Curriculum Vitae
Prof. Dr. med. Markus Heim

PERSONAL INFORMATION

date of birth	30.April 1961
nationality	Swiss
address	University Hospital Basel Clinic for Gastroenterology and Hepatology Petersgraben 4, 4031 Basel, Switzerland
phone / fax	+41 61 265 25 25/+41 61 265 53 52
E-mail	markus.heim@unibas.ch
researcherID	A-7526-2008
OrcID	orcid.org/0000-0002-7523-4894
full publication list	https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40211486/?sort=date&direction=descending

EDUCATION, DEGREES AND EMPLOYMENT HISTORY INCLUDING CURRENT POSITION(S)

1981-1987	Medical School, University of Basel, Switzerland
1988	*Medical Doctor, University of Basel, Switzerland*
1988	Swiss Postgraduate Course in Experimental Medicine and Biology
1988-1991	University of Basel, Biozentrum, Postdoctoral Fellow (U.A.Meyer)
1991-1993	University Hospital Basel, Internship/Residency, Internal Medicine
1993-1995	Rockefeller University, New York, Postdoctoral Fellow (J.E. Darnell)
1995-1996	University Hospital Basel, Residency, Internal Medicine
1997	*Swiss Board Certification Internal Medicine*
1996-1997	University Hospital Freiburg, Fellow, Gastroenterology & Hepatology
1997-1999	University Hospital Basel, Fellow, Gastroenterology & Hepatology
1999	*Swiss Board Certification Gastroenterology*
1999-2002	University Hospital Basel, Attending Physician, Gastroenterology & Hepatology
1999-present	**Research Group Leader, Department of Biomedicine, University of Basel, Switzerland**
2003-2012	Attending physician and Head of Hepatology, University Hospital Basel, Switzerland
2012	*Swiss Board Certification Hepatology*
2012-2018	**Chief, Division of Gastroenterology and Hepatology, University Hospital Basel, Switzerland**
2019-present	**Chief, Division of Gastroenterology and Hepatology, Clarunis, Basel, Switzerland**

ACADEMIC APPOINTMENTS

1998	Assistant Professor of Medicine (Venia docendi, Habilitation), University of Basel, Switzerland
2003	Associate Professor of Medicine (Titularprofessor), University of Basel, Switzerland
2009	Professor of Hepatology, University of Basel, Switzerland

INSTITUTIONAL RESPONSIBILITIES

2003-2009	Member of the Faculty Committee for Habilitations, University of Basel
2006-2009	President of the Habilitation Vorprüfungskommission, University of Basel
2006-2009	Member of the Faculty Council, Faculty of Medicine, University of Basel
2005-2013	Member of the Executive Committee of the Department of Biomedicine, University of Basel

APPROVED RESEARCH PROJECTS

2016-2019	Swiss National Science Foundation grant 310030_166202 / 1 Title: Interferon Regulated Immune Responses in Viral Hepatitis

2014-2020 European Research Council: MERiC synergy grant
Title: Mechanisms of Evasive Resistance in Cancer

SUPERVISION OF JUNIOR RESEARCHERS AT GRADUATE AND POSTGRADUATE LEVEL

1997-present Direct supervision of 18 PhD and MD-PhD students

TEACHING ACTIVITIES

1999-present Lectures for Medical Students
(Bachelor and Master courses in Gastroenterology and Hepatology)

1999-present Lectures for Biology Students and Graduate Students at the Biozentrum, University Basel
(Courses: Molecular Medicine, Experimental Cancer Research, Molecular Virology)

MEMBERSHIPS IN PANELS AND BOARDS

2005-present Journal of Hepatology, Editorial Board Member

2007-2010 Agence national de recherches sur le sida et les hépatides virales (ANRS)
Membre du Comité Scientifique Sectoriel 4

2009-2017 Swiss National Science Foundation
Council member, Division 3 (Biology and Medicine)

2009-present Ambizione Evaluation Commission Biology and Medicine
PRIMA Evaluation Commission Biology and Medicine
SNSF Professorships Evaluation Committee Biologie und Medizin

ACTIVE MEMBERSHIPS IN SCIENTIFIC SOCIETIES, FELLOWSHIPS IN RENOWNED ACADEMIES

2001-present Swiss Association for the Study of the Liver (SASL)
since 2001 Council Member
2003-2011 President

2016-present Swiss Academy of Medical Sciences
Member of the Senate

CLINICAL TRIAL EXPERIENCE

1997-present Principal Investigator and Co-Investigator in > 40 Phase II and Phase III clinical trials

