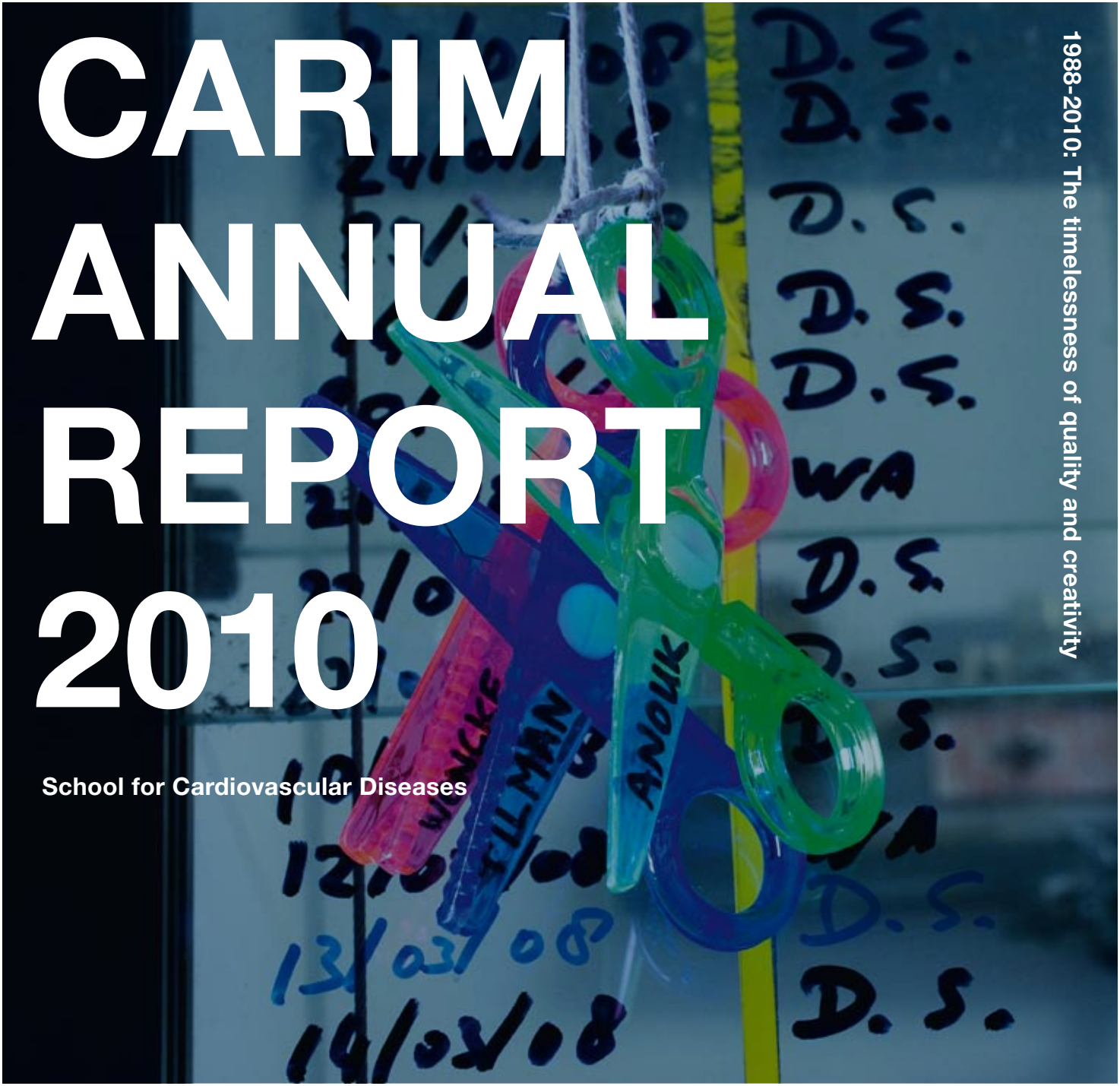
CARIM ANNUAL REPORT 2010

School for Cardiovascular Diseases

1988-2010: The timelessness of quality and creativity



CARIM ANNUAL REPORT 2010

School for Cardiovascular Diseases

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The timelessness of quality and creativity: twenty-two years of adventure in cardiovascular research.

