

## Prof. Dr. Stefanie Dimmeler



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Director, Institute for Cardiovascular Regeneration

### Academic Education and Degrees

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| 1991-1993 | PhD thesis, Department of Biological Chemistry, Title: "Nitric oxide-stimulated ADP-ribosylation", University of Konstanz |
| 1986-1991 | Studies in Biology, University of Konstanz  |

### Scientific Career

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| since 2021 | Spokesperson, German Centre for Cardiovascular Research (DZHK)  |
| since 2019 | Director of the "Cardiopulmonary Institute" (CPI)   |
| since 2008 | Full professor and Director (W3), Institute of Cardiovascular Regeneration, Goethe-University, Frankfurt          |
| 2001       | Professor (C3) for Molecular Cardiology, Department of Internal Medicine III, Goethe-University, Frankfurt        |
| 1998       | Associate Professor, Goethe-University, Frankfurt   |
| 1997       | Head Division of "Molecular Cardiology" at the Goethe-University, Frankfurt                                       |
| 1995-2001  | Senior postdoctoral fellow at the Medical Clinical, Goethe-University, Frankfurt                                  |
| 1992-1995  | Postdoctoral fellow at the "Biochemical and Experimental Division", Dept. of Surgery at the University of Cologne |

### Visiting Professorships

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| 2006-2007 | Visiting Professor at New York Medical College |
| 2007-2008 | Hustinx Chair, CARIM, University of Maastricht |
| 2009      | Visiting Professor at Stanford University      |
| 2012      | Visiting Professor at Harvard Medical School   |
| 2018-2019 | Sabbatical Victor Chang Institute, Sydney      |

## **Awards / Honors (Selection)**

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2022	Best female Scientist Award
2022	Otto-Warburg-Medal 2022, Society of Biochemistry and Molecular Biology (GBM)
2021	Paul-Morawitz-Preis, German Society of Cardiology (DGK)
2020	Gold Medal of the European Society of Cardiology
2018	Selby Travelling Fellowship of the Australian Academy of Science
2017	Member of the German Academy for Science Leopoldina
2017	Willy Pitzer Award, Bad Nauheim
2016	Paul Dudley White Lecture at the Scientific Session of the AHA
2016	Michael Oliver Memorial Lecture of the British Atherosclerosis Society
2015	Thomas W. Smith Memorial Lecture – Award
2014-21	Thomson Reuters “Highly Cited Researcher” 2014, 2015, 2016, 2018, 2020 and 2021
2014	Madrid Award for Cardiovascular Stem Cell Therapy
2010	Life Achievement Award by Dutch-German Molecular Cardiology Working Groups
2008	Research Award of the GlaxoSmithKline Foundation
2008	Science4Life Award
2007	Ernst Jung Award for Medicine
2006	Karl-Landsteiner Lecture, German Association for Transfusion Medicine & Immunhematology
2006	Basic Science Lecture and Silver Medal of the European Society of Cardiology
2006	FEBS Anniversary Prize 2006
2005	George E. Brown Memorial Lecture at the Scientific Session of the AHA
2005	Leibniz Award of the Deutsche Forschungsgemeinschaft (DFG)
2004	Forssmann Award 2004
2002	Alfried Krupp-Award 2002
2000	Award of the German Cardiac Society (Fraenkel-Preis)
1999	Award of the Herbert and Hedwig Eckelmann-Foundation
1998	Award of the German Heart Foundation
1994	Fritz-Külz-Award of the German Association of Pharmacology and Toxicology
1991	Foundation of German Sciences, Award

## **Bibliometric analysis:**

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**Total publications:** 514 publications

