



Curriculum Vitae Professor Dr Matthias W. Hentze



Image: EMBL Photolab Massimo del Pete

Name: Matthias W. Hentze

Born: 25 January 1960

Research Priorities: Control of protein synthesis, Post-transcriptional control of gene regulation and its disorders in genetic diseases, Regulation of human iron metabolism, Metabolic processes and gene regulation, Riboregulation

Matthias Hentze is a physician. For many years, his research focused on the understanding of posttranscriptional gene regulation, especially the control of protein synthesis. His work has also provided fundamental insights into the molecular mechanisms governing iron homeostasis and diseases of altered iron metabolism. At present, Hentze investigates connections between gene regulation and metabolism. Following their discovery of hundreds of new RNA-binding proteins, his team investigates the process of riboregulation, a novel biological control mechanism that they also recently described.

Academic and Professional Career

- since 2013 Director, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
- since 2005 Associate Director, EMBL, Heidelberg, Germany
- since 2005 Professor (apl.), Medical Faculty, University of Heidelberg, Heidelberg, Germany
- since 2002 Co-Director “Molecular Medicine Partnership Unit”, University of Heidelberg and EMBL, Heidelberg, Germany
- 2001 - 2005 Unit Coordinator “Training, Partnership & Endowment”, EMBL, Heidelberg, Germany
- since 1998 Senior Scientist, EMBL, Heidelberg, Germany
- 1996 - 2005 Dean of Graduate Studies, EMBL, Heidelberg, Germany

- 1990 Habilitation für the subject “Medical Molecular Biology”, Faculty for Theoretical Medicine, University of Heidelberg, Heidelberg, Germany
- since 1989 Group Leader, EMBL, Heidelberg, Germany
- 1987 - 1989 Visiting Associate, National Institute of Child Health and Human Development, National Institutes of Health (NIH), Bethesda, USA
- 1985 - 1987 Guest Researcher, National Institute of Child Health and Human Development, NIH, Bethesda, USA
- 1985 Attending Physician, Internal Medicine, St. Vinzenz Hospital, Rheda-Wiedenbrück, Germany
- 1984 Promotion “Influence of amino acid analogs on maturation, transport and stability of cathepsin D in human skin fibroblasts”, Institute of Physiological Chemistry, University of Münster (Westfälische Wilhelms-Universität Münster), Münster, Germany
- 1984 3rd medical examination and licensure as a doctor (“Approbation als Arzt” | German official license to practice medicine)
- 1983 - 1984 Glasgow Medical School, Cambridge Medical School and Oxford Medical School, UK
- 1982 - 1983 Medical Faculty and Institute of Physiological Chemistry, University of Münster, Münster, Germany
- 1981 - 1982 Southampton Medical School, Southampton, UK
- 1978 - 1981 Medical Faculty, University of Münster, Münster, Germany

Functions in Scientific Societies and Committees

- 2022 Chair, Scientific Academic Advisory Committee Review, Weizmann Institute, Rehovot, Israel
- since 2021 Advisor, Diversity, Inclusion & Equity (DIE) Working Group, The RNA Society, McLean, USA
- since 2021 Member, Scientific Advisory Board, KAUST Smart Health Initiative, King Abdullah University of Science and Technology, Thuwal, Saudi-Arabien
- since 2014 Member, Scientific Advisory Board, Istituto Nazionale di Genetica Molecolare (INGM), Italy
- since 2013 Member, Board of Trustees, Max Planck Institute for Astronomy, Heidelberg, Germany
- since 2013 Member, Scientific Advisory Board, Cold Spring Harbor Conferences Asia, Suzhou, China

- since 2011 Member, Scientific Advisory Board, Centenary Institute, Sydney, Australia
- since 2006 Member, Scientific Advisory Board, Centro de Biología Molecular “Severo Ochoa” (CBMSO), Madrid, Spain
- 2014 - 2020 Member, Selection Committee, Heinz Maier-Leibnitz Prize, German Research Foundation (DFG)
- 2013 - 2016 Member, Scientific Advisory Board, Berlin Institute of Health, Berlin, Germany
- 2012 Chair, Scientific Advisory Board, VIB, Ghent, Belgium
- 2010 - 2016 Chair, Scientific Advisory Board, BioCity Turku, Turku, Finland
- 2009 - 2016 Chair, Scientific Advisory Board, Max Delbrück Center for Molecular Medicine, Berlin, Germany
- 2009 - 2016 Member, Board of Trustees, Max Delbrück Center for Molecular Medicine, Berlin, Germany
- 2008 - 2014 International Advisory Board, Queens University Belfast Medical School, UK

