



Curriculum Vitae Professor Dr Eric R. Kandel



Name: Eric R. Kandel

Date of birth: 7 November 1929

Research Priorities: signal transmission in the nervous system, memory, learning capacity, synapse function, cAMP (cyclic adenosine monophosphate), CREB (cAMP response element binding protein), CPEB (cytoplasmic polyadenylation binding protein)

Eric R. Kandel is an Austrian-US neuroscientist. In 2000, he was awarded the Nobel Prize in Physiology or Medicine together with Arvid Carlsson and Paul Greengard. The Nobel Committee recognised the discoveries of the three scientists on “signal transmission in the nervous system”. Throughout his research life, Eric Richard Kandel pursued the question of how memory and recollection function.

Academic and Professional Career

- since 2012 Co-Director, Mortimer B. Zuckerman Mind Brain Behavior Institute, Columbia University, New York City, USA
- since 1992 Professor, Department of Biochemistry and Molecular Biophysics, Columbia University, New York City, USA
- since 1984 Senior Investigator, Howard Hughes Medical Institute, Columbia University, New York City, USA
- since 1974 Professor, Department of Physiology and Psychiatry, Columbia University, New York City, USA
- 1974 - 1983 Director, Center for Neurobiology and Behavior, Columbia University, New York City, USA

- 1965 - 1974 Associate Professor, Department of Physiology and Psychiatry, New York University (NYU), New York, USA
- 1964 - 1965 Staff Psychiatrist, Harvard Medical School (HMS), Boston, USA
- 1960 - 1964 Resident, Department of Psychiatry, HMS, Boston, USA
- 1956 MD, NYU School of Medicine, New York, USA
- 1952 Study of medicine, NYU School of Medicine, New York City, USA
Study of history and literature, Harvard University, Boston, USA

Functions in Scientific Societies and Committees

- 1980 - 1981 President, Society for Neurosciences (SfN), Washington D.C., USA

Honours and Awarded Memberships

- 2019 Großes Ehrenzeichen am Bande, Vienna Medical Association, Vienna, Austria
- 2019 Der Goldene Rathausmann Auszeichnung, City of Vienna, Austria
- 2018 Honorary Doctorate, Medical University of Vienna, Vienna Austria
- since 2013 Foreign Member, Royal Society, London, UK
- 2012 Bruno Kreisky Prize for the political Book, Karl-Renner-Institut, Vienna, Austria
- 2009 Honorary Citizen, City of Vienna, Austria
- 2008 Viktor Frankl Award, Viktor-Frankl-Fonds, Vienna, Austria
- 2006 Benjamin Franklin Medal, American Philosophical Society (APS), USA
- 2005 Austrian Decoration for Science and Art, National Council of Austria
- 2000 Nobel Prize in Physiology or Medicine (shared with Arvid Carlsson and Paul Greengard), Nobel Assembly at the Karolinska Institutet, Stockholm, Sweden
- 1999 Wolf Prize in Biology and Medicine, Wolf Foundation, Herzlia Pituach, Israel
- 1997 Charles A. Dana Award for Pioneering Achievement in Health (shared with P. Greengard), Dana Foundation, New York City, USA
- 1997 Gerard Prize for Outstanding Achievement in Neuroscience, SfN, Washington D.C., USA
- 1996 New York Academy of Medicine Award, New York Academy of Medicine (NYAM), New York City, USA

