

ISHR-European section council**Our reference****Your reference**

Date December 16, 2024
Regarding Letter of motivation ISHR-ES Council member

Division of Heart & Lungs

Department of Cardiology

Experimental Cardiology
Laboratory

Dear Nominating Committee,

As a Medical Biologist and having a chair as Cellular and Translational Cardiology in the University Medical center Utrecht (the Netherlands), my work is focused on creating new basic insights and develop innovative therapeutic applications for various cardiovascular diseases.

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My laboratory focuses on cardiac regeneration, tissue engineering, and understanding the molecular mechanisms behind heart failure. The team investigates stem cell-based therapies, using progenitor cells and other regenerative approaches to repair damaged heart tissue and explore the molecular signaling pathways involved in heart disease, particularly fibrosis, inflammation, and cellular responses to injury. The lab is further dedicated to engineering functional cardiac tissues for drug testing and potential transplantation via induced pluripotent stem cell-differentiated cardiomyocytes and vascular cells. They investigate the role of extracellular vesicles (e.g., exosomes) in cellular communication and cardiac repair. Clinical translation is a key focus, with efforts to develop personalized medicine approaches using patient-specific models of heart disease. The lab employs advanced technologies like genomics, proteomics, and high-throughput screening to uncover new biomarkers and therapeutic targets. Our work is aimed at improving the delivery and efficacy of regenerative therapies in heart disease, thereby collaborating widely with academic, clinical, and industry partners to move discoveries from the lab to the clinic.

Recent years were a great pleasure for me to be able to support the European Society of Cardiology (ESC) programs and linked organizations and thereby contribute to the scientific arena. Being part of the WG Cellular Biology of the Heart (2010-2018, chair 2016-2018) and Council on Basic Cardiovascular Science (CBCS, 2018-2020), and recent years of the WG Cardiovascular Regenerative and Reparative Medicine (2020-2024), made it possible to get a better understanding on how the different organs within a large organization of the ESC are positioned and how we can contribute further to improve scientific meetings, education, and future directions.

In my role for the ESC, I was involved in the planning and organization of several meetings by these WGs and learned how substantial impact can be generated. Moreover, we were able to contribute as well largely to the field of cardiovascular

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regenerative medicine within the ESC scientific meetings by yearly lectures on several ESC-based meetings and providing several well-cited position papers (total >15).

Recent years were characterized by a post-COVID change in scientific meetings, change in behavior and attendance and it became more and more clear that basic science needs a further internationalization and need to anticipate on a changing attendance, interest, and way of knowledge sharing.

I foresee during my candidacy for the ISHR-ES council to further strengthen the impact of the International Society for Heart Research via a few strategies. 1) Involve the young scientific communities of our national societies to help us reach out the new generation of scientist and thereby their hosting labs. 2) Reach out to ESC-WGs and other societies (e.g. ISEV, ISSCR, large EU-consortia) to further strengthen collaborations and a scientific platform to move this scientific field forward. 3) Apply for network funding (e.g. ITN trainings grants or COFUND) that can further sponsor the activities of ISHR-ES via the excellent labs involved in this community. A basis for this should be a common ground, based on meeting organizations, establish scientific ground for breakthroughs and translation, or other common interests that are clear from scientific perspective but need a better financial/organizational basis.

Recent years, my laboratory worked on several aspects in the regenerative cardiovascular arena. We initiated initial research programs for 3 dimensional (3D) bioprinting, use of iPS technologies to generate different cardiovascular cell lineages and cell models. Moreover, a main focus of my work was on the role and use of extracellular vesicles (EV) to stimulate myocardial repair in translational disease models.

I feel I am now at a stage that I can help the council of ISHR-ES further with my experiences and therefore would like to have your support. I, hereby, would like to position myself for the candidacy of new member for the wonderful working group.

Sincerely yours,

Prof Dr Joost Sluijter



Professor in Cellular and Translational Cardiology

(j.sluijter@umcutrecht.nl)

Curriculum vitae

Personalia

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Gender: male

Date of birth: 14 April 1977

Place of Birth: 's-Hertogenbosch

Nationality: Netherlands

Passport number: NVLKBK7B0

Sofj number: 147916689

Social Security number: 304 29 1794 (US 2004-2005)

Education

1995-2000 - BSc and MSc, Medical Biology, University Utrecht

Internship (9 months): Experimental Cardiology Laboratory, University Medical Center, Utrecht (Prof. dr. C. Borst en dr. D. de Kleijn). Increased expression of Heat Shock Protein 47 and Furin after flow change in rabbit femoral and carotid arteries.

Internship (6 months): Department of Internal Medicine, University Medical Center, Utrecht (Prof. Dr. T. Rabelink en dr. E. Stroes). Peri-adventitial gene delivery to rabbit carotid artery

1989-1995 - High School, VWO, Orduynen College, 's-Hertogenbosch

Scientific and Academic training:

Safe Microbiology Techniques (VMT) 1997

Radioactivity (level 4b) 1998

Animal Care (article 9) 1998

NWO-Talent Classes: masterclass networking 2006

NWO-Talent Classes: masterclass Creative thinking 2006

Participated in the EMBL course: "A joint EMBL/ Ambion
Practical Course on miRNA Profiling", EMBL, Heidelberg 2006

Seminar Academic Leadership – University of Utrecht

(Management training, Eva Wiltingh b.v.) sep-dec 2008

Intellectual property course (CTMM/TI Pharma/BMM) 2010

UMC Utrecht Research Talent Program 2013-2014
Workshop Personal direction and talents
UMCU Connecting Leaders - Foundations of Leadership (Fundament van Leiderschap) 2016-2017
Participant UtrechtInc, validation program, from Research to start-up with "NanoVio" 2019-2020

Teaching and coaching training:

Coach-A course Netherlands Volleyball Association	2001-2002
Professional behavior: assessment and feedback	2009
Teaching in small classes	2010
Blackboard (digital teaching environment)	2010
Basic Medical Education and Medicine	2010
Examination I	2010
Examination II	2010
University teaching qualification ("BKO") Utrecht University	2011
Online teaching	2020
Diversity training, selection and recruiting	2021

Positions

04-2022 till present: Manager of Research division Heart & Lungs, University Medical Center Utrecht. Devising and implementing research strategy on both a Division- and Institute-wide level.