**In the last 10 years:** 206 publications

**h-index:** 139 (source: ISI)

**Citations:** 84.780

## Selection of 20 important publications

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1. Tombor LS, John D, Glaser SF, Luxán G, Forte E, Furtado M, Rosenthal N, Baumgarten N, Schulz MH, Wittig J, Rogg EM, Manavski Y, Fischer A, Muhly-Reinholz M, Klee K, Looso M, Selignow C, Acker T, Bibli SI, Fleming I, Patrick R, Harvey RP, Abplanalp WT, Dimmeler S. Single cell sequencing reveals endothelial plasticity with transient mesenchymal activation after myocardial infarction. **Nat Commun**. 2021 Jan 29;12(1):681
2. Glaser SF, Heumüller AW, Tombor L, Hofmann P, Muhly-Reinholz M, Fischer A, Günther S, Kokot KE, Hassel D, Kumar S, Jo H, Boon RA, Abplanalp W, John D, Boeckel JN, Dimmeler S. The histone demethylase JMJD2B regulates endothelial-to-mesenchymal transition. **Proc Natl Acad Sci U S A**. 2020 Feb 25;117(8):4180-4187.
3. 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
4. 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*).
5. 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
6. 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.
7. 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.
8. Dimmeler S, Ding S, Rando TA, Trounson A. Translational strategies and challenges in regenerative medicine. **Nature Medicine** 2014, 20:814-21
9. 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*)
10. 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*)
11. 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*)
12. 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)
13. 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)
  14. 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.
  15. 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.
  16. 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.
  17. 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
  18. 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.
  19. 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.
  20. 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.

### **Current Grant Support (Selection)**

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<b>Funding institution</b>	<b>Project title</b>	<b>Funding period</b>
DFG	SFB1531	2022-2025
DFG	ERC Advanced Investigator Grant Neurogheart	2022-2025
DFG	Excellence Strategy Programme “Cardiopulmonary Institute”	2019-2024
DFG	SFB1366: Project A7	2019-2022
DFG	SFB902: Project B2	2010-2023
DFG	SFB TRR267	2019-2023
BMBF	German Center for Cardiovascular Research (DZHK)	2012-2025
Schwiete Foundation	Support of the single cell sequencing center	2019-2025

### **Leadership Functions (Selection)**

**Member of the Joint Scientific Advisory Board**, Cardiovascular Research Institute's (CVRI, National University of Singapore) 2022-2025

**Spokesperson**, German Centre for Cardiovascular Research (DZHK), Partner Site RheinMain (funded by BMBF) 2021 -

**Member on the BCVS Specialty Conference Program Committee** of the Council on Basic Cardiovascular Sciences (2020 – 2022)

**Member of the Scientific Advisory Board**, Collaborative Research Center TRR259 Aortic Disease (funded by the DFG) 2020 - 2022

**Director of the “Cardiopulmonary Institute” (CPI)**, funded by the Excellence Strategy Program of the German Research Foundation (DFG), 2019-2025

**Member of the Foundation Board**, Deutsches Herzzentrum Berlin, 2015-

**Member of the Scientific Board**, Max-Delbrück-Centrum MDC Berlin, 2016 - 2021

**Member of the steering board and Vice-Spokesperson**, German Centre for Cardiovascular Research (DZHK), Partner Site RheinMain (funded by BMBF) 2011-2020

**Director**, Excellence Cluster Cardiopulmonary Systems (funded by the DFG) 2014-2018

**Vice-Spokesperson**, LOEWE Center of Cell- and Gene Therapy (funded by the state of Hesse) 2011-2016

**Vice-Spokesperson**, Collaborative Research Programm (SFB834) (funded by the DFG) 2010-2022

**Member of the Board of Directors**, Cluster of Excellence Macromolecular Complexes (CEF) (Funded by the DFG), 2012-2018

**Steering committee**, Collaborative Research Programm (SFB902) (funded by the DFG) 2011-2019

**Steering committee**, Collaborative Research Programm (TR-SFB23) (funded by the DFG) 2005-2016

**European Coordinator**, Transatlantic Network of Excellence on “Cardiac Regeneration” (funded by the Leduc Foundation) 2006-2010

**Member of the executive committee** and area leader, European Network of Excellence (funded by the EU) 2004-2008

**Coordinator**, Research Unit FOR501 (funded by the DFG) 2003-2006

### **Editorship/Board Memberships**

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Nature Regenerative Medicine (Associated Editor, 2021 - present)

Cell Metabolism (Board member, 2020 – present)

Science (Associated Editor, -present)

Journal of Clinical Investigation (Board member, 2005 - present)

Arteriosclerosis Thrombosis Vascular Biology (ATVB) (Board member, 2001 - present)

Basic Research in Cardiology (Board member, 2001 - present)

Circulation (Board member, 2001 - present)

European Heart Journal (Associated Editor, from 2010 – 2016, 2020 - present)

Circulation Research (Associated Editor, 2008 - 2020)

EMBO Molecular Medicine (Chief Editor, from 2010 – 2016; Senior Editor since 2017)

