



## Curriculum Vitae Prof. Dr. Aaron Ciechanover



**Name:** Aaron Ciechanover

**Date of birth:** 1 October 1947

**Research Priorities:** proteins, ubiquitin, ubiquitin-directed protein degradation, ubiquitin-proteasome system (UPS), protein degradation disorders

Aaron Ciechanover is a biochemist. He investigates cellular mechanisms that mark proteins for degradation. His discovery that the regulatory protein ubiquitin attaches to a target protein in order to control its degradation process made him world-famous. In 2004, he was awarded the Nobel Prize in Chemistry together with Avram Hershko and Irwin Rose for this discovery. The scientists had thus provided essential insights into disposal of defective or excess proteins from cells. Protein degradation disorders are responsible for various diseases.

### Academic and Professional Career

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|-------------|---|
| 2013        | Associate Professor, TEFAF Oncology Chair, Maastricht University, Maastricht, Netherlands   |
| since 2011  | Adjunct Professor, Director, Institute for Chemistry and Biomedical Studies (ICBS), Nanjing University (NJU), Nanjing, China                        |
| 2004 - 2009 | Founder, Director, Lorry Lokey Interdisciplinary Center for Life Sciences and Engineering, Technion – Israel Institute of Technology, Haifa, Israel |
| since 2002  | Distinguished Research Professor, Technion, Haifa, Israel   |
| 1993 - 2000 | Director, Rappaport Family Institute for Research in the Medical Sciences, Technion, Haifa, Israel  |
| since 1992  | Full Professor, Department of Biochemistry, Faculty of Medicine, Technion, Haifa, Israel  |
| 1987 - 1992 | Associate Professor, Department of Biochemistry, Faculty of Medicine, Technion, Haifa, Israel   |

- 1984 - 1987 Senior Lecturer (with tenure), Department of Biochemistry, Faculty of Medicine, Technion, Haifa, Israel
- 1981 - 1984 Postdoctoral Fellow, Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology (MIT), Cambridge, USA
- 1981 Doctor of Sciences in Biology, Faculty of Medicine, Technion, Haifa, Israel
- 1979 - 1981 Lecturer, Department of Biochemistry, Faculty of Medicine, Technion, Haifa, Israel
- 1977 - 1979 Research Fellow, Department of Biochemistry, Faculty of Medicine, Technion, Haifa, Israel
- 1976 - 1981 Graduate Studies, Faculty of Medicine, Technion, Haifa, Israel
- 1973 Promotion in Medicine, Hadassah Medical School, The Hebrew University of Jerusalem (HUJI), Israel
- 1972 - 1973 Internship, Rambam University Medical Center, Technion, Haifa, Israel
- 1970 Master of Science in Medical Sciences, Faculty of Life Sciences and Department of Biochemistry, Hadassah Medical School, HUJI, Israel
- 1965 - 1972 Study of medicine, Hadassah Medical School, HUJI, Israel

#### **Functions in Scientific Societies and Committees**

- since 2015 Member, Scientific Advisory Board, Faculty of Life Sciences, University of Macau, Macau, China
- since 2015 Consultant to the President on Academic Affairs and Academic Development, University of Macau, Macau, China
- since 2014 Honorary President, The Israel Amyotrophic Lateral Sclerosis Society (IsrA.L.S), Israel
- since 2011 Member, Scientific Advisory Board, Friedrich Miescher Institute for Biomedical Research (FMI), Basel, Switzerland
- since 2010 Honorary President, Israel Cancer Association (ICA), Israel
- since 2010 Member, Scientific Advisory Board, Schneider Children's Medical Center of Israel, Petach Tikva, Israel
- since 2009 Member, Scientific Advisory Board, CEINGE Biotechnologie Avanzate, Naples, Italy
- since 2009 Co-Founder, International Institute for Biomedical Science and Technology (IIBMST), SUNY Upstate Medical University, Syracuse, USA
- since 2009 Member, National Advisory Board, Government of Singapore, Singapore
- since 2009 Member, Scientific Advisory Board, IRCCS Ospedale San Raffaele, Milan, Italy

