

CURRICULUM VITAE

Professor Dr. Dr. Thomas Thum MD, PhD, DIC, FESC, FAHA

(* 16. November 1974, Hildesheim, Germany)

Specialist in Internal Medicine and Cardiology
National Heart and Lung Institute, Imperial College London and
Institute of Molecular and Translational Therapeutic Strategies
Medizinische Hochschule Hannover (MHH)
Carl-Neuberg-Str.1, D-30625 Hannover
Email: thum.thomas@mh-hannover.de
Homepages: <http://www.mh-hannover.de/imtts.html>
<http://www.vascularmicrornas.com>
<http://cardior.de>



Education

1994-2001 *Studies of Human Medicine* (Medical School Hannover, Germany)
2001 State Examination Medicine (*M.D.*), Medical School Hannover, Germany.
2001 *Medical Thesis*, Medical School Hannover (MHH), Grade *summa cum laude*.

Postdoctoral / Clinical Training

2001-02 Department of Clinical Pharmacology, Hannover Medical School, Germany
2002-08 Ph.D. at the Imperial College of Medicine, London, UK, (Prof. Philip. A. Poole-Wilson).
2003-04 Department of Clinical Pharmacology, Hannover Medical School (Prof. J.C. Frölich) and at the Fraunhofer Institute for Experimental Medicine (Head: Prof. Dr. J. Borlak).
2004-09 Julius-Maximilians-University Würzburg, Germany, Department of Internal Medicine I, Cardiology Department (Head: Prof. Dr. Georg Ertl)
2009 Board Examination Internal Medicine
2010 Board Examination Cardiology

Academic Appointments

2006-09 Research Junior Group Leader “Cardiac Wounding and Healing”; Interdisciplinary Center for Clinical Research (IZKF), Julius-Maximilians-University, Würzburg, Germany
from 10/2009 Full Professor (W3; permanent position) at the Hannover Medical School, Director, Institute of Molecular and Translational Therapeutic Strategies (IMTTS);
<http://www.mh-hannover.de/imtts.html>
from 07/2013 Visiting Professor, National Heart and Lung Institute, Imperial College London, U.K.

Other professional / academic positions

- University Positions:
 - Vice-Chair PhD Program Molecular Medicine, Hannover Biomedical Research School
 - Vice-Chair on Internationalisation
 - Steering Committee, Hannover Unified Biobank (HUB)
- Editorial Board Member:
 - Circulation Research (Consulting Editor)
 - European Heart Journal (International Associate Editor)
 - J Mol Cell Cardiology (Associate Editor)

- Arteriosclerosis, Thrombosis, and Vascular Biology
- Cardiovascular Research
- Basic Research in Cardiology
- American Journal of Physiology – Heart and Circulatory Physiology
- PLOS One
- Physiol Genomics
- National and International Reviewer activities (examples)
 - European Research Council (ERC),
 - German Society of Cardiology (DGK),
 - German Society of Research (DFG),
 - British Heart Foundation,
 - Health Research Board Ireland,
 - Austrian Society for Promotion of Scientific Research (FWF)
 - Netherlands Organization for Health Research and Development,
 - French Research Association (ANR)
 - Dutch Organization for Scientific Research.
- Other Professional Memberships
 - German Society of Cardiology (DGK),
 - German Society of Internal Medicine (DGIM),
 - European Association Member for the Study of Diabetes (EASD),
 - American Heart Association Professional Member (AHA),
 - Working Group on Myocardial Function (WG 4), Chairman, European Society of Cardiology,
 - Heart Failure Association (HFA), European Society of Cardiology
 - Fellow of the European Society of Cardiology (FESC)
 - Fellow of the American Society of Cardiology (FAHA)
 - International Society for Heart Research (ISHR); Member “at large”, World section of ISHR
 - Member of the Management Committee of the European COST Action CardioRNA (Substitute member)
 - Member of the German Society for Gender Medicine
- Advisory Board Member / Member of Pool of Experts (current and past):
 - Aachen Interdisciplinary Center for Clinical Research (IZKF), University Aachen, Germany
 - German National Committee for the Protection of Laboratory Animals, German Federal Institute for Risk Assessment (since 2018)
 - Pasteur Institute, Lille, France (2016-2018)
 - National Medical Research Council, Singapore (2014-2018)
 - International Scientific Advisory Board (ISAB) of the RECONNECT program, Rotterdam, Netherlands (since 2017)
 - consultant to an NIH grant application of the University of Louisville, KY (since 2016)
- Founder of Cardior Pharmaceuticals GmbH, Hannover, Germany
www.cardior.de