06-2020 till 06-2021: Visiting Professor as a Research scholar at Stanford Cardiovascular Institute, Stanford University, San Francisco, USA.

02-2017 till present: Professor of Cellular and translational Cardiology at the department of Cardiology, Experimental Cardiology Laboratory and UMC Utrecht Regenerative Medicine Center, University Medical Center Utrecht (1fte, permanent position). Supervision of 3 supports staff members, 5 post-docs, and 8 PhD students.

03-2012 till 02-2017: Group leader at the department of Cardiology (Associate Professor), Experimental Cardiology Laboratory, University Medical Center Utrecht (1fte, permanent position). Supervision of 3 supports staff members, 4 post-docs, and 8 PhD students.

06-2012 till 03-2013: Group leader at the department of Cardiology (Associate Professor), Experimental Cardiology Laboratory, University Medical Center Utrecht (1fte, fixed time). Supervision of 4 supports staff members, 3 post-docs, and 6 PhD students.

03-2008 till 06-2012: Group leader at the department of Cardiology (Assistant Professor), Experimental Cardiology Laboratory, University Medical Center Utrecht (1fte, fixed time).

The applicant is leading a research group, focused on the use of adult derived cardiac progenitor cells and their use in cardiac repair. In addition, the role of miRNA regulation in cardiac repair is studied. Supervision of 3 support staff members, 3 postdoctoral researchers, 6 PhD students, and 6 master student.

10-2005 till 03-2008: The Royal Netherlands Academy of Arts and Sciences (KNAW), ICIN; Postdoctoral researcher at the department of Cardiology, HLCU, Utrecht (1fte, fixed time). Supervisor: Prof. Dr. PA Doevendans and Dr. MJTH Goumans.

The applicant is involved in the adult human cardiomyocyte progenitor cell program, to better understand their differentiation capacity into cardiomyocytes and their potential use for in vivo applications. Supervision of 3 support staff members and 6 PhD students working on related projects.

09-2004 till 09-2005: Postdoctoral researcher at the Department of Surgery, Indiana University-Purdue University, in Indianapolis, USA (1 fte; fixed time). Supervisor: Prof. Dr. Z. Galis; Support staff supervised: 2.

The applicant has set up a biochemical laboratory for Prof. Dr. Zorina Galis, the use of different equipment within the newly formed Surgery department and continued his research on EMMPRIN regulation in atherosclerosis. He also made available the use of the EMMPRIN null mice for his research line. During this time, he supervised two support staff members for his own research and for other research lines within the laboratory.

06-2000 till 10-2004: The Royal Netherlands Academy of Arts and Sciences (KNAW), PhD student at the Experimental Cardiology Laboratory, HLCU, Utrecht (1 fte; fixed time). *Title thesis:* Collagen turnover in arterial disease. Supervisors: D.P.V. de Kleijn, PhD; G. Pasterkamp, MD, PhD; C. Borst, Prof PhD. Next to the preparation of his PhD thesis, the applicant has set-up different techniques within the Experimental Cardiology laboratory. This includes the use of the quantitative realtime PCR machine, the use of non-viral and viral transfection techniques (including making constructs, virus production/purifications and transfections) and the use of these constructs in larger animal models. Three graduate students were trained in the use of laboratory techniques and design of experiments (long term: 9-12 months each).

Research Summary

In my research group, we focus on stimulating cardiac regeneration, thereby using approaches that can lead to improved recovery of cardiac tissue upon injury and improve the diagnosis of acute myocardial damage. In recent years, we identified miRNAs that can push cell lineage specifications and how we could improve progenitor cell transplantation, specifically improving local delivery and cell retentions. This was in close collaborations with Domian (Harvard), Sussman (San Diego State University), and Mercola (Sanford Burnham Medical Research Institute). My group substantially improved cell delivery to the myocardium, from which we also realized that most of the injected cell action was due to the potential paracrine actions. My group has therefore started to study the use of secreted exosomes by these cells as a novel approach to induce cardiac repair and aim to create a potential of-the-shelf therapy.

We have also identified several microRNAs that could be used as a direct therapeutic after myocardial damage has occurred. Among them, miR-100 (Circulation 2011) and miR-214 for angiogenesis (CardioVascRes 2012), and miR-25 for heart failure (Nature 2014). These potent targets need smart delivery strategies to prevent side-effects; this directly lead me to initiate the BMM-LUST program that uses nano-medicine for targeted delivery. BMM-LUST made use of polymer-based delivery routes; the next leap in targeted delivery, I believe, lies in a natural carrier system. At this stage these polymer-based delivery routes are easily outperformed by the natural carrier system that transport biologicals between cells, called exosomes. I therefore propose the ERC-EVICARE program to combine my expertise in cardiac cell therapy, microRNA therapeutics and the use of our newly developed matrices for local delivery. My enthusiasm for introducing innovative molecular approaches and new therapeutic strategies, and my wide experiences in progenitor cell biology and preclinical animal model testing for

cardiac injury will ensure that this research can go quickly from basic discoveries to preclinical testing in patient relevant animal models.