- since 2009 Member, Scientific Advisory Board, Veneto Institute of Molecular Medicine (VIMM), Padua, Italy
- since 2008 Member, Israel National Council for Research and Development (Molmop), Israel
- since 2008 Member, President's Council, New York Academy of Sciences (NYAS), New York City, USA
- since 2008 Member, Editorial Board, Science China Life Sciences
- since 2007 Member, Board of Directors, German-Israeli Foundation for Scientific Research and Development (GIF), Jerusalem, Israel
- since 2007 Member, Board, Angelman Syndrome Foundation (ASF), Aurora, USA
- since 2007 Member, Editorial Board, Cell Death and Differentiation
- since 2006 Member, Board of Governors, Israeli Academy for the Hebrew Language, HUJI, Israel
- since 2006 Member, Advisory Board, Jockey Club Institute for Advanced Study (IAS), Hong Kong University of Science and Technology (HKUST), Kowloon, Hong Kong
- since 2006 Member, Advisory Board, Britton Chance Center for BioMedical Photonics, Huazhong University of Science and Technology (HUST), Wuhan, China
- since 2006 Member, International Union for Biochemistry and Molecular Biology (IUBMB)
- since 2006 Member, Editorial Board, Experimental Biology and Medicine
- 2005 - 2010 Chairperson, Scientific Advisory Board, Rambam Health Care Campus, Haifa, Israel
- since 2005 Member, Scientific Advisory Board, National Institute of Biotechnology (NIBN), Ben Gurion University in the Negev (BGU), Be'er Sheva, Israel
- since 2005 Member, Board of Governors, BGU, Be'er Sheva, Israel
- since 2005 Member, Board of Governors, Haifa University (UH), Haifa, Israel
- since 2005 Member, Editorial Board, Structural Chemistry
- since 1999 Member, Editorial Board, Israel Medical Association Journal
- since 1996 Member, Advisory Board, European Molecular Biology Organization (EMBO), Heidelberg, Germany

### **Honours and Awarded Memberships**

- since 2016 Member, German National Academy of Sciences Leopoldina, Germany
- since 2013 Foreign Member, Chinese Academy of Sciences (CAS), China
- since 2012 Member, American Association for Cancer Research (AACR), USA

- since 2012 Honorary Member, Georgian Association of Allergology and Clinical Immunology (GAACI), Georgia
- since 2012 Foreign Member, Georgian National Academy of Sciences (GNAS), Georgia
- 2011 Medal for Distinct Contribution to Science, International Union of Biochemistry and Molecular Biology
- since 2011 Foreign Member, Russian Academy of Sciences (RAS), Russia
- since 2011 Alexander von Humboldt Fellow, Alexander von Humboldt Foundation, Germany
- since 2011 Honorary Member, World Immunopathology Organization (WIPO)
- since 2011 Honorary Member, Hellenic Society for Biochemistry and Molecular Biology (HSBMB), Greece
- 2010 Lee Kuan Yew Visiting Professorship and Award, National University of Singapore (NUS), Singapore
- since 2009 Member, Academia Europaea
- since 2009 Founding Member, European Academy of Cancer Sciences (EACR)
- since 2009 Foreign Member, National Academy of Sciences of Ukraine (NASU), Ukraine
- since 2008 Foreign Member, Institute of Medicine, National Academies of the USA, USA
- since 2008 Foreign Honorary Member, American Academy of Arts and Sciences (AAAS), USA
- 2007 Medical Magnus Medal, Polish Academy of Medicine, Poland
- since 2007 Member, Pontifical Academy of Sciences (PAS), Vatican City
- since 2007 Member, Polish Academy of Sciences (PAN), Poland
- since 2007 Member, Albert Schweitzer World Academy of Medicine
- since 2007 Member, Korean Academy of Sciences and Technology (KAST), South Korea
- since 2007 Foreign Associate, National Academy of Sciences (NAS), USA
- 2006 Sir Hans Krebs Medal, Federation of the European Biochemical Societies (FEBS), Cambridge, UK
- since 2006 Honorary Member, Society for Experimental Biology and Medicine (SEBM), Washington D.C., USA
- since 2006 Fellow, Federation of Asian Chemical Societies (FACS)
- since 2005 Honorary Member, Royal Society of Chemistry (RSC), London, UK
- since 2005 Foreign Member, American Philosophical Society (APS), USA
- since 2005 Medal, Distinguished Lifetime Member, Cell Stress Society International (CSSI), Storrs, USA