Selected Awards

- 2001 Hugo-Geiger-Award, Bavarian Ministry of Science, Germany
- 2005 Parmley-Award, American College of Cardiology
- 2005 Poster Award, Best cardiology poster, Society for Internal Medicine, Germany
- 2005 Young Investigator Award, Vascular Biology and Medicine, Chicago, USA
- 2005 Young Investigator Award, European Society of Cardiology, Stockholm, Sweden
- 2005 German Prize of the Network in Cardiac Failure, Essen, Germany
- 2006 Keystone Symposia Scholarship, Santa Fe, New Mexico, USA
- 2006 William W. Parmley Young Author Achievement Award, ACC, Atlanta, USA

- 2006 Poster Award, Leopoldina-Gesellschaft, Cardiovascular Healing Meeting, Germany
- 2006 Adumed Research Award, Herbsttagung der DGK, Nürnberg
- 2007 Young Investigator Award, German Society of Internal Medicine, Germany
- 2007 August-Wilhelm und Liselotte Becht-Award 2007, DGK, Köln, Germany
- 2007 Förderpreis, Deutsche Diabetes-Stiftung
- 2008 Oskar-Lapp-Preis, Dt. Gesellschaft für Kardiologie, Mannheim, Germany
- 2008 Young Investigator Award, European Heart Failure Meeting, Milano, Italy
- 2009 Deutscher PFIZER-Forschungspreis für Medizin, Freiburg
- 2010 Albert-Fraenkel-Award, German Society of Cardiology
- 2011 Outstanding Achievement Award, European Society of Cardiology
- 2012 Franz-Maximilian-Groedel Award, German Society of Cardiology
- 2014 Sir Hans Krebs Award
- 2015 Outstanding Investigator Award, ISHR Bordeaux Meeting

Major Research Interests

- transcriptional control in cardiovascular biology by transcription factors and noncoding RNA molecules
- development and treatment of heart failure
- diverse aspects in translational cardiovascular medicine, including large animal and early clinical trial studies

Patents

- >30 filed and partly granted patents; 5 licensed patents (anti-fibrotic molecule currently in clinical trials)

Most important publications (from >290)

1. Thum T and Borlak J. Gene expression in distinct regions of the heart. **Lancet** 2000, 355: 979 - 983.
2. Thum T, Galuppo P, Wolf C, Fiedler J, Kneitz S, van Laake LW, Doevendans PA, Mummery CL, Borlak J, Haverich A, Gross C, Engelhardt S, Ertl G, Bauersachs J. MicroRNAs in the Human Heart: A Clue to Fetal Gene Reprogramming in Heart Failure. **Circulation** 2007, 116: 258-67.
3. Thum T, Gross C, Fiedler J, Fischer T, Kissler S, Just S, Rottbauer W, Bussen M, Galuppo P, Frantz S, Castoldi M, Muckenthaler M, Soutschek J, Koteliansky, Rosenwald A, Pena JT, Tuschl T, Martin GR, Bauersachs J, Engelhardt S. MiR-21 derepresses fibroblast MAPkinase signalling and contributes to myocardial disease. **Nature** 2008, 456: 980-4.
4. Fleissner F, Jazbutyte V, Fiedler J, Gupta S, Yin X, Xu Q, Galuppo P, Mayr M, Ertl G, Bauersachs J and Thum T. (2010). Asymmetric dimethylarginine impairs angiogenic progenitor cell function in patients with coronary artery disease through a microRNA-21 dependent mechanism. **Circ Res** 107:138-43.
5. Thum T, Schmitter K, Fleissner F, Wiebking V, Dietrich B, Widder JD, Jazbutyte V, Hahner S, Ertl G, Bauersachs J. (2010). Impairment of endothelial progenitor cell function and vascularization capacity by aldosterone in mice and humans. **Eur Heart J.** 32:1275-86
6. Ucar A, Vafaizadeh V, Jarry H, Fiedler J, Klemmt PAB, Thum T, Groner B, Chowdhury K. (2010). MicroRNA-212/132 family is required for epithelial stromal interactions necessary for the pubertal mammary gland development. **Nature Genetics.** 42:1101-8.
7. Thum T, Chau N, Bhat B, Gupta SK, Linsley PS, Bauersachs J, Engelhardt S. Comparison of different miR-21 inhibitor chemistries in a cardiac disease model. **J Clin Invest.** 2011, 121:461-2.
8. Ucar A, Gupta SK, Fiedler J, Erikci E, Kardasinski M, Batkai S, Dangwal S, Kumarswamy R, Bang C, Holzmann A, Remke J, Caprio M, Jentsch C, Engelhardt S, Geisendorf S, Glas C, Hofmann TG, Nessling M, Richter K, Schiffer M, Carrier L, Napp LC, Bauersachs J, Chowdhury

