



Boehringer Ingelheim
Stiftung

2024
HEINRICH WIELAND PRIZE



**SCIENTIFIC SYMPOSIUM:
CELEBRATING 60 YEARS OF
SCIENTIFIC BREAKTHROUGHS & THE
2024 HEINRICH WIELAND PRIZE**

Nymphenburg Palace, Munich, Germany
Thursday, 24 October 2024

HEINRICH WIELAND PRIZE

The international Heinrich Wieland Prize honours distinguished scientists for their outstanding research on biologically active molecules and systems in the fields of chemistry, biochemistry, and physiology as well as their clinical importance. The prize is endowed with 250,000 euros by the Boehringer Ingelheim Foundation and named after Heinrich Wieland (1877–1957), Nobel laureate in Chemistry in 1927.

Every year, the Boehringer Ingelheim Foundation publishes an open call for nominations. It entrusts the selection of the awardees to a distinguished Board of Trustees. Five of the Heinrich Wieland laureates have gone on to receive a Nobel Prize.

www.heinrich-wieland-prize.de



HEINRICH OTTO WIELAND

Heinrich Otto Wieland was born on 4 July 1877 in Pforzheim, Germany. He studied chemistry at Ludwig-Maximilians-Universität (LMU) in Munich, Germany, where he received his doctorate in 1901 and was appointed “außerordentlicher Professor” in 1909. At that time, he was already interested in oxidation processes in living cells, one of the foundation stones of the field of biochemistry. He worked at Technical University of Munich (TUM) and LMU until 1921, with a two-year stint at the Kaiser Wilhelm Institute in Berlin-Dahlem. He then accepted a call to the University of Freiburg, but returned to LMU in 1925 to succeed Richard Willstätter as Chair of Chemistry. He retired in 1952 and died in Munich on 5 August 1957.

Heinrich Wieland received numerous awards, among them the 1927 Nobel Prize in Chemistry for his pioneering investigations of bile acids and related substances.

Heinrich Wieland was a cousin of Albert Boehringer, the founder of the Boehringer Ingelheim company. As early as 1903, Heinrich Wieland worked with the company and, in 1917, his advice led to the company establishing its first scientific department dedicated to innovative research. His scientific findings made it possible, for example, to produce drugs for cardiovascular and respiratory diseases.



“With the Heinrich Wieland Prize, we honour exceptional scientists from around the world for their pioneering research. Driven by their passion, they have made discoveries that could, in the long run, improve human health. To me, they also serve as incredibly inspiring role models for young scientists. Heinrich Wieland was such an extraordinary scientist and individual, whose work motivated many young researchers. I cannot think of a more fitting namesake for this prize!”

Christoph Boehringer, Chair of the Executive Committee of the Boehringer Ingelheim Foundation

HISTORY OF THE PRIZE

The Heinrich Wieland Prize was established in 1964 by the Margarine Institute, an organization focused on promoting scientific knowledge about lipids and nutrition. Initially endowed with 8,000 Deutschmarks, the prize recognized



2022 Heinrich Wieland Prize Symposium: Award lecture by Xiaowei Zhuang

exceptional research in biochemistry and physiology, with a particular focus on the clinical significance of lipids. From the outset, the selection of laureates was entrusted to a scientific Board of Trustees. On the 25th anniversary of the prize in 1989, a Heinrich Wieland "Medal in Gold" was introduced, which has since been awarded four times.

From 2001 to 2010, the company Boehringer Ingelheim endowed the prize, reflecting the close ties of the shareholder family Boehringer and von Baumbach to the

prize's namesake Heinrich Wieland. During this time, the scope of the award was broadened, and the prize money increased to 50,000 euros.

In 2011, the prize was transferred to the non-profit Boehringer Ingelheim Foundation. With the 50th anniversary of the prize in 2014, the foundation raised the award money to 100,000 euros and introduced the tradition of holding an annual scientific symposium alongside the award ceremony. This symposium celebrates the laureate's research, promotes scientific dialogue, and encourages the next generation of scientists.

Celebrating the 60th anniversary of the prize in 2024, the foundation raised the award money to 250,000 euros, making it one of the most highly endowed awards for fundamental research in the life sciences in Europe.



2018 Heinrich Wieland Prize Symposium: Junior scientists meet with speaker Bonnie Bassler

BOARD OF TRUSTEES

The Board of Trustees of the Heinrich Wieland Prize consists of nine internationally acclaimed scientists, reflecting the prize's broad thematic scope. Serving in an honorary capacity, they select the laureate each year from nominations submitted in response to an open call. In addition, they guide the strategic development of the prize and help shape the annual scientific award symposium and ceremony.

The current members of the Board of Trustees of the Heinrich Wieland Prize are:

Silvia Arber – University of Basel, Switzerland

Bonnie L. Bassler – Princeton University, USA

Stefan Bornstein (Deputy Chair) – University Hospital Carl Gustav Carus, Dresden, Germany

Erick M. Carreira – ETH Zurich, Switzerland

Florian Gantner – C. H. Boehringer Sohn AG & Co. KG, Biberach, Germany

Franz-Ulrich Hartl (Chair) – Max Planck Institute of Biochemistry, Martinsried, Germany

Kai Johnsson – Max Planck Institute for Medical Research, Heidelberg, Germany

Werner Seeger – University Hospital of Gießen and Marburg, Gießen, Germany

Fiona M. Watt – EMBO, Heidelberg, Germany

"It's a true privilege to work with my fellow trustees in selecting the winners of the Heinrich Wieland Prize. Each year we receive numerous outstanding nominations, making it a challenge to identify the most deserving scientist. Over time, the impact of the Heinrich Wieland laureates on their fields and beyond has been evident: Their work has been paradigm shifting in human physiology and led to new therapeutic approaches, with some even receiving additional prestigious awards, including five Nobel Prizes."

Professor Franz-Ulrich Hartl, Chair of the Scientific Board of Trustees of the Heinrich Wieland Prize

PROGRAMME

SCIENTIFIC SYMPOSIUM

9:00 AM	Registration
9:30 AM	Welcome and opening remarks Franz-Ulrich Hartl, Chair, Heinrich Wieland Prize Board of Trustees Max Planck Institute of Biochemistry, Martinsried, Germany
9:40 AM	Opening lecture: The mechanism of explosive neurotransmitter release James E. Rothman, Yale University, New Haven, USA
SESSION 1	Structural biology Chair: Franz-Ulrich Hartl
10:25 AM	Enabling discovery by in-cell structural biology Julia Mahamid, EMBL Heidelberg, Germany
10:45 AM	Revealing the machinery for production of proteins in human cells Nenad Ban, ETH Zurich, Switzerland
11:15 AM	Coffee break
11:45 AM	Safeguarding the ends: Structural mechanisms of human telomeric complexes Kelly Nguyen, MRC-LMB Cambridge, UK
SESSION 2	Neurobiology & Flash talks by junior scientists Chair: Fiona M. Watt, Heinrich Wieland Prize Board of Trustees EMBO, Heidelberg, Germany
12:05 PM	Mitochondrial origins of the pressure to sleep Gero Miesenböck, University of Oxford, UK
12:35 PM	Plasticity of the parental brain Johannes Kohl, The Francis Crick Institute, London, UK
12:55 PM	Flash talks by junior scientists
1:05 PM	Lunch break
1:35 PM	Poster session
SESSION 3	Metabolism & brain-body communication Chair: Werner Seeger, Heinrich Wieland Prize Board of Trustees University Hospital of Gießen and Marburg, Gießen, Germany
2:40 PM	CNS-dependent control of metabolism Jens Brüning, MPI for Metabolism Research, Cologne, Germany
3:10 PM	Beyond neurons in the neuroendocrine control of metabolism Cristina García Cáceres, Helmholtz Munich, Germany
3:30 PM	Body-brain communication Christoph A. Thaiss, University of Pennsylvania, Philadelphia, USA
3:50 PM	Coffee break and Meet the speakers