Editorial Boards (only currently active):

- since 2009 International Advisory Board, Wiley Interdisciplinary Reviews RNA
- since 2008 Senior Editor, EMBO Molecular Medicine
- since 2003 Editorial Board, BioMed Central Molecular Biology
- since 1997 Editorial Board, RNA
- since 1996 Editorial Board, trends in Biochemical Sciences [TiBS]

Project Coordination, Membership in Collaborative Projects

- 2011 Advanced Grant “Exploring the interface between cell metabolism and gene regulation: from mRNA interactomes to ‘REM networks’”, European Research Council (ERC)
- 2010 Project “Generation and analysis of mouse lines with IRP hyperactivity and deficiency”, Systembiologie Förderinitiative Virtual Liver, Federal Ministry for Research and Education, Germany
- 2006 Subproject “Systemic regulation of iron metabolism by the IRE/IRP system”, Project „EUROIRON 1”, 6th Research Framework Programme, European Union (EU)
- 2004 Projekt “Genetic modifiers in β -thalassemia”, German Research Foundation (DFG), Germany

- 2004 Project “Systematic analysis of microRNA expression in cancer development and metastasis”, National Genome Research Network 2 – CancerNet, Federal Ministry for Research and Education, Germany
- 1999 Project “Structural and functional basis of mRNA end-to-end coupling in the control of mRNA translation”, Human Frontier Science Program, International Human Frontier Science Program Organization (HFSP)
- 1995 Project “Optimized Protein Synthesis”, Framework IV Biotechnology, EU

Honours and Awarded Memberships (Selection)

- 2023 The Centenary Award, The Biochemical Society, London, UK
- 2021 PRO-SCIENTIA Award 2019, Eckhart-Buddecke-Foundation, Münster, Germany
- 2020 Lifetime Achievement Award, The RNA Society, McLean, USA
- 2018 Ilse and Helmut Wachter Award, Medical University Innsbruck, Innsbruck, Austria
- since 2018 Elected International Honorary Member, American Academy of Arts and Sciences (AAA&S), USA
- 2017 Honory Doctorate, Australia National University, Canberra, Australia
- 2016 Investigator Award, Heidelberg Molecular Life Sciences (HMLS), Heidelberg, Germany
- since 2016 Elected Member, Academia Europaea (MAE)
- since 2016 Elected Corresponding Member (FAA), Australian Academy of Science, Australia
- 2016 - 2019 Director, The RNA Society, McLean, USA
- 2015 The Feodor Lynen Medal and Lecture, German Society for Biochemistry and Molecular Biology (GBM)
- since 2010 Honorary Faculty Member, Victor Chang Cardiac Research Institute, Sydney, Australia
- 2007 Lautenschläger Research Prize, University of Heidelberg, Heidelberg, Germany
- since 2006 Member, German National Academy of Sciences Leopoldina
- 2003 - 2007 Elected Director, International Biolron Society (IBIS), USA
- since 2003 Elected Member, European Academy of Sciences
- 2000 Gottfried Wilhelm Leibniz Prize, German Research Foundation (DFG), Germany
- since 1997 Elected Member, European Molecular Biology Organization (EMBO)
- 1985 Postdoctoral Fellowship, German Research Foundation (DFG), Germany

Special and Named Lectures (Selection)