PREFACE

Founded in 1988, CARIM has established itself over the last two decades as a leading research institute in the field of cardiovascular diseases. The first generation of CARIM researchers is now gradually handing over to a new, younger generation of scientists, who are just as ambitious. In April 2011 our scientific director Professor Mat Daemen took a new challenge in Amsterdam, which affords me the honor and pleasure to present this annual report.

In this 2010 edition of our annual report, CARIM looks back at its pioneers, history, highlights and scientific breakthroughs and sheds a light on the future: what can we expect from CARIM in the next ten years? CARIM's founding father opens this annual report with a 'Prelude' on how it all began.
In addition to the highlights in the year 2010 we are giving CARIM's history and future a human face in six interviews. The picture is clear: CARIM does have an impressive past and is in a good position to challenge a competitive but also bright future. Throughout the report a timeline will show you in bird's eye view the most important (scientific) highlights in our history.

I would like to thank all CARIM scientists, technicians and other colleagues for their effort and creativity in cardiovascular research. It is their combined contribution that forms the basis for excellent cardiovascular science in the decade to come.

I wish you lots of pleasure reading,

Professor Mark Post
acting Scientific Director CARIM
School for Cardiovascular Diseases

MAY 1988

MOST IMPORTANT (SCIENTIFIC) HIGHLIGHTS IN OUR HISTORY

The University Council and the Minister of Educational Affairs give their permission for the foundation of the Cardiovascular Research Institute Maastricht (CARIM), based on Article 92 of the Dutch University Education Act (WWO 1986). Prof. Robert Reneman is appointed as Scientific Director of the new research institute.

‘The performance of CARIM in its present form has likely become possible by important decisions made in the years preceding its foundation in 1988’

PRELUDE

When addressing an issue of CARIM’s Annual Reports to its 22 years existence, knowledge of the previous history is relevant to be able to rate the present situation at its true value. The performance of CARIM in its present form has likely become possible by important decisions made in the years preceding its foundation in 1988.

In the original plans of the new Medical Faculty in Maastricht the focus was on teaching. Scientific research was barely addressed in the plans, but after ample discussion the founding fathers were convinced of the necessity of scientific research for an academic training. In 1974, two years before the official start of Limburg University, the Biomedical Centre became available and scientific research was on its way in Maastricht.

It was realized that to be competitive in national and international research, forces had to be joined within a limited number of research programs. One of the programs became Cardiovascular Research and a preliminary outline of the program was made. Right from the beginning we were in the luxurious position to attract scientists willing to participate in this program, of course, bringing in their own ideas. Sometimes, established scientists who were not willing to contribute to the program, were not selected and preference was given to young, promising scientists. In this way we were able to establish a coherent research program combining expertise in basic and clinical disciplines with excellent established and young scientists on key positions. It was very helpful that some of the starting basic scientists did have clinical experience or were clinicians. The basis for translational medicine was already created!

An important decision, made by the end of the seventies and of prime importance for CARIM’s performance nowadays, was to give the leaders of the research programs financial responsibility. In other words, the faculty research funds were controlled by the programs and not by the departments. The program leaders carried formative responsibility for staff participation and full responsibility for the funding of equipment, bench fees and PhD training positions. By mutual agreement with the department heads, the leader of the Cardiovascular Program submitted a staff plan to the Faculty Board for approval. Quality and expertise were prevailing in the selection of the participating staff members. We were actually operating in a modified matrix organization. Equipment was purchased with an open eye for common use; expensive equipment was centralized.

From the beginning there has been a focus on interaction between expertises, where relevant. In achieving this, the availability of PhD training positions (in the beginning 20) has ▸▸

1988

Prof. Jo De Mey (dept. of Pharmacology) is appointed Established investigator by the Royal Netherlands Academy of Arts and Sciences.

MAY 1988

Several management responsibilities are being transferred from the Board of the Medical Faculty to CARIM, including budgeting, appointing personnel and signing contracts.

