

# CARIM MIDTERM

## REVIEW

**2019**



**2021**



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2019



2021

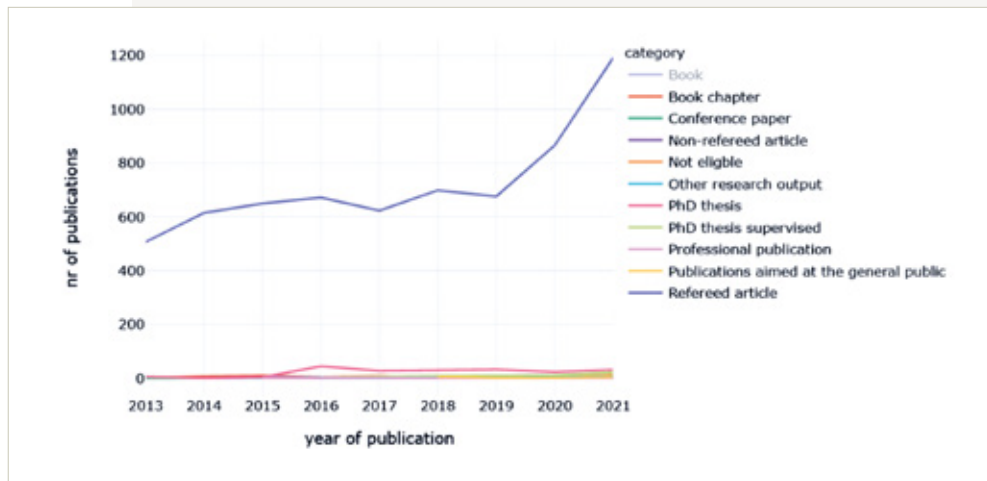


# ANNEX 1 Factual evidence

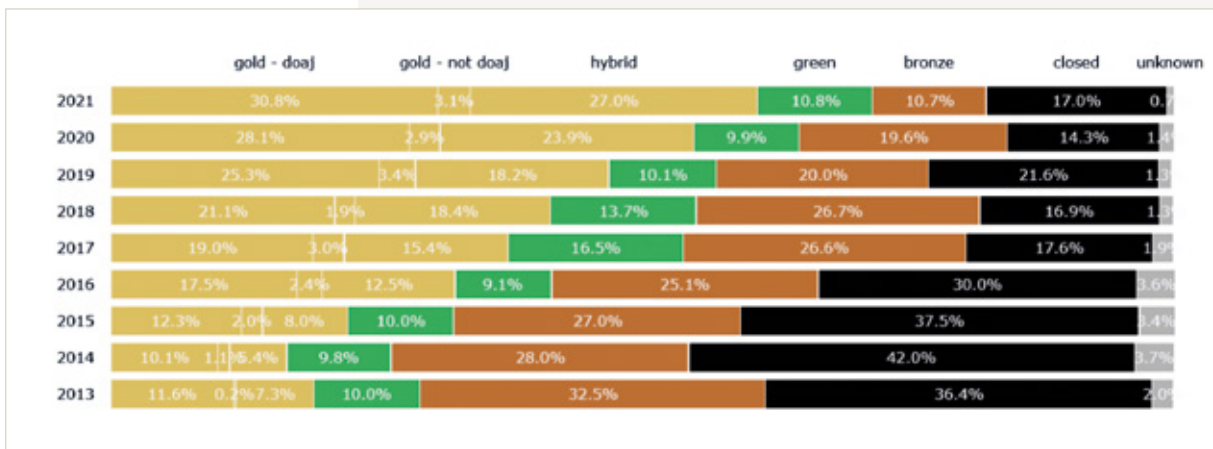
## Research quality

SEP TYPES	COUNTS
Refereed article	2733
PhD thesis	136
Not eligible	31
Other research output	21
Conference paper	18
Non-refereed article	10
Book chapter	7

**TABLE 1** Research output CARIM 2019-2021 divided by SEP document types. The type 'not eligible' covers publication types that are not mapped from PURE types to SEP types, such as corrigenda/errata/retractions, book editings, and more depending on the metadata of the input.



**FIGURE 1** Document types (SEP) of CARIM 2013-2021 by year



**FIGURE 2** Open Access status of peer-reviewed publications of CARIM 2013-2021

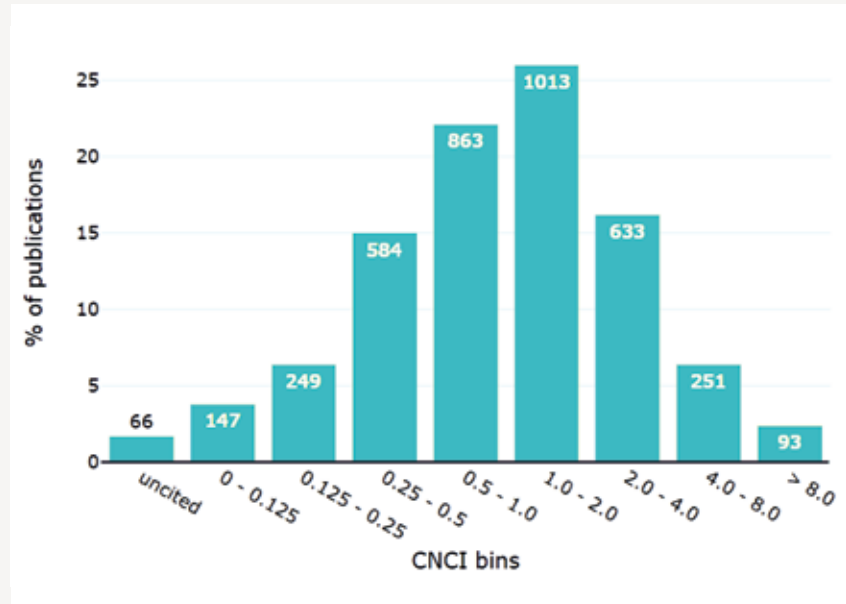


FIGURE 3 CNCI boxplot CARIM 2013-2019

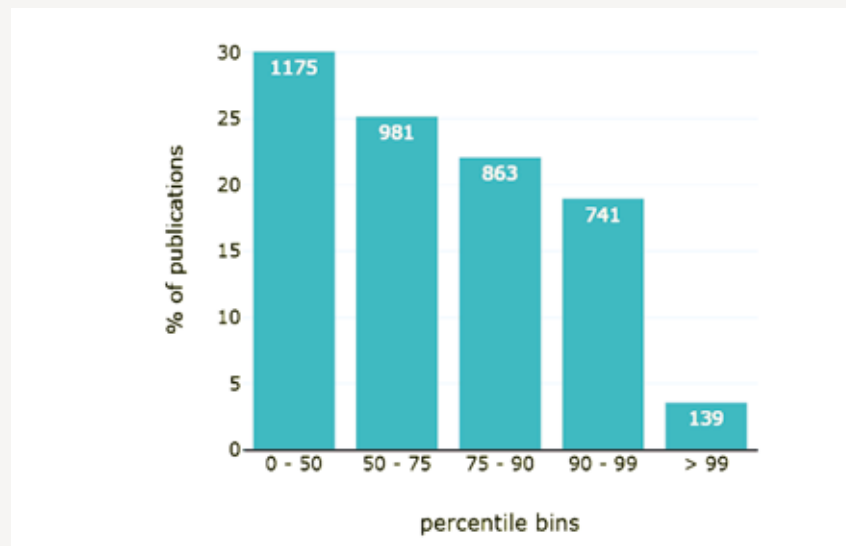


FIGURE 4 Percentile in subject area CARIM 2013-2019

TABLE 2 Number of publications and citation impact per research line and CARIM total for 2019. Please note that publications can be authored by authors from multiple research lines, and therefore the sum of publications for CARIM is less than the sum of publications from all research lines.