Fellowships/Grants

- 2004-2005 Interuniversity Institute of the Netherlands (ICIN)-fellowship: Extracellular Matrix Metalloprotease Inducer (EMMPRIN): regulation and predictive value in atherosclerosis: principle investigator (PI); €45.400
- 2007-2009 Novartis Foundation for Cardiovascular Excellence Grant: The therapeutic role of Smad3 inhibition in myocardial repair after infarction (PI); €90.000
- 2008-2009 van Ruyvenstichting: The role of exosomes in cell-to-cell communication and paracrine effects after stem cell transplantation (PI); €25.000
- 2009-2012 UMC Utrecht focus and mass area "cardiovascular research: Cardiac, renal and vascular regeneration: focus on intercellular communication (PL); €300.000 (total project €1.2M)
- 2010-2014 BMM-YIC: Localized Ultra-sound guided Small RNA Transmittal (LUST); PI €1.3M
- 2011-2015 *Translatieel Adult Stamcelonderzoek*: Cardiomyocyte progenitor cells for clinical application in cardiac repair, Phase A1 preclinical PL €300.000 (total project €2.0M).
- 2012-2017 : *HUMAN STem cells for CARDiac REpair (HUSTCARE)*, PI WP 2 and 3 €0.95M (total project €5.0M)
- 2013: Designing Cardiac Tissue with SIS biodiscs, Cook medical; PI €25.000
- 2013: microRNAs for diagnosis of ACS, ICIN stimuleringsfonds; PI €25.000
- 2014-2018: Targeted treatment by MRI guidance to optimize regenerative therapy for ischemic heart disease; a novel approach; the MIGRATE (Mri Guided RegenerAtive ThERapy) project (LSH Impuls 2013) PL €200.000 (total project €1.2M).
- 2015-2017: BMM Smartcare2 – Smart microtissues for cardiac regeneration (total project €1.0M).
- 2015-2019: Horizon 2020 – TECHNOBEAT (PHC-16-2015) PL €750.000 (total project €6.0M);
- 2015-2018: CAS-NWO Program; Cardiac cell therapy in a preclinical animal model for hereditary cardiomyopathy, PI €350.000 (total project €450.000).
- 2017-2022: Horizon 2020 - ERC-2016-CoG – 725229: EVICARE: Extracellular Vesicle-Inspired CARDiac Repair, PI €2.0M
- 2017-2019: Vrienden UMCU: "Innovatieve directe medicijnafgifte in het hart", PI. €115,000
- 2018-2022 – Horizon 2020 Marie S. Curie, COFUND programme RESCUE: Local Training Network on REgenerative medicine and Stem Cell technology in UtrEcht (PL€300k, total €9.2M)
- 2018-2021: Technology Of Protein delivery through Extracellular Vesicles to target PCSK9 (TOP-EV), Dutch Heart Foundation 2018B014, PI €250,000 (total €500,000)
- 2019-2024: RegMed XB Cardiovascular Moonshot PL €0.5M (total €4.2M)
- 2019-2024: Horizon 2020 BRAV3 (SC1-BHC-07-2019): PL €740.000 (total project €8.0M); Computational biomechanics and bioengineering 3D printing to develop a personalized regenerative biological ventricular assist device to provide lasting functional support to damaged hearts
- 2020-2021: NL-PET - Next Level genome editing - efficient and precise correction of PLN/R14del using Prime Editing Technology. PLN foundation, PI €50.000 (total project €145,000).
- 2021-2024: NWO-OTP - HARVEY; Heart vector-mediated gene therapy: towards a clinically applicable cure for inherited cardiomyopathies: PL €440k (total project €1.1M)
- 2021-2024: ZonMW - PSIDER - Multidisciplinaire Consortia' - From pluripotent stem cells to prime editing gene therapy for inherited cardiomyopathies PL €730k (total project 3.5M)
- 2022-2026: HORIZON-HLTH-2021-TOOL-06; HEAL - HLA-homozygous iPSC-cardiomyocyte Aggregate manufacturing technologies for allogenic cell therapy to the heart. PL €575.000 (total project €6.0M)

- 2023-2026: Health Holland TKI; Extracellular Vesicle-protected gene therapy for heart failure (EV-PROTECT). PI €675.000 (total project €900k)
- 2023-2024: Take-off WO fase 1 - Haalbaarheidsstudies 2023 TTW 1, VINCI: Extracellular Vesicle-based Nanotechnology for Protein Delivery. PI €40.000
- 2023-2024: ERC Proof of Concept Grant, TOP-EVICARE. PI €150k
- 2023-2027: Gravitation program - Materials-driven regeneration (MDR): cardiac regeneration, PL €300.000
- 2024-2027: ERA4Health CARDINNOV call - Bridging the gap between cardiac and vascular regeneration (RESCUE), PL €300.000 (total project €1.4M).
- 2024-2026: RegMed XB Cardiovascular Moonshot – Regeneration of the human (donor) heart. PI €390k (total project €1.2M)
- 2024-2027: Health Holland TKI; Nanoparticle-based PhosphoLambaN CARDiac REpair - Nano-PLNCARE. PI €500.000 (total project €667k)
- 2025-2028: Health Holland TKI-LSH: Extracellular Vesicle-Optimized Therapy Leveraging Vesicular Engineering for PLN Cardiomyopathies (EVOLVE). PI €400k (total project €706k)

Total obtained personal funding €13,815,500 in a total project funding of €58,708,400

