

Curriculum Vitae

Christoph Maack, MD (*09.08.1972)

Chair, Department for Translational Science
Spokesperson,
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Scientific Career

1993-2000 **Medical School**, University of Cologne, Germany
2000 3rd (Final) **Clinical Exam** (Result: 1.0; Overall (1st-3rd): 1.99; range 1-6)
1996-2000 **Doctoral Thesis** (MD), Clinic III for Internal Medicine, University of Cologne:
Grade: *summa cum laude*
06-10/2000 **Clinical Fellow**, Clinic III for Internal Medicine, University of Cologne, DE
2000-2002 **Clinical Fellow**, Clinic for Internal Medicine III, Saarland University, Homburg,
DE (Prof. Dr. Michael Böhm)
2002-2005 **Post-Doctoral Research Fellow**, Johns Hopkins University, Baltimore, USA;
Dept. of Cardiology (Lab of Brian O'Rourke, PhD); supported by the *Emmy
Noether-Programme* of the German Research Foundation (DFG)
2005-2011 **Clinical Fellow**, Clinic for Internal Medicine III, Saarland University, Homburg
2006-2011 **Project leader** of DFG Junior Research Group (*Emmy Noether-Programme*)
at Clinic for Internal Medicine III, Saarland University, Homburg
2007-2013 **Project leader** in the DFG Clinical Research consortium KFO-196
since 01/11 **Project leader** in the DFG Collaborative Research Center SFB 894 ("Ca²⁺
signals: Molecular mechanisms and integrative functions" (Homburg, DE)
11/2011 **Board Exam** Internal Medicine
10/2015 **Board Exam** Cardiology
02/12-07/17 **Senior physician** at the Clinic for Internal Medicine III (Cardiology, Angiology
and Intensive Care Medicine; Director: Prof. Dr. Michael Böhm)
11/12-07/17 **Heisenberg Professor** for Cardiovascular Physiology and Bioenergetics at
Saarland University, Homburg, DE
since 01/18 **Project leader** in the DFG Transregional Collaborative Research Center TRR-
219 ("Mechanisms of cardiovascular complications in chronic kidney disease";
Co-Speakers: Danilo Fliser, Homburg; Joachim Jankowski, Aachen)
04/2018 **Board Exam** Intensive Care Medicine
since 08/17 **Chair of the Department for Translational Science**, Comprehensive Heart
Failure Center (CHFC), University Clinic Würzburg, DE
since 09/17 **Spokesperson of the CHFC**, University Clinic Würzburg, Germany
12/2020 Certification **Heart Failure Specialist** (German Cardiac Society)

Honors and Awards

2000	Young Investigator Award of the European Society of Cardiology (Finalist)
2005	Young Bioenergeticist Award (Biophysical Society)
2007	Franz-Maximilian-Groedel-Science Award of the German Cardiac Society (Deutsche Gesellschaft für Kardiologie; DGK)
2011	Heisenberg Professorship (DFG)
2013	Margret Elisabeth Strauß Research Project Award of the German Heart Foundation (Deutsche Herzstiftung)
2014	Albert-Fraenkel-Award (DGK)
2015	Arthur-Weber-Award (DGK)
2019	Keith Reimer Distinguished Lecture of the International Society for Heart Research (ISHR)

Active involvement in organizations

2008-2011	Vice-Chairman of the Working Group on Myocardial Function and Energetics of the DGK (AG13)
2010-2016	Board member of the HFA of the ESC
2011-2013	Chairman of the Working Group on Myocardial Function and Energetics of the DGK (AG13)
2011-2014 since 2013	Coordinator Translational Research Committee of the HFA of the ESC Committee for Education and Support of Junior Scientists, German Society for Internal Medicine (Deutsche Gesellschaft für Innere Medizin, DGIM)
2014-2016 since 2015	Chair of the Basic Science Section, HFA LS4 Panel member of the European Research Commission (ERC)
2015 - 2018 since 2018	Congress Programme Committee of the DGK Council of the International Society of Heart Research (ISHR), European Section (ES)
since 2020	President-elect of the ISHR-ES