PRIZES, AWARDS, FELLOWSHIPS

1988-2001 Postgraduate Course Scholarship Swiss National Science Foundation
1993-1995 Advanced Postdoctoral Fellowship Swiss National Science Foundation
1999-2002 SCORE A Fellowship Swiss National Science Foundation
2001 Alumni Prize of the Medical Faculty of the University of Basel
2002 Hepatology Prize, Swiss Society for Gastroenterology and Hepatology
2003 Honorary Prize of the Swiss Society for Gastroenterology and Hepatology
2012 Otto Naegeli Prize
2016 Dora Seitz Prize

MAJOR SCIENTIFIC ACHIEVEMENTS

Our research program in liver disease has a strong translational focus. Over the last 20 years we have built up a well curated, annotated biobank with more than 3000 liver biopsies including all major liver disease entities. We are one of the founding clinical centers of the Swiss Hepatitis C Cohort study that is ongoin since the year 2000. We started our own cohort of patients with non-alcoholic fatty liver disease (NAFLD) in 1999. Since 2012 we have a clinical study that prospectively includes patients with hepatocellular carcinomas. Until the introduction of highly effective direct acting antivirals against hepatitis C virus (HCV) in 2016, the major focus of our laboratory was to understand the innate immune response in acute and chronic hepatitis C. The topic was clinically relevant because recombinant interferons were the major component of all anti-HCV therapies for almost 25 years (1). Interferon based therapies had limited cure rates and major side effects. In an effort to understand the molecular mechanisms of response and non-response to interferon, we performed biopsies before and during treatment with pegylated interferon in patients with chronic hepatitis C (CHC). The study lead to the unexpected finding that about half of the patients had highly induced interferon stimulated genes in their liver already before treatment. Paradoxically, these patients did not respond to interferon based treatments, whereas patients with an inactive endogenous interferon system were regularly cured from HCV with interferon therapies (2). In the years after this discovery, we systematically investigated the underlying molecular mechanisms (3-13). The major finding of this effort was that interferon lambda 4 is the major driver of interferon stimulated gene expression in the liver, and that a genetic polymorphism in the interferon lambda gene cluster is highly associated with spontaneous and interferon treatment induced clearance of HCV (14). More recently, the focus of our work shifted to hepatitis B virus (HBV). We used an newly developped ex vivo biopsy culture model to study the impact of HBV on cell intrinsic innate immune responses(15). An other major focus of the laboratory is hepatocellular carcinoma (HCC). We have developped a tumor organoid biobank from liver biopsies of HCC (16). In a collaborative network with Michael Hall, Gerhard Christofori and Niko Beerenwinkel we are studying molecular mechansims of evasive resistance in HCC (17-20).