Honours

- **Abstract award**; 8th International conference on cell therapy for cardiovascular disease, jan 23-25 **2013**. New York, NY.
- **Editor's choice 2013** *Cardiovascular Research* (most cited manuscripts): Derek J Hausenloy, Hans Botker, Gianluigi Condorelli, Peter Ferdinandy, David Garcia-Dorado Gerd Heusch, Sandrine Lecour, Linda van Laake, Rosalinda Madonna, Marisol Ruiz-Meana, Rainer Schulz, Joost P.G. Sluijter, Derek M Yellon, Michel Ovize. ESC WG Position Paper; Translating cardioprotection for patient benefit: The way forward. *Cardiovascular Research, Cardiovasc Res.* 2013 Apr 1;98(1):7-27.
- **Editor's choice 2014** *Cardiovascular Research* (most read manuscripts): Sandrine Lecour, Hans E Bøtker, Gianluigi Condorelli, Sean M Davidson, David Garcia-Dorado, Felix Engel, Peter Ferdinandy, Gerd Heusch, Rosalinda Madonna, Michel Ovize, Marisol Ruiz-Meana, Rainer Schulz, Joost P.G. Sluijter, Linda Van Laake, Derek M Yellon, Derek J Hausenloy. Improving the pre-clinical assessment of novel cardioprotective therapies: A Position Paper by the ESC Working Group on Cellular Biology of the Heart. *Cardiovasc Res.* 2014 Dec 1;104(3):399-411.
- **Editor's choice 2014** *Cardiovascular Research* (most read manuscripts): Joost P.G. Sluijter, Vera Verhage, Janine Deddens, Frederieke van den Akker, Pieter A.F. Doevendans. Microvesicles and exosomes for intracardiac communication. *Cardiovasc Res.* 2014 May 1;102(2):302-11.
- **Fellow** of the European Society of Cardiology **2014**
- *European Journal of Clinical Investigation (ESCI) Award for the Best Basic Research Article 2016* - Koudstaal S, Oerlemans MI, Van der Spoel TI, Janssen AW, Hoefler IE, Doevendans PA, Sluijter JP, Chamuleau SA. Necrostatin-1 alleviates reperfusion injury following acute myocardial infarction in pigs.
- **Editor's choice 2018** *Cardiovascular Research* (most read manuscripts): Extracellular vesicles in diagnostics and therapy of the ischaemic heart: Sluijter JPG, Davidson SM, Boulanger CM, Iren Buzás E, de Kleijn DPV, Engel FB, Giricz Z, Hausenloy DJ, Kishore R, Lecour S, Leor J, Madonna R, Perrino C, Prunier F, Sahoo S, Schiffelers RM, Schulz R, Van Laake LW, Ytrehus K, Ferdinandy P. Position Paper from the Working Group on Cellular Biology of the Heart of the European Society of Cardiology
- **Editor's choice 2019** *Cardiovascular Research* (most cited manuscripts): Can Gollmann-Tepeköylü, Leo Pözl, Michael Graber, Jakob Hirsch, Felix Nägele, Daniela Lobenwein, Michael W Hess, Michael J Blumer, Elke Kirchmair, Johannes Zipperle, Carina Hromada, Severin Mühleder, Hubert Hackl, Martin Hermann,

Hemse Al Khamisi, Martin Förster, Michael Lichtenauer, Rainer Mittermayr, Patrick Paulus, Helga Fritsch, Nikolaos Bonaros, Rudolf Kirchmair, Joost P G Sluijter, Sean Davidson, Michael Grimm, Johannes Holfeld, miR-19a-3p containing exosomes improve function of ischaemic myocardium upon shock wave therapy, *Cardiovascular Research*, Volume 116, Issue 6, 1 May 2020, Pages 1226–1236, <https://doi.org/10.1093/cvr/cvz209>

- **Editors' Choice 2020** *World Biomaterials Congress* from best biomaterials research articles published 2020: Marleen Kristen Madison J. Ainsworth, Nino Chirico Casper, F. T. van der Ven, Pieter A. Doevendans, Joost P. G. Sluijter, Jos Malda, Alain van Mil, Miguel Castilho. Fiber Scaffold Patterning for Mending Hearts: 3D Organization Bringing the Next Step. *Advanced Healthcare Materials*.

- **Editors' Choice 2020** *Advanced Healthcare Materials (top 10% most downloaded papers)*: Mol EA, Lei Z, Roefs MT, Bakker MH, Goumans MJ, Doevendans PA, Dankers PYW, Vader P, Sluijter JPG. Injectable Supramolecular Ureidopyrimidinone Hydrogels Provide Sustained Release of Extracellular Vesicle Therapeutics. *Adv Healthc Mater*. 2019.

- **Editor's choice 2020** *Cardiovascular Research (most cited manuscripts)*: Sabine Steffens, Sophie Van Linthout, Joost P G Sluijter, Carlo Gabriele Tocchetti, Thomas Thum, Rosalinda Madonna, Stimulating pro-reparative immune responses to prevent adverse cardiac remodelling: consensus document from the joint 2019 meeting of the ESC Working Groups of cellular biology of the heart and myocardial function, *Cardiovascular Research*, , cvaa137, <https://doi.org/10.1093/cvr/cvaa137>

- **Editor's choice 2020** *Cardiovascular Research* Cinzia Perrino, Péter Ferdinandy, Hans E Bøtker, Bianca J J M Brundel, Peter Collins, Sean M Davidson, Hester M den Ruijter, Felix B Engel, Eva Gerdts, Henrique Girao, Mariann Gyöngyösi, Derek J Hausenloy, Sandrine Lecour, Rosalinda Madonna, Michael Marber, Elizabeth Murphy, Maurizio Pesce, Vera Regitz-Zagrosek, Joost P G Sluijter, Sabine Steffens, Can Gollmann-Tepeköylü, Linda W Van Laake, Sophie Van Linthout, Rainer Schulz, Kirsti Ytrehus. Improving translational research in sex-specific effects of comorbidities and risk factors in ischaemic heart disease and cardioprotection: position paper and recommendations of the ESC Working Group on Cellular Biology of the Heart. *Cardiovascular Research*, Volume 117, Issue 2, 1 February 2021, Pages 367–385. <https://doi.org/10.1093/cvr/cvaa155>

- **Editor's choice 2021** *Nanoscale (most cited papers)* van der Ven CFT, Tibbitt MW, Conde J, van Mil A, Hjortnaes J, Doevendans PA, Sluijter JPG, Aikawa E, Langer RS. Controlled delivery of gold nanoparticle-coupled miRNA therapeutics via an injectable self-healing hydrogel. *Nanoscale*. 2021 Nov 24. doi: 10.1039/d1nr04973a.

