

Curriculum Vitae

STEFANIE DIMMELER



Place and Date of Birth

RAVENSBURG/GERMANY on JULY 18, 1967

Present Position and Address

- Professor for Experimental Medicine
- Director of the Institute of Cardiovascular Regeneration, Centre for Molecular Medicine, Goethe University Frankfurt
- Director of the Cardio-Pulmonary Institute (CPI), Goethe University Frankfurt
- Goethe University Frankfurt, Institute of Cardiovascular Regeneration, Centre for Molecular Medicine, Theodor-Stern-Kai 7, Building 25B, 4th floor, 60590 Frankfurt am Main, Germany

Training and Education

- 1986 – 1987 B.Sc. Biology, University of Konstanz, Germany
- 1988 – 1991 M.Sc. Biology, University of Konstanz, Germany
- 1991 – 1993 Ph.D. Biological Chemistry, University of Konstanz, Germany
- 1992 – 1995 Postdoctoral Fellow, Department of Experimental Surgery, University of Cologne, Cologne, Germany
- 1995 – 1997 Senior Postdoctoral Fellow, Department of Molecular Cardiology, Goethe University Frankfurt, Germany

Post Graduate Degrees

- 1998 – 2000 Associated Professor, Head of Department of Molecular Cardiology, Goethe University Frankfurt, Germany
- 2000 – 2008 Full Professorship (C3), Head of Department of Molecular Cardiology, Goethe University Frankfurt, Germany
- Since 2008 Full Professorship (W3), Director of the Institute of Cardiovascular Regeneration, Centre for Molecular Medicine, Goethe University Frankfurt, Germany

European Society of Cardiology Activities

- 2018 – 2020 Nucleus member of the Working Group on Cardiovascular Regenerative and Reparative Medicine
- 2018 – 2020 Nucleus Member of the Congress Programme Committee
- 2018 – 2020 Member of the ESC Research and Grant Committee

Other International Scientific Committee Participation (selection)

- CNIC Scientific Advisory Board Member, Madrid (since 2010)
- Expert Selection Committee Member, Health Research Call, La Caixa Banking Foundation, Barcelona (since 2018)
- European Research Council-Start up grants, Panel Member and Chair (2014-2017)
- Advisory Board, BHF, Oxford (since 2017)
- Scientific advisory board, Berlin Institute of Healthy (Spokesperson) (2017-2019)
- Scientific advisory board, Max Delbrück Center (MDC), Berlin (since 2017)

Editorial Boards

- Since 2001 Editorial Board Basic Research in Cardiology
- Since 2001 Editorial Board Circulation and ATVB
- Since 2004 Editorial Board of The Journal of Clinical Investigation
- 2009 – 2016 Associated Editor European Heart Journal
- 2010 – 2016 Chief Editor of EMBO Molecular Medicine
- Since 2009 Associated Editor Circulation Research
- Since 2017 Senior Editor of EMBO Molecular Medicine

Fellowships / Honours

Fellowships:

- Fellow of the German Society of Cardiology
- Fellow of the European Society of Cardiology
- Fellow of the American Heart Association

Honors:

- 1991 Award of the Foundation for German Sciences
- 1994 Fritz-Külz-Award of the German Association of Pharmacology & Toxicology
- 1998 Award of the German Heart Foundation
- 1999 Award of the Herbert and Hedwig Eckelmann-Foundation
- 2000 Award of the German Cardiac Society
- 2002 Alfred Krupp-Award 2002
- 2004 Forssmann Award 2004
- 2005 Leibniz Award of the Deutsche Forschungsgemeinschaft (DFG)
- 2005 George E. Brown Memorial Lecture, Scientific Session of the AHA 2005
- 2006 FEBS Anniversary Prize 2006
- 2006 Basic Science Lecture, European Society of Cardiology 2006
- 2007 Ernst Jung Award 2007
- 2008 Life4Science Award 2008
- 2009 ERC Advanced Investigator Grant (“AngiomiR”)
- 2010 Research Award of the GlaxoSmithKline Foundation
- 2014 Madrid Award for Cardiovascular Stem Cell Therapy
- 2015 ERC Advanced Investigator Grant (“AngioInc”)
- 2015 Louis B. Plaques Plenary Lecture at the XXV Congress of the International Society on Thrombosis and Haemostasis