Organization of Meetings

2011-2020	Basic Science Meetings of the DGK: 2011 Düsseldorf, 2012 Hamburg, 2013 Dresden, 2014 Düsseldorf, 2015-2020 Berlin.
2011 – 2017	Basic Science Program of the Heart Failure Congress (Annual Congress of the Heart Failure Association of the ESC)
04/2012	HFA Translational Research Workshop “Mitochondria and Metabolism – Targets for the treatment of heart failure”, Brussels, BE
2013 - 2016	Main organizer of the HFA Winter Research Meeting , Les Diablerets, CH
03/2014	HFA Translational Research Workshop on “Treatments targeting Inotropy” in Brussels, BE
01/2017	Co-Organizer of the HFA Winter Research Meeting , Les Diablerets, CH
03/2017	HFA Translational Research Workshop on “Diabetes and Heart Failure” in Brussels, BE
06/2018	Chair-elect for 2020 Gordon Research Conference on Cardiac Regulatory Mechanisms, New London, NH, US; postponed to 2022 due to COVID-19
07/2019	Heart Failure Interfaces: A DZHI/DZHK Joint Meeting, Würzburg, Germany.

Editorial Boards

Since 2013 *Basic Research in Cardiology*
since 2014 *Clinical Research in Cardiology*
2015-16 *Circulation Research*
Since 2018 *Nature Reviews Cardiology (Advisory Board)*
Since 2020 **Associate Editor** *Circulation Research*

Selected publications

152 publications in total, 11603 citations, H-factor 50 (June 2021; Google Scholar)

Bertero E, Heusch G, Münzel T, Maack C.

A pathophysiological compass to personalize antianginal drug treatment

Nat Rev Cardiol 2021; in press

Godsman N, Kohlhaas M, Nickel A, Cheyne L, Mingarelli M, Schweiger L, Hepburn C, Munts C, Welch A, Delibegovic M, Van Bilsen M, Maack C* and Dawson DK*.

Metabolic alterations in a rat model of Takotsubo syndrome.

Cardiovasc Res. 2021. doi: 10.1093/cvr/cvab081. (*equal contribution)

Wagner M, Bertero E, Nickel A, Kohlhaas M, Gibson GE, Heggermont W, Heymans S and Maack C.

Selective NADH communication from alpha-ketoglutarate dehydrogenase to mitochondrial transhydrogenase prevents reactive oxygen species formation under reducing conditions in the heart.

Basic Res Cardiol. 2020;115:53.

Loescher CM, Breitkreuz M, Li Y, Nickel A, Unger A, Dietl A, Schmidt A, Mohamed BA, Kotter S, Schmitt JP, Kruger M, Kruger M, Toischer K, Maack C, Leichert LI, Hamdani N and Linke WA.

Regulation of titin-based cardiac stiffness by unfolded domain oxidation (UnDOx).

Proc Natl Acad Sci U S A. 2020;117:24545-24556.

Bertero E, O'Rourke B, Maack C.

Mitochondria do not survive calcium overload during transplantation

Circ Res. 2020;126:784-786.

Nickel AG, Kohlhaas M, Bertero E, Wilhelm D, Wagner M, Sequeira V, Kreusser MM, Dewenter M, Kappl R, Hoth M, Dudek J, Backs J and Maack C.

CaMKII Does not Control Mitochondrial Ca²⁺ Uptake in Cardiac Myocytes.