- **Editor's choice 2022** *Advanced Healthcare Materials (most downloaded papers)*: Evers MJW, van de Wakker SI, de Groot EM, de Jong OG, Gitz-François JJJ, Seinen CS, Sluijter JPG, Schiffelers RM, Vader P. Functional siRNA Delivery by Extracellular Vesicle-Liposome Hybrid Nanoparticles. *Adv Healthc Mater*. 2021 Aug 11:e2101202. doi: 10.1002/adhm.202101202.

Fellowships/Grants lab-members

- 2009 Mazoiek Grant NWO, Sailay Siddiqi: Proliferation and differentiation of stem cells, resident in the heart.; €100.000
- 2009 Alexandre Suerman program (UMCU), Sailay Siddiqi: Cardiac cell therapy. €100.000
- 2010 dr. E. Dekker grant (NHS), Tycho van der Spoel: preclinical cell transplantation therapy; €140.00
- 2011 Alexandre Suerman program (UMCU), Frederieke van den Akker: Immune responses in cardiac cell therapy. €100.000
- 2013 Interuniversity Institute of the Netherlands (ICIN)-fellowship, Alain van Mil: Inducing cardiac differentiation of adult cardiomyocyte progenitor cells by high throughput screening; €45.400.

- 2013 Fondation Leducq Career Development Award, Roberto Gaetani: Cardiac tissue engineering by using Cardiac stem cells, heart derived extracellular matrix and Tissue Printing technology for cardiac regeneration; \$150.000.
- 2013 Alexandre Suerman program (UMCU), Peter-Paul Zwetsloot:small compounds to enhance cardiac regeneration. €100.000
- 2013 European Society of Cardiology, initiative grant Prof Deepak Srivastava, Dries Feyen; €2.500
- 2014 Fellowship Clinical Research talent UMC Utrecht, Jan-Willem Buikema; €80.000
- 2015-2016 CVON research talent fellowship, Casper van der Ven: “Minimally invasive Delivery of Therapeutics to Regenerate the Myocardium”; €65.000
- 2016-2019 H2020-MSCA-IF-2015 (Marie Skłodowska-Curie Individual Fellowships COFUND,): Dries Feyen: Cardiac micro-engineered tissue for high-throughput screening (CAMEOS); €260.000
- 2016-2019: Geef het hart weer energie, St Dalijn. Alain van Mil €240.000
- 2017-2019: Using a heart-on-a-chip to understand the scarred heart, Dekker NHS, J Hjortnaes. €300.000.
- 2017-2018: Zijn geïnjecteerde hartspiercel en bevorderlijk voor de hartfunctie in diermodellen van het hartinfarct? P Zwetsloot, ZonMw. €16.000.
- 2017: Cardiac inflammation in PLN patients: Target for therapy?! Patricia van den Hoogen. PLN foundation. €25.000.
- 2019: NHS Dekker - Therapeutic mRNA delivery to the myocardium for cardiac regeneration. Dr Pieter Vader - €420.000
- 2019: H2020-ERC starting grant OBSERVE: Overcoming cellular barriers to therapeutic RNA delivery using extracellular vesicles – Dr Pieter Vader: €1.5M
- 2019: PLN crazy idea grant: PLN in advanced models of fibrosis: Tom Bracco-Gartner and Renee Maas. €50.000.
- 2019: NHI fellowship: Sex differences in comorbidity-mediated macrophage differentiation: a study in female and male iPSc derived monocytes. Dr Elise Kessler: €45.400
- 2019: NWO-NWW-Klein: Molecular mechanisms of extracellular vesicle-mediated intercellular RNA transfer. – Dr Pieter Vader: €300.000
- 2020: NWO-Vidi: Endogenous RNA carriers - Dr Pieter Vader: €800.000
- 2020: Inflammation in heart failure: is our immune system failing the PLN heart. PLN foundation, Saskia de Jager, €49.000.
- 2021: Reading and writing the cardiac extracellular matrix (ECM); how to correct the misspelled environment, Nino Chirico, Materials-Driven Regeneration (MDR) Young Talent Incentives Program, €10.000
- 2021: NWO-XS: myocardial infarct model in a dish, Alain van Mil / Nino Chirico, €50.000
- 2021: Cardiac Amyloidosis model development, Marish Oerlemans / Alain van Mil: Alnhyam €30k, Pfizer global research grant: €150k, Johnson&Johnson: €150k
- 2021: European Society of Cardiology, initiative grant Prof Dendorfer (Munich), Vasco Sampaio Pinto; €2.500.
- 2022: NLHI Fellowship - Live myocardial slices: a new model to study preservation-induced damage, Vasco Sampaio Pinto; €48.000.
- 2022: European Society of Cardiology, CBCS First Contact initiative grant, Simon van de Wakker; €2.500.
- 2022: Materials-Driven Regeneration (MDR) Young Talent Incentives Program; Studying differential composition of progenitor cell-derived extracellular vesicle subpopulations using imaging flow cytometry, Simon van de Wakker; €3.000.
- 2022: ISEV travelling grant - Studying differential composition of progenitor cell-derived extracellular vesicle subpopulations using imaging flow cytometry, Simon van de Wakker; €6.000.