	NUMBER OF DOCUMENTS	AVERAGE CNCI	NUMBERS OF PAPERS IN TOP 1%	NUMBERS OF PAPERS IN TOP 10%	PERCENTAGE OF PAPERS IN TOP 1%	PERCENTAGE OF PAPERS IN TOP 10%
Blood	233	1.9	8	64	3.4	27.5
Heart	174	2.4	10	47	5.7	27.0
Vessels	206	2.0	11	39	5.3	18.9
<b>CARIM total</b>	<b>570</b>	<b>2.1</b>	<b>26</b>	<b>136</b>	<b>4.6</b>	<b>23.9</b>

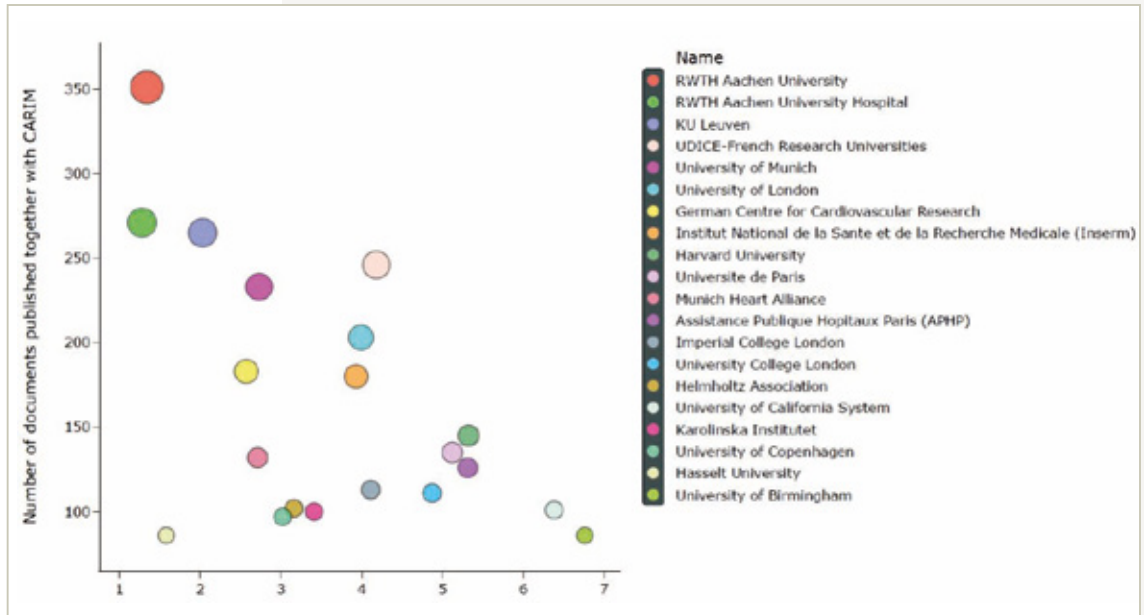


FIGURE 5 Number of documents and CNCI of CARIM's most frequent international collaborations 2013-2019

TABLE 3 Research grants awarded to individuals

RESEARCHER	DIVISION	TYPE	ORGANISATION	YEAR
Rachel ter Bekke	Heart	Veni	NWO	2019
Alma Mingels	Blood	Veni	NWO	2019
Judith Sluimer	Blood	Aspasia	NWO	2019
Stijn Agten	Blood	Dr Dekker Postdoc	Dutch Heart Foundation	2019
Miranda Nabben	Heart	Dr Dekker Postdoc	Dutch Heart Foundation	2019
Marleen van Greevenbroek	Vessels	Sanofi European Diabetes Research Programme	EFSD	2019
Kristiaan Wouters	Vessels	Sanofi European Diabetes Research Programme	EFSD	2019
Dorien Kimenai	Blood	Kootstra Talent Fellowship	FHML	2019
Stepan Denisov	Blood	Kootstra Talent Fellowship	FHML	2019
Jordi Heijman	Heart	Vidi	NWO	2020
Vanessa van Empel	Heart	Aspasia	NWO	2020
Pieter Goossens	Blood	Dr Dekker Senior Scientist	Dutch Heart Foundation	2020
Constance Baaten	Blood	Dr Dekker Postdoc	Dutch Heart Foundation	2020
Miranda Nabben	Heart	Off Road	ZonMw	2020
Magdolna Nagy	Blood	Young investigator grant	CONTRAST YTP	2020
Federica de Majo	Heart	Kootstra Talent Fellowship	FHML	2020
Uyen Nguyen	Heart	Dr Dekker Clinical Scientist	Dutch Heart Foundation	2021
Martijn Hoes	Heart	Dr Dekker Postdoc	Dutch Heart Foundation	2021
Magdolna Nagy	Blood	Dr Dekker Postdoc (pending)	Dutch Heart Foundation	2021
Stepan Denisov	Blood	Rubicon	NWO	2021
Thomas van Sloten	Vessels	Postdoc fellowship	Dutch Diabetes Research Foundation	2021
Philippe Vangrieken	Vessels	Postdoc fellowship	Dutch Diabetes Research Foundation	2021
Leon Schurgers	Blood	PhD project	Dutch Thrombosis Foundation	2021
Rory Koenen	Blood	PhD project	Dutch Thrombosis Foundation	2021
Dizar Ali Keder	Blood	MSCA Individual Fellowship	European Commission	2021
Sabine Daemen	Vessels	MSCA Individual Fellowship	European Commission	2021
Justin Luermans	Heart	Efficiency Studies	ZonMw	2021

**TABLE 4A** Grants awarded to major collaborative research projects (European)

RESEARCHER	TITLE	ACRONYM	CALL	YEAR
Uli Schotten	Restoring cardiac mechanical function by polymeric artificial muscular tissue	REPAIR	FETPROACT-EIC-05-2019 (RIA)	2019
Frits Prinzen	Integrated silicon photonics for Cardiovascular Disease monitoring	InSiDe	ICT-05-2019 (IA)	2019
Uli Schotten	Personalized Therapies for Atrial Fibrillation. A Translational Approach	PersonalizeAF	MSCA-ITN-2019 (MSCA-ITN-ETN)	2019
Joost Lumens	MARie Curie Intelligent UltraSound	MARCIUS	MSCA-ITN-2019 (MSCA-ITN-EID)	2019
Paul Volders	INnovation in Safety Pharmacology for Integrated cardiovascular safety assessment to REduce adverse events and late stage drug attrition	INSPIRE	MSCA-ITN-2019 (MSCA-ITN-ETN)	2019
Thomas Unger/ Koen Reesink	Mechanistic Integration of vascular aND endocrine pathways for Subtyping Hypertension: an Innovative network approach for Future generation research Training	MINDSHIFT	H2020-MSCA-ITN-2020	2020
Paul Volders	A prospective European Validation cohort for stereotactic therapy of re-entrant tachycardia	STOPSTORM	H2020-SC1-2020-Two-Stage-RTD	2020
Arnoud van 't Hof	Rituximab in patients with acute myocardial infarction: a phase 2 placebo-controlled randomised clinical trial	RITA-MI 2	H2020-SC1-2020-Two-Stage-RTD	2020
Uli Schotten	Machine Learning and Artificial intelligence for Early detection of Stroke and Atrial Fibrillation	MAESTRIA	H2020-SC1- BHC-06-2020	2020
Leon de Windt	RESEArch for healThy AGEING	RESETageing	H2020-WIDESPREAD2020-5	2020
Dominik Linz	Addressing multimorbidity in elderly atrial fibrillation patients through interdisciplinary, tailored, patient entered care pathways	EHRA - PATHS	H2020-SC1-BHC-2018-2020	2020
Leon de Windt	A diagnostic test to improve surveillance and care of COVID-19 patients	COVIRNA	H2020-SC1-PHE-CORONAVIRUS2020-2-CNECT	2020
Bastiaan de Galan	Mobile Artificial Intelligence Solution for Diabetes Adaptive Care	MELISSA	HORIZON-HLTH-2021-DISEASE-04	2021

TABLE 4B Grants awarded to major collaborative research projects (other)

RESEARCHER(S)	TYPE	ORGANISATION	YEAR
Harry Crijns, Nikki Pluymaekers and Dominik Linz	HEART FOR SUSTAINABLE CARE' GRANT RACE 9	IMDI and DCVA	2019
Emma Robinson	RECONNECT	CVON	2019
Marleen van Greevenbroek	INTIMIC grant	JPI HDHL	2019
Casper Schalkwijk	INTIMIC grant	JPI HDHL	2019
The Maastricht Study	funding	Province of Limburg & MUMC+	2020
Hans-Peter Brunner-La Rocca	IMDI grant	ZonMw	2020
Stephane Heymans	Double Dose	CVON	2020
Vanessa van Empel	IMPRESS	DCVA	2020
Simone Eussen	IIG	WCRF	2020
Maarten Snoeijis	ZE&GG	ZonMw	2020
Marc Hemmelder	COVID-19 Urgente Onderzoeksvragen Traject Vaccinstudies	ZonMw	2021
Chahinda Ghossein	COVID-19 programme	ZonMw	2021
Arnoud van t Hof	Education grant	EIT Health	2021