J Physiol. 2020;598:1361-1376

Maack C, Eschenhagen T, Hamdani N, Heinzel FR, Lyon AR, Manstein DJ, Metzger J, Papp Z, Tocchetti CG, Birhan Yilmaz M, Anker SD, Balligand JL, Bauersachs J, Brutsaert D, Carrier L, Chlopicki S, Cleland JG, de Boer RA, Dietl A, Fischmeister R, Harjola VP, Heymans S, Hilfiker-Kleiner D, Holzmeister J, de Keulenaer G, Limongelli G, Linke WA, Lund LH, Masip J, Metra M, Mueller C, Pieske B, Ponikowski P, Ristic A, Ruschitzka F, Seferovic PM, Skouri H, Zimmermann WH and Mebazaa A.

Treatments targeting inotropy.

Eur Heart J. 2019;40:3626-3644.

Maack C, Lehrke M, Backs J, Heinzl FR, Hulot JS, Marx N, Paulus WJ, Rossignol P, Taegtmeyer H, Bauersachs J, Bayes-Genis A, Brutsaert D, Bugger H, Clarke K, Cosentino F, De Keulenaer G, Dei Cas A, Gonzalez A, Huelsmann M, Iaccarino G, Lunde IG, Lyon AR, Pollesello P, Rena G, Riksen NP, Rosano G, Staels B, van Laake LW, Wanner C, Farmakis D, Filippatos G, Ruschitzka F, Seferovic P, de Boer RA and Heymans S.

Heart failure and diabetes: metabolic alterations and therapeutic interventions

A state-of-the-art review from the Translational Research Committee of the Heart Failure

Association-European Society of Cardiology.

[Eur Heart J. 2018;39:4243-4254.](#)

Bertero E, Maack C and O'Rourke B.

Mitochondrial transplantation in humans: "magical" cure or cause for concern?

[J Clin Invest. 2018;128:5191-5194.](#)

Bertero E, Maack C.

Metabolic remodeling in heart failure

[Nat Rev Cardiol 2018; doi: 10.1038/s41569-018-0044-6](#)

Bertero E, Maack C.

Calcium signaling and reactive oxygen species in mitochondria.

[Circ Res 2018;122:1460-1478](#)

Kohlhaas M, Nickel AG, Bergem S, Casadei B, Laufs U, Maack C.

Endogenous nitric oxide formation in cardiac myocytes does not control respiration during β -adrenergic stimulation.

[J Physiol. 2017;595:3781-3798.](#)

Lehmann LH, Jebessa ZH, Kreusser MM, Horsch A, He T, Kronlage M, Dewenter M, Sramek V, Oehl U, Krebs-Haupenthal J, von der Lieth AH, Schmidt A, Sun Q, Ritterhoff J, Finke D, Völkers M, Jungmann A, Sauer SW, Thiel C, Nickel A, Kohlhaas M, Schäfer M, Sticht C, Maack C, Gretz N, Wagner M, El-Armouche A, Maier LS, Londoño JEC, Meder B, Freichel M, Gröne HJ, Most P, Müller OJ, Herzig S, Furlong EEM, Katus HA, Backs J.

A proteolytic fragment of histone deacetylase 4 protects the heart from failure by regulating the hexosamine biosynthetic pathway.

[Nat Med. 2017 Dec 11. doi: 10.1038/nm.4452. \[Epub ahead of print\]](#)

Stapel B, Kohlhaas M, Ricke-Hoch M, Haghikia A, Erschow S, Knuuti J, Silvola JMU, Roivainen A, Saraste A, Nickel AG, Saar JA, Sieve I, Pietzsch S, Müller M, Bogeski I, Kappl R, Jauhainen M, Thackeray JT, Scherr M, Bengel FM, Hagl C, Tudorache I, Bauersachs J, Maack C*, Hilfiker-Kleiner D*.

Low STAT3 expression sensitizes to toxic effects of β -adrenergic receptor stimulation in peripartum cardiomyopathy.