- 2022: HORIZON-HLTH-2022-DISEASE-06-04- GEREMY: Gene Therapy for treatment of rare inherited Arrhythmogenic Cardiomyopathy, Francesca Stillitano, €1M.
- 2023: HORIZON-MSCA-2022-PF-01-01 - MSCA Postdoctoral Fellowships 2022, OrganoidsFHeartbreak, Barbara Salingova, €187,6k
- 2023: NLHI fellowship - ASSAY, Automated stratification scoring analysis in patient derived cardiomyocytes, Renee Maas ; €48.000.
- 2023-2025: NWO-Rubicon: Pathological traits and genetic modifiers in monogenic cardiomyopathies to cure heart failure, €198k
- 2024-2027: ERA4Health CARDINNOV call - DETECIT, Zhiyong Lei €300.000.
- 2023: ENDURE: prEdictiNg primary graft DysfUnction and eaRly rEjection after heart- and lung transplantation by immune cell profiling, I&I boost grant UMCU, Saskia de Jager, €24.525.
- 2024-2026: Faculty of Impact LSH, VINCI - Extracellular-vesicle based drug delivery for treating “untreatable” diseases, Nazma Ilahibaks, € 187.897.
- 2024-2027: Health Holland TKI; CERTAIN-7T: Cardiac Cell ThERapy via MeTAbolic ImagiNg at 7T. PI Linda van Laake / Alain van Mil €800k.
- 2024-2027: NANOTECMEC Joint Transnational Call 2024- HG4Heart € 325k, PI Pieter Vader
- 2024-2027: NANOTECMEC Joint Transnational Call 2024- ?? € 325k, PI Zhiyong Lei
- 2024: Vrienden UMCUtrecht, Stichting Hartonderzoek Nederland, repareren van zieke harten in een box, een kwestie van optimale temperatuurregulatie, PI Veronique Meijborg €24.000

My lab members obtained personal fellowships between 2009-2024 for a total of €8.760.322

Supervisor PhD students (co-promotor): 13 finished PhD thesis

Supervisor PhD students (promotor): 19 finished PhD thesis, 16 ongoing

Organized meetings

- Organizing committee “Kick-off meeting of the regenerative medicine strategic program”, 2 April 2009 at the Sterrenwacht in Utrecht.
- Organizing committee “Kick-off meeting of Focus & Massa Cardiovascular Research: Cardiac, renal and vascular regeneration: focus on intercellular communication”, 20 April 2010 at Animal facility, Utrecht.
- Organizing committee of ESC Annual meeting of the Working Group on Myocardial Function and the Working Group on Cell Biology: 'The heart and beyond: intercellular and interorgan communication', Villa Monastero, 2013, ITALY.
- Advancements in cardiac regenerative medicine, 2nd Utrecht Stem Cell Conference, 11 June 2013, Utrecht.
- Organizing committee of ESC Annual meeting of the Working Group on Myocardial Function and the Working Group on Cell Biology: ' Salvage Pathways in Heart Rejuvenation', Villa Monastero, 2015, ITALY.
- Organizing committee of ESC Annual meeting of the Working Group on Myocardial Function and the Working Group on Cell Biology: ' Cardiac Immunology' , Villa Monastero, 2017, ITALY.
- Organizing 6th Utrecht Stem Cell Conference – Regenerative Medicine Cardiology, 16th of February 2018, Academic building in Utrecht.
- Myocardial repair – can we get closer? TECHNOBEAT Conference for Regenerative Medicine 2019, Utrecht, February 2019.
- Organizing committee of ESC Annual meeting of the Working Group on Myocardial Function and the Working Group on Cell Biology: ' Cardiac therapeutics 4.0' , Naples, 2019, ITALY.

- Organizing committee of Annual NL-SEV meeting, Utrecht, 8th Nov 2019, Netherlands.
- Organizing committee of Pre X-Mas Symposium: iPS Based Cell Therapies- From Bench to Bedside. Hannover, Altes Rathaus / Old City Hall, December 3rd -4th, 2019
- Organizing committee of Annual meeting Dutch-German Molecular Cardiology groups, Utrecht, 12-14 March 2020, Netherlands.
- Organizing committee of bi-annual ESC meeting: Frontiers in CardioVascular Biomedicine 2020, Thur23 - Sun 26th April 2020, Budapest – Hungary.

Invited speaker:

2007

- MicroRNAs Europe 2007 Meeting on Nov. 1-2, 2007 at the University of Cambridge, UK

2008

- Dutch-German Joint Meeting of Molecular Cardiology Groups, 7-9 February 2008, Amsterdam. miRNA regulation in cardiac regeneration - role in human derived cardiomyocyte progenitor cells.
- International Workshop “Emerging roles of microRNAs in development and disease” on 18-22 November 2008 at the International University of Baeza (Jaén), Spain.

2009

- Transplantatie Geneeskunde, Avond Congres M.H.D. Ferus Ebrius 2009, Nijmegen. Cardiac progenitor cells - an in vitro model en potential source for cell transplantation
- EUGeneHeart seminar, 25 November 2009, Utrecht. Cardiac regeneration.

2011

- ESC Summerschool, Nice, 12-16 June 2011, Cardiac progenitor cells.
- Cardiomyocyte Regeneration and Protection, 20-21 June 2011 La Jolla, California, USA; microRNA regulation in cardiomyocyte progenitor cells.

2012

- University Medical Center Utrecht, Stamcel therapie voor het beschadigde hart. 20 November 2012 (<http://www.umcutrecht.nl/nl/Subsites/Publiekslezingen/Archief/Lezingen-uit-2012/Stamceltherapie>)

2013

- Cardiac repair with cell-less therapy. Symposium Extracellular Vesicles in Health and Disease, 4 March 2013, Utrecht.
- Microvesicles and exosomes in cardiovascular health and disease. 3th May 2013, ESC basic science meeting, Villa Monastero, Varenna, ITALY
- miRNAs in differentiation and survival of cardiac stem cells, 4-5th June 2013, London, the British Society for Cardiovascular Research
- Therapeutic applicability of stem cell derived exosomes, Utrecht Stem Cell Conference, 11 June 2013, Utrecht.
- Pleisters voor het hart, Biologencongres, Burgers Zoo, Arnhem, 15th November 2013

2014

- Small RNAs having strong potential in cardiac injury and repair - 8th January 2014, Shanghai University, China.
- Cardiac injury and repair - small RNAs with strong effects. China Innovations in cardiology 2014 (CIC2014), 10th January, Nanjing, China.
- Small RNAs that can monitor or direct the injured heart; 17th March 2014, Cardiology Basic Research Program at the Center for Life Sciences at Beth Israel Deaconess Medical Center, Harvard Medical School, USA.