PROGRAMME

SESSION 4

Chemical biology

Chair: Erick M. Carreira, Heinrich Wieland Prize Board of Trustees
ETH Zurich, Switzerland

4:30 PM

Chemical biology approaches for drug discovery

Edward Tate, Imperial College London and The Francis Crick Institute,
London, UK

5:00 PM

Chemical proteomic approaches to study post-translational and pharmacological landscapes of immune dysregulation

Ekaterina Vinogradova, The Rockefeller University, New York, USA

5:20 PM

Decoding the protein dance

Paola Picotti, ETH Zurich, Switzerland

5:50 PM

Dinner break

6:30 PM

AWARD CEREMONY & BEST POSTER AWARDS

Presented by Stephan Formella, Managing Director Science & Research,
Boehringer Ingelheim Foundation, Mainz, Germany

Best poster awards presentation

by Florian Gantner, Heinrich Wieland Prize Board of Trustees
Boehringer Ingelheim GmbH & Co KG, Biberach, Germany

Musical introduction

Jacob Gade (1879–1963): Tango “Jalousie”

Welcome address

Christoph Boehringer, Chair of the Executive Committee, Boehringer Ingelheim
Foundation, Mainz, Germany

Laudation

Dirk Trauner, University of Pennsylvania, Philadelphia, USA

Award presentation to Benjamin F. Cravatt

by Christoph Boehringer and Franz-Ulrich Hartl

Musical interlude

Carlos Gardel (1890–1935): Por una cabeza

Award lecture: Activity-based proteomics – protein and ligand discovery on a global scale

Benjamin F. Cravatt, The Scripps Research Institute, La Jolla, USA

Musical conclusion

Astor Piazzolla (1921–1992): Libertango

Closing remarks: Stephan Formella

8:15 PM

Get-together

Music performed by the Schumann Quartet Munich (members of the Bavarian State Orchestra):
Barbara Burgdorf (violin), Traudi Pauer (violin), Wiebke Heidemeier (viola), Oliver Göske (cello)

Professor Benjamin F. Cravatt III, PhD

The Scripps Research Institute, La Jolla, USA

Benjamin Cravatt receives the 2024 Heinrich Wieland Prize for his groundbreaking contributions to the development and application of methods for the functional annotation of enzymes. He devised activity-based protein profiling (ABPP), a chemical proteomic strategy, which uses small-molecule probes to measure the activity of many enzymes in parallel directly in native biological systems. ABPP is now widely applied in the discovery and characterization of enzymes and small-molecule enzyme inhibitors in vitro, in cells, and in vivo, across the entire proteome. With ABPP, Benjamin Cravatt discovered selective and efficacious inhibitors of enzymes that regulate endocannabinoid signalling in the brain. His research revealed central roles for endocannabinoid pathways in pain, inflammation, and neuropsychiatric and neurodegenerative disorders. More recently, Benjamin Cravatt extended the ABPP technology to non-enzymatic proteins. With this, it is now possible to map interactions for any small-molecule directly and globally across the proteome and to discover chemical probes for historically undruggable proteins. Benjamin Cravatt's transforming technologies have enabled the discovery of fundamental regulatory pathways in human physiology and disease and revolutionized how drug discovery is done today. The chemistry platforms and probes developed in Benjamin Cravatt's laboratory have served as the foundation for several drug candidates currently investigated in clinical trials for the treatment of cancer and neurological disorders.



Benjamin Cravatt studied biological sciences and history at Stanford University, USA. After receiving his PhD in macromolecular and cellular structure and chemistry from The Scripps Research Institute in La Jolla, USA, in 1996, he joined the faculty at The Scripps Research Institute as assistant professor. He was promoted to associate professor in 2001 and since 2004, he is full professor and the Norton B. Gilula Chair in Chemical Biology at The Scripps Research Institute. He is the recipient of numerous awards, including the Wolf Prize in Chemistry, the AACR Award for Outstanding Achievement in Chemistry and Cancer Research, the Jeremy Knowles Award by the Royal Society of Chemistry, and the R35 Outstanding Investigator Award of the National Cancer Institute. He is an elected member of the National Academy of Medicine, the American Academy of Arts and Sciences, the National Academy of Sciences, and a fellow of the National Academy of Inventors and the American Association for the Advancement of Science, USA.

SPEAKERS

Professor Nenad Ban, PhD

Swiss Federal Institute of Technology (ETH), Zurich, Switzerland



Nenad Ban has made outstanding contributions to the fields of biochemistry and structural biology through his studies of the mechanisms of protein synthesis. He revealed unique architectural features of eukaryotic ribosomes and advanced our understanding of eukaryotic translation and protein biogenesis, including co-translational processing, folding, and targeting of proteins to biological membranes. In studying mitochondrial ribosomes, he revealed their unusual structure, discovered how they initiate and terminate protein synthesis, and identified features that make them specialized for exclusive synthesis of membrane proteins in human mitochondria. Additionally, working on giant multifunctional enzymes involved in fatty acid synthesis, the Ban laboratory provided groundbreaking insights into the function of cellular assemblies involved in central metabolic processes. Their research explained the mechanism of substrate shuttling and delivery in these and related multienzymes.

Nenad Ban is a professor of structural molecular biology at ETH Zurich.

He studied molecular biology and biochemistry at University of Zagreb, Croatia, and in 1994 obtained his PhD in biochemistry with a minor in computer science from the University of California at Riverside, USA. Following his stay at Yale University as a postdoctoral fellow and a Burroughs Wellcome Fund Career Award group leader, he became assistant professor at ETH Zurich, Switzerland, in 2000 and was promoted to full professor in 2007. Nenad Ban received several awards including the Heinrich Wieland Prize, the AAAS Newcomb Cleveland Prize, the Jung Prize for Medicine, and the Otto Naegeli Prize for Medical Research. He is an elected member of the United States National Academy of Sciences, the American Academy of Arts and Sciences, EMBO, the Croatian Academy of Arts and Sciences, and the German National Academy of Sciences Leopoldina.

Professor Dr Jens C. Brüning

Max Planck Institute for Metabolism Research, Cologne, Germany



Jens Brüning made groundbreaking contributions to our understanding of how the brain regulates energy metabolism. He uncovered important and surprising roles of insulin signalling. He revealed how special groups of neurons of the hypothalamus in the brain respond to insulin: They regulate feeding behaviour, energy expenditure, and the distribution of nutrients to different organs according to glucose levels in the blood and the amount of fat stored in the body. More recently, his group unravelled that these hypothalamic cells are already regulated by the sensory perception of food, i.e. the smell of food, even before calories enter the body, and that this regulation rapidly modulates endoplasmic reticulum (ER) and mitochondrial functions in liver to metabolic adaptations for the changes to occur when food is consumed.

Jens Brüning received his MD from the University of Cologne, Germany, in 1993. He then moved to Harvard Medical School in Boston, USA, as a postdoc, and returned to Cologne in 1997 for his residency and to set up his own research group. He became tenured professor at the University

of Cologne in 2003. He was appointed director of the MPI for Metabolism Research and director of the Polyclinic for Endocrinology, Diabetes, and Preventive Medicine at the University Hospital of Cologne in 2011. His work was awarded by the Gottfried Wilhelm Leibniz Prize of DFG, the Ernst Jung Prize for Medicine, the Carl Friedrich von Weizsäcker Prize, the Heinrich Wieland Prize, and the Ernst Schering Prize. He is an elected member of EMBO and the National Academy of Sciences Leopoldina.