TABLE 5 Prestigious scientific awards and prizes

RESEARCHER(S)	PRIZE	ORGANISATION	YEAR
Matthijs Cluitmans	2018 Philips Research Outstanding Achievement Award	Philips Research	2019
Harry Struijker-Boudier	Dr. Saal van Zwanenberg Ereprijs	Royal Dutch Society of Sciences	2019
Roberto Lorusso	Centre of Excellence (Gold) Award	Extracorporeal Life Support Organisation	2019
Coen Hemker	Tans Medal	Maastricht University	2019
Harry Crijns	Knight in the Order of the Netherlands Lion		2020
Hugo ten Cate	Jordan Prize	FNT	2020
MR CLEAN	Winkler Medal	Dutch Neurology Society	2020
Dorith Claushuis	Professor Heimbürger Award	CSL Behring	2020
Estelle Nijssen	Frederik Philips Prize 2020	Dutch Society for Radiology (NVvR)	2020
Michiel Henkens	Pélerin audience award	Pélerin	2020
Rob Holtackers	Magna Cum Laude award	ESCR	2020
Mohamed Ghossein	Pélerin prize	Pélerin	2021

TABLE 6 Invited plenary lectures at international conferences

	RESEARCHER (DIVISION)	TITLE	EVENT
2019	■ Blanche Schroen (Heart)	What is HFpEF?	AHA
	■ Boy Houben (Vessels)	Microvascular dysfunction and small vessel disease of the brain	ECCR 2019 - Venice, Italy
	■ Casper Schalkwijk (Vessels)	Methylglyoxal as a mediator of insulin resistance	European Association for the Study of Diabetes (EASD) - Barcelona, Spain
	■ Eline Kooi (Blood)	Imaging of plaque inflammation and neovascularization	International Stroke Conference American Heart Association - Honolulu, United States
	■ Hans-Peter Brunner-La Rocca (Heart)	Mobile health in heart failure - What do we already know?	ESC - Paris, France
	■ Joachim Wildberger (Blood)	Clear direction in CT: advanced efficiencies for better patient care	European Congress of Radiology - Vienna, Austria
	■ Joost Lumens (Heart)	EMPATHY: Electromechanical presages of sudden cardiac death in the young	ERA-CVD conference- Riga, Latvia
	■ Judith Sluimer (Blood)	Single cell sequencing of adventitial mesenchymal cells from healthy mice reveals five differentiation tracks from a common progenitor cluster, and 6 MC-specific genes	Gordon conference 2019 - Newry, ME, USA
	■ Leon Schurgers (Vessels)	Vascular calcification: Innocent bystander or culprit risk factor?	ECTH - Glasgow, UK
	■ Mark Post (Vessels)	Cultured Meat	Stem cell engineering - Barcelona, Spain
	■ Paula da Costa Martins (Heart)	Non-coding RNAs in cardiac hypertrophy and heart disease: miR-200c as a cardiomyocyte-derived microRNA in heart failure	ESC World Congress Cardiology - Paris, France
	■ Roberto Lorusso (Vessels)	Nightmare in mechanical circulatory support - How should we monitor patients in ECLS - Pulmonary artery cannulation	European Association for Cardio-Thoracic Surgery (EACTS), Lisbon, Portugal
	■ Wim van Zwam (Blood)	1. What can be learned from trials 2. Anesthetic management	CIRSE - Barcelona, Spain
2020	■ Arnoud van 't Hof (Heart)	Task Force STEMI	ESC 2021
	■ Barend Mees (Vessels)	ChEVAS versus ChEVAR	Critical Issues - Miami, Amerika
	■ Elisabetta Castoldi (Blood)	Anticoagulant factor V	XXVIII Congress of the International Society on Thrombosis and Haemostasis (ISTH) - Milan, Italy
	■ Erik Biessen (Blood)	Macrophage heterogeneity in cardiovascular diseases	66th Brazilian Congress of Genetics
	■ Joachim Wildberger (Blood)	RPS 615 CT in vascular imaging. Impact on clinical practice of updated guidelines on iodinated contrast material: CINART	European Congress of Radiology - Wenen, Austria
	■ Miranda Nabben (Heart)	Balance of lipids and carbohydrates for optimal cardiac performance	Experimental Biology Conference - San Diego, USA
	■ Stephane Heymans (Heart)	Acute myocarditis: new therapies	ESC congress - online
	■ Uli Schotten (Heart)	Repetitiveness of atrial conduction patterns as determinants of AF stability	Boston AF symposium 2020 - Washington, USA
	■ Andrew Baker (Blood)	Function of non-coding and micro peptide-containing RNA transcripts in vascular repair and regeneration	100th Annual Meeting of the German Physiological Society - Frankfurt, Germany
	■ Coen Stehouwer (Vessels)	Microcirculatory function in cardiometabolic disease	European Society of Vascular Medicine - online
2021	■ Dominik Linz (Heart)	Remote app-based management of atrial fibrillation during the COVID-19: The centre characteristics and experiences of the European TeleCheck-AF project..	EHRA 2021 - online
	■ Eline Kooi (Blood)	Plaque At RISK (PARISK): prospective multicenter study to improve diagnosis of high-risk carotid plaques	Society for Magnetic Resonance Angiography - online
	■ Frits Prinzen (Heart)	Comparative Physiology and Hemodynamics of Stimulation Sites	5th International Physiology of pacing symposium - online
	■ Hugo ten Cate (Blood)	Management of DIC in leukaemia	Annual Meeting of the Society of Thrombosis and Hemostasis Research - online
	■ Jordi Heijman (Heart)	In silico approaches to prevent arrhythmias: personalised model-guided anti arrhythmic therapies and risk assessment	ESC Congress - online
	■ Julie Staals (Blood)	BBB permeability in cerebral small vessel disease	ESOC 2021 - online
	■ Monika Stoll (Blood)	Long non-coding RNAs in atrial fibrillation	36th Annual Meeting ISHR - International Society for Heart Research European Section - online
	■ Roberto Lorusso (Vessels)	ECMO in Post-Cardiotomy Shock	ELSO Annual Meeting - online