- Microvesicles and exosomes for intracardiac communication. ESC-Frontiers in CardioVascular Biology 2014, 4th July, Barcelona.
- Cardiac injury and repair, a role for cellular communication. University of Coimbra, Portugal 11th November 2014.

2015

- Cardiac-derived Progenitor Cells and Future Therapy; mini-symposium "Regenerative Medicine: Building Blocks of the Human Body", Leiden UMC, 26th March, Netherlands.
- The role of small non-coding RNAs in heart failure, Symposium 'New prospects in heart failure and heart transplantation, 13th April UMCU, the Netherlands.
- Strategies to repair the heart, 1st San Diego - Utrecht Life Sciences Collaboration Seminar, Utrecht, 22-24 April, 2015.
- Cardiac cell therapy, how to get to the next level ?, Nederlandse Vereniging voor Biomaterialen en Tissue Engineering, Lunteren, 4th December, 2015.
- Microvesicles in cardiac injury and repair - Extracellular Vesicle research on the Utrecht Campus, Utrecht, 18th December, 2015

2016

- Challenges in cardiac regeneration basic research. The ESC cellular biology working group perspective. 12-13th May 2016, 13th Tactics meeting, Madrid, Spain,
- Heterogeneous populations of extracellular vesicle subtypes, 20-21th June 2016, 5th Lugano Stem Cell Meeting, Lugano, Switzerland
- Stem cell therapy; improving myocardial cell delivery. 3rd European-SA Cardiovascular Research Workshop, 5-9th September 2016, University of Cape Town, South Africa.
- Targeting microRNAs for myocardial repair. World congress of World Society of Cardiothoracic Surgeons and Annual SA Heart meeting, 10 September 2016, University of Cape Town, South Africa.
- Targeting myocardial repair. Gangzhou university, 18th October, 2016, Gangzhou, China.
- Targeting therapeutics for myocardial repair; exosomes and miRNAs. Shanghai university, 20th October, 2016, Shanghai, China.
- Targeting miRNAs for myocardial repair. China International Heart Failure 21-23th October, 2016. Nanjing, China.
- Patching up damaged hearts. Connecting U symposium "Engineered tissues & organs" Monday 24th October 2016, Utrecht, the Netherlands.

2017

- Extracellular vesicles in cardiac injury and repair, Semmelweis Researchers' Salon , Budapest - 7 Feb 2017
- Pleisters voor het hart, Middelbare school Parelhoen, Amersfoort, 2017
- Praten stamcellen met het falende hart, Utrecht, 2017.
- RegMed meeting NHH: "Targeting cardiac repair - falling back to move forward", Utrecht, June 2017.
- Cell (-derived) transplantation therapy, did we give up already?, Utrecht, CVON June 2017.
- 3D tissue printing for myocardial repair, Cardiac tissue engineering, TERMIS-EU 2017, Davos, June 2017.
- Cardiac regeneration and repair: how to get it from bench to bedside? Session: Biomaterials and tissue engineering strategies for myocardial regeneration. ESC2017, Barcelona.
- Extra cellular vesicles as biomarkers and novel therapeutic targets. Dissecting the secretome in the "omics" era. ESC2017, Barcelona.
- Targeting cardiac repair. Cell-Based Therapies for the FIGON Dutch Medicine Days, October 2017, Ede.
- Extra cellular vesicles as biomarkers and novel therapeutic targets, Kick-off meeting Netherlands Society for Extracellular Vesicles (NLSEV), 17 Nov 2017, Utrecht.
- 3D iPS models and nanomedicine, November 30th, Techniques and Technologies symposium, Hubrecht.
- Intercellular Communication in het hart, December 12th 2017, Coimbra, Portugal.

2018

- Extra cellular vesicles as biomarkers and novel therapeutic targets for myocardial infarction, 4th March 2018, Tel Aviv, Israel.
- Targeting cardiac repair - "falling back to move forward", TECHNOBEAT Satellite Meeting at Weizmann Institute 5th March 2018, Tel Aviv, Israel.
- Advancing biofabrication strategies for myocardial repair, 16th Dutch-German Joint Meeting of the Molecular Cardiology Working Groups, VU University medical center, 17th March 2018
- Extracellular vesicles as novel therapeutics in CV diseases, 22th April 2018, FCVB, Vienna, Austria.
- Herstel van hartspierdefecten, wat brengt de toekomst ons? Landelijke dag Erfelijke Hartaandoeningen April, 2018, Utrecht.
- Therapeutics for myocardial injury - how to move forward? Kick-Off meeting SFB/TRR219, Frankfurt, 4 May 2018
- Lost in translation: the crisis of reproducibility in pre-clinical cardiovascular research. ESC annual congress, Munich, 2018
- Exosomes: new players in cardiovascular disease. ESC annual congress, Munich, 2018

2019

- Extracellular vesicle-inspired cardiac repair, 24thJan 2019, Salzburg, Austria.
- Advancing therapeutics for myocardial repair - how to move forward? Imperial College, London, 11th Feb 2019.
- Advancing therapeutics for myocardial repair - how to move forward? Nederlandse Vereniging voor Gen- en Celtherapie, 7 mrt 2019, Lunteren, Nederland
- Extracellular vesicles in cardiac injury and repair. Workshop for H2020 grant INTRICARE, 20 mrt 2019, Maastricht.
- ESC Summerschool: Extracellular vesicles for diagnostics and therapeutics: where do we stand? Thursday 20 Jun 2019, Nice, France.
- Challenges: Delivering extracellular vesicles to the injured heart, ESC annual congress, Paris, 2019
- Advancing myocardial repair, do we need the cells? 2nd Cologne Conference on Cardiac Regeneration and Cell Therapy, Sept 26-27 2019, Cologne, Germany
- Advancing Therapeutic Application of Extracellular Vesicles for Myocardial Repair -did we learn? - 250-year anniversary, Semmelweis symposium, Wed 6th Nov 2019, Budapest.
- Advancing Therapeutic Application of Extracellular Vesicles for Myocardial Repair -did we learn?- 20th Nov 2019, Shanghai, China.
- Optimisation of cellular retention. Hannover, December 3rd -4th, 2019

