Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Dirk Trauner

Name: **Dirk Trauner**
Born: **17 April 1967**

Research Priorities: Biochemistry, photopharmacology, chemical synthesis, natural product synthesis

Dirk Trauner is an Austrian chemist and biochemist. His research focuses on the synthesis of biologically active bonds, the chemistry of natural products, and the development of new synthesis methods. He has achieved crucial breakthroughs in the area of photopharmacology in particular. The goal is to use targeted light to activate biologically active substances in the human body. This could be used in cancer treatment and ophthalmology.

Academic and Professional Career

since 2022	Penn Integrates Knowledge Professor, University of Pennsylvania, Philadelphia, USA
2017 - 2022	Professor of Neuroscience and Physiology and Janice Cutler Chair *in* Chemistry, New York University, New York City, USA
2017 - 2022	Professor of Neuroscience and Physiology, New York University, New York City, USA
2008 - 2017	Professor of Chemical Biology and Genetics, Ludwig-Maximilians-Universität (LMU Munich), Munich, Germany
2010	Research Associate, Lawrence Berkeley National Laboratory in California, Berkeley, USA
2006 - 2010	Professor, University of California, Berkeley, USA
2000 - 2006	Assistant Professor, University of California, Berkeley, USA
1998 - 2000	Postdoctoral Fellow, Memorial Sloan Kettering Cancer Center, New York City, USA
1997	Doctorate, University of Vienna, Vienna, Austria

1996 - 1997 Assistant Professor, University of Vienna, Vienna, Austria

1992 - 1995 Degree in Chemistry, Freie Universität Berlin, Berlin, Germany

1986 - 1991 Degree in Biology and Biochemistry, University of Vienna, Vienna, Austria

Functions in Scientific Societies and Committees

Member, Review Panel, NCCR Chemical Biology, Swiss National Science Foundation (SNSF), Switzerland

Member, Advisory Board, Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), Saarbrücken, Germany

Member, Selection Committee, Heinrich Wieland Prize, Boehringer Ingelheim Foundation, Mainz, Germany

Member, Minerva Weizmann Committee, Minerva Weizmann Programme, Minerva Stiftung, Munich, Germany

Associate Editor, Natural Product Reports

Associate Editor, Strategies and Tactics in Total Synthesis

Member, Editorial Advisory Board, ACS Central Science

Member, Editorial Advisory Board, ACS Chemical Neuroscience

Member, Editorial Advisory Board, Cell Chemical Biology

Member, Editorial Advisory Board, Chem

Project Coordination, Membership in Collaborative Research Projects

2014 - 2018 Project Head, Subproject “Exploring the pharmacology and photopharmacology of TRP channels”, Transregio (TRR) 152, German Research Foundation (DFG), Germany

2011 - 2016 Principal Investigator, Advanced Investigator Grant “Chemical Approaches to restoring Vision”, European Research Council (ERC)

2011 - 2018 Project Head, Subproject “Cascade reactions in natural products synthesis and new photoswitches to dynamically control biological pathways”, Collaborative Research Centre (CRC) 749, DFG, Germany

2010 - 2017 Project Head, Subproject “Development of Light-Gated Ion Channels With Red-Shifted Action Spectra”, Research Unit (FOR) 127, DFG, Germany

2010 - 2015 Project Head, Subproject “(Bio)Synthesis of archazolids and their analogs”, FOR 1406, DFG, Germany

2010 - 2013	Project Head, Subproject “Functional manipulation of glutamate receptors for circuitry mapping”, CRC 870, DFG, Germany
2007 - 2012	Participating Person, Project “Functional and structural characterization of small molecule interactions with ion channels”, DFG, Germany
2007 - 2012	Participating Person, Subproject “Photoswitchable lipids for the optical control of mechanosensitive ion channels”, Priority Programme (PP) 1926, DFG, Germany
2006 - 2019	Participating Researcher, Graduate School (GSC) 82 “Graduate School of Systemic Neurosciences”, DFG, Germany
2006 - 2019	Participating Researcher, Cluster of Excellence (EXC) 114 “Munich Center of Integrated Protein Science (CIPSM)”, DFG, Germany
2004 - 2006	Cooperation Partner, Research Fellowship “Stereoselective total synthesis of the cytotoxic marine alkaloid (-)-Haouamin A”, DFG, Germany