- 2018 Keynote Speaker, RiboClub 2018, Cheribourg, Quebec, Canada
- 2017 Opening Lecture, Annual Confer of the German Genetics Society, Bochum, Germany
- 2016 The Mark Nickerson Memorial Lecture, McGill University, Montreal, Canada
- 2016 Keynote Speaker, British Society for Proteome Research, Glasgow, UK
- 2016 Keynote Speaker, Ospedale San Raffaele Milano Annual Retreat, Baveno, Italy
- 2015 Keynote Speaker, AARS (10th Internat. Conference on Aminoacyl-tRNA Synthetases), Barcelona, Spain
- 2015 Weizmann Institute Life Science Colloquium, Weizmann Institute of Science, Rehovot, Israel
- 2015 Distinguished Speaker Seminar, Max-Delbrück Center for Molecular Medicine, Berlin, Germany
- 2015 The Kidson Lecture, QIMR Medical Research Institute, Brisbane, Australia
- 2015 The MIT Biology Colloquium, Massachusetts Institute of Technology, Cambridge, USA
- 2014 The Lennart Philipson Memorial Lecture, University of Uppsala, Uppsala, Sweden
- 2014 The Cesar Milstein Lecture, Instituto Leloir, Buenos Aires, Argentina
- 2014 Opening Lecture, Translation UK 2014, Leicester, United Kingdom
- 2012 25th Foundation Day lecturer, CCMB, Hyderabad, India
- 2012 Special Seminar, IGCMB, Strasbourg, France
- 2011 Keynote Lecture, EMBO Meeting “Intracellular RNA Localization & Localized Translation”, Il Ciocco, Italy
- 2011 Invited Plenary Lecture, 16th Annual Meeting of the RNA Society, Kyoto, Japan
- 2011 The Kjeldgaard Lecture, University of Aarhus, Aarhus, Denmark
- 2011 The President’s Lecture, Sanford-Burnham Medical Research Institute, San Diego, USA
- 2010 The Princesses’ Lecture, Victor Chang Cardiac Research Institute, Sydney, Australia
- 2010 The EMBO Lecture, 4th RNA Stability Meeting, Montreal, Canada
- 2010 The EMBO Lecture, 31st Lorne Genome Conference, Lorne, Australia
- 2010 Distinguished Lecture, Lady Davis Institute for Medical Research, McGill University, Montreal, Canada
- 2009 Keynote Speaker, The XXXII Meeting of the Chilean Society for Molecular Biology and Biochemistry, Termas de Chillan, Chile

- 2008 Plenary Lecture, The AARS (Internat. Conference on Aminoacyl-tRNA Synthetases), Lac Annecy, France
- 2008 The Stephen I. Morse Memorial Lecture, State University of New York at Downstate Medical Center, New York, USA
- 2008 Keynote Speaker, Keystone Symposium “Translational Regulatory Mechanisms”, Coeur d’Alene, USA
- 2006 Keynote Speaker, Translational Control and Non-Coding RNA Meeting, Nove Hradky, Czech Republic
- 2006 Keynote Speaker, 17th Annual Meeting, German, Austrian and Swiss Society for Human Genetics
- 2005 The EMBO Lecture, 1st International Biolron Congress, Prague, Czech Republic
- 2004 Keynote Speaker, Greek Society for Biochemistry and Molecular Biology, Athens, Greece
- 2003 Research Fellows’ Visiting Professor, Lerner Research Institute, Cleveland Clinic Foundation, Cleveland, USA
- 2002 CBM Madrid Severo Ochoa Lecture “Avances en Biología Molecular”, Madrid, Spain
- 2001 Student and Postdoc Sponsored Seminar, Rockefeller University, New York, USA
- 2000 Erasmus Lecture on Genetics, Erasmus University Rotterdam, Rotterdam, Netherlands
- 2000 Keynote Speaker, Israel Society for Biochemistry and Molecular Biology, Rehovot, Israel

International Scientific Meetings (Co-) Organized

- 2021 “Protein Synthesis and Translational Control”, 9th EMBO Conference, jointly organized with F. Gebauer, J. Pelletier and C. Spahn, September 07-10, 2021.
- 2019 8th Congress of the International Biolron Society, jointly organized with M. Muckenthaler, Heidelberg, May 05-10, 2019.
- 2019 “Protein Synthesis and Translational Control”, 8th EMBO Conference, jointly organized with F. Gebauer, W. Gilbert and C. Spahn, Heidelberg, September 04-08, 2019.
- 2017 “Protein Synthesis and Translational Control”, 7th EMBO Conference, jointly organized with J.Cate, F. Gebauer, and R. Green, Heidelberg, September 06-10, 2017.