[Eur Heart J. 2017;38:349-361.](#) (*equal contribution)

Nickel AG, von Hardenberg A, Hohl M, Löffler JR, Kohlhaas M, Becker J, Reil JC, Kazakov A, Bonnekoh J, Stadelmaier M, Puhl SL, Wagner M, Bogeski I, Cortassa S, Kappl R, Pasieka B, Lafontaine M, Lancaster CR, Blacker TS, Hall AR, Duchon MR, Kaestner L, Lipp P, Zeller T, Müller C, Knopp A, Laufs U, Böhm M, Hoth M, Maack C.

Reversal of Mitochondrial Transhydrogenase Causes Oxidative Stress in Heart Failure.

[Cell Metab. 2015;22:472-84.](#)

Hohl M, Wagner M, Reil JC, Müller SA, Tauchnitz M, Zimmer AM, Lehmann LH, Thiel G, Böhm M, Backs J, Maack C.

HDAC4 controls histone methylation in response to elevated cardiac load.

[J Clin Invest. 2013;123:1359-70.](#)

Chen Y, Csordas G, Jowdy C, Schneider TG, Csordas N, Wang W, Liu Y, Kohlhaas M, Meiser M, Bergem S, Nerbonne JM, Dorn GW, 2nd, [Maack C](#).

Mitofusin 2-containing mitochondrial-reticular microdomains direct rapid cardiomyocyte bioenergetic responses via interorganelle Ca²⁺ crosstalk.

[Circ Res](#). 2012;111:863-75.

Kohlhaas M, Liu T, Knopp A, Zeller T, Ong MF, Böhm M, O'Rourke B, [Maack C](#).

Elevated cytosolic Na⁺ increases mitochondrial formation of reactive oxygen species in failing cardiac myocytes.

[Circulation](#). 2010;121:1606-13.

Kohlhaas M & [Maack C](#).

Adverse bioenergetic consequences of Na⁺-Ca²⁺ exchanger-mediated Ca²⁺ influx in cardiac myocytes.

[Circulation](#). 2010;122:2273-80.

[Maack C](#), Dabew ER, Hohl M, Schäfers HJ, Böhm M.

Endogenous activation of mitochondrial K_{ATP} channels protects human failing myocardium from hydroxyl radical-induced stunning.

[Circ Res](#). 2009;105:811-7.

[Maack C](#), Cortassa S, Aon MA, Ganesan AN, Liu T, O'Rourke B.

Elevated cytosolic Na⁺ decreases mitochondrial Ca²⁺ uptake during excitation-contraction coupling and impairs energetic adaptation in cardiac myocytes.

[Circ Res](#). 2006;99:172-82.

[Maack C](#), Ganesan A, Sidor A, O'Rourke B.

Cardiac sodium-calcium exchanger is regulated by allosteric calcium and exchanger inhibitory peptide at distinct sites.

[Circ Res](#). 2005;96:91-9.

[Maack C](#), Kartes T, Kilter H, Schäfers HJ, Nickenig G, Böhm M, Laufs U.

Oxygen free radical release in human failing myocardium is associated with increased activity of rac1-GTPase and represents a target for statin treatment.

[Circulation](#). 2003;108:1567-74.

[Maack C](#), Böhm M, Vlaskin L, Dabew E, Lorenz K, Schäfers HJ, Lohse MJ, Engelhardt S.

Partial agonist activity of bucindolol is dependent on the activation state of the human beta1-adrenergic receptor.

[Circulation](#). 2003;108:348-53.

[Maack C](#), Elter T, Nickenig G, LaRosee K, Crivaro M, Stäblein A, Wuttke H, Böhm M.

Prospective crossover comparison of carvedilol and metoprolol in patients with chronic heart failure.

[J Am Coll Cardiol](#). 2001;38:939-46.

Flesch M*, [Maack C](#)*, Cremers B, Bäumer AT, Südkamp M, Böhm M.

Effect of beta-blockers on free radical-induced cardiac contractile dysfunction.

[Circulation](#). 1999;100:346-53. (*equal contribution)