SPEAKERS

Professor Dr Cristina García-Cáceres

Helmholtz Munich and Ludwig-Maximilians-Universität (LMU), Munich, Germany



Cristina García-Cáceres unravelled paradigm-shifting roles of glial cells in the neuroendocrine control of metabolism. She discovered that glial cells, such as astrocytes, are key players in the regulatory control centres of the hypothalamus. They respond to nutritional and hormonal cues from the body and feed directly into neuronal circuits. She found that high levels of the hormone leptin in the blood of obese mice induce pathologic changes in the hypothalamic microvasculature and activate a signalling pathway in astrocytes that drives arterial hypertension. This may explain how obesity-associated high leptin levels can cause hallmark symptoms of metabolic syndrome. Recently, she found how gender-specific pathologies of obesity may arise by revealing that the female hormone estradiol feeds into hypothalamic circuits controlling metabolism.

Cristina García-Cáceres studied biology and neuroendocrinology at the Universidad Autónoma de Madrid in Spain, where she completed her doctoral thesis in 2012. She then moved to Helmholtz Munich and Technical University of Munich, Germany, as a postdoctoral researcher.

In 2015, she became head of the Astrocyte-Neuron Networks Unit at Helmholtz Munich and since 2018, she is associate director of the Institute for Diabetes and Obesity. Since 2021, she holds a joint appointment as associate professor of Neuroendocrinology of Systems Metabolism at Helmholtz Munich and the Faculty of Medicine of LMU Munich. She is the recipient of the Young Investigator Award of the European Society for Clinical Investigation, the Obesity Research Award of the Deutsche Adipositas-Gesellschaft, and of an ERC Starting Grant.

Johannes Kohl, PhD

The Francis Crick Institute, London, UK



Instinctive behaviours, such as parenting, aggression, or mating are orchestrated by evolutionarily sculpted neural circuits. Johannes Kohl showed that a genetically defined group of neurons in the hypothalamus of the brain coordinates the motor, motivational, hormonal, and social aspects of parenting. He discovered that these neurons form non-overlapping pools – each defined by its projection in the brain – which control distinct aspects of parenting. His group recently found that during pregnancy, the hormones estrogen and progesterone change the form and function of parenting-relevant neurons in the brain, and that this is necessary for the onset of parental behaviour. Pregnancy hormones thus remodel the female brain in preparation for parenthood.

Johannes Kohl studied biochemistry at the University of Bayreuth and neuroscience and medicine at the University of Magdeburg, Germany. He then moved to the MRC Laboratory of Molecular Biology in Cambridge, UK, where he completed his PhD in neurobiology in 2014. Following two years of postdoctoral research at Harvard University in Cambridge,

USA, he split his time between Harvard University and the Sainsbury Wellcome Centre for Neural Circuits and Behaviour (London, UK) as a Sir Henry Wellcome Fellow. He started his own group at The Francis Crick Institute in London in 2019. He is the recipient of the Eppendorf & Science Prize for Neurobiology, the Peter and Patricia Gruber International Research Award of the Society for Neuroscience, and an ERC Starting Grant.

SPEAKERS

Julia Mahamid, PhD

European Molecular Biology Laboratory (EMBL), Heidelberg, Germany



Julia Mahamid pioneered methods of cryo-electron tomography for in-cell structural biology. She significantly contributed to the development of cryo-focused ion beam to make parts of a cell transparent to electrons. Through such “windows” it is now possible to visualize 3D macromolecular structures in their native environment at a level of detail that enables mechanistic insights. Her research group has resolved structures of transcribing RNA polymerases and translating bacterial ribosomes and showed how antibiotics reshape translational landscapes. Recently, they developed a correlative light and electron microscopy imaging approach with which they can follow growing 3D organoid cultures at the millimeter-scale and analyze their subcellular architecture down to the nanometer-scale. Her methods thus unlock an enormous potential for new discoveries through label-free in-cell structural biology.

Julia Mahamid studied biology at the Technion – Israel Institute of Technology in Haifa, and obtained her PhD in structural chemistry from the Weizmann Institute of Science in Rehovot in 2010. After postdoctoral

research at the Max Planck Institute of Biochemistry in Martinsried, Germany, she moved to a group leader position at EMBL in Heidelberg. She is the recipient of the Ernst Ruska Prize of the German Society for Electron Microscopy, the EMBO Gold Medal, the Kate Barany Award of the Biophysical Society, and ERC Starting and Synergy Grants. She is an EMBO Member.

Professor Gero Miesenbock, MD, FRS

University of Oxford, UK



Copyright: Centre for Neural Circuits and Behaviour Oxford

Gero Miesenbock invented the breakthrough concept of optogenetics. He was the first to programme neurons genetically to express a photoreceptor, allowing him to regulate the cells’ electrical activity with light. By restricting the photoreceptor to distinct neurons in the brain, he was able to remote-control specific behaviours, such as different forms of movement or the courtship display of male flies. Optogenetics is now used worldwide in fundamental biological research and holds promise for the development of new therapeutic approaches to brain disorders. Gero Miesenbock’s current work centres on the neural control and biological function of sleep. His discovery of machinery that gears the activity of sleep-control neurons to the fate of electrons in the respiratory chain suggests that sleep helps to tame the dangers of aerobic metabolism.

Gero Miesenbock studied medicine at the University of Innsbruck in his native Austria. After completing his MD, he moved to Memorial Sloan Kettering Cancer Center in New York, USA, for postdoctoral research. He was on the faculty of Memorial Sloan-Kettering Cancer Center and Yale

University before being appointed Waynflete Professor of Physiology at the University of Oxford in 2007. Since 2011, he has also served as the founding director of the Centre for Neural Circuits and Behaviour. Miesenbock has received numerous awards for the invention of optogenetics, including the Brain Prize, the Heinrich Wieland Prize, the Massry Prize, the Shaw Prize, and the Japan Prize. He is a Fellow of the Royal Society and an elected member of EMBO, the Austrian Academy of Sciences, the German Academy of Sciences Leopoldina, and the Academia Europaea.

SPEAKERS

Kelly Nguyen, PhD

MRC Laboratory of Molecular Biology (LMB), Cambridge, UK



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Kelly Nguyen has solved the first complete atomic model of the large RNA-containing enzyme telomerase which rebuilds the natural ends of chromosomes, the telomeres, by adding new telomeric DNA repeats with each cell division. Telomeres form a protective cap of chromosome ends and are vital for keeping the genome intact. She discovered a histone dimer as a novel telomerase subunit, suggesting a new role for histones in telomerase RNA folding and function. In mammals, telomeres are bound by shelterin, a protein complex that regulates telomerase. Kelly Nguyen's most recent structures of telomerase interacting with subunits of shelterin reveal unprecedented insights into the molecular basis of how shelterin recruits and activates telomerase for the extension of chromosome ends. This opens new ways for finding drugs to target telomerase, for example in cancer.

Kelly Nguyen studied chemistry at the Australian National University in Canberra, Australia. She earned her PhD from the MRC-LMB in Cambridge, UK, in 2014, then moved to the University of California in

Berkeley, USA, for postdoctoral research. She returned to the MRC-LMB in Cambridge in 2019 to set up her own research group. Her research has been recognized by the Eppendorf Award for Young European Investigators, the Suffrage Science Award curated by MRC-LMS, the Early Career Research Award, and the Colworth Medal of the Biochemical Society.

Professor Dr Paola Picotti

Swiss Federal Institute of Technology (ETH), Zurich, Switzerland



Photo credit: Djamilia Grossmann

Paola Picotti is a pioneer in structural systems biology. She developed LiP-MS, a novel technology that combines limited proteolysis with mass spectrometry to monitor changes in protein structure on a proteome-wide scale in biological samples like cells or tissues. She has used LiP-MS to create maps of protein–metabolite interactions and thus revealed structural and functional principles of chemical communication. Paola Picotti also employs proteome-wide approaches to study protein aggregation and protein stability, particularly in the context of protein aggregation diseases. For example, she discovered novel molecular players in neurodegenerative diseases that might be potential targets for the treatment of such disorders and identified novel structural biomarkers for Parkinson's disease.