1. Heim MH. 25 years of interferon-based treatment of chronic hepatitis C: an epoch coming to an end. Nat Rev Immunol 2013;13:535-542.
2. Sarasin-Filipowicz M, Oakeley EJ, Duong FH, Christen V, Terracciano L, Filipowicz W, Heim MH. Interferon signaling and treatment outcome in chronic hepatitis C. Proc Natl Acad Sci U S A 2008;105:7034-7039.
3. Sarasin-Filipowicz M, Krol J, Markiewicz I, Heim MH, Filipowicz W. Decreased levels of microRNA miR-122 in individuals with hepatitis C responding poorly to interferon therapy. Nat Med 2009;15:31-33.
4. Sarasin-Filipowicz M, Wang X, Yan M, Duong FH, Poli V, Hilton DJ, Zhang DE, Heim MH. Alpha interferon induces long-lasting refractoriness of JAK-STAT signaling in the mouse liver through induction of USP18/UBP43. Mol Cell Biol 2009;29:4841-4851.
5. Bellecave P, Sarasin-Filipowicz M, Donze O, Kennel A, Gouttenoire J, Meylan E, Terracciano L, Tschopp J, Sarrazin C, Berg T, Moradpour D, Heim MH. Cleavage of mitochondrial antiviral signaling protein in the liver of patients with chronic hepatitis C correlates with a reduced activation of the endogenous interferon system. Hepatology 2010;51:1127-1136.
6. Makowska Z, Duong FH, Trincucci G, Tough DF, Heim MH. Interferon-beta and interferon-lambda signaling is not affected by interferon-induced refractoriness to interferon-alpha in vivo. Hepatology 2011;53:1154-1163.
7. Dill MT, Duong FH, Vogt JE, Bibert S, Bochud PY, Terracciano L, Papassotiropoulos A, Roth V, Heim MH. Interferon-induced gene expression is a stronger predictor of treatment response than IL28B genotype in patients with hepatitis C. Gastroenterology 2011;140:1021-1031.
8. **Terczynska-Dyla E**, **Bibert S**, **Duong FH**, Krol I, Jorgensen S, Collinet E, Kutalik Z, Aubert V, Cerny A, Kaiser L, Malinverni R, Mangia A, Moradpour D, Mullhaupt B, Negro F, Santoro R, Semela D, Semmo N, Swiss Hepatitis CCSG, **Heim MH**, **Bochud PY**, **Hartmann R**, Swiss Hepatitis CCSG. Reduced IFNlambda4 activity is associated with improved HCV clearance and reduced expression of interferon-stimulated genes. Nat Commun 2014;5:5699.
9. **Duong FH**, **Trincucci G**, Boldanova T, Calabrese D, Campana B, Krol I, Durand SC, Heydmann L, Zeisel MB, Baumert TF, Heim MH. IFN-lambda receptor 1 expression is induced in chronic hepatitis C and correlates with the IFN-lambda3 genotype and with nonresponsiveness to IFN-alpha therapies. J Exp Med 2014;211:857-868.
10. Dill MT, Makowska Z, Trincucci G, Gruber AJ, Vogt JE, Filipowicz M, Calabrese D, Krol I, Lau DT, Terracciano L, van Nimwegen E, Roth V, Heim MH. Pegylated IFN-alpha regulates hepatic gene expression through transient Jak/STAT activation. J Clin Invest 2014;124:1568-1581.
11. Makowska Z, Blumer T, Duong FH, La Monica N, Kandimalla ER, Heim MH. Sequential induction of type I and II interferons mediates a long-lasting gene induction in the liver in response to a novel toll-like receptor 9 agonist. J Hepatol 2013;58:743-749.
12. Dill MT, Makowska Z, Duong FH, Merkofer F, Filipowicz M, Baumert TF, Tornillo L, Terracciano L, Heim MH. Interferon-gamma-stimulated genes, but not USP18, are expressed in livers of patients with acute hepatitis C. Gastroenterology 2012;143:777-786 e771-776.

13. Boldanova T, Suslov A, Heim MH, Necsulea A. Transcriptional response to hepatitis C virus infection and interferon-alpha treatment in the human liver. EMBO Mol Med 2017;9:816-834.
14. Heim MH, Bochud PY, George J. Host - hepatitis C viral interactions: The role of genetics. J Hepatol 2016;65:S22-S32.
15. Suslov A, Boldanova T, Wang X, Wieland S, Heim MH. Hepatitis B Virus Does Not Interfere With Innate Immune Responses in the Human Liver. Gastroenterology 2018;154:1778-1790.
16. Nuciforo S, Fofana I, Matter MS, Blumer T, Calabrese D, Boldanova T, Piscuoglio S, Wieland S, Ringnalda F, Schwank G, Terracciano LM, Ng CKY, Heim MH. Organoid Models of Human Liver Cancers Derived from Tumor Needle Biopsies. Cell Rep 2018;24:1363-1376.
17. Guri Y, Colombi M, Dazert E, Hindupur SK, Roszik J, Moes S, Jenoe P, Heim MH, Riezman I, Riezman H, Hall MN. mTORC2 Promotes Tumorigenesis via Lipid Synthesis. Cancer Cell 2017;32:807-823 e812.
18. Makowska Z, Boldanova T, Adametz D, Quagliata L, Vogt JE, Dill MT, Matter MS, Roth V, Terracciano L, Heim MH. Gene expression analysis of biopsy samples reveals critical limitations of transcriptome-based molecular classifications of hepatocellular carcinoma. J Pathol Clin Res 2016;2:80-92.
19. Dazert E, Colombi M, Boldanova T, Moes S, Adametz D, Quagliata L, Roth V, Terracciano L, Heim MH, Jenoe P, Hall MN. Quantitative proteomics and phosphoproteomics on serial tumor biopsies from a sorafenib-treated HCC patient. Proc Natl Acad Sci U S A 2016;113:1381-1386.
20. Hindupur SK, Colombi M, Fuhs SR, Matter MS, Guri Y, Adam K, Cornu M, Piscuoglio S, Ng CKY, Betz C, Liko D, Quagliata L, Moes S, Jenoe P, Terracciano LM, Heim MH, Hunter T, Hall MN. The protein histidine phosphatase LHPP is a tumour suppressor. Nature 2018;555:678-682.