‘There was coherence, focus, trust and solidarity’

been of great help. Although the competition for acquiring these positions by the scientists within the Cardiovascular Program was open and fully based upon quality, they could be used strategically, for example, by identifying areas to be stimulated up front. By these measures, scientists started to collaborate more intensely and focus on a limited number of themes within the program arose, actually the three themes as they are in CARIM these days. During these developments, several activities within the program were stopped due to the lack of quality or compatibility with the core program, an unpleasant but necessary decision. Difficult to say whether these measures as originally planned, have indeed contributed to the success of the Cardiovascular Program over the years. It is our belief that it did. There was coherence, focus, trust and solidarity. Collectively, important grants, and program-project grants from NWO, were obtained, while the quality of the program or parts thereof did not remain unnoticed. In the frame work of the Netherlands program on the stimulation of top research groups the Departments of Cardiology and Physiology were identified among six other groups in the Netherlands and received substantial additional structural support. In 1983 the universities in the Netherlands were exposed to a new governmental policy, i.e., the ‘Program on Provisional Research Funding’. The submitted program on cardiovascular research, actually covering the core of our Cardiovascular Program, received very good reviews and was fully funded. After this external exercise, 60% of the faculty funding was allotted to our Cardiovascular Program. In the same year the quality newspaper NRC published a survey on the one hundred best cited scientists in the Netherlands and the six scientists from Maastricht among them were all active within the Cardiovascular Program. Our program was on the map!

A logical consequence of these developments was the early application for recognition as Graduate School after the legislative changes. We were ready and in 1988 CARIM was a fact. Our plans and program were well received and in 1991 we obtained a substantial grant in the framework of the prestigious NWO program ‘Stimulans’ to further bring to development our graduate school ideas.
The new facilities in Randwyck, contributed substantially to the further development of CARIM. Excellent laboratory facilities became available and even more important a real Academic Hospital came into existence, a great relief for the clinical scientists. The construction with very short distances between the function laboratories in the clinic and the basic science laboratories, which could be realized after serious discussions with the University Board, facilitated the interaction between clinical and basic scientists substantially. Over the years around 30% of all scientists active in the Cardiovascular Program have been clinicians.

One should realize that the excellent development of the Cardiovascular Program, especially in the first two decades, was only possible because of the continuous support of the Faculty Board and the absence of real financial constraints. We were able to take time to develop and investigate new ideas and to develop new technologies without considering impact factors and the number of publications required per year. A luxurious situation! Nowadays the financial constraints are serious, especially for the young scientists who have to compete intensively for tenure track positions. Therefore, it is admirable that they still decide for a scientific career and that the present generation is able to keep up the quality of CARIM’s research and to further position the institute internationally.

Rob Reneman, in consultation with Coen Hemker and Rob van der Zander

1988

Prof. Coen Hemker is nominated as Professeur Etranger by the Collège de France.