- 2015 Thomas W. Smith Memorial Lecture at Scientific Sessions of the AHA
- 2016 Michael Oliver Memorial Lecture of the British Atherosclerosis Society
- 2016 Paul Dudley White Lecture at the Scientific Sessions of the AHA
- 2017 Willi-Pitzer-Award 2017
- 2017 Member of the German Academy for Science Leopoldina
- 2018 Selby Travelling Fellowship of the Australian Academy of Science
- Since 2014 Thomson Reuters “Highly Cited researcher” (2014, 2015, 2016, 2017, 2018)

Honorary Memberships

- EMBO Member
- Member of the German Academy of Science Leopoldina

Major Publications

- Cremer S, Michalik KM, Fischer A, Pfisterer L, Jaé N, Winter C, Boon RA, Muhly-Reinholz M, John D, Uchida S, Weber C, Poller W, Günther S, Braun T, Li DY, Maegdefessel L, Perisic Matic L, Hedin U, Soehnlein O, Zeiher A, Dimmeler S. Hematopoietic Deficiency of the Long Noncoding RNA MALAT1 Promotes Atherosclerosis and Plaque Inflammation. *Circulation*. 2019 139:1320-1334.
- Dorsheimer L, Assmus B, Rasper T, Ortmann CA, Ecke A, Abou-El-Ardat K, Schmid T, Brüne B, Wagner S, Serve H, Hoffmann J, Seeger F, Dimmeler S*, Zeiher AM*, Rieger MA*. Association of Mutations Contributing to Clonal Hematopoiesis With Prognosis in Chronic Ischemic Heart Failure. *JAMA Cardiol*. 2019 4:25-33. * contributed equally. (*with Editorial in JAMA Cardiol*)
- Neumann P, Jaé N, Knau A, Glaser SF, Fouani Y, Rossbach O, Krüger M, John D, Bindereif A, Grote P, Boon RA, Dimmeler S. The lncRNA GATA6-AS epigenetically regulates endothelial gene expression via interaction with LOXL2. *Nature Commun* 2018, 9:237
- Manavski Y, Lucas T, Glaser SF, Dorsheimer L, Günther S, Braun T, Rieger MA, Zeiher AM, Boon RA, Dimmeler S. Clonal Expansion of Endothelial Cells Contributes to Ischemia-Induced Neovascularization. *Circ Res* 2018, 122: 670-7 (*with Editorials in Science Transl Med and Circ Res*).
- Lucas T, Schäfer F, Müller P, Emig S, Heckel A, Dimmeler S. Light-inducible anti-miR-92a as a therapeutic strategy to promote skin repair in healing-impaired diabetic mice. *Nature Commun* 2017, 8:15162
- Manavski Y, Abel T, Hu J, Kleinlützum D, Buchholz CJ, Belz C, Augustin HG, Boon RA, Dimmeler S. Endothelial transcription factor KLF2 negatively regulates liver regeneration via induction of activin A. *Proc Natl Acad Sci U S A*. 2017, 114:3993-3998.
- Stellos K, Gatsiou A, Stamatelopoulos K, Perisic L, John D, Lunella F, Jaé N, Rossbach O, Amrhein C, Sigala F, Boon R, Fürtig B, Manavski Y, You X, Uchida S, Keller T, Boeckel JN, Franco-Cereceda A, Maegdefessel L, Chen W, Schwalbe H, Bindereif A, Eriksson P, Hedin U, Zeiher AM, Dimmeler S. Adenosine-to-inosine RNA editing controls cathepsin S expression in atherosclerosis by enabling HuR-mediated posttranscriptional regulation. *Nature Medicine* 2016, 22:1140-1150.
- Boeckel JN, Jaé N, Heumüller AW, Chen W, Boon RA, Stellos K, Zeiher AM, John D, Uchida S, Dimmeler S. Identification and Characterization of Hypoxia-Regulated Endothelial Circular RNA. *Circ Res*. 2015, 117:884-90.
- Dimmeler S, Ding S, Rando TA, Trounson A. Translational strategies and challenges in regenerative medicine. *Nature Medicine* 2014, 20:814-21
- Michalik KM, You X, Manavski Y, Doddaballapur A, Zörnig M, Braun T, John D, Ponomareva Y, Chen W, Uchida S, Boon RA, Dimmeler S. Long noncoding RNA MALAT1 regulates endothelial cell function and vessel growth. *Circ Res* 2014; 114:1389-97 (*with editorial in Circ Res*)
- Boon RA, Iekushi K, Lechner S, Seeger T, Fischer A, Heydt S, Kaluza D, Treguer K, Carmona G, Bonauer A, Horrevoets AJ, Didier N, Girmatsion Z, Biliczki P, Ehrlich JR, Katus HA, Muller OJ, Potente M, Zeiher AM,

