role in higher cognitive functions, inspiring numerous other scientists to conduct more in-depth research into this central neural circuit.

Changeux has used his experimental and theoretical work to help give scientists a new understanding of the brain and mind and has also shared his findings in popular scientific publications.