

Faculty



Prof. Martina Muckenthaler, PhD

Research Interests

Iron metabolism
Immunity
Rare anemias
microRNAs / mRNA expression

- >> Short CV
- >> Projects
- >> Funding
- >> Team
- >> Selected Publications
- >> homepage of the respective institute/department

Short CV

Affiliation

Martina Muckenthaler

Professor of Molecular Medicine

University of Heidelberg, Department of Paediatric Oncology, Haematology and Immunology

Head of Molecular Medicine

Molecular Medicine Partnership Unit Group Leader

Translational Lung Research Center (TLRC) Member

University of Heidelberg

Im Neuenheimer Feld 350

69120 Heidelberg

Phone:+49 6221 56-6923

email: martina.muckenthaler@med.uni-heidelberg.de

homepage: <http://www.klinikum.uni-heidelberg.de/AG-Muckenthaler.129679.0.html>

<http://www.klinikum.uni-heidelberg.de/Iron-Homeostasis.114495.0.html>

Curriculum Vitae

- 1984 – Study of Biology at the University of Regensburg and the Technical University of
- 1989 Munich
- 1989 – London Hospital Medical College, London, Great Britain (MSc project)
- 1990
- 1990 – PhD at the University of Oxford, Great Britain
- 1994 Johann Wolfgang Goethe University Frankfurt (PhD defense)
- 1994 – Postdoctoral Fellow, EMBL, Heidelberg
- 2001
- 2002 – Staff Scientist, EMBL, Heidelberg
- 2003
- 2004 Professor of Molecular Medicine
- 2005 Head of the post-doctoral excellence program of the Medical Faculty of Heidelberg
- 2006 Group Leader, University of Heidelberg / EMBL Molecular Medicine Partnership Unit (MMPU)
- 2008 Equal opportunity representative of the University of Heidelberg
- 2009 Director of the Bioiron society
- 2010 Group Leader Cell Network Excellence Cluster

Honours & Awards

- 1994 EMBO longterm fellowship
- 2000 Fondbroker Förderpreis "The best idea" (2000)
- 2007 Margrit Krikker Award 2007 by the International Bioiron Society in Kyoto
- 2005 Member of the editorial board of the Journal of Molecular medicine and Biochemical Journal
- 2009 elected director of the Bioiron society
- 2012 Committee Member of the European Hematology Association (EHA)
- 2012 Scientific Committee on Iron and Heme of the American Society of Hematology (ASH)

Projects

My research focuses on iron metabolism and its disturbances in human disease. My major aim is to understand the regulatory circuitry underlying systemic iron homeostasis. We concentrate on the iron

hormone hepcidin and its regulatory “target receptor” ferroportin. Since both the excess of hepcidin (leading to anemia) and its deficiency (causing iron overload) must be prevented, a central goal of our work is to decipher the control of hepcidin expression employing network/systems-based analyses by integrating transcriptomic and proteomic analyses, mouse models and genome-wide siRNA screens.

Funding

Federal Ministry for education and research (BMBF)
German Research Foundation (DFG)
Dietmar Hopp Stiftung
Medical Faculty of Heidelberg
University of Heidelberg (Exzellenz Initiative)
European Community (6th Framework Programme)
Baden-Württemberg Stiftung
Translational Lung Research Center

Team

Post-doctoral fellows

Dr. Sandro Altamura
Tel.: +49 (0)6221/56 - 88 39
E-Mail: sandro.altamura@med.uni-heidelberg.de

Dr. Flavia D'Alessio
Tel.: +49 (0)6221/56 - 82 96
E-Mail: alessio@embl.de

Dr. Christoph Metzendorf
Tel.: +49 (0)6221/56 - 45 82
E-Mail: christoph.metzendorf@med.uni-heidelberg.de

Dr. Katarzyna Mleczko-Sanecka
Tel.: +49 (0)6221/56 - 8296
E-Mail: mleczko@embl.de

Dr. Francesca Vinchi
Tel.: +49 (0)6221/56 - 4582
E-Mail: francesca.vinchi@med.uni-heidelberg.de

PhD students

Milene Costa da Silva
Tel.: +49 (0)6221/56 - 45 82
E-Mail: Milene.CostadaSilva@med.uni-heidelberg.de

Ana Rita da Silva
Tel.: +49 (0)6221/56 - 8296
E-Mail: ana.dasilva@embl.de

Claudia Guida
Tel.: +49 (0)6221/56 - 82 96
E-Mail: claudia.guida@embl.de

Joana Neves
Tel.: +49 (0)6221/56 - 4582
E-Mail: joana.neves@med.uni-heidelberg.de

Kamesh Rajendra Babu

Tel.: +49 (0)6221/56 - 4582

E-Mail: [✉Kamesh.RajendraBabu@med.uni-heidelberg.de](mailto:Kamesh.RajendraBabu@med.uni-heidelberg.de)