### **Reviewer (Selection)**

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Cancer Cell, Cell, EMBO Journal, Journal of Clinical Investigation, Journal of Experimental Medicine, Nature, Nature Cell Biology, Nature Medicine, New England Journal of Medicine, Molecular Cell, PNAS, Science

## **Organisation of scientific meetings (Selection)**

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*EMBO Conference* on Molecular Medicine “Molecular Insights for Innovative Therapies”, December 2011, Heidelberg, Germany

*EMBO Workshop* “Reciprocal interactions of Signaling Pathways & non-coding RNAs”, September 2012 Ascona, Switzerland

*EMBO/EMBL Symposium* “Frontiers in Metabolism”, November 2014, Heidelberg

*Keystone Conference*, Heart Disease and Regeneration: Beyond the Myocyte-Centric View, March 2015, Copper Mountain, Colorado, US

*International Symposium* on “Cellular Heterogeneity in the cardiopulmonary system”, December 2019, Frankfurt, Germany

*Conference Program of the Council on Basic Cardiovascular Sciences of the American Heart Association*, Committee member, 2021

## **Invited presentations to international meetings**

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- total > 300 invitations to international meetings
- > 20 keynote/named lectures

### Examples of recent meetings:

**84th Annual Scientific Meeting of the Japanese Circulation Society**, web-based meeting, 27 July – 02 August 2020, Keynote lecture: “The Role of Non-coding RNA in Vascular Diseases”

**Joint BHF CRM Annual Research Symposium**, Oxford, GB, 18-19 June 2019, Keynote lecture: “Cellular heterogeneity in cardiac repair and aging”

**Danish Diabetes Academy: Non-coding RNAs in Metabolic Disease**, Copenhagen, Denmark, 06-08 May 2019, Keynote lecture: “Novel therapeutic targets in cardiovascular disease”

**83rd Annual Scientific Meeting of the Japanese Circulation Society**, Yokohama, Japan, 28-31 January 2019, Keynote lecture: “Non-coding RNAs: Novel therapeutic targets in cardiovascular disease”

**Joint Dutch-German Vascular Biology Meeting**, Amsterdam, The Netherlands, 22-23 November 2018 Keynote lecture: “Non-coding RNA in cardiovascular development and regeneration”

**BCVS Council on Basic Cardiovascular Science**, San Antonio, USA, 30 July – 02 August 2018, Keynote lecture: “Cellular heterogeneity and plasticity in cardiovascular disease”

**ATVB/PVD 2018 Scientific Sessions**, San Francisco, USA, 10-12 May 2018 Keynote lecture: “RNA Control in Vascular Biology: Implications for Atherosclerosis and New vascularization”

**New Frontiers to beat Cardiovascular Disease**, Rome, Italy, 7-8 September 2017 Keynote lecture: “Cardiovascular regeneration: Current status and perspectives”

**Michael Oliver Memorial Lecture of the British Atherosclerosis Society** in Cambridge, 15-16 September 2016, “Endothelial communication and dysfunction: from no to micro-RNA”

**AHA Scientific Sessions 2016** in New Orleans, USA, 12-16 November 2016, Paul Dudley White International Lecture: “The dark genome: function and therapeutic potential of non-coding RNAs in cardiovascular disease”

**European Congress of Pharmacology**, Istanbul, Turkey, 26-30 June 2016 Plenary lecture: “miRNAs as potential therapeutic targets in cardiovascular disorders”

**Keystone Symposia** on heart disease and regeneration in Copper Mountain, Colorado,

USA, 1-6 March 2015 Keynote lecture: “Non-coding RNAs and Cardiac Repair”  
**International Symposium on Cardiovascular Translational Medicine**, Nanjing, China, 22-25 April 2015, Keynote lecture: “Non-coding RNAs in cardiovascular disease.”  
**Gordon Research Conference** on cardiac regulatory mechanisms, New London /USA, 9-11. June 2014, Lecture: “MicroRNAs that regulate cardiac aging and function”  
**ESF/EMBO Conference** on long regulatory RNAs, Pułtusk, Polen, 13-18. September 2014. Lecture: “Long non-coding RNAs in cardiovascular disease”  
**Keystone Symposia** on pulmonary vascular disease in Monterey, California / USA, 10–13 September 2012 Keynote lecture: "The Role of Stem Cells in Angiogenesis and Vascular Repair"  
**EMBO Workshop** on the reciprocal interactions of signaling pathways and non-coding RNAs, Ascona, Switzerland, 16-19 September 2012, Lecture: “MicroRNAs in aging and metabolism”  
**Symposium** on microRNAs and cardiovascular disease in Maastricht, 30 June 2011 Keynote lecture “MicroRNAs in cardiovascular aging”  
**Gordon Research Conference** on Endothelial Phenotypes in Biddeford, Maine / USA, 8-9 August 2010 Keynote lecture: „MicroRNAs in in the Endothelium – What are they doing? “