DECEMBER 1988

39 PhD-students are taking their training in CARIM.

1989

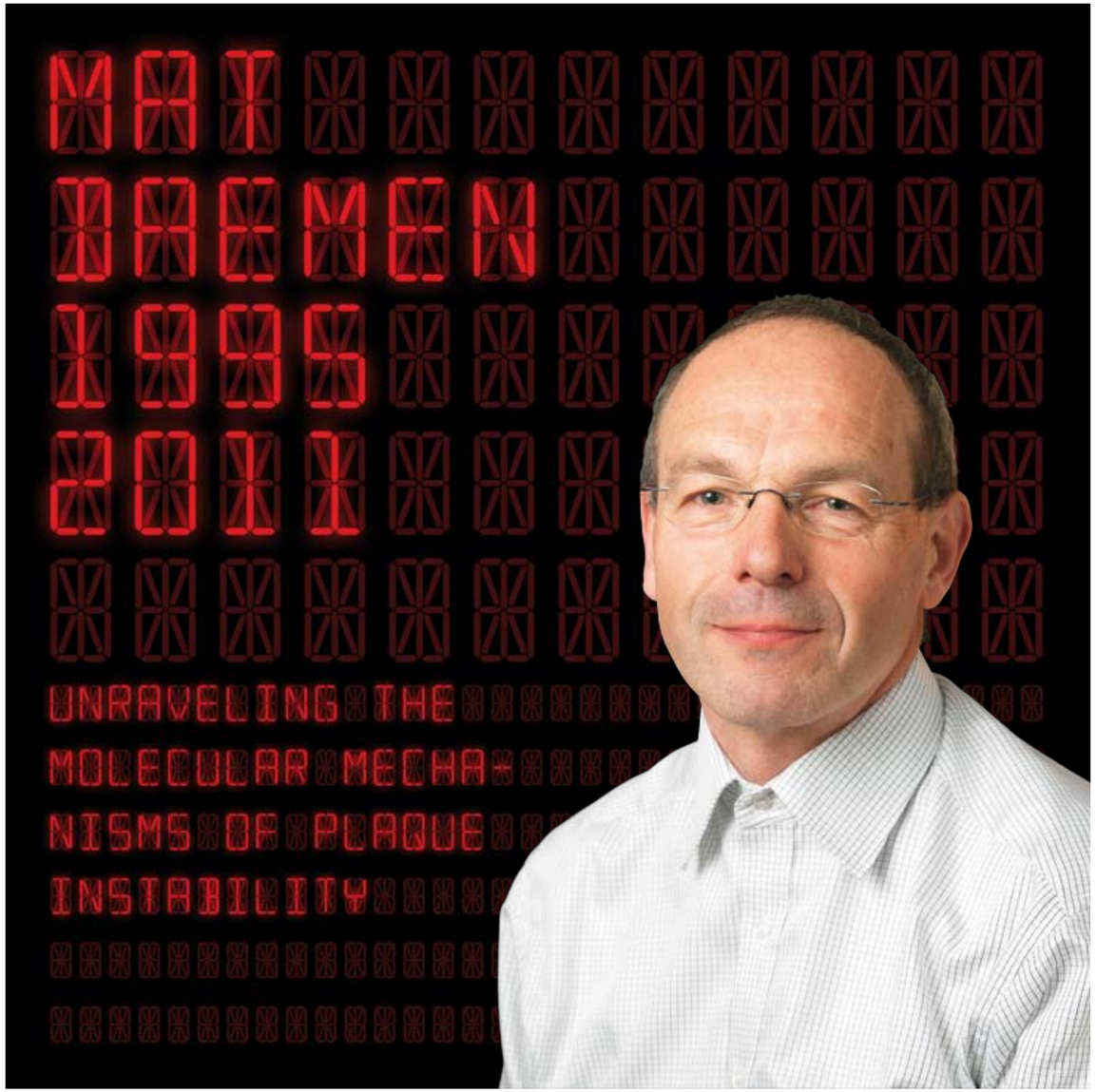
Institution of the first CARIM Board consisting of Prof. RFA Zwaal, chairman – Prof. HAJ Struijker Boudier – Prof. HJJ Wellens, MD – Prof. LLM van Deenen – Dr HL Beckers.

JUNE 1989

Arrival of Prof. Frans Ramaekers and start of the development of a research laboratory and teaching program on molecular cell biology and a Cardiovascular Cell Biology Unit.

1989

Prof. Robert Reneman is appointed member of the Academia Europaea.



INTERVIEW

Movers and shakers

‘CARIM is full of very bright people with ambition’

Mat Daemen

Back in the seventies, Mat Daemen (now 52) was one of the first medical students to enroll at what was then called the Rijksuniversiteit Limburg. After more than three decades in Maastricht, the professor of pathology and scientific director of CARIM decided it was time for a change. He recently accepted a job offer at the Amsterdam Medical Center. Professor Mark Post (53), who has been appointed as CARIM’s interim scientific director, says: “There’s always a risk for any organization that talented people may leave. It’s part of a natural process.”

Prof. Dr. Mat Daemen:
“When I became scientific director of CARIM in 2006, I thought I knew the organization well. It had never dawned on me how internally focused we were. We were satisfied with the status quo, not realizing that CARIM was heading in the wrong direction: while the institute had been founded and built by world-leading scientists, it was in real danger of not having enough successors of the same caliber. I’ve tried to give CARIM some panache and to make it more cohesive. I have also recruited young talent and raised the bar in terms of quality standards.
▸▸

1990

First appointments of an “established investigator” Dr Jan Glatz (dept. of Physiology) and a “clinical investigator” Dr Michael Jacobs (dept. of Surgery) enabled by the Dutch Heart Foundation.

1990

Dr Joseph Brugada (dept. of Physiology) is awarded a research fellowship in the program Academy Researchers of the Royal Netherlands Academy of Arts and Sciences.