- 1995 Stevens Triennial Prize, Columbia University Irving Medical Center, New York City, USA
- 1993 F.O. Schmitt Medal and Prize in Neuroscience, Neurosciences Research Program (NRP), USA
- 1993 Harvey Prize, Technion – Israel Institute of Technology, Haifa, Israel
- 1992 Jean-Louis Signoret's Prize on Memory, Fondation Ipsen, Boulogne-Billancourt, France
- 1992 Warren Triennial Prize, Executive Committee on Research (ECOR), Massachusetts General Hospital (MGH), Boston, USA
- 1991 Bristol-Myers Squibb Award for Distinguished Achievement in Neuroscience Research (shared with TVM Bliss), Bristol-Myers Squibb Corp., New York City, USA
- 1990 Diploma Internacional Cajal, Cajal Insitute (IC), Madrid, Spain
- since 1989 Member, German National Academy of Sciences Leopoldina, Germany
- 1989 Award in Neuroscience, Robert J. and Clarie Pasarow Foundation, Santa Monica, USA
- 1989 Award in Basic Science, American College of Physicians (ACP), USA
- 1989 Distinguished Service Award, American Psychiatric Association (APA), USA
- 1988 Gold Medal for Scientific Merit, USA
- 1988 National Medal of Science, President of the United States of America
- 1998 Member, The Order Pour le Mérite for Sciences and the Arts, Federal President of Germany
- 1987 Gairdner International Award for Outstanding Achievements in Medical Science, Gairdner Foundation, Toronto, Canada
- 1985 Award, American Association of Medical Colleges (AAMC), USA
- 1984 Howard Crosby Warren Medal, Society of Experimental Psychologists (SEP), USA
- 1984 Lewis S. Rosenstiel Award for Distinguished Work (shared with D. Koshland), Brandeis University, Waltham, USA
- 1983 Albert Lasker Basic Medical Research Award (shared with VB. Mountcastle), Lasker Foundation, New York City, USA
- 1982 Dickson Prize in Biology and Medicine, University of Pittsburgh, Piitsburgh, USA
- 1981 Karl Spencer Lashley Prize in Neurobiology, APS, Philadelphia, USA
- 1979 Solomon A. Berson Medical Alumni Achievement Award, NYU Grossman School of Medicine, New York City, USA

1977	Lucy G. Moses Prize for Research in Basic Neurology, Columbia University, New York City, USA
1977	Lester N. Hofheimer Prize for Research, Lieutenant Lester N. Hofheimer Fund, New York City, USA
since 1974	Member, National Academy of Sciences (NAS), USA
1959	Henry L. Moses Research Award, Montefiore Hospital, Hove, UK

Research Priorities

Eric R. Kandel is an Austrian-US neuroscientist. In 2000, he was awarded the Nobel Prize in Physiology or Medicine together with Arvid Carlsson and Paul Greengard. The Nobel Committee recognised the discoveries of the three scientists on “signal transmission in the nervous system”. Throughout his research life, Eric Richard Kandel pursued the question of how memory and recollection function.

Eric Kandel's interest focused on the biochemical processes during learning and storing memories. He explored the basics with traditional behavioural experiments on the nervous system of a marine snail (*Aplysia*). Further experiments showed different reactions in the nerve cells depending on the type of stimulus. After superficial stimuli, only short-term memory was affected; the phosphorylation of proteins in the synapses led to a short-term increase in the release of neurotransmitters. This is not sufficient to create a long-term memory; the information must be expressed in the formation of new proteins. Only then can the form and function of the synapse change permanently, and the brain acquires a new structure.

In animal experiments, Eric Kandel and his research group identified proteins involved in converting short-term memory into long-term memory and discovered the transcription factor CREB (cAMP response element binding protein). The activation of CREB led to increased synapses formation. An inhibition irritated the animals so that they could no longer find their food. Apparently, information was no longer stored long-term. The CREB protein was identified as one of the main switches involved in creating long-term memories.

Eric Kandel's assumption that certain learning mechanisms are evident in all living beings has proven correct. Now the researcher is working on the question as to which changes lead to memory loss in advanced age. Eric Kandel's interest is focused on prions, a group of Janus-faced proteins that, in addition to their natural shape, can also adopt a misfolded structure and then impose their misfolding onto other properly folded copies. This process resembles an infection, but the infectious agent is neither bacteria nor viruses but proteins. In collaboration with Joseph B. Rayman, Eric Kandel has pursued the question of what role prions play not only in infectious degenerative diseases, such as mad cow disease (BSE) and Creutzfeldt-Jakob disease, but also in non-communicable neurological disorders, such as Alzheimer's disease or Huntington's disease.