Paola Picotti studied medicinal chemistry and obtained her PhD in biotechnology from the University of Padua, Italy, in 2006. Following postdoctoral research at ETH Zurich, Switzerland, she became assistant professor at ETH Zurich in 2011 and was promoted to associate professor

in 2017 and to full professor in 2022. Since 2021, she holds a guest professorship at the University of Cologne, Germany. She has received several awards, including the EMBO Gold Medal, the Discovery Award of the Human Proteome Organization, the Rössler Prize of ETH Zurich, the Friedrich Miescher Award, as well as Starting and Consolidator Grants of the ERC. She is an elected member of the German National Academy of Sciences Leopoldina and of EMBO.

SPEAKERS

Professor James E. Rothman, PhD

Yale University, New Haven, USA



James Rothman's pioneering research discovered key molecular machinery responsible for transferring materials among compartments within cells. He provided the conceptual framework for understanding important biological processes, including the release of insulin into blood, communication between nerve cells in the brain, and the entry of viruses to infect cells: In a cell-free system, he reconstituted the budding and fusion of tiny membrane-enveloped vesicles that ferry packets of enclosed cargo between cell compartments. He discovered the complex of SNARE proteins that mediates vesicle fusion and affords it its specificity. He also uncovered the so-called GTPase-switch mechanism which controls the budding of coated vesicles in the cell. His contributions to other fields include unveiling how the hsp70 molecular chaperones cycle on and off proteins to control their folding/unfolding, devising the theoretical concept of how the Golgi compartment functions, and providing the first evidence of sequential processing and vectorial transport across the Golgi stack. He currently investigates the biophysics of explosive neurotransmitter release at synapses and the hypothesis that phase separations of Golgin proteins organize its stack of cisternae.

James Rothman studied physics at Yale University in New Haven, USA. He obtained his PhD in biological chemistry from Harvard University in 1976. After postdoctoral research at MIT, he became professor at Stanford University in 1978. He moved on to Princeton University in 1988, then to Memorial Sloan-Kettering Cancer Center in New York, where he founded and chaired the Department of Cellular Biochemistry and Biophysics from 1991 to 2004. He then became the Wu Professor of Chemical Biology and the director of Columbia University's Sulzberger Genome Center. In 2008, he returned to Yale University as the Sterling Professor and chair of the Department of Cell Biology. He received numerous awards, including the Heinrich Wieland Prize, the Albert Lasker Award for Basic Biomedical Research, the Kavli Prize for Neuroscience, and the Nobel Prize in Physiology or Medicine. He is a fellow of the American Association for the Advancement of Science and the Royal Society, and a member of the US National Academy of Sciences.

Professor Edward Tate, PhD, FRSC, FRSB

Imperial College London and The Francis Crick Institute, London, UK



The Tate lab develops novel chemical biology approaches to enable drug discovery against post-translational modification (PTM) pathways and intractable drug targets, including chemical proteomic target identification, screening technologies, and chemical probe discovery for protein-protein interactions and enzymes modulating PTMs. Recent highlights include the first cell-active activity-based probes (ABPs) for deubiquitinases (DUBs), new tools for analysis and discovery of pathogenic secreted protease activities, and pioneering advances in technology and drug discovery targeting protein lipidation PTM through chemical genetics and proteomics. His lab is also interested in developing new therapeutic modalities including molecular glues and the first examples of antibody-PROTAC conjugates.

Ed Tate holds the GSK Chair in Chemical Biology at Imperial College London, he is a Group Leader at the Francis Crick Institute, and academic founder of Myricx Bio, a biotech company developing his lab's research toward clinical applications. Following his PhD (2000) with Steve Ley in Cambridge and postdoctoral research in Paris, he was awarded a BBSRC David Phillips

Fellowship in 2006 to start his group at Imperial College. He sits on advisory boards of several international research institutes and biotech companies, and his research has been recognised by awards and Fellowships, including the 2020 Corday-Morgan Prize and 2022 Cancer Research UK Programme Award. In 2023 he was appointed to the GSK Endowed Chair in Chemical Biology at Imperial College.

SPEAKERS

Professor Christoph A. Thaiss, PhD

University of Pennsylvania, Philadelphia, USA



Christoph Thaiss studies how interactions between the environment, the body, and the brain regulate human physiology and disease susceptibility. His group has uncovered several new principles of gut-brain communication and their implications in a broad range of whole-body phenomena, including the regulation of exercise physiology, the impact of psychological stress on inflammatory disease, and the neurocognitive manifestations of post-infection syndromes. His group also studies the impact of environmental and lifestyle factors on the development of common age-associated diseases. His research may open new avenues for understanding and treating diseases that involve communication pathways between the brain and the body.

Christoph Thaiss studied molecular biomedicine, immunology and microbiology at the University of Bonn, Germany, Yale University, USA, and ETH Zurich, CH. After a short-term fellowship at the Broad Institute of MIT and Harvard in Cambridge, USA, he moved to the Weizmann Institute of Science in Rehovot, Israel, from where he earned his PhD

in 2017. Since 2018, he is assistant professor at the University of Pennsylvania in Philadelphia, USA. He is the recipient of the Science & SciLifeLab Prize of the journal Science and the Science for Life Laboratory in Sweden, a scholarship from the Pew Charitable Trusts, an NIH Director's New Innovator Award, and the Brain Research Innovator Award in Aging and Memory Loss of the American Federation for Aging Research and the McKnight Brain Research Foundation.

Professor Ekaterina V. Vinogradova, PhD

The Rockefeller University, New York, USA



Photo credit: M. Septimus, The Rockefeller University

Ekaterina (Katya) Vinogradova combines tools from chemistry, chemical proteomics, and cell biology to understand and modulate immune cell function. She developed innovative multiplexed chemical proteomic platforms to generate the first global portrait of cysteine reactivity and druggability in the human immune proteome. She further illuminated the pharmacological effects of small molecule-cysteine interactions by deploying chemically elaborated electrophiles in a functional screen of T cell activation, including a set of innovative stereoisomeric covalent electrophile probes. This led to the discovery of new immunomodulatory compounds that suppress T cell activation by diverse mechanisms, including direct inhibition of protein activity and induction of protein degradation. Most recently, her lab has leveraged this integrated approach to study molecular mechanisms of T cell exhaustion.

Ekaterina Vinogradova studied chemistry in Moscow, Russia, and obtained her PhD in organic chemistry from Massachusetts Institute of Technology in Cambridge, USA, in 2015. After postdoctoral research

at Scripps Research in La Jolla, USA, she became assistant professor and Head of the Laboratory of Chemical Immunology and Proteomics at The Rockefeller University in New York, USA, in 2020. She has received a number of awards, including the American Chemical Society Young Investigator Award, the Damon Runyon-Rachleff Innovation Award, and the Irma T. Hirschl/Monique Weill-Caulier Trust Research Award. She was named a C&EN Talented 12 by the American Chemical Society as well as a Searle Scholar.

POSTERS

Poster prizes: The Boehringer Ingelheim Foundation will award two poster prizes worth 500 euros each during the symposium: One prize will be selected by a dedicated Poster Jury, the second one by the audience via an online voting tool.