‘You have to keep redefining yourself’

Mark Post

Considering the current quality of its publications, and the external reviews, CARIM has definitely improved itself, and I hope that this trend will continue. As scientific director, I was pleasantly surprised by people’s willingness to change, but I struggled with the bureaucracy. In my view, scientific institutes need to be there for the researchers, not the other way around. Research evolves much more quickly and dynamically, nowadays. And therefore, the institutes need to be more fluid.

Ultimately, my main duty as CARIM’s scientific director boiled down to good people management. CARIM is full of very bright people with ambition, so you have to create an atmosphere and culture in which they can excel. Like most scientists, they’re not just highly qualified, but also very stubborn. That’s what made my work as scientific director quite challenging, but also a lot of fun. Helping them to succeed was the best part of the job.

Here in Amsterdam, I am finding myself in a similar position to where I was five years ago. Cardiovascular research is an important theme within this organization. They have asked me to make it more coherent, to scout talent and to work more closely together with the nearby VU University Medical Center and Leiden University Medical Center. In my view, CARIM also belongs on this list. I may have left, but I haven’t forgotten Maastricht!”

▸▸

APRIL 1990

Prof. Hein Wellens and Prof. Robert Reneman are appointed members of the Royal Netherlands Academy of Arts and Sciences.

1990

Top publication regarding the, already in 1985 started, research work on non-invasive ultrasound analysis of the vessel wall properties by Hoeks APG, Brands PJ, Smeets FAM, Reneman RS - Assessment of the distensibility of superficial arteries. Ultrasound Med Biol 1990; 16: 121-128

Prof. Dr. Mark Post:
“There has been no time limit set for finding a new scientific director, because it is a very unpredictable process. The last time I fulfilled an interim position, it lasted three years. As acting scientific director, I’m suspended from my duties as Chair of Physiology, but I will continue with my research. I study the growth of new blood vessels in the body, and I hope that we will be able to implant artificial blood vessels in patients within the next couple of years. While this research takes up 95 percent of my time, I am best known for my other project: developing artificial meat. About two years ago, this project caught the attention of the media, giving it national and international exposure. However, while journalists and the general public are fascinated by the concept, I do not get any funding for it.

I came to Maastricht after seven years at Harvard, where I was associate professor. I could have stayed, but I strongly believe that you have to keep redefining yourself. Every seven years or so, I become restless and will start looking for a new challenge. I joined CARIM because it offered me the opportunity for academic promotion to full professor and because it is a leading cardiovascular research institute.
As a scientific director, Mat Daemen has shaken up CARIM and made it a more dynamic place again. I hope to keep moving CARIM forward by further improving cohesion within the institute and by developing closer ties between CARIM and others, especially the clinic. At the moment, we do some fundamental research, a lot of pre-clinical and translational research, but not enough patient research. That’s because it competes for time with patient care in the clinic. However, investment in patient research is absolutely necessary. While cardiovascular research may not be as sexy as it used to be, it remains as important as ever. The assumption that most cardiovascular problems are solved is simply not true.” ■

1990

Prof. Coen Hemker receives the title of ‘Chevalier de la region d’Honneur’ in recognition of his great merits for French Science and is appointed member of the Academia Europaea.

1991

Formalization of the cooperation between CARIM and the Working Party on Heart and Blood Vessels of the Free University of Amsterdam.

1991

Formalization of the longstanding cooperation between CARIM and the Eindhoven University of Technology.

INTERVIEW / Movers and shakers

‘While cardiovascular research may not be as sexy as it used to be, it remains as important as ever’

Mark Post

1991

NWO selects CARIM as a prospective graduate school and grants 850.000 guilders for further development. The Board of Maastricht University provides an additional budget to be used to improve CARIM’s educational structure.

1991

Reinforcement of the molecular cell biology program. The Maastricht research group active in the field of ‘Pathobiology of cardiac vascular walls’ joins CARIM.