### **Commissions of trust (Selection)**

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2022 – 2025	Member of the Joint Scientific Advisory Board, Cardiovascular Research Institute's (CVRI, National University of Singapore)
2021	Spokesperson, German Centre for Cardiovascular Research (DZHK), Partner Site RheinMain (funded by BMBF)
2020 – 2023	Scientific Advisory Board, Dr. Rolf M. Schwiete Stiftung
2020 – 2022	Board Member and Programm Committee, European Society of Cardiology (ESC)
2020	Member on the BCVS Specialty Conference Program Committee of the Council on Basic Cardiovascular Sciences
2020	Scientific Advisory Board, Victorian Heart Institute
2020	Scientific Advisory Board, TRR259 “Aortic Disease”
2019	Advisory Board, Excellence Cluster British Heart Foundation BHF, Oxford
2015 – 2021	Scientific Advisory Board, Forschungsrat, Goethe-University Frankfurt
2010 – present	Advisory Board, CNIC, Madrid
2016 - present	Scientific Advisory Board, Berlin Institute of Health (Spokesperson)
2016 – 2024	Scientific Advisory Board, Max Delbrück Center (MDC), Berlin
2015 - 2020	Foundation Board, German Heart Center Berlin
2014 - 2017	Panel Member and Chair, European Research Council-Start up grants
2011 - 2016	Panel Member, Leibniz Award, Deutsche Forschungsgemeinschaft, Germany

### **Supervision of graduate students and postdoctoral fellows**

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Total: 10 MD Students, 31 PhD Students, 23 Postdoctoral Fellows

### **Major Current Teaching activities and involvement in graduate schools**

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Scientific coordinator of cardiovascular curriculum, Master Molecular Medicine, University Frankfurt (includes lectures, practical courses and seminars)  
Scientific coordinator, Graduate school on Vascular Biology, University Frankfurt

### **Granted Patents**

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- Total 14 patents (8 granted)

#### Selected patents:

sCD40L and placental growth factor (plgf) used as a biochemical marker combination  
**US8409815** 02. April 2013; **JP4741249** 13.05.2011; **EP1561116** 07.05.2008.

PIGF and Flt-1 as prognostic parameters for cardiovascular disease (Zeihner, Heeschen, Dimmeler) **DE102004051847** 18.09.2008 **JP4950895** 16.03.2012 **EP1807702** 05.08.2009.

In vitro method for the diagnosis of cardiovascular functionality of bone marrow precursor cells and/or circulation precursor cells derived from blood (Zeihner, Heeschen, Dimmeler) **US7919315** 05.04.2011; **EP1673629** 11.08.2010; **DE10347436** 02.08.2007.

eNOS transcription enhancers for use in the cell therapy of ischemic heart diseases (Dimmeler, Zeihner, Rutten, Heeschen)

**KR101133943** 13.04.2012; **JP4705581** 18.03.2011; **EP1682111** 06.01.2010

Methods for improving cell therapy and tissue regeneration in patients with cardiovascular diseases by means of shockwaves (Eizenhofer, Zeihner, Dimmeler, Heeschen, Aicher) **EP1671627** 04.07.2010; **JP4804906** 02.11.2011

Method for the promotion of angiogenesis, vascularization, or vascular repair or for the inhibition of tumor angiogenesis (miR-92) (Dimmeler, Bonauer, Zeihner, Urbich)

**US82858113** 04.09.2012 **DE102007052114** 15.01.2011

Antagonists of miRNA-29 expression and their use in the prevention and treatment of aortic aneurysms and atherosclerotic plaque destabilisation (Dimmeler, Zeihner, Boon)

**EP10003675** **EP2552454** 01.04.2011

Prevention of age-associated deterioration of heart function by antagonizing microRNA-34a (Dimmeler, Zeihner, Boon, Fischer) 2011

### **Entrepreneurship**

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Founder, t2cure GmbH, Frankfurt