Members of the Poster Jury

Stefan Bornstein, University Hospital Carl Gustav Carus, Dresden, Germany
Florian Gantner, C. H. Boehringer Sohn AG & Co. KG, Biberach, Germany
Kai Johnsson, MPI for Medical Research, Heidelberg, Germany
Gero Miesenböck, University of Oxford, UK

Kelly Nguyen, MRC Laboratory of Molecular Biology, Cambridge, UK
Dirk Trauner, University of Pennsylvania, Philadelphia, USA
Fiona Watt, EMBO, Heidelberg, Germany

Titles and authors of posters presented at the symposium (in alphabetical order)

A Depletion of α -SMA+ myofibroblasts aggravates pancreatitis in mice

Prince Allawadhi¹, A. Alnatsha¹, N. Brix², D. Saka¹, S. Sirtl¹, M. Ahmad¹, K. Lauber², I. Regel¹, U. M. Mahajan¹, J. Mayerle¹, G. Beyer¹

¹ Department of Medicine II, University Hospital, LMU Munich, Munich, Germany; ² Department of Radiation Oncology, University Hospital, LMU Munich, Munich, Germany

B What modulates the modulator? Discovering genes that regulate neuronal calmodulin expression levels

Rebecca C. M. Arnold, Mario de Bono

Institute of Science and Technology Austria (ISTA), Klosterneuburg, Austria

C Characterization of novel recombinant adeno-associated virus (rAAV)-capsid variants in the mouse brain for future use in seizure therapy

Eda Arslantas, P. Lorenz, V. Mehlfeld, M. Biel

Department of Pharmacy – Center for Drug Research, LMU Munich, Germany.

D Molecular characterization of an attention-like state in *Drosophila*

Konrad Brambach, Maximilian Pitsch, Michael Crickmore

Boston Children's Hospital & Harvard Medical School, Boston, USA

E A multivalent adaptor mechanism drives the nuclear import of proteasomes

Hanna L. Brunner^{1,2}, Robert W. Kalis^{1,2,*}, Lorenz E. Grundmann^{1,2,*}, Zuzana Hodáková¹, Zuzana Koskova³, Irina Grishkovskaya¹, Melanie de Almeida¹, Matthias Hinterdorfer¹, Simon Höflin¹, Florian Andersch¹, Harald Kotisch¹, Achim Dickmanns⁴, Sara Cuylen-Häring³, Johannes Zuber^{1,5,*} & David Haselbach¹

¹ Research Institute of Molecular Pathology (IMP), Vienna BioCenter (VBC), Vienna, Austria; ² Vienna BioCenter PhD Program, Vienna, Austria; ³ European Molecular Biology Laboratory (EMBL) Heidelberg; ⁴ Georg-August-Universität Göttingen, Germany; ⁵ Medical University of Vienna, VBC, Vienna, Austria; * equal contribution; * corresponding authors

F A different perspective for 3D-correlative light microscopy to guide cryo-ET in thick samples

Cristina Capitanio¹, Anna Bieber¹, Christoph Kaiser¹, Oda H. Schiøtz¹, Matthias Pöge¹, Philipp S. Erdmann², Sven Klumpe¹, Wolfgang Baumeister¹, Brenda Schulman¹, Jürgen Plitzko¹

¹ Max Planck Institute of Biochemistry, Martinsried, Germany; ² Human Technopole, Milan, Italy

G Investigating the molecular mechanisms of dynein-based mRNA trafficking in *Drosophila*

Sabila Chilaeva, Kashish Singh, Mark A. McClintock, Andrew P. Carter and Simon L. Bullock

Medical Research Council – Laboratory of Molecular Biology, Cambridge, UK

H Structural basis for human OGG1 processing 8-oxodGuo within nucleosome core particles

Mengtian Ren^{*,1,2,3}, Fabian Gut^{*,2}, **Yilan Fan²**, Jingke Ma³, Xiajing Shan³, Aysenur Yikilmazsoy², Mariia Likhodeeva², Karl-Peter Hopfner^{*,2}, Chuanzheng Zhou^{*,3}

¹ Tiangong University, Tianjin, China; ² Gene Center and Department of Biochemistry, Ludwig-Maximilians-Universität München, Munich, Germany; ³ State Key Laboratory of Elemento-Organic Chemistry, State Key Laboratory of Medicinal Chemical Biology, Frontiers Science Center for New Organic Matter, Department of Chemical Biology, College of Chemistry, Nankai University, Tianjin, China; * equal contribution

I GIPR agonism and antagonism decrease body weight and food intake via different mechanisms of action

Robert M. Gutgesell^{1,2,10,*}, Ahmed Khalil^{1,2,*}, Arkadiusz Liskiewicz^{1,2,3}, Gandhari Maity-Kumar^{1,2}, Aaron Novikoff^{1,2}, Gerald Grandl^{1,2}, Daniela Liskiewicz^{1,2,3}, Callum Coupland^{1,2}, Ezgi Karaoglu^{1,2}, Seun Akindehin^{1,2}, Russel Castellino^{1,2}, Fabiola Curion^{4,5}, Xue Liu^{1,2}, Cristina Garcia-Caceres^{1,2,6}, Alberto Cebrano Cerrano^{1,2}, Jonathan D. Douros⁷, Patrick J. Kner⁷, Brian Finan⁸,

Richard DiMarchi⁹, Kyle Sloop⁸, Ricardo J. Samms⁸, Fabian J. Theis^{10,11,12}, Matthias H. Tschöp^{13,14,*}, Timo D. Müller^{1,2,15,*}

¹ Institute for Diabetes and Obesity, Helmholtz Munich, Germany; ² German Center for Diabetes Research, DZD, Neuherberg, Germany; ³ Department of Physiology, Faculty of Medical Sciences in Katowice, Medical University of Silesia, Katowice, Poland; ⁴ Department of Computational Health, Institute of Computational Biology, Helmholtz Munich, Germany; ⁵ Department of Mathematics, School of Computation, Information and Technology, Technical University of Munich, Germany; ⁶ Medizinische Klinik und Poliklinik IV, Klinikum der Universität, Ludwig-Maximilians-Universität München, Munich, Germany; ⁷ Indiana Biosciences Research Institute, Indianapolis, USA; ⁸ Diabetes, Obesity and Complications Therapeutic Area, Eli Lilly and Company, Indianapolis, USA; ⁹ Department of Chemistry, Indiana University Bloomington, USA; ¹⁰ Institute of Computational Biology, Helmholtz Munich, Germany; ¹¹ TUM School of Life Sciences Weihenstephan, Technical University of Munich, Germany; ¹² Department of Mathematics, School of Computation, Information and Technology, Technical University of Munich, Germany; ¹³ Helmholtz Munich, Germany; ¹⁴ Division of Metabolic Diseases, Department of Medicine, Technische Universität, Munich, Germany ¹⁵ Walther-Straub Institute for Pharmacology and Toxicology, Ludwig-Maximilians-University Munich (LMU), Germany

J RiboNet identifies cell state-dependent patterns in mRNA translation

Xavier Hernandez-Alias^{1,2}, Selay Kaya¹, Sascha Wani¹, Julien Gagneur², Danny Nedialkova^{1,3}

¹ Max Planck Institute of Biochemistry, Martinsried, Germany; ² School of Computation, Information and Technology, Technical University of Munich, Garching, Germany; ³ School of Natural Sciences, Technical University of Munich, Garching, Germany

K Lipid order in synthetic cells

Nishu Kanwa, Shunshi Kohyama, Petra Schwillie*

Max Planck Institute of Biochemistry, Martinsried, Germany

L Decitabine, a potent inhibitor of C9orf72 gain-of-function pathologies

Eszter Katona^{1,3}, Corinna Pleintinger⁴, Mareike Czuppa¹, Ashutosh Dhingra², Peter Heutink², Thomas Carell⁴, Dieter Edbauer^{1,3}

¹ German Center for Neurodegenerative Diseases (DZNE), Munich, Germany; ² German Center for Neurodegenerative Diseases (DZNE), Tübingen, Germany; ³ Munich Cluster for Systems Neurology (SyNergy), Munich, Germany; ⁴ Department of Chemistry, Ludwig-Maximilians-Universität München, Germany