Hermeking H, Dimmeler S. MicroRNA-34a regulates cardiac ageing and function. **Nature** 2013;495:107-110 (*with Editorials in JAMA, Cell Research, Cell Metabolism, Circ Res, Circ. Cardiovascular Genetics and Nat. Rev. Drug Discovery*)

- Boon RA, Seeger T, Heydt S, Fischer A, Hergenreider E, Horrevoets AJ, Vinciguerra M, Rosenthal N, Sciacca S, Pilato M, van Heijningen P, Essers J, Brandes RP, Zeiher AM, Dimmeler S. MicroRNA-29 in aortic dilation: implications for aneurysm formation. **Circ Res** 2011, 109:1115-9 (*with Editorial in Circ Res*)
- Hergenreider E, Heydt S, Treguer K, Boettger T, Zeiher AM, Scheffer MP, Frangakis AS, Yin X, Mayr M, Braun T, Urbich C, Boon RA, Dimmeler S. Atheroprotective communication between endothelial cells and smooth muscle cells through miRNAs. **Nat Cell Biol** 2012, 14:249-256. (*with Editorials in Nat Cell Biol. 2012, and Nat Rev Mol Cell Biol. 2012*)
- Doebele C, Bonauer A, Fischer A, Scholz A, Reiss Y, Urbich C, Hofmann WK, Zeiher AM, Dimmeler S. Members of the microRNA-17-92 cluster exhibit a cell-intrinsic antiangiogenic function in endothelial cells. **Blood** 2010 115:4944-50. (*With editorial in Blood*)
- Guarani V, Deflorian G, Franco CA, Krüger M, Phng LK, Bentley K, Toussaint L, Dequiedt F, Mostoslavsky R, Schmidt MH, Zimmermann B, Brandes RP, Mione M, Westphal CH, Braun T, Zeiher AM, Gerhardt H, Dimmeler S, Potente M. Acetylation-dependent regulation of endothelial Notch signalling by the SIRT1 deacetylase. **Nature** 2011, 473:234-238.
- Boeckel JN, Guarani V, Koyanagi M, Roexe T, Lengeling A, Schermuly RT, Gellert P, Braun T, Zeiher A, Dimmeler S. Jumonji domain-containing protein 6 (Jmjd6) is required for angiogenic sprouting and regulates splicing of VEGF-receptor 1. **Proc Natl Acad Sci U S A**. 2011, 108:3276-81
- Bonauer A, Carmona G, Iwasaki M, Mione M, Koyanagi M, Fischer A, Burchfield J, Fox H, Doebele C, Ohtani K, Chavakis E, Potente M, Tjwa M, Urbich C, Zeiher AM and Dimmeler S. MicroRNA-92a controls angiogenesis and functional recovery of ischemic tissues in mice. **Science** 2009, 324:1710-1713.
- Assmus B, Honold J, Schächinger V, Britten MB, Fischer-Rasokat U, Lehmann R, Teupe C, Pistorius K, Martin H, Abolmaali ND, Tonn T, Dimmeler S*, Zeiher AM*. Transcoronary transplantation of progenitor cells after myocardial infarction. **N Engl J Med**. 2006 355:1222-32 *contributed equally.
- Schächinger V, Erbs S, Elsässer A, Haberbosch W, Hambrecht R, Hölschermann H, Yu J, Corti R, Mathey DG, Hamm CW, Süselbeck T, Assmus B, Tonn T, Dimmeler S, Zeiher AM; REPAIR-AMI Investigators. Intracoronary bone marrow-derived progenitor cells in acute myocardial infarction. **N Engl J Med**. 2006, 355:1210-21
- Urbich C, Heeschen C, Aicher A, Sasaki KI, Bruhl T, Farhadi MR, Vajkoczy P, Hofmann WK, Peters C, Pennacchio LA, Abolmaali ND, Chavakis E, Reinheckel T, Zeiher AM, Dimmeler S. Cathepsin L is required for endothelial progenitor cell-induced neovascularization. **Nature Medicine** 2005, 11:206-213.
- Aicher A, Heeschen C, Mildner-Rihm C, Urbich C, Ihling C, Technau-Ihling K, Zeiher AM, Dimmeler S. Essential role of endothelial nitric oxide synthase for mobilization of stem and progenitor cells. **Nature Medicine** 2003, 9:1370-1376.
- Dimmeler S, Fleming I, Fisslthaler B, Hermann C, Busse R, Zeiher AM. Activation of nitric oxide synthase in endothelial cells by Akt-dependent phosphorylation. **Nature** 1999, 399:601-605.