01_ PROFILE

PROFILE

KEY FIGURES 2010

Annual budget: 20.500 K€
Researchers: 177 fte
Technical and supporting staff: 68 fte
Departments/disciplines: 15
Scientific articles: 523 (Wi-1 : 477)
PhD Thesis: 33
Patents: 3

In 1988, the Maastricht research efforts on cardiovascular diseases were concentrated in the Cardiovascular Research Institute Maastricht (CARIM), an institute under the Dutch University Education Act (WWO). In 1992, together with the Institute for Cardiovascular Research (ICaR) of the Free University in Amsterdam (VU), CARIM was recognized as a Research School on Cardiovascular Diseases by the Royal Netherlands Academy of Arts and Sciences (KNAW).
The accreditation was renewed in 1997, 2002 and from 2008 CARIM is recognized as a local research school.
From 1993, the European Union has recognized CARIM as an international training site for Early Stage Researchers in the framework of the Marie Curie Program.
CARIM School for Cardiovascular Diseases is one of the five schools of the Faculty of Health, Medicine and Life Sciences (FHML) of Maastricht University and is embedded within the Maastricht University Medical Center (Maastricht UMC+).

Mission Statement

CARIM's mission can be summarized in six words: prevent, cure, care, discover, valorize and teach. CARIM has the ambition to be one of the leading research institutes in translational cardiovascular research in Europe. CARIM, in close collaboration with the Cardiovascular Center of the University Hospital Maastricht, aims to develop an internationally recognized center of excellence in cardiovascular medicine.

Prevent, Cure, Care, Discover

- We study basic mechanisms as well as early diagnosis and individual risk stratification of cardiovascular diseases, allowing faster translation of new research concepts to clinical practice.

Valorize

- We evaluate new findings, products and techniques that can be applied in healthcare, often in collaboration with private companies.
- We publish the results of our scientific research in high-ranking international journals.

▸▸

1991

NWO grants Prof. Coen Hemker with an 8 years program grant for his research on "Thrombin generation at macroscopic surfaces".

1991

Prof. Coen Hemker is appointed honorary member of the Royal Flemish Academy of Medicine.

DECEMBER 1991

CARIM increases its external funding to more than 40% of the total CARIM budget. ▸

Teach
- We train Master students, PhD students and MD students to become independent researchers.
- We train post-docs to become leading scientists in the field of cardiovascular diseases.

Funding
CARIM receives its basic funding from Maastricht University, through the Faculty of Health, Medicine and Life Sciences and the University Hospital Maastricht (azM). This basic funding is primarily intended to finance CARIM's tenured staff, post docs, PhD students, technicians, research infrastructure and PhD teaching program.
In addition to the funding by university and hospital, a significant part of our research program is supported by non-profit organizations and industry. ■

PARTNERSHIPS AND CONSORTIA

Eindhoven University of Technology (TU/e)
Since 1991 the research collaboration between Eindhoven University of Technology (TU/e) and CARIM focuses on three areas of mutual interest:
1 biomolecular targeting and bioinformatics;
2 biomedical imaging and signaling;
3 biomechanics and tissue engineering.
Within the TU/e undergraduate program on Biomedical Technology, students participate in CARIM's research program in the last year of their training.

EuCAR
In 2008 CARIM, together with the Institute for Molecular Cardiovascular Research (IMCAR) of the Universitätsklinikum Aachen (UKA), implemented the Euregional Cardiovascular International Research Training Group (EuCAR) on "Arterial Remodeling". This initiative for an international bilateral cardiovascular graduate school is supported by the main national funding bodies Deutsche Forschungsgemeinschaft (DFG) and the Netherlands Organization for Scientific Research (NWO). Together with IMCAR we share several research positions (Weber, Van Zandvoort, Lutgens), and a well-developed research infrastructure (mouse facility in Aachen, peptide synthesis modeling in Maastricht).

ICIN
The Netherlands Heart Institute (ICIN) is an alliance of the 8 university cardiology departments in the Netherlands. ICIN research projects are carried out in the participating cardiology centers or the laboratories of other partners in research. Several CARIM researchers have close ties with the (ICIN) and participate in ICIN's coordination program. Four ICIN researchers (2 PhD students and 2 Post-docs) work in the CARIM laboratory of Leon de Windt. Professor Harry Crijns, Professor Mat Daemen, and Professor Stephane Heymans are members of the Scientific Advisory Board.

International Status
CARIM holds a strong position in the international cardiovascular research area. Our researchers participate in several international networks, including the Leducq Transatlantic Network and several Networks of Excellence in the EU seventh Framework Program (FP7); the European Vascular Genomics Network (EVGN); the European Network on Diagnostic Molecular Imaging (DiMI), InGenious HyperCare Network and the CardioRisk