- K, Thum T. The miRNA-212/132 family regulates both cardiac hypertrophy and cardiomyocyte autophagy. **Nature Commun.** 2012, 3:1078. doi: 10.1038/ncomms2090.
9. Kumarswamy R, Lyon AR, Volkmann I, Mills AM, Bretthauer J, Pahuja A, Geers-Knörr C, Kraft T, Hajjar RJ, Macleod KT, Harding SE, Thum T (2012 May). SERCA2a gene therapy restores microRNA-1 expression in heart failure via an Akt/FoxO3A-dependent pathway. **Eur Heart J.** 2012 May;33(9):1067-75.
 10. Heymans S, Corsten MF, Verhesen W, Carai P, van Leeuwen RE, Custers K, Peters T, Hazebroek M, Stöger L, Wijnands E, Janssen BJ, Creemers EE, Pinto YM, Grimm D, Schürmann N, Vigorito E, Thum T, Stassen F, Yin X, Mayr M, de Windt LJ, Lutgens E, Wouters K, de Winther MP, Zacchigna S, Giacca M, van Bilsen M, Papageorgiou AP, Schroen B. Macrophage MicroRNA-155 Promotes Cardiac Hypertrophy and Failure. **Circulation.** 2013 Sep 24;128(13):1420-32.
 11. Dirx E, Gladka MM, Philippen LE, Armand AS, Kinet V, Leptidis S, El Azzouzi H, Salic K, Bourajaj M, da Silva GJ, Olieslagers S, van der Nagel R, de Weger R, Bitsch N, Kisters N, Seyen S, Morikawa Y, Chanoine C, Heymans S, Volders PG, Thum T, Dimmeler S, Cserjesi P, Eschenhagen T, da Costa Martins PA, De Windt LJ. Nfat and miR-25 cooperate to reactivate the transcription factor Hand2 in heart failure. **Nature Cell Biol.** 2013 Nov;15(11):1282-93.
 12. Kumarswamy R, Bauters C, Volkmann I, Maury F, Fetisch J, Holzmann A, Lemesle G, Degroote P, Pinet F, Thum T. The Circulating Long Non-Coding RNA LIPCAR Predicts Survival in Heart Failure Patients. **Circ Res.** 2014 Mar 24. [Epub ahead of print]
 13. Bang C, Batkai S, Dangwal S, Gupta SK, Foinquinos A, Holzmann A, Just A, Remke J, Zimmer K, Zeug A, Ponimaskin E, Schmiedl A, Yin X, Mayr M, Halder R, Fischer A, Engelhardt S, Wei Y, Schober A, Fiedler J, Thum T. Cardiac fibroblast-derived microRNA passenger strand-enriched exosomes mediate cardiomyocyte hypertrophy. **J Clin Invest.** 2014 Apr 17. pii: 70577. doi: 10.1172/JCI70577
 14. Kumarswamy R, Volkmann I, Beermann J, Napp LC, Jabs O, Bhayadia R, Melk A, Ucar A, Chowdhury K, Lorenzen JM, Gupta SK, Batkai S, Thum T. Vascular importance of the miR-212/132 cluster. **Eur Heart J.** 2014 Sep 12. pii: ehu344.
 15. Thum T and Condorelli G. Long non-coding RNAs and microRNAs in cardiovascular pathophysiology. **Circ Res.** 2015 Feb 13;116(4):751-62 (Review).
 16. Thum T. Noncoding RNAs and myocardial fibrosis. **Nature Rev Cardiol.** 2014 Nov;11(11):655-63
 17. Fiedler J, Breckwoldt K, Remmele CW, Hartmann D, Dittrich M, Pfanne A, Just A, Xiao K, Kunz M, Müller T, Hansen A, Geffers R, Dandekar T, Eschenhagen T, Thum T. Development of Long Noncoding RNA-Based Strategies to Modulate Tissue Vascularization. **J Am Coll Cardiol.** 2015 Nov 3;66(18):2005-15
 18. Viereck J, Kumarswamy R, Foinquinos A, Xiao K, Avramopolous P, Kunz M, Dittrich M, Maetzig T, Zimmer K, Remke J, Just A, Fendrich J, Scherf K, Bolesani E, Schambach A, Weidemann F, Zweigerdt R, de Windt LJ, Engelhardt S, Dandekar T, Batkai S and Thum T. Long noncoding RNA *Chast* promotes cardiac remodeling. **Science Trans Med,** 2016, Feb 17;8(326):326ra22
 19. Piccoli MT, Gupta SK, Viereck J, Foinquinos A, Samolovac S, Kramer FL, Garg A, Remke J, Zimmer K, Batkai S, Thum T. Inhibition of the Cardiac Fibroblast-Enriched lncRNA *Meg3* Prevents Cardiac Fibrosis and Diastolic Dysfunction. **Circ Res.** 2017 Aug 18;121(5):575-583.
 20. Gupta SK, Garg A, Bär C, Chatterjee S, Foinquinos A, Milting H, Streckfuss-Bömeke K, Fiedler J, Thum T. Quaking Inhibits Doxorubicin-Mediated Cardiotoxicity Through Regulation of Cardiac Circular RNA Expression. **Circ Res.** 2018 Jan 19;122(2):246-254. [Epub 2017 Nov 13]