- 2015 “Protein Synthesis and Translational Control”, 6th EMBO Conference, jointly organized with N. Ban, F. Gebauer, and L. Valasek, Heidelberg, September 09-13, 2015.
- 2015 “RNA ‘15”, 20th Annual Meeting of the RNA Society, jointly organized with D. Brow, A. Pasquinelli and A. Pyle, Madison, May 26-31, 2015.
- 2013 “Protein Synthesis and Translational Control”, 5th EMBO Conference, jointly organized with F. Gebauer, A. Hinnebusch and M. Yusupov, Heidelberg, September 08-12, 2013.
- 2012 “Quality Control – From molecules to organelles”, EMBO/EMBL Symposium , jointly organized with B. Bukau and J. Diffley, Heidelberg, September 19-22, 2012.
- 2011 “Protein Synthesis and Translational Control”, 4th EMBO Conference, jointly organized with A. Ephrussi, R. Green and J. Lorsch, Heidelberg, September 07-11, 2011.
- 2011 “From RNA to protein and beyond”, 4th Berlin Summer Meeting, jointly organized with R. Bonneau, A. Ephrussi, S. Kempa, N. Rajewsky and M. Selbach, Berlin, June 23-25, 2011.
- 2010 “The complex life of mRNA: from synthesis to decay”, EMBL Conference, jointly organized with U. Fischer and E. Wahle, Heidelberg, March 18-20, 2010.
- 2009 “Protein Synthesis and Translational Control”, 3rd EMBO Conference, jointly organized with N. Sonenberg, M. Rodnina and A. Ephrussi, Heidelberg, September 09-13, 2009.
- 2007 “Protein Synthesis and Translational Control”, 2nd EMBO Conference, jointly organized with T. Dever, J. Doudna and A. Ephrussi, Heidelberg, September 12-16, 2007.
- 2005 “Protein Synthesis and Translational Control”, 1st EMBO Conference, jointly organized with A. Ephrussi, A. Hinnebusch and V. Ramakrishnan, Heidelberg, September 14-18, 2005.
- 2004 “Functional Genomics; Exploring the edges of omics”, EMBL/EMBO Symposium, jointly organized with E. Furlong, N. Barkai, F. Holstege, M. Vidal, L. Steinmetz, I. Mattaj, P. Bork, C. Mueller, M. Wilmanns, EMBL, October 16-19, 2004
- 2002 “Functional Genomics; The Future of Biology”, EMBL/EMBO Symposium, jointly organized with I. Mattaj, W. Ansorge, P. Bork, C. Mueller, N. Rosenthal, L. Serrano and M. Wilmanns. EMBL, October 13-16, 2002.
- 2002 “Translational Control”, Cold Spring Harbor Laboratory, jointly organized with A. Hinnebusch and R. Schneider, CSH, September 10-15, 2002.
- 2001 “RNA ‘01”, 6th Annual Meeting of the RNA Society, jointly organized with B. Chabot, J. Williamson and S. Wolin, Banff, May 29 - June 03, 2001.

- 2000 First EMBL Minisymposium in Molecular Medicine “Genetic Diseases”, jointly organized with R. Klein and J. Wittbrodt, Heidelberg, June 08-09, 2000.
- 1999 NATO/EMBO/FEBS International Summer School on “Structure and Function of Macromolecular Complexes”, jointly organized with E. Gonos, J.W.B. Hershey, L. Kisselev and J.E.G. McCarthy, Spetses, August 29 - September 09, 1999.
- 1999 “RNA ‘99”, 4th Annual Meeting of the RNA Society, jointly organized with J. Doudna, A. Krämer and D. Tollervey, Edinburgh, June 23-27, 1999.
- 1999 Juan March Foundation Workshop “Regulation of Protein Synthesis in Eukaryotes”, jointly organized with C. de Haro and N. Sonenberg, Madrid, March 08-10, 1999.

Research priorities

Matthias Hentze is a physician. He is currently investigating connections between metabolic processes and gene regulation and how they influence one another. Following his discovery of hundreds of new RNA-binding proteins, he has a particular interest in riboregulation, a biological control mechanism that Hentze’s team also recently newly described.

For many years, his research focused on the control mechanisms of protein synthesis, post-transcriptional control of gene regulation and its disorders in genetic diseases, as well as the regulation of human iron metabolism and how imbalances contribute to disease. Matthias Hentze’s work has made key contributions to the understanding of translational control. A cell must always regulate how much of an enzyme, signal molecule or structural protein it produces. Translation allows a cell to react very quickly to changing conditions and, for example, rapidly produce many proteins. If translational control malfunctions, diseases such as cancer may result.

Hentze also discovered that proteins interact directly with RNA and can influence their functions. He managed to identify several of these riboregulations. He and his team developed investigative methods to analyse protein interactions and understand the role of proteins in genome regulation. He wants to discover which proteins and mechanisms play a key role in the control of gene expression and which dysregulations are linked to diseases.