2020

- Tissue engineering and cell-based therapies for cardiac repair in ischemic heart disease and heart failure. Jaarsymposium Cardiologie. 9th January, de Munt, Utrecht.
- Cardiac progenitor cell-derived exosomes as cell-free therapeutic for cardiac repair. The Hatter Cardiovascular Institute Scientific Meeting on Exosomes- From engineering to application. Friday 31st January, 2020, UCL, London.
- Cardiac RM- what to do after the hype? AstraZeneca scientific session, 4 Sept 2020.

2021

- Exosomes - what are they and how can they benefit ischaemic heart disease? ESC Working Group on Cellular Biology of the Heart webinar, 23 February 2021.

- Secreted extracellular vesicles for cardiovascular repair - Cardiac regeneration. Dutch-German meeting 12th March 2021, Mannheim online.
- Advancing therapeutics for myocardial repair how to move forward? MDR national colloquium 7th July, online.
- Extracellular vesicles to induce cardiac tissue repair. Engineering extracellular vesicles for Heart, Lung, Blood, and Sleep diseases, September 16-17th 2021, Session 4, HLBS/NIH, online.
- Advancing therapeutics for myocardial repair; how to move forward? 10th Hongqiao International Medical Forum, China, 23-25th September 2021, online.
- Extracellular vesicles as a therapeutic tool in cardiovascular disease, Virtual EASD 2021 Congress, 1st October 2021, online.
- Gene therapy to induce myocardial repair – 1st platform meeting Gene therapy in UMCU, 19th November, Utrecht.

2022

- Extracellular Vesicles as a novel approach to induce cardiac repair, Session II: Cell characterization and communication, 3rd International Symposium on “New mechanistic insights into aortic diseases, Bonn (Germany) 23 March 2022.
- Extracellular vesicle subtypes for therapeutic application: challenges to overcome. Session: Extracellular vesicles for cardiovascular therapy: where do we stand? ESC Frontiers in CardioVascular Biomedicine (FCVB) 2022, 30th April 2022, Budapest.
- Extracellular vesicles in myocardial repair. Session: Paracrine communication: exosomes and beyond, ESC annual congress, 26th Aug 2022, Barcelona.
- Advancing cellular therapeutics for myocardial repair- from bioprinting to cellular secretions, ICGEB International Seminar programme, 8th Nov 2022, Trieste, Italy.

2023

- Advancing cellular therapeutics for myocardial repair - from bioprinting to cellular secretions. International Webinars on Topics on Cell and Tissue Engineering (CTEng), May 26th 2023, Aveiro.
- Advancing extracellular vesicles for myocardial repair. 3rd EVIta Symposium, Italian Society of Extracellular Vesicles, 13-15th Sept 2023, Urbino, Italy.
- Extracellular vesicle subtypes for cardiac therapeutic application: challenges to overcome. American Association of Extracellular Vesicles (AAEV) Annual Meeting, 27-29th Oct 2023, Boston, USA.

2024

- Advancing cellular therapeutics for myocardial repair - from bioprinting to cellular secretions. CSForum bijeenkomst, 26th January, Amsterdam, the Netherlands.
- How to replace failing organs? Regenerative medicine as building blocks for the future. Nationaal Bootcongres, Innovatie – toekomst perspectieven, Thursday 7th March, Tivoli, Utrecht
- Mechanisms of novel therapeutics. Dutch-German Joint Meeting (DGJM) of Molecular Cardiology Working Groups, March 14-16, 2024, Groningen, the Netherlands.
- Cardiac regeneration, VECTOR Utrecht, 25th March, Utrecht, the Netherlands
- Unloading the heart to reverse maladaptive remodelling, Bed to bench and back: novel insights and strategies in cardiac remodelling. Frontiers in CardioVascular Biomedicine (FCVB) 12-14th April 2024, Amsterdam, The Netherlands.
- Extracellular vesicle subtypes for therapeutic application: challenges to overcome, Targeted delivery of therapeutic agents to the heart - challenges and perspectives. Frontiers in CardioVascular Biomedicine (FCVB) 12-14th April 2024, Amsterdam, The Netherlands.

- Advancing cellular therapeutics for myocardial repair - from bioprinting to cellular secretions. International Seminar Series, Centro Cardiologica Monzino, 6th June, Milan, Italy.
- Role of cardiac stromal cells in cardiac fibrosis development - Extracellular vesicles at the heart of intercellular communication. International Society for Heart research, 11-14th June 2024, Toulouse, France.
- Extracellular Vesicle Subtypes for Cardiac Therapeutic Application - Extracellular Vesicles Gordon Research Conference, 28 Jul – 2 Aug, Newry, Maine, USA.
- Advancing Heart Failure Therapies - relevant models for better outcome prediction - , Beyond Animal Testing in Biomedical Science, 27th Sept 2024, Utrecht.
- Bridging innovative strategies to induce heart repair; Extracellular Vesicles, tissue engineering and cardiac unloading, 29th Oct, Shanghai University, China.
- New gene delivery approaches for cardiac repair, Key note presentation OUTREACH consortium meeting 14th November 2024, Utrecht.
- Bridging Innovations to induce Heart Repair. Site visit NLHI, 27th November 2024, Utrecht.
- Bridging Innovations to induce Heart Repair. Economic mission Life Science & Health UK, 2-5 December 2024, London, UK.

Papers and abstracts

Peer review publications (271; 25 as first author, 62 as senior). H-factor of 65 and 13067 citations (Google Scholar: 77 and 20501 citations)