Technical Assistants

Regina Kessler

Tel.: +49 (0)6221/56 - 45 82

E-Mail: regina.kessler@med.uni-heidelberg.de

Richard Sparla

Tel.: +49 (0)6221/56 - 82 96

E-Mail: richard.sparla@med.uni-heidelberg.de

Selected Publications

1. **Muckenthaler M**, Gray NK, Hentze MW: *IRP-1 binding to ferritin mRNA prevents the recruitment of the small ribosomal subunit by the cap-binding complex eIF4F.* **Mol Cell** 1998, 2(3):383-388.
2. **Muckenthaler M**, Roy CN, Custodio AO, Minana B, deGraaf J, Montross LK, Andrews NC, Hentze MW: Regulatory defects in liver and intestine implicate abnormal hepcidin and Cybrd1 expression in mouse hemochromatosis. **Nat Genet** 2003, 34(1):102-107.
3. Hentze MW, **Muckenthaler MU**, Andrews NC: *Balancing acts: molecular control of mammalian iron metabolism.* **Cell** 2004, 117(3):285-297.
4. Roy CN, Custodio AO, de Graaf J, Schneider S, Akpan I, Montross LK, Sanchez M, Gaudino A, Hentze MW, Andrews NC, **Muckenthaler MU**: *An Hfe-dependent pathway mediates hypsideremia in response to lipopolysaccharide-induced inflammation in mice.* **Nat Genet** 2004, 36(5):481-485.
5. Ludwiczek S, Theurl I, **Muckenthaler MU**, Jakab M, Mair SM, Theurl M, Kiss J, Paulmichl M, Hentze MW, Ritter M, Weiss G: *Ca²⁺ channel blockers reverse iron overload by a new mechanism via divalent metal transporter-1.* **Nat Med** 2007, 13(4):448-454.
6. Sanchez M, Galy B, , Hentze MW, **Muckenthaler MU**: *Iron-regulatory proteins limit hypoxia-inducible factor-2alpha expression in iron deficiency.* **Nat Struct Mol Biol** 2007, 14(5):420-426.
7. Braliou GG, Verga Falzacappa MV, Chachami G, Casanovas G, **Muckenthaler MU**, Simos G: *2-Oxoglutarate-dependent oxygenases control hepcidin gene expression.* **J Hepatol** 2008, 48(5):801-810.
8. **Muckenthaler MU**: *Fine tuning of hepcidin expression by positive and negative regulators.* **Cell Metab** 2008, 8(1):1-3.
9. Vujic Spasic M, Kiss J, Herrmann T, Galy B, Martinache S, Stolte J, Grone HJ, Stremmel W, Hentze MW, **Muckenthaler MU**: *Hfe acts in hepatocytes to prevent hemochromatosis.* **Cell Metab** 2008, 7(2):173-178.
10. Hentze MW, **Muckenthaler MU**, Galy B, Camaschella C: *Two to tango: regulation of Mammalian iron metabolism.* **Cell** 2010, 142(1):24-38.
11. Mleczko-Sanecka K, Casanovas G, Ragab A, Breitkopf K, Muller A, Boutros M, Dooley S, Hentze MW, **Muckenthaler MU**: *SMAD7 controls iron metabolism as a potent inhibitor of hepcidin expression.* **Blood** 2010, 115(13):2657-2665.
12. Castoldi M, Vujic Spasic M, Altamura S, Elmen J, Lindow M, Kiss J, Stolte J, Sparla R, D'Alessandro LA, Klingmuller U, Fleming RE, Longerich T, Grone HJ, Benes V, Kauppinen S, Hentze MW, **Muckenthaler MU**: *The liver-specific microRNA mir-122 controls systemic iron homeostasis in mice.* **J Clin Invest** 2011;121:1386-1396
13. Sanchez M, Galy B, Schwanhaeusser B, Blake J, Bahr-Ivacevic T, Benes V, Selbach M, **Muckenthaler MU**, Hentze MW: *Iron regulatory protein-1 and -2: Transcriptome-wide definition of binding mrnas and shaping of the cellular proteome by iron regulatory proteins.* **Blood** 2011;118:e168-179.
14. D'Alessio F, Hentze MW, **Muckenthaler MU**: *The hemochromatosis proteins hfe, tfr2 and hju form a membrane-associated protein complex For hepcidin regulation.* **J Hepatol.** 2012 Jun 21.
15. Benesova K, Vujić Spasić M, Schaefer SM, Stolte J, Baehr-Ivacevic T, Waldow K, Zhou Z, Klingmueller U, Benes V, Mall MA, **Muckenthaler MU**: *Hfe deficiency impairs pulmonary neutrophil recruitment in response to inflammation.* **PLoS One.** 2012;7(6):e39363.