Major Research Interest

- Development of RNA therapeutics for cardiovascular repair and regeneration
- Using single cell analytics to discover novel pathophysiological mechanisms
- Development of cellular biomarkers for cardiovascular disease

Motivation Letter

The European Society for Cardiology is the world's largest society in the field of Cardiovascular Medicine. It would be my pleasure to contribute to the ESC's mission to reduce the burden of cardiovascular disease, by

- i) ... providing expertise and advice in basic and translational science to the ESC board. Based on a broad range of expertise in the cardiac and vascular field, in development of diagnostic biomarkers as well as in the translation of cellular and small molecule strategies, I would be happy to help developing strategies to support and improve translational activities. This may for example include fostering the interaction with biotech and industry with academic researchers to allow for the timely and efficient development of therapeutic products, and building up strategies to educate academic researchers for the important necessary steps of translational activities.
- ii) ...supporting the educational activities of the ESC. Being responsible of interdisciplinary networks, which include many young investigators (Excellence Cluster, LOEWE center etc) and teaching activities (e.g. Organizer, Cardiovascular Part of the Master Program Molecular Medicine), I gained deep insights into the needs of young investigators, basic scientists, medical scientists, physician scientists and clinicians. Supporting the next generation of cardiovascular researchers and clinicians would be my major aim. A major additional task would be to foster interactions between clinical and experimental researchers to reduce the disconnect of the communities, which in my view is a major hurdle for the development and implementation of novel diagnostic and therapeutic strategies.
- iii) ... supporting and further developing "digital science and medicine" in the cardiovascular field. There is an increasing need to define strategies to making use of data both from the clinic (e.g. deep phenotyping) and the wet lab (e.g. multi-omics) to characterize patient population and generate hypothesis for future preventive and therapeutic strategies. Artificial intelligence (e.g. machine learning) will be important to succeed in this effort. The ESC might support this novel area by educational activities, but supporting the interaction and integration of experts in data science in the cardiovascular field and by developing strategies flanking national and international initiatives for sharing health data. Having established a bioinformatics unit in my Institute (already since 2010), I may advice and support this important field of development.