TABLE 7 Memberships reviewing boards scientific grants

RESEARCHER (DIVISION)	ORGANISATION	ROLE	PERIOD
<ul style="list-style-type: none"> <li>■ Blanche Schroen (Heart);</li> <li>■ Ed Eringa (Vessels)</li> </ul>	NWO Off Road Committee	Member	2016-present; 2020-present
<ul style="list-style-type: none"> <li>■ Casper Schalkwijk (Vessels)</li> </ul>	Dutch Diabetes Research Foundation	Member Scientific Board	2015-2021
<ul style="list-style-type: none"> <li>■ Coen Stehouwer (Vessels)</li> </ul>	ZonMw TOP committee	Member	2011-2020
<ul style="list-style-type: none"> <li>■ Eline Kooi (Blood)</li> </ul>	Dutch Heart Foundation Dr. E Dekker programme	Member Selection committee	2019-present
<ul style="list-style-type: none"> <li>■ Eline Kooi (Blood)</li> </ul>	NWO Vici committee	Member	2021-present
<ul style="list-style-type: none"> <li>■ Harry Crijns (Heart)</li> </ul>	Dutch Heart Foundation	Chairman WAR	2001-2020
<ul style="list-style-type: none"> <li>■ Henri Spronk (Blood)</li> </ul>	Dutch Association for Thrombosis and Hemostasis (NVTH)	Board member	2018-present
<ul style="list-style-type: none"> <li>■ Ingrid Dijkgraaf (Blood)</li> </ul>	Veni-ENW	Member scientific committee	2017-2019
<ul style="list-style-type: none"> <li>■ Ingrid Dijkgraaf (Blood)</li> </ul>	Royal Netherlands Chemical Society section Pharmacochimistry	Board member	2015-present
<ul style="list-style-type: none"> <li>■ Joost Lumens (Heart);</li> <li>■ Matthijs Cluitmans (Heart);</li> <li>■ Barend Mees (Vessels);</li> <li>■ Judith Sluimer (Blood);</li> <li>■ Chahinda Ghossein (Heart);</li> <li>■ Rogier Veltrop (Blood)</li> </ul>	DCVA Leadership Program	Member	2019-present
<ul style="list-style-type: none"> <li>■ Judith Cosemans (Blood)</li> </ul>	NWO Rubicon committee	Board member	2019-present
<ul style="list-style-type: none"> <li>■ Kevin Vernooij (Heart)</li> </ul>	Dutch Heart foundation Dr. E Dekker Senior Scientist and Clinical senior scientist	Member Selection committee	2020-present
<ul style="list-style-type: none"> <li>■ Leon de Windt (Heart)</li> </ul>	WAR Prinses Beatrix Foundation	Member	2017-present
<ul style="list-style-type: none"> <li>■ Leon de Windt (Heart)</li> </ul>	ERC Synergy grant committee	Member	2017-2020
<ul style="list-style-type: none"> <li>■ Leon Schurgers; Judith Cosemans (Blood)</li> </ul>	Dutch Thrombosis Foundation (TSN)	Member Scientific Advisory Board	2017-2021
<ul style="list-style-type: none"> <li>■ Marjo Donners (Blood)</li> </ul>	Dutch Heart foundation Dr. E Dekker senior (clinical) scientist	Member Selection committee	2019-present
<ul style="list-style-type: none"> <li>■ Mark Post (Vessels)</li> </ul>	Dutch Physioloigcal Society	President	2012-2020
<ul style="list-style-type: none"> <li>■ Martijn Hoes</li> </ul>	Young@Heart (DVCA)	Board member	2019-present
<ul style="list-style-type: none"> <li>■ Michiel Henkens (Heart)</li> </ul>	Heart Tissue Bank	Coordinator	2021-present
<ul style="list-style-type: none"> <li>■ Miranda Nabben (Heart);</li> <li>■ Stijn Agten (Blood);</li> <li>■ Jordi Heijman (Heart);</li> <li>■ Joost Lumens (Heart);</li> <li>■ Bas Boukens (Heart);</li> <li>■ Judith Sluimer (Blood)</li> </ul>	Young@Heart (DVCA)	Scientific Council member	2021-present
<ul style="list-style-type: none"> <li>■ Monika Stoll (Blood)</li> </ul>	ERC Synergy Grants	External reviewer	2021
<ul style="list-style-type: none"> <li>■ Paula da Costa Martins (Heart)</li> </ul>	Review committee NWO (ALW and Rubicon Life Sciences)	Member	2014-present/2015-present
<ul style="list-style-type: none"> <li>■ Robert van Oostenbrugge (Blood)</li> </ul>	Dutch Brain Foundation	Lid Adviesraad voor Wetenschap en Innovatie	2015-present
<ul style="list-style-type: none"> <li>■ Robert van Oostenbrugge (Blood)</li> </ul>	Dutch Heart Foundation Dekker committee	Member	2018-2020
<ul style="list-style-type: none"> <li>■ Stephane Heymans (Heart)</li> </ul>	NWO Vidi/Vici committees	Board member	2016-2019/2019-2023
<ul style="list-style-type: none"> <li>■ Tilman Hackeng (Blood)</li> </ul>	WAR Dutch Thrombosis Foundation	Chairman	2018-present
<ul style="list-style-type: none"> <li>■ Tilman Hackeng (Blood);</li> <li>■ Dominik Linz (Heart)</li> </ul>	Health Foundation Limburg	Member Advisory Board	2019-present
<ul style="list-style-type: none"> <li>■ Uli Schotten (Heart)</li> </ul>	ZonMw Vidi committee	Member	2019-2022
<ul style="list-style-type: none"> <li>■ Wim van Zwam (Blood)</li> </ul>	ESC Council on Stroke	Member	2021-present

TABLE 8 Memberships editorial boards

RESEARCHER (DIVISION)	JOURNAL	ROLE	PERIOD
▪ Andrew Baker (Blood)	Cardiovascular Research	Deputy Editor	2018-present
▪ Arnoud van 't Hof (Heart)	European Heart Journal Acute Cardiac Care	Editorial Board	2016-present
▪ Bastiaan de Galan (Vessels)	Diabetologia	Associate editor	2019-present
▪ Coen Stehouwer (Vessels)	Journal of Endocrinology and Metabolism	Editor in Chief	2021-present
▪ Dominik Linz (Heart)	International Journal of Cardiology Heart & Vasculature	Associate Editor & Social Media Editor	2019-present
▪ Dominik Linz (Heart)	Journal of Interventional Cardiac Electrophysiology	Section Editor & Social Media Editor	2018-present
▪ Erik Biessen (Blood)	Cardiovascular Research	Associate editor	2018-present
▪ Hans Peter Brunner-La Rocca (Heart)	EPMA Journal	Associate editor	2015-present
▪ Henri Spronk (Blood)	Res Practice Thromb Hemost	Associate editor	2021-present
▪ Hugo ten Cate (Blood)	Thrombosis Journal	Co-Editor-in-chief	2008-2020
▪ Joost Lumens (Heart)	European Heart Journal - Digital Health	Deputy editor	2020-present
▪ Judith Cosemans (Blood)	Journal of Cellular and Molecular Bioengineering	Associate editor	2018-present
▪ Judith Sluimer (Blood)	Cardiovascular Research	Associate Editor	2018-present
▪ Kevin Vernooij (Heart)	Netherlands Heart Journal	Associate editor	2017-present
▪ Leon de Windt (Heart)	Non-coding RNA Research	Associate Editor	2018 - present
▪ Martijn Brouwers (Vessels)	Journal of Endocrinology and Metabolism; Journal of Endocrinology, Diabetes and Metabolism	Associate Editor	2020-present
▪ Roberto Lorusso (Vessels)	Multi-Media Manual of Cardio-Thoracic Surgery	Editor-in-Chief	2016-present
▪ Tilman Hackeng (Blood)	Thrombosis and Haemostasis	Section editor	2015-present

## Relevance to society

TABLE 9 Patents &gt;&gt;

PATENT	INVENTORS	TITLE	PRIORITY	PUBLICATION
EP1888774A1	Meex Steven J R [Be]; Van Der Kallen Carla J H [NI]; De Bruin Tjerk W A [Us]; Van Greevenbroek Marleen M J [NI]; Vlietinck Robert [Be]; Ayoubi Torik A Y [Be]	Genetic Association Of Polymorphisms In The Atf6-Alpha Gene With Insulin Resistance Phenotypes	23-May-2005	EP1888774A1:2008-02-20
US2008161425A1	Hackeng Tilman M [NI]; Sere Kristin M [NI]; Tans Guido [NI]; Rosing Jan [NI]	Regulation Of Tissue Factor Activity By Protein S And Tissue Factor Pathway Inhibitor	29-Jul-2005	US2008161425A1:2008-07-03
US2009325170A1	Pinto Yigal M [NI]; Creemers Esther E [NI]; Leenders Joost L [NI]	Means And Methods For Diagnosing And/Or Treating A Subject At Risk Of Developing Heart Failure	25-Sep-2006	US2009325170A1:2009-12-31
US2009297612A1	Koole Levinus Hendrik [NI]; Van Hooy-Corstjens Catharina S [NI]	Homogeneous, Intrinsic Radiopaque Embolic Particles	31-Oct-2006	US2009297612A1:2009-12-03
US2009275671A1	Koole Levinus Hendrik [NI]; Van Hooy-Corstjens Catharina Sibilla Josephine [NI]; Slots Tristan Laurens Bert [NI]	Two Component Bone Cement Composition For Vertebroplasty	31-Oct-2006	US2009275671A1:2009-11-05
US2009275671A1	Koole Levinus Hendrik [NI]; Van Hooy-Corstjens Catharina Sibilla Josephine [NI]; Slots Tristan Laurens Bert [NI]	Two Component Bone Cement Composition For Vertebroplasty	31-Oct-2006	US2009275671A1:2009-11-05
WO2009060403A2	Langereis Sander [NI]; Burdinski Dirk [De]; Bevers Edouard M [NI]; Hackeng Tilman M [NI]; Pikkemaat Jeroen A [NI]	Cest Mri Contrast Agents Based On Non-Spherical Particles	7-Nov-2007	WO2009060403A2:2009-05-14
US2010304424A1	Vink Hans [NI]; Stroes Erik Sjoerd Gerard [NI]	Diagnostic And Therapeutic Tools For Diseases Altering Vascular Function	30-Nov-2007	US2010304424A1:2010-12-02
EP2103310A1	Nicolaes Gerardus Anna Franciscus [NI]; Rosing Jan [NI]; Cate Ten Hugo [NI]; Dahlbaeck Bjoern Ulfson [Se]	Method For The Prevention Or Treatment Of Ischemia Reperfusion Injury.	19-Mar-2008	EP2103310A1:2009-09-23
AR071650A1	Vink Hans [NI]; Stroes Erik Sjoerd Gerard [NI]	Uso De Glicosaminoglicano Para Restaurar Glicocalix	4-Apr-2008	AR071650A1:2010-07-07