Honours and Awarded Memberships

2023	Inaugural Marnett-Porter Lecturer, Vanderbilt University, Nashville, USA
2023	Eun Lee Lecturer, Seoul National University, Seoul, South Korea
2023 - 2027	Honorary Skou Professor, Aarhus University, Aarhus, Danmark
2021	Arthur C. Cope Award, American Chemical Society (ACS), USA
since 2017	Member, German National Academy of Sciences Leopoldina, Germany
2016	Emil Fischer Medal, German Chemical Society (GDCh), Germany
2016	Otto Bayer Award, Bayer Science and Education Foundation, Leverkusen, Germany
2015 - 2016	George Büchi Lecturer, Massachusetts Institute of Technology, Cambridge, USA
2014 - 2015	Morris S. Kharasch Visiting Professor, University of Chicago, Chicago, USA
2014 - 2015	Novartis Chemistry Lectureship, University of Pennsylvania, Philadelphia, USA
2013	Kitasato Microbial Chemistry Medal, Kitasato Institute, Tokyo, Japan
2012	Shenzhen Graduate School Lectureship, Peking University, Beijing, China
2012	Lectureship, Nankai University, Tianjin, China
since 2011	Member, Austrian Academy of Sciences, Austria
2010	Fellowship, Japan Society for the Promotion of Science, Japan
2010	Andy Derome Lecturer, University of Oxford, Oxford, UK
2010	Givaudan Karrer Distinguished Visiting Professor, University of Zurich, Zurich, Switzerland

2008	Roche Excellence in Chemistry Award, F. Hoffmann-La Roche, Basel, Switzerland
2007	Schulich Lecturer, Technion, Haifa, Israel
2005	Novartis Young Investigator Award, Novartis AG, Basel, Switzerland
2004 - 2006	Japanese-American Frontiers of Science Fellow, Alexander von Humboldt Foundation, Bonn, Germany
2004	Young Investigator Award, Amgen Inc., Thousand Oaks, USA
2004	Young Investigator Award, AstraZeneca, Gaithersburg, USA
2003	Career Award, National Science Foundation (NSF), Alexandria, USA
2003	GlaxoSmithKline Chemistry Scholar Award, GlaxoSmithKline, London, UK
2003	Eli Lilly Grantee Award, Eli Lilly and Company, Indianapolis, USA
2003	NARSAD Young Investigator Award, Brain and Behavior Research Foundation, New York City, USA
2002	Hellman Family Faculty Award, University of California, Berkeley, USA
1998 - 2000	Schering Postdoctoral Fellowship Award, Schering Stiftung, Berlin, Germany
1997	Award, Austrian Chemical Society (GÖCH), Austria

Research Priorities

Dirk Trauner is an Austrian chemist and biochemist. His research focuses on the synthesis of biologically active bonds, the chemistry of natural products, and the development of new synthesis methods. He has achieved crucial breakthroughs in the area of photopharmacology in particular. The goal is to use targeted light to activate biologically active substances in the human body. This could be used in cancer treatment and ophthalmology.

The broad objective of Dirk Trauner's research is to demonstrate the potential of the chemical synthesis of biologically important molecules and to use them to establish synthetic biological pathways. He is especially well known for using light to turn medicinal substances on and off in the human body. Trauner developed the corresponding molecular switches for this. He makes use of the fact that some bonds change their structure when exposed to light. Blue light folds up the long, stretched "switch" into an angled shape, and green light or thermal energy reverses the process. This structural change also alters the molecule into which the switch is built – from an inactive form into an active one and vice versa. The chemical tools he developed are used in neuroscience and cellular biology. They promise both new approaches in precision therapeutics for cancer and diabetes as well as the potential to restore visual function.

Dirk Trauner's photopharmacological approach is comparatively new. His team works with animal models. Preliminary results indicate that light-controlled medicines could develop a completely

new class of therapeutics.