- since 2004 Member, European Academy of Sciences and Arts (EASA), Salzburg, Austria
- since 2004 Member, European Academy of Sciences (EurASc), Brussels, Belgium
- since 2004 Member, Israeli National Academy of Sciences and Humanities, Israel
- since 2004 Honorary Member, American Chemical Society (ACS), USA
- 2004 Nobel Prize in Chemistry (shared with Avram Hershko and Irwin A. Rose), Royal Swedish Academy of Sciences (KVA), Sweden
- 2003 - 2006 Eminent Scientist Award, Japan Society for the Promotion of Science (JSPS), Japan
- 2003 Israel Prize for Biology, State of Israel, Israel
- 2002 EMET Prize for Art, Science and Culture (shared with Avram Hershko and Leo Sachs), A.M.N. Foundation for the Advancement of Science, Art and Culture in Israel, Israeli Prime Minister, Israel
- 2001 Michael Landau Award in Medical Sciences (shared with Avram Hershko), Mifal HaPayis, Tel Aviv, Israel
- 2000 Albert and Mary Lasker Award for Basic Medical Research (shared with Avram Hershko and Alexander Varshavsky), Lasker Foundation, New York City, USA
- 2000 Jewish National Fund Alkales Award for Distinguished Scientific Achievements, Jewish National Fund (JNF), Jerusalem, Israel
- seit 1999 Member, Asia-Pacific International Molecular Biology Network (A-IMBN), Seoul, South Korea
- 1999 Ilse & Helmut Wachter Award (shared with Avram Hershko), Ilse & Helmut Wachter Stiftung, Innsbruck, Austria
- 1988 - 1989 Eleanor Roosevelt Memorial Fellow, American Cancer Society (ACS), USA
- 1983 - 1984 Fellow, Medical Foundation and Charles A. King Trust, MIT, Cambridge, USA
- Research Career Development Award, Israel Cancer Research Fund (ICRF), New York City, USA
- 1981 - 1984 Fellow, ICRF, New York City, USA
- 1981 - 1984 Fulbright Fellow, MIT, Cambridge, USA
- 1981 - 1983 Fellow, The Leukemia & Lymphoma Society (LLS), New York City, USA
- Recipient of a wide selection of honorary doctorates and professorships

## Research Priorities

Aaron Ciechanover is a biochemist. He investigates cellular mechanisms that mark proteins for degradation. His discovery that the regulatory protein ubiquitin attaches to a target protein in order to control its degradation process made him world-famous. In 2004, he was awarded the Nobel Prize in Chemistry together with Avram Hershko and Irwin Rose for this discovery. The scientists had thus provided essential insights into disposal of defective or excess proteins from cells. Protein degradation disorders are responsible for various diseases.

The degradation process of defective or unwanted proteins is essential for the cell's survival. If the inactive proteins are not disposed of, they can become harmful. Aaron Ciechanover and his research team have recognised that the degradation of cellular proteins takes place in several steps, is temporally controlled and strictly regulated. The scientists uncovered that this process engages the molecule ubiquitin and that protein degradation is also instrumental in regulating other cellular processes, including cell cycle and division, differentiation, signal transduction, maintaining the integrity of the genome and proteome, and the cell's many communication pathways.

Disturbances in the degradation process can lead to diseases such as cancer, cystic fibrosis, Parkinson's, Alzheimer's and other neurodegenerative and inflammatory diseases. Research into the so-called ubiquitin-proteasome system by Aaron Ciechanover and his colleagues has led to the development of a novel cancer medication. With further research activities, including precision medicine, medications can be developed to target the proteins involved in the disease process specifically.