TABLE 9 Patents &gt;&gt;

PATENT	INVENTORS	TITLE	PRIORITY	PUBLICATION
US201110902A1	De Windt Leon Johannes [NI]; Da Costa Martins Paula Alexandra [NI]	Means And Methods For Counteracting, Delaying And/Or Preventing Heart Disease	16-Jun-2008	US201110902A1-2011-05-12
EP2169059A1	Creemers Esther Elisa Johanna Maria [NI]; Pinto Yigal-Martin [NI]; Duisters Rudy Franciscus Johannes Josephus [NI]	Means And Methods For Counteracting, Preventing And/Or Determining Fibrosis Or A Risk Of Fibrosis	25-Sep-2008	EP2169059A1-2010-03-31
US2012231000A1	Timmerman Peter [NI]; Puijk Wouter C [NI]; Hackeng Tilman M [NI]; Griffioen Arjan W [NI]	Truncated Cystine-Knot Proteins	6-Feb-2009	US2012231000A1-2012-09-13
US2012014876A1	Blankesteyn Wessel Matthijs [NI]; Laeremans Hilde [NI]; Hackeng Tilman Mathias [NI]	Antagonistic Peptides For Frizzled-1 And Frizzled-2	5-Mar-2009	US2012014876A1-2012-01-19
EP2264455A1	Broers Joseph Leonardus Victor [NI]; Houben Frederik [Be]; Ramaekers Franciscus Charles Servatius [NI]; Van Oostveldt Patric Maurice V [Be]; De Vos Winnok Harald [Be]	Method For The Prediction Of The Severity Of Nuclear Envelope-Related Diseases.	19-Jun-2009	EP2264455A1-2010-12-22
US2014357699A1	De Windt Leon Johannes [NI]; El Azzouzi Hamid [NI]	Means And Methods For Counteracting, Delaying And/Or Preventing Adverse Energy Metabolism Switches In Heart Disease	6-Aug-2009	US2014357699A1-2014-12-04
AU2012244071A1	Pinto Yigal M	Method For Identifying A Subject At Risk Of Developing Heart Failure By Determining The Level Of Galectin-3 Or Thrombospondin-2	19-Oct-2009	AU2012244071A1-2012-11-08
US2014162978A1	Nicolaes Gerardus Anna Franciscus [NI]; Reutelingsperger Christiaan Peter Maria [NI]; Hemker Hendrik Coenraad [NI]	Method For The Prevention And Treatment Of Sepsis	14-Jul-2011	US2014162978A1-2014-06-12
US2014296146A1	Hackeng Tilman Mathias [NI]; Suijlen Dennis Peter Leonardo [NI]; Hemker Hendrik Coenraad [NI]; Apitz-Castro Rafael Jesus [Ve]	Thermostable Inhibitors Of Activation Of The Blood Clotting System Through Contact With Foreign Surfaces	23-Aug-2011	BR112014003787A2; EP2748616A1; EP2748616B1; JP2014531413A; JP6491880B2; US2014296146A1; WO2013028069A1
US2014296146A1	Hackeng Tilman Mathias [NI]; Suijlen Dennis Peter Leonardo [NI]; Hemker Hendrik Coenraad [NI]; Apitz-Castro Rafael Jesus [Ve]	Thermostable Inhibitors Of Activation Of The Blood Clotting System Through Contact With Foreign Surfaces	23-Aug-2011	US2014296146A1-2014-10-02
US2015071856A1	Blankesteyn Wessel Matthijs [NI]; Laeremans Hilde [NI]; Hackeng Tilman Mathias [NI]	Antagonistic Peptides For Frizzled-1 And Frizzled-2	23-Sep-2011	US2015071856A1-2015-03-12
EP2634576A1	Balk Jiska Mirjam [NI]; Bast Aalt [NI]; Haenen Guido Rembertus Michiel Marie [NI]	Method For The Preparation Of A Dry Composition Comprising A Stable Abts Radical	1-Mar-2012	EP2634576A1-2013-09-04
WO2013128015A1	Balk Jiska Mirjam [NI]; Bast Aalt [NI]; Haenen Guido Rembertus Michiel Marie [NI]; Bremer Leonardus Gerardus Bernardus [NI]; Rusu Mihaela [NI]; Lourette Natacha Madeleine Germaine [NI]	Method For The Preparation Of A Dry Composition Comprising A Stable Abts Radical.	1-Mar-2012	WO2013128015A1-2013-09-06
US2015190370A1	Lutgens Esther [De]; Weber Christian [De]; Nicolaes Gerry [NI]	Inhibitors Of Cd40-Traf6 Interaction	27-Aug-2012	US2015190370A1-2015-07-09
WO2014191466A1	Vermeer Cees [NI]	Menaquinone Supplementation And Vascular Health	28-May-2013	WO2014191466A1-2014-12-04
WO2016146455A1	Windt De Leon Johannes [NI]; Dirkx Ellen [NI]	Method For The Treatment Or Prevention Of Eating Disorders, Overweight Or Obesity	18-Mar-2015	WO2016146455A1-2016-09-22
US2018169135A1	Van Heurn Lodewijk Willem Ernest [NI]; Nicolaes Gerardus Anna Franciscus [NI]; Reutelingsperger Christiaan Peter Maria [NI]; Van Smaalen Tim Christian [NI]	Method For Preventing Transplant Failure In A Host	11-Jun-2015	US2018169135A1-2018-06-21
US2018214475A1	De Windt Leon Johannes [NI]; Dirkx Ellen [NI]; Giacca Mauro [It]	Micrnas For The Treatment Of Heart Diseases	1-Sep-2015	US2018214475A1-2018-08-02
WO2017077062A1	Söhnlein Oliver [De]; Weber Christian [De]; Nicolaes Gerry [NI]	A Peptide Derived From Human Neutrophile Peptide 1	5-Nov-2015	WO2017077062A1-2017-05-11
EP3384275A2	Verdoold Remco [NI]; Witt De Susanne [NI]; Cosemans Judith [NI]; Heemskerk Johan [NI]	Method For Determining Haemostasis Under Shear	2-Dec-2015	EP3384275A2-2018-10-10
US10272248B2	Engels Elien B [NI]; Vernooy Kevin [NI]; Aranda Hernandez Alfonso [NI]; Prinzen Frits W [NI]; Gillberg Jeffrey M [Us]	Electrogram-Based Control Of Cardiac Resynchronization Therapy	31-May-2016	US10272248B2-2019-04-30
US2019162737A1	Karl Johann [De]; Kastner Peter [De]; Latini Roberto [It]; Masson Serge [It]; Wienhues-Thelen Ursula-Henrike [De]; Ziegler Andre [Ch]; Dietrich Manuel [De]; Schotten Ulrich [De]; Rolny Vincent [De]	Circulating Esm-1 (Endocan) In The Assessment Of Atrial Fibrillation And/ Or Stroke	4-Aug-2016	US2019162737A1-2019-05-30

TABLE 9 Patents

PATENT	INVENTORS	TITLE	PRIORITY	PUBLICATION
US10993820B2	Wittens Cornelis Hendrikus Anna [NI]	Stent For Implant Within A Vein	30-Dec-2016	US10993820B2-2021-05-04
WO2018167059A1	Sardari Nia Peyman [NI]	A Transapical Heart Port For Insertion Into A Heart Of A Human Or An Animal Subject	13-Mar-2017	WO2018167059A1-2018-09-20
US2020116708A1	Karl Johann [De]; Kastner Peter [De]; Rolny Vinzent [De]; Wienhues-Thelen Ursula-Henrike [De]; Dietrich Manuel [De]; Ziegler Andre [Ch]; Schotten Ulrich [De]	Fatty Acid Binding Protein 3 For The Assessment Of Atrial Fibrillation (Af)	13-Jun-2017	US2020116708A1-2020-04-16
WO2019122127A1	Nicolaes Gerardus Anna Franciscus [NI]; Söhnlein Oliver [De]; Silvestre-Roig Carlos [De]; Wichapong Kanin [NI]	Means And Methods For Treating Inflammation	22-Dec-2017	WO2019122127A1-2019-06-27
US2021205409A1	Wolfs Tim Guillaume Anna Marie [NI]; Reuteingsperger Christiaan Peter Maria [NI]	Method For The Treatment Of Hypoxic-Ischemic Encephalopathy In Newborns	12-Jun-2018	US2021205409A1-2021-07-08
US2021156875A1	Karl Johann [De]; Kastner Peter [De]; Latini Roberto [It]; Rolny Vinzent [De]; Wienhues-Thelen Ursula-Henrike [De]; Ziegler Andre [Ch]; Dietrich Manuel [De]; Meessen Jennifer [It]; Schotten Ulrich [De]	Circulating Dkk3 (Dickkopf-Related Protein 3) In The Assessment Of Atrial Fibrillation	31-Jul-2018	US2021156875A1-2021-05-27
US2021172962A1	Dietrich Manuel [De]; Kastner Peter [De]; Rolny Vinzent [De]; Schotten Ulrich [NI]; Wienhues-Thelen Ursula-Henrike [De]; Ziegler Andre [Ch]	Ces-2 (Carboxylesterase-2) For The Assessment Of Afib Related Stroke	10-Aug-2018	US2021172962A1-2021-06-10
US2021181211A1	Kastner Peter [De]; Ziegler Andre [Ch]; Wienhues-Thelen Ursula-Henrike [De]; Rolny Vinzent [De]; Dietrich Manuel [De]; Schotten Ulrich [De]	Circulating Tfp1-2 (Tissue Factor Pathway Inhibitor 2) In The Assessment Of Atrial Fibrillation And Anticoagulation Therapy	16-Aug-2018	US2021181211A1-2021-06-17
US2021190801A1	Karl Johann [De]; Kastner Peter [De]; Wienhues-Thelen Ursula-Henrike [De]; Dietrich Manuel [De]; Ziegler Andre [Ch]; Schotten Ulrich [NI]	Circulating Bmp10 (Bone Morphogenic Protein 10) In The Assessment Of Atrial Fibrillation	17-Aug-2018	US2021190801A1-2021-06-24
US2021215716A1	Kastner Peter [De]; Dietrich Manuel [De]; Ziegler André [Ch]; Wienhues-Thelen Ursula-Henrike [De]; Rolny Vinzent [De]; Schotten Ulrich [De]	Circulating Spon-1 (Spondin-1) In The Assessment Of Atrial Fibrillation	22-Aug-2018	US2021215716A1-2021-07-15
US2021239712A1	Kastner Peter [De]; Ziegler Andre [Ch]; Wienhues-Thelen Ursula-Henrike [De]; Rolny Vinzent [De]; Dietrich Manuel [De]; Schotten Ulrich [De]	Circulating Fgfbp-1 (Fibroblast Growth Factor-Binding Protein 1) In The Assessment Of Atrial Fibrillation And For The Prediction Of Stroke	24-Aug-2018	US2021239712A1-2021-08-05
WO2020104462A1	Gelsomino Sandro [NI]	Ablation Catheter And Ablation Device Comprising Such An Ablation Catheter	19-Nov-2018	WO2020104462A1-2020-05-28
EP3656414A1	Lorusso Roberto [NI]	A Venous Cannula For Use In A Cardiopulmonary Bypass Or Extra-Corporeal Membrane Oxygenation System	20-Nov-2018	EP3656414A1-2020-05-27
WO2020104681A1	Ranjbar Saeed [Ir]; Sardari Nia Peyman [NI] Ranjbar, Saeed; Sardari Nia, Peyman	Echocardiography Image Data Processing System	22-Nov-2018	WO2020104681A1-2020-05-28
US2021161457A1	Jurak Pavel [Cz]; Halamek Josef [Cz]; Viscor Ivo [Cz]; Plesinger Filip [Cz]; Vondra Vlastimil [Cz]; Smisek Radovan [Cz]; Leinveber Pavel [Cz]; Matejkova Magdalena [Sk]; Lipoldova Jolana [Cz]; Novak Miroslav [Cz]; Curila Karol [Cz]; Vesela Jana [Cz]; Prinzen Frits W [NI]; Nekuda Ivo [Cz]; Nekuda Vit [Cz]	Method Of Electrocardiographic Signal Processing And Apparatus For Performing The Method	29-Nov-2019	US2021161457A1-2021-06-03
WO2021165465A1	Engel Alfred [De]; Gerg Michael [De]; Jucknischke Ute [De]; Karl Johann [De]; Kastner Peter [De]; Meier Thomas [De]; Hillringhaus Lars [De]; Schotten Ulrich [NI]; Rolny Vinzent [De]; Wienhues-Thelen Ursula-Henrike [De]; Ziegler Andre [Ch]; Latini Roberto [It]; Meessen Jennifer Marie Theresia Anna [It]	Detection Method Of Circulating Bmp10 (Bone Morphogenetic Protein 10)	20-Feb-2020	WO2021165465A1-2021-08-26
WO2021185976A1	Kastner Peter [De]; Rolny Vinzent [De]; Wienhues-Thelen Ursula-Henrike [De]; Ziegler André [Ch]; Dietrich Manuel [De]; Schotten Ulrich [De]	Ret (Rearranged During Transfection) For The Assessment Of Stroke	18-Mar-2020	WO2021185976A1-2021-09-23
WO2021209465A1	Nicolaes Gerardus Anna Franciscus [NI]; Wichapong Kanin [NI]; Söhnlein Oliver [NI]	Peptide For The Treatment Of Net-Associated Diseases	14-Apr-2020	WO2021209465A1-2021-10-21

TABLE 10 Spin-off companies

COMPANY NAME	TOPIC	INVOLVED RESEARCHER(S)/ DIVISION(S)	YEAR FOUNDED
Pharma Target BV	Molecular imaging and the Annexin A5 technology	▪ Chris Reutelingsperger (Vessels)	2002
ACS Biomarker BV	Biomarker discovery and validation services	▪ Tilman Hackeng (Blood)	2007
FABPulous	Develops ultra-rapid point-of-care diagnostic tests, which can be used in the first line medical care for the determination of acute tissue injury	▪ Jan Glatz (Heart)	2008
Synapse	(patho-)physiology of haemostasis and thrombosis	▪ Bas de Laat (Blood)	2009
Glycocheck BV	Unique software platform to detect, measure and monitor online the Glycocalyx layer under the tongue	▪ Hans Vink (Heart)	2010
MirNext BV	Develops prognostic microRNA biomarkers for heart failure	▪ Tilman Hackeng (Blood)	2012
Matisse Pharmaceuticals BV	New potential pharmacological treatment of sepsis	▪ Gerry Nicolaes; ▪ Chris Reutelingsperger (Blood)	2014
Mirabilis BV	Drug development company dedicated to the discovery and development of innovative products in the field of cardiovascular diseases	▪ Leon de Windt (Heart)	2015
Qorium BV	Develops leather through culturing bovine skin cells	▪ Mark Post (Vessels)	2015
C2T	Technological platforms based on tissue engineering principles	▪ Mark Post (Vessels)	2016
MosaMeat	Cultured meat	▪ Mark Post (Vessels)	2016
YourRhythmic	Develops hard- and software solutions for non-invasive characterisation of cardiac electrical activity	▪ Uli Schotten (Heart)	2016
FlowChamber	Assesses blood platelet function and coagulation status at the same time under physiological circumstances	▪ Johan Heemskerk (Blood)	2017
Cartesio Therapeutics Inc.	Develop small molecule inhibitors more specifically targeting vascular inflammation without side effects	▪ Gerry Nicolaes; ▪ Christian Weber (Blood)	2018
Coagulation Profile	Wide variety of assays to assess the 'Coagulation Profile' of a person	▪ Hugo ten Cate; Leon Schurgers; ▪ Henri Spronk; Rene van Oerle; ▪ Stella Thomassen; ▪ Tilman Hackeng (Blood)	2018
Venous Stent	Therapeutics	▪ Cees Wittens (Vessels)	2019

## ANNEX 2 Research staff, funding and the duration/ success rates of the PhD programme

**Table Research staff (at School and Division level)**

**TABLE 1A** Research staff on school level

	2016		2017		2018		2019		2020		2021	
SCHOOL	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte
Scientific staff FHML (1)	72	29.4	73	29.5	70	28.5	65	26.0	74	28.1	78	31.2
Scientific staff academic hospital	36	13.8	33	13.3	30	12.0	31	8.9	28	8.1	21	7.2
Postdocs (2)	46	35.2	38	29.7	37	28.0	37	26.3	35	23.1	37	25.1
Internal PhD candidates (3)	90	84.2	97	94.4	103	101.3	89	87.3	97	96.3	101	100.3
<b>Total research staff</b>	<b>244</b>	<b>162.5</b>	<b>241</b>	<b>166.9</b>	<b>240</b>	<b>169.7</b>	<b>222</b>	<b>148.5</b>	<b>234</b>	<b>155.6</b>	<b>240</b>	<b>163.8</b>
Support staff (research)(4)	61	48.9	51	42.4	54	42.4	54	43.2	55	44.1	54	44.1
Support staff (managerial)(5)	6	5.2	6	4.9	6	5.1	6	5.1	5	3.9	9	6.9
<b>Total support staff</b>	<b>67</b>	<b>54.1</b>	<b>57</b>	<b>47.3</b>	<b>60</b>	<b>47.5</b>	<b>60</b>	<b>48.3</b>	<b>60</b>	<b>48.0</b>	<b>63</b>	<b>51.0</b>
<b>Total staff incl academic hospital</b>	<b>311</b>	<b>216.6</b>	<b>298</b>	<b>214.2</b>	<b>300</b>	<b>217.2</b>	<b>282</b>	<b>196.8</b>	<b>294</b>	<b>203.6</b>	<b>303</b>	<b>214.7</b>
<b>Total staff excl academic hospital</b>	<b>275</b>	<b>202.8</b>	<b>265</b>	<b>200.9</b>	<b>270</b>	<b>205.2</b>	<b>251</b>	<b>187.9</b>	<b>266</b>	<b>195.5</b>	<b>279</b>	<b>207.5</b>
External PhD students (6)	130		141		148		96		287		254	
Honorary professor (7)	n.a.		n.a.		n.a.		2		6		12	

**TABLE 1B** Research staff on division level >>

	2016		2017		2018		2019		2020		2021	
▪ BLOOD	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte
Scientific staff FHML (1)	16	8.8	14	7.4	14	7.0	25	10.6	28	10	33	10.7
Scientific staff academic hospital	4	1.6	4	2.2	4	2.2	10	2.8	11	3.0	11	2.8
Postdocs (2)	8	7.3	6	5.8	7	7.0	20	12.8	20	13.4	18	12.02
Internal PhD candidates (3)	23	21.3	29	29.0	35	34.1	49	48.0	45	45	43	43.0
<b>Total research staff</b>	<b>51</b>	<b>38.9</b>	<b>53</b>	<b>44.4</b>	<b>60</b>	<b>50.3</b>	<b>104</b>	<b>74.2</b>	<b>104</b>	<b>71.4</b>	<b>105</b>	<b>68.5</b>
Support staff (research)(4)	14	18.4	7	7.0	10	7.8	12	8.9	12	9.1	14	8.7
Support staff (managerial)(5)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	
<b>Total support staff</b>	<b>14</b>	<b>18.4</b>	<b>7</b>	<b>7.0</b>	<b>10</b>	<b>7.8</b>	<b>12</b>	<b>8.9</b>	<b>12</b>	<b>9.1</b>	<b>14</b>	<b>8.7</b>
<b>Total staff incl academic hospital</b>	<b>65</b>	<b>47.3</b>	<b>60</b>	<b>51.4</b>	<b>70</b>	<b>58.1</b>	<b>116</b>	<b>83.1</b>	<b>116</b>	<b>80.5</b>	<b>119</b>	<b>77.2</b>
<b>Total staff excl academic hospital</b>	<b>61</b>	<b>45.7</b>	<b>56</b>	<b>49.2</b>	<b>66</b>	<b>55.9</b>	<b>106</b>	<b>80.3</b>	<b>105</b>	<b>77.5</b>	<b>108</b>	<b>74.5</b>
External PhD students (6)	27		30		41		91		86		96	
Honorary professor (7)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	

TABLE 1B Research staff on division level

	2016		2017		2018		2019		2020		2021	
■ VESSELS	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte
Scientific staff FHML (1)	28	8.9	30	11.1	29	10.8	18	7.4	18	7.4	18	7
Scientific staff academic hospital	15	5.4	14	5.2	12	4.9	10	3.2	9	3.1	7	2.5
Postdocs (2)	15	10.6	14	10.1	20	12.7	9	7.1	8	5.9	15	8.4
Internal PhD candidates (3)	24	23.0	23	22.5	23	22.2	13	12.8	14	13.8	14	13.8
<b>Total research staff</b>	<b>82</b>	<b>47.9</b>	<b>81</b>	<b>48.5</b>	<b>84</b>	<b>50.6</b>	<b>50</b>	<b>30.5</b>	<b>49</b>	<b>30.1</b>	<b>54</b>	<b>31.7</b>
Support staff (research)(4)	27	20.3	23	16.2	26	17.8	26	19.2	29	21.4	32	22.1
Support staff (managerial)(5)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	
<b>Total support staff</b>	<b>27</b>	<b>20.3</b>	<b>23</b>	<b>16.2</b>	<b>26</b>	<b>17.8</b>	<b>26</b>	<b>19.2</b>	<b>29</b>	<b>21.4</b>	<b>32</b>	<b>22.1</b>
<b>Total staff incl academic hospital</b>	<b>109</b>	<b>68.1</b>	<b>104</b>	<b>64.7</b>	<b>110</b>	<b>68.3</b>	<b>76</b>	<b>49.7</b>	<b>78</b>	<b>51.5</b>	<b>86</b>	<b>53.7</b>
<b>Total staff excl academic hospital</b>	<b>94</b>	<b>62.7</b>	<b>90</b>	<b>59.5</b>	<b>98</b>	<b>63.4</b>	<b>66</b>	<b>46.5</b>	<b>69</b>	<b>48.4</b>	<b>79</b>	<b>51.3</b>
External PhD students (6)	45		46		46		72		127		140	
Honorary professor (7)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	

	2016		2017		2018		2019		2020		2021	
■ HEART	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte
Scientific staff FHML (1)	28	11.7	29	11.0	26	10.7	22	8.0	27	9.7	35	12.1
Scientific staff academic hospital	17	6.8	15	6.0	14	5.0	10	2.8	8	2.1	6	2
Postdocs (2)	23	17.4	18	13.8	10	8.3	8	6.5	5	2.6	7	4.5
Internal PhD candidates (3)	43	39.9	45	43.2	45	45.0	27	26.5	34	33.5	35	34.5
<b>Total research staff</b>	<b>111</b>	<b>75.8</b>	<b>107</b>	<b>74.0</b>	<b>95</b>	<b>69.0</b>	<b>67</b>	<b>43.7</b>	<b>74</b>	<b>47.8</b>	<b>83</b>	<b>53.1</b>
Support staff (research)(4)	18	15.6	17	15.1	13	12.6	14	11.9	12	10.4	15	11.1
Support staff (managerial)(5)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	
<b>Total support staff</b>	<b>18</b>	<b>15.6</b>	<b>17</b>	<b>15.1</b>	<b>13</b>	<b>12.6</b>	<b>14</b>	<b>11.9</b>	<b>12</b>	<b>10.4</b>	<b>15</b>	<b>11.1</b>
<b>Total staff incl academic hospital</b>	<b>129</b>	<b>91.4</b>	<b>114</b>	<b>89.1</b>	<b>108</b>	<b>81.6</b>	<b>81</b>	<b>55.6</b>	<b>86</b>	<b>58.2</b>	<b>98</b>	<b>64.2</b>
<b>Total staff excl academic hospital</b>	<b>112</b>	<b>84.6</b>	<b>109</b>	<b>83.1</b>	<b>94</b>	<b>76.6</b>	<b>71</b>	<b>52.9</b>	<b>78</b>	<b>56.2</b>	<b>92</b>	<b>62.2</b>
External PhD students (6)	42		45		46		61		107		112	
Honorary professor (7)	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.	

- #** Number of persons active on the research unit research activities on 31-dec of any year/average MJE (men year equivalents)
- fte** Sum of actual fte-factors (in fulltime equivalents) labelled on the research unit research activities on 31-dec on any year/average
- Note 1** Comparable with WOPI-categories HGL, UHD and UD; tenured and non-tenured staff appointed at the FHML.
- Note 2** Comparable with WOPI-category 'Onderzoeker' (1, 2, 3, 4), with completed PhD, not belonging to scientific staff (with WOPI-categories HGL, UHD and UD)
- Note 3** Standard PhD (employed)
- Note 4** All support staff working on research (research assistants, lab technicians, and other support staff not working at the management office)
- Note 5** Support staff working at the School's management office including the scientific director
- Note 6** External PhD (externally or internally funded but not employed)
- Note 7** Scientific staff, employed unpaired professor

## Table Funding (at School and Research line/Division level)

TABLE 2A Funding

	2016		2017		2018		2019		2020		2021	
<b>SCHOOL</b>												
Funding:	fte (4)	%	fte	%	fte	%	fte	%	fte	%	fte	%
Direct funding (1)	36.61	24	33.57	22	34.07	22	38.7	25	33.2	22	33.6	22
Research grants (2)	19.50	13	22.40	15	18.80	12	13.8	9	16.9	11	22.8	15
Contract research (3)	93.62	63	98.28	64	105.53	67	105.1	67	104.2	68	94.0	63
<b>Total funding</b>	<b>149.7</b>	<b>100</b>	<b>154.3</b>	<b>100</b>	<b>158.4</b>	<b>100</b>	<b>157.6</b>	<b>100</b>	<b>154.2</b>	<b>100</b>	<b>150.4</b>	<b>100</b>
Expenditure:	k€		k€		k€		k€		k€		k€	
Personnel costs	13,241		13,572		13,078		13,755		14,000		15,162	
Other costs	6,070		6,249		5,643		6,631		6,231		4,830	
<b>Total expenditure</b>	<b>19,311</b>		<b>19,821</b>		<b>18,721</b>		<b>20,386</b>		<b>20,231</b>		<b>19,992</b>	
<b>BLOOD</b>												
Funding:	fte (4)	%	fte	%	fte	%	fte	%	fte	%	fte	%
Direct funding (1)	8.4	23	7.8	18	10.8	22	11.7	17	11.0	16	12.4	19
Research grants (2)	4.7	13	6.1	14	4.1	8	7.3	11	9.3	13	10.2	15
Contract research (3)	24.2	65	29.04	68	33.9	69	50.4	73	48.9	71	43.3	66
<b>Total funding</b>	<b>37.3</b>	<b>100</b>	<b>42.94</b>	<b>100</b>	<b>48.8</b>	<b>100</b>	<b>69.4</b>	<b>100</b>	<b>69.2</b>	<b>100</b>	<b>66</b>	<b>100</b>
Expenditure:	k€		k€		k€		k€		k€		k€	
Personnel costs	1,444		2,069		2,200		5,124		5,340		6,030	
Other costs	1,066		1,373		1,441		2,059		1,671		1,755	
<b>Total expenditure</b>	<b>2,509</b>		<b>3,442</b>		<b>3,641</b>		<b>7,183</b>		<b>7,011</b>		<b>7,785</b>	
<b>VESSELS</b>												
Funding:	fte (4)	%	fte	%	fte	%	fte	%	fte	%	fte	%
Direct funding (1)	11.71	28	13.17	30	11.87	26	7.3	27	7.6	25	6.6	23
Research grants (2)	3.8	9	3.8	9	4.7	10	3	11	4	13	5.0	17
Contract research (3)	26.94	63	26.34	61	29.08	64	17	62	18.9	62	17.5	60
<b>Total funding</b>	<b>42.45</b>	<b>100</b>	<b>43.31</b>	<b>100</b>	<b>45.65</b>	<b>100</b>	<b>27.3</b>	<b>100</b>	<b>30.5</b>	<b>100</b>	<b>29.1</b>	<b>100</b>
Expenditure:	k€		k€		k€		k€		k€		k€	
Personnel costs	2,592		2,231		2,811		3,382		3,234		3,602	
Other costs	2,547		2,205		2,283		2,493		2,666		1,873	
<b>Total expenditure</b>	<b>5,138</b>		<b>4,436</b>		<b>5,093</b>		<b>5,875</b>		<b>5,900</b>		<b>5,475</b>	
<b>HEART</b>												
Funding:	fte (4)	%	fte	%	fte	%	fte	%	fte	%	fte	%
Direct funding (1)	15.5	22	12.6	19	11.4	18	8	20	9.8	21	11.4	22
Research grants (2)	11	16	12.5	18	10	16	3.5	9	3.5	7	7.6	15
Contract research (3)	42.48	62	42.9	63	42.55	67	29.4	72	34.5	72	32.1	63
<b>Total funding</b>	<b>68.98</b>	<b>100</b>	<b>68</b>	<b>100</b>	<b>63.95</b>	<b>100</b>	<b>40.9</b>	<b>100</b>	<b>47.8</b>	<b>100</b>	<b>51.1</b>	<b>100</b>
Expenditure:	k€		k€		k€		k€		k€		k€	
Personnel costs	3,188		3,425		2,931		4,445		4,489		4,661	
Other costs	2,228		2,349		1,661		1,859		1,272		1,123	
<b>Total expenditure</b>	<b>5,416</b>		<b>5,774</b>		<b>4,592</b>		<b>7,304</b>		<b>5,761</b>		<b>5,784</b>	

**Note 1** Direct funding by FHML/Maastricht University ('basis financiering'/lump sum budget)

**Note 2** Research grants obtained in national scientific competition (e.g. grants from NWO, ZonMw and KNAW)

**Note 3** Research contracts for specific research projects obtained from external organisations, such as industry, governmental ministries, European organisations, including ERC, and charitable organisations

**Note 4** The funding in fte includes the total research staff but excludes the academic hospital-staff



**TABLE 2B** Funding including clinical research (CTCM/academic hospital or other)  
(in k€ per year)

	2016	2017	2018	2019	2020	2021
Funding:	2,088	1,703	1,495	1,158	1,444	1,556

**Table success rates PhD candidates (only at School level)**

**TABLE 3** Standard PhD-Candidates (1)

ENROLMENT			SUCCESS RATES							
Starting year	Enrolment (male / female)		Total (M+F)	Graduated in year 4 or earlier	Graduated in year 5	Graduated in year 6	Graduated in year 7 or later	Total graduated	Not yet finished	Dis-continued
	M	F								
2011	18	15	33	1 / 3%	15 / 45%	8 / 24%	6 / 18%	30 / 90%	1 / 3%	2 / 6%
2012	9	12	21	3 / 14%	7 / 33%	3 / 14%	1 / 5%	14 / 67%	1 / 5%	6 / 29%
2013	7	15	22	4 / 18%	8 / 36%	4 / 18%	1 / 5%	17 / 77%	2 / 9%	3 / 14%
2014	12	17	29	6 / 21%	11 / 38%	4 / 14%	-	21 / 72%	2 / 7%	5 / 17%
2015	14	9	23	11 / 48%	4 / 17%	2 / 9%	4 / 17%	21 / 91%	2 / 9%	0 / 0%
2016	13	21	34	2 / 6%	13 / 38%	3 / 9%	1 / 3%	19 / 56%	8 / 24%	7 / 21%
2017	16	17	33	7 / 21%	7 / 21%	1 / 3%	-	15 / 46%	24 / 73%	4 / 12%
<b>Total</b>	<b>89</b>	<b>106</b>	<b>195</b>	<b>34 / 17%</b>	<b>65 / 33%</b>	<b>25 / 13%</b>	<b>13 / 7%</b>	<b>137 / 70%</b>	<b>30 / 15%</b>	<b>27 / 14%</b>

1 Standard PhD-candidate with employee status and conducting research with primary aim/obligation to graduate; (AiO, promovendus)



Cardiovascular  
Research Institute  
Maastricht



Maastricht University



Maastricht UMC+