M Bacterium vs. Phage: Shining a light on the battle between defense and anti-defenses

Elena Kaube, Alessio Lie Yang, Nassos Typas

European Molecular Biology Laboratory (EMBL), Heidelberg, Germany

N Pathogenesis and Gene Replacement Therapy of Morbus Stargardt in an Abca4 KO Mouse Model

Natalie Klippel¹, Verena Mehlfeld¹, Martin Biel¹, Elvir Becirovic²

¹ Department of Pharmacy – Center for Drug Research, LMU Munich, Germany; ² Department of Ophthalmology, University Hospital Zurich, University of Zurich, Switzerland

O Use-Dependent Structural Variation of Female Genital Cortex after Sexual Abuse

Yuliya Kovalchuk^{1,2}, Sydney Schienbein¹, Andrea J. J. Knop¹, Martin Bauer^{1,10}, Michael Brecht^{2,4,5,6}, John-Dylan Haynes^{2,3,5,7}, Christine Heim^{1,2,6,8,9}

¹ Charité – Universitätsmedizin Berlin, Institute of Medical Psychology, Berlin; ² Max Planck School of Cognition, Leipzig; ³ Charité – Universitätsmedizin Berlin, Berlin Center for Advanced Neuroimaging, Berlin; ⁴ Department of Biology, Humboldt Universität zu Berlin, Berlin; ⁵ Bernstein Center for Computational Neuroscience, Berlin; ⁶ NeuroCure Cluster of Excellence, Berlin; ⁷ Institute of Psychology, Humboldt Universität zu

- Berlin, Berlin; ⁸ German Center for Mental Health; ⁹ The Pennsylvania State University, Pennsylvania; ¹⁰ Charité – Universitätsmedizin Berlin, Corporate Member of Freie Universität Berlin and Humboldt-Universität zu Berlin, Experimental and Clinical Research Center, Berlin
- P Astrocytic UCP2-Dependent Processes Control Hypothalamic Neurons Activity to Adjust Feeding**
Ophélie Le Thuc¹, Franziska Lechner¹, Beata Legutko¹, Cahuê de Bernardis Murat¹, Tim Gruber^{1,2}, Daniel Jimenez Blasco³, Raian E. Contreras^{1,4}, Ismael Gonzalez-Garcia^{1,5}, Miguel Lopez⁵, Juan Bolaños³, Martin Jastroch⁶, Matthias H. Tschöp^{1,7}, Cristina Garcia-Caceres^{1,8}
¹ Institute for Diabetes and Obesity, Helmholtz Diabetes Center at Helmholtz Zentrum München, German Center for Diabetes Research (DZD), Neuherberg, Germany; ² Department of Epigenetics, Van Andel Institute, Grand Rapids, USA; ³ CS Genetics, Cambridge, England; ⁴ Department of Physiology, CIMUS, University of Santiago de Compostela-Instituto Santiago de Compostela, Spain; ⁵ Universidad de Salamanca, CSIC, Salamanca, Spain; ⁶ The Arrhenius Laboratories F3, Department of Molecular Biosciences, The Wenner-Gren Institute, Stockholm University, Stockholm, Sweden; ⁷ Division of Metabolic Diseases, Technische Universität München, Munich, Germany; ⁸ Medizinische Klinik und Poliklinik IV, Klinikum der Universität, Ludwig-Maximilians-Universität München, Munich, Germany
- Q Oxytocin receptor signaling in ventromedial hypothalamic neurons governs glucose homeostasis via a brain-liver pathway.**
Franziska Lechner^{1,2,#}, T. Gruber^{2,3,4,#}, M. Wu⁵, C. D. B. Murat^{1,2}, O. Le Thuc^{1,2}, I. González-García^{1,2,6}, H. Backes⁷, M. Hallschmid^{2,8,9}, T. Wiedemann⁵, M. H. Tschöp¹⁰, J. A. Pospisilik^{3,4,*}, C. García-Cáceres^{1,2,11,*}
¹ Institute for Diabetes and Obesity, Helmholtz Diabetes Center, Munich, Germany; ² German Center for Diabetes Research (DZD), Germany; ³ Department of Metabolism and Nutritional Programming, Van Andel Institute, Grand Rapids, USA; ⁴ Department of Epigenetics, Van Andel Institute, Grand Rapids, USA; ⁵ Institute for Diabetes and Cancer, Helmholtz Diabetes Center, Helmholtz Zentrum München, German Research Center for Environmental Health (GmbH), Neuherberg, Germany; ⁶ Department of Physiology, CIMUS, University of Santiago de Compostela, Santiago de Compostela, Spain; ⁷ Multimodal Imaging Group, Max Planck Institute for Metabolism Research, Cologne, Germany; ⁸ Institute of Medical Psychology and Behavioural Neurobiology, University of Tübingen, Germany; ⁹ Institute for Diabetes Research and Metabolic Diseases, Helmholtz Centre Munich at the University of Tübingen, Germany; ¹⁰ Division of Metabolic Diseases, Department of Medicine, Technische Universität, Munich, Germany; ¹¹ Medizinische Klinik und Poliklinik IV, Klinikum der Universität, Ludwig-Maximilians-Universität München, Munich, Germany. #,*contributed equally
- R Behavioral and molecular responses to sweet stimuli vary in songbirds**
Qiaoyi Liang¹, Aurelia F. T. Strauß², Daniel Mendez Aranda³, Julia F. Cramer¹, Meng-Ching Ko¹, Yasuka Toda⁴, Pablo Oteiza¹, Maude W. Baldwin¹
¹ Max Planck Institute for Biological Intelligence, Martinsried, Germany; ² University of Groningen, Netherlands; ³ Max-Delbrück-Centrum für Molekulare Medizin, Berlin, Germany; ⁴ Meiji University, Japan; *equal contribution
- S Rabies-mediated barcoding of neural cell inputs using scRNA-seq**
Connor Lynch^{1,2}, Christian Mayer¹
¹ Max Planck Institute for Biological Intelligence, Planegg, Germany; ² Graduate School of Systemic Neurosciences GSN-LMU, Munich, Germany
- T TRIP12 ubiquitin chain-branching reveals consensus HECT E3 mechanism of polyubiquitylation**
Samuel A. Maiwald¹, Laura A. Schneider¹, Ronald Vollrath¹, Joanna Liwocha¹, Matthew D. Maletic², Kirby N. Swatek¹, Monique P. C. Mulder², Brenda A. Schulman^{1*}
¹ Max Planck Institute of Biochemistry, Martinsried, Germany
² Leiden University Medical Center, Leiden, The Netherlands
- U KCNJ5 Potassium Channel Antagonists Reduce Aldosterone Secretion in Primary Aldosteronism Models**
Sanas Mir-Bashiri¹, Martina Tetti¹, Dennis Fröbel², Dunja Reiss¹, Mirko Peitzsch², Nicole Bechmann², Martin Reincke¹, and Tracy Williams¹
¹ Medizinische Klinik und Poliklinik IV, Klinikum der Universität München, München, Germany; ² Universitätsklinikum Carl Gustav Carus Dresden, Institut für klinische Chemie und Labormedizin, Dresden, Germany
- V From Photocontrol to Chromocontrol: Efficacy Switches for TRPC4/5**
Markus Müller¹, Oliver Thorn-Seshold^{1,2}
¹ Ludwig Maximilian University of Munich, München, Germany; ² TUD Dresden University of Technology, Dresden, Germany
- W Molecular interplay of NAC with nascent chain processing factors on the ribosome**
Laurenz Rabl¹, Min Yia², Alfred M. Lentzsch³, Katrin M. Khakzar¹, Renate Schlömer¹, Kay Diederichs⁴, Nenad Ban², Shu-ou Shan³, Martin Gamberinger¹ and Elke Deuerling¹
¹ Molecular Microbiology, Department of Biology, University of Konstanz, Germany; ² ETH Zurich, Switzerland; ³ California Institute of Technology, Pasadena, USA; ⁴ Molecular Bioinformatics, Department of Biology, University of Konstanz, Germany
- X Mechanistic insights into piRNA precursor nuclear export**
Balashankar Radhakrishna Pillai^{1,*}, Ulrich Hohmann^{1,2,*}, Laszlo Tirian¹, Ralf E. Jansen¹, Mostafa F. ElMaghraby¹, Laura Fin², Clemens Plaschka², Julius Brennecke¹
¹ Institute of Molecular Biotechnology (IMBA), Vienna, Austria;
² Institute of Molecular Pathology (IMP), Vienna, Austria
- Y Pooled protein tagging and live-cell imaging for monitoring subcellular protein localizations at scale**
Andreas Reicher, Jiri Reinis, Stefan Kubicek
 CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences, Vienna, Austria
- Z Light-controlled inhibition of the circadian regulator RORγ**
M. Reynders^{1,2}, S. Willems¹, J. A. Marschner¹, T. Wein, D. Merk¹, O. Thorn-Seshold^{1,2}
¹ Department of Pharmacy, Ludwig-Maximilians University of Munich, Germany; ² Faculty of Chemistry and Food Chemistry, TUD Dresden University of Technology, Dresden, Germany
- AA Columnar cholinergic neurotransmission onto T5 direction-selective neurons of Drosophila**
Eleni Samara¹, Tabea Schilling¹, Inês M. A. Ribeiro^{1,3}, Juergen Haag¹, Maria-Bianca Leonte², Alexander Borst¹
¹ Max Planck Institute for Biological Intelligence, Planegg, Germany; ² Graduate School of Systemic Neurosciences, LMU Munich, Planegg, Germany; ³ Institute of Medical Psychology, Medical Faculty, LMU Munich, Germany
- BB A Photocaged Microtubule-Stabilising Epothilone allows Spatiotemporal Control of Cytoskeletal Dynamics**
Carina Schmitt^{1,2}, Nynke A. Veprek¹, Philipp Mauker^{1,2}, Carolin Gierse³, Joyce C. M. Meiring⁴, Anna Akhmanova⁴, Leif Dehmelt³, Oliver Thorn-Seshold^{1,2}
¹ Ludwig-Maximilians-Universität (LMU) Munich, Germany; ² TUD Dresden University of Technology, Dresden, Germany; ³ TU Dortmund University, Germany; ⁴ Utrecht University, The Netherlands
- CC Ion Conductive Guanosine-Quadruplex (GQ) Hydrogels for Heart Tissue Models**
Neha Thakur & Julieta I. Paez
 Developmental BioEngineering Department (DBE), University of Twente, Enschede, The Netherlands
- DD Metabolic regulation of Tryptophan-2,3-Dioxygenase (TDO2) by ubiquitin-mediated degradation**
Alina S. Thielen^{1,2}, Bastian Bräuning¹, Lukas T. Henneberg^{1,2}, Brenda A. Schulman¹
¹ Department of Molecular Machines and Signalling, Max Planck Institute of Biochemistry, Martinsried, Germany; ² Technical University of Munich, School of Natural Sciences, Munich, Germany
- EE A region-resolved proteomic map of the human brain enabled by high-throughput proteomics**
Johanna Tüshaus¹, Claire Delbridge², Eike Mucha³, Christoph Krisp³, Markus Lubeck³, Juergen Schlegel², Bernhard Kuster^{1,4,5}
¹ Chair of Proteomics and Bioanalytics, Technical University of Munich, Freising, Germany; ² Institute of Pathology, Technical University of Munich, Munich, Germany; ³ Bruker Daltonik GmbH, Bremen, Germany; ⁴ German Cancer Consortium (DKTK) and German Cancer Research Center (DKFZ), Heidelberg, Germany; ⁵ Bavarian Biomolecular Mass Spectrometry Center, Technical University of Munich, Freising, Germany

HEINRICH WIELAND LAUREATES 1964–2024

Year	Laureate	Affiliation (time of award)	Achievement
2024	Benjamin F. Cravatt III	The Scripps Research Institute, La Jolla, USA	Groundbreaking contributions to the development and application of methods for the functional annotation of enzymes
2023	Matthias H. Tschöp	Helmholtz Munich and Technical University of Munich (TUM), Germany	His seminal discoveries of physiological mechanisms regulating food intake and body weight and exploiting these to develop new therapeutic strategies to treat obesity and diabetes
2022	Xiaowei Zhuang	Harvard University, Cambridge, USA	Developing ground-breaking single-molecule and superresolution imaging methods and applying these to make seminal discoveries in cell biology and neurobiology
2021	Thomas Boehm	Max Planck Institute of Immunobiology and Epigenetics, Freiburg, Germany	Ground-breaking contributions to the understanding of the development and evolution of the immune system in vertebrates
2020	Craig M. Crews	Yale University, New Haven, USA	Pioneering targeted protein degradation as a new therapeutic principle in pharmacology
2019	Jens Brüning	Max Planck Institute for Metabolism Research, Cologne, Germany	Pioneering research on how the brain regulates energy metabolism
2018	Pascale Cossart	Institut Pasteur, Paris, F	Fundamental contributions to the field of Molecular Infection Biology
2017	Alexander Varshavsky	California Institute of Technology, Pasadena, USA	Discovering the biology of the ubiquitin system
2016	Peter Schultz	The Scripps Research Institute, La Jolla, USA	Fundamental contributions to the biologically inspired synthesis of new molecules and in particular for the expansion of the genetic code
2015	Gero Miesenböck	University of Oxford, Oxford, UK	Breakthrough concept of optogenetics and its proof of principle
2014	Reinhard Jahn	MPI for Biophysical Chemistry, Göttingen, Germany	Paradigmatic studies on membrane fusion, synaptic vesicles and neurotransmitter release
2013	Tony Kouzarides	The Gurdon Institute, Cambridge, UK	Groundbreaking research on chromatin modifications and their role in cancer
2012	Carolyn Bertozzi	University of California, USA	Pioneering achievements in chemical biology, in particular the innovative use of bioorthogonal chemistry
2011	Franz-Ulrich Hartl	MPI of Biochemistry, Martinsried, Germany	Chaperone-assisted protein folding and its impact on neurodegenerative diseases
2010	Nenad Ban	ETH Zurich, Switzerland	Definition of molecular architecture of fatty acid synthase multi-enzymes
2009	Steven Ley	University of Cambridge, UK	Outstanding achievements in the synthesis of key natural products
2008	Markus Stoffel	ETH Zurich, Zurich, Switzerland	Milestone discoveries on the development of diabetes
2007	Joachim Herz	University of Texas, Dallas, USA	Uncovering novel functions for lipoprotein receptors
2006	Alois Fürstner	MPI für Kohlenforschung, Mülheim an der Ruhr, Germany	Identification of the molecular structure of many relevant glycolipids using metal catalysed methodology
2005	Helen H. Hobbs	University of Texas, Dallas, USA	Genetic Factors Contributing to Cholesterol Accumulation and Atherosclerosis
2004	Roger Nicoll	University of California San Francisco, USA	Role of endogenous cannabinoids as neurotransmitters
2004	Raphael Mechoulam	Hebrew University Jerusalem, Israel	Chemistry and Biochemistry of Cannabis and Endocannabinoids
2003	David J. Mangelsdorf	University of Texas, Dallas, USA	Nuclear receptors as lipid sensors
2002	Stephen O’Rahilly	Addenbrook’s Hospital, Cambridge, UK	Insights into molecular mechanisms in human obesity and insulin resistance
2001	Felix Wieland	University of Heidelberg, Germany	The mechanism of the formation of transport vehicles

HEINRICH WIELAND LAUREATES 1964–2024

Year	Laureate	Affiliation (time of award)	Achievement
2000	Lewis Clayton Cantley	Harvard Medical School, Boston, USA	Signalling ligands and the discovery of the phosphoinositide-3-kinase pathway
1999	Ernst Heinz	University of Hamburg, Germany	Genetical modification of the biosynthesis of plant membrane and reserve lipids – possible importance for human nutrition
1998	Thomas E. Willnow	Max Delbrück Center for Molecular Medicine, Berlin, Germany	Characterisation of LDL receptor gene family in transgenic animal models
1997	Bruce M. Spiegelman	Dana-Farber Cancer Institute, Boston, USA	PPAR γ and the Transcriptional Basis of Adipogenesis
1996	Jeffrey M. Friedman	The Rockefeller University, New York, USA	Leptin, Lipatosis, and the Control of Body Weight
1995	Jean E. Schaffer	Massachusetts Institute of Technology, Cambridge, MA, USA	A Novel Adipocyte Long Chain Fatty Acid Transport Protein
1995	Dennis E. Vance	University of Alberta, Edmonton, Canada	Phosphatidylethanolamine N-Methyl-transferase – Unexpected Findings from Curiosity Driven Research
1994	Joachim Seelig	University of Basel, Switzerland	Lipids in biological membranes – more than a simple piece of fat!
1993	Walter Neupert	University of Munich (LMU), Munich, Germany	Protein transport across the membranes of mitochondria
1992	Lev D. Bergelson	Russian Academy of Sciences, Moscow, Russia	Glycolipids and Antitumor Immunity
1991	Jan L. Breslow	The Rockefeller University, New York, USA	Apolipoprotein Genes and Atherosclerosis
1991	Wolfgang J. Schneider	University of Vienna, Austria	Lipoprotein Receptors in Oocyte Growth
1990	James E. Rothman	Princeton University, New Jersey, USA	Enzymology of Intracellular Membrane Fusion
1990	Karel W.A. Wirtz	Rijksuniversiteit Utrecht, Netherlands	Phospholipid Transfer Proteins: From Lipid Monolayers to Cells
1989	Ching-Hsien Huang	University of Virginia, Charlottesville, USA	Asymmetric Phospholipids and Interdigitated Bilayer Systems
1988	Lawrence C.B. Chan	Department of Cell Biology and Medicine, Houston, USA	Apolipoprotein Multigene Family: Structure, Expression, Evolution, and Molecular Genetics
1987	Akira Endo	Tokyo Noko University, Tokyo, Japan	Chemical, Biochemical and Pharmacological Studies of Cholesterol-Lowering Drugs Inhibiting HMG-CoA Reductase
1987	Dietrich Keppler	German Cancer Research Center (DKFZ), Heidelberg, Germany	Metabolism and analysis of leukotrienes
1986	Eugene P. Kennedy	Harvard Medical School, Boston, USA	Metabolism and Function of Membrane Lipids
1985	Guy Ourisson	Université Louis Pasteur, Strasbourg, France	From petroleum to the evolution of biomembranes: the Hopanoides, a new class of bacterial lipids
1984	Olaf Adam	University Hospital, Munich, Germany	Nutrition physiological investigations with specific diets: The metabolism of poly unsaturated fatty acids and the prostaglandin
1984	Gerhart Kurz	University Freiburg, Germany	Investigations on the transcellular transport of cholic acids using photo affinity labeling
1983	John. M. Dietschy	University of Texas, Dallas, USA	The Regulation of Cholesterol Balance Across the Differentiated Tissues of the Whole Animal
1982	Hansjörg Eibl	MPI for Biophysical Chemistry, Göttingen, Germany	Phospholipids as functional components of biological membranes
1982	Robert William Mahley	San Francisco General Hospital, San Francisco, USA	Apolipoprotein E and Cholesterol Metabolism
1981	Bengt Samuelsson	Karolinska Institute, Stockholm, Sweden	Leukotrienes: Novel Mediators in Allergy and Inflammation

HEINRICH WIELAND LAUREATES 1964–2024

Year	Laureate	Affiliation (time of award)	Achievement
1980	H. Bryan Brewer	National Institutes of Health, Bethesda, USA	Molecular Structure and Metabolism of Human Apolipoproteins and Lipoproteins
1980	Barry Lewis	St. Thomas' Hospital, Medical School, London, UK	Genes and Nutrition in the Regulation of Plasma Lipoprotein Metabolism
1979	Konrad Sandhoff	University of Bonn, Germany	Lipid-protein-interactions: mechanisms of enzymatic glycolipid degradation and its genetic caused deregulations
1978	Olga Stein Yechezkiel Stein	Hadassah University Hospital, Jerusalem	Interaction of Lipoproteins with Cellular Components of the Arterial Wall
1977	Gerd Assmann	Medical University Hospital, Cologne, Germany	On the pathophysiology of the Tangier disease
1977	Helmut K. Mangold	Federal Institute for Lipid Research, Münster, Germany	Synthesis and biosynthesis of alkoxylipids
1976	Dietrich Seidel	Medical University Hospital, Heidelberg, Germany	Origine and structural properties of Lipoprotein X, an abnormal lipoprotein in cholestasis
1976	Eckhart Schweizer	University Erlangen- Nürnberg, Erlangen, Germany	Biosynthesis and structure of the fatty acid synthetase complex in yeast
1975	Ernst Ferber	MPI of Immunology, Freiburg, Germany	Phospholipid metabolism in stimulated Lymphocytes: The activation of membrane bound Acyl-Co A: lysolecithin, acyltransferases
1975	Klaus Resch	Heidelberg University, Germany	Phospholipid metabolism in stimulated lymphocytes: The importance of the plasma membrane for the cell activation
1974	Michael S. Brown Joseph L. Goldstein	University of Texas, Dallas, USA	Lipoprotein Receptors and the Genetic Control of Cholesterol Metabolism in Cultured Human Cells
1973	Shosaku Numa	Kyoto University, Kyoto, Japan	Regulation of lipid formation in the animal: Relationships to diabetes
1972	Heiner Greten	Medical University Hospital, Heidelberg, Germany	Metabolism and function of human plasma lipoproteins
1972	Kurt Oette	Medical University Hospital, Cologne, Germany	Experimental investigations on lipid metabolism using human liver biopsies
1971	Laurens L.M. van Deenen	Rijksuniversiteit, Utrecht, Netherlands	Chemistry of Phospholipids in Relation to Biological Membranes
1970	Christian Bode Harald Goebell	Medical University Hospital, Marburg, Germany	Pathogenesis of acute fatty liver induced by alcohol and other liver diseases caused by alcohol
1969	Werner Seubert	University Göttingen, Germany	On the mechanism of mitochondrial fatty acid synthesis and pathological ketone body formation
1968	David Adriaan van Dorp	Unilever Research Laboratories, Vlaardingen, Netherlands	On the biosynthesis and synthesis of prostaglandins
1967	Heinrich Wagener Bruno Frosch	Medical University Hospital, Heidelberg, Germany	Methods and results of the quantitative determination of conjugated cholic acids in serum during liver diseases
1966	No award		
1965	Wilhelm Stoffel	University of Cologne, Germany	Biosynthesis of unsaturated fatty acids and mechanism of oxidation of these acids
1964	Ernst Klenk	University of Cologne, Germany	First award presented, also honouring his lifetime achievements

MEDALS IN GOLD:

Nepomuk Zöllner, University of Munich, (LMU), Germany (2008)

Karl Decker, University of Freiburg, Germany (2005)

Theodor Wieland, MPI for Medical Research, Heidelberg, Germany (1995)

Gotthard Schettler, Medical University Hospital, Heidelberg, Germany (1989)

2024 HEINRICH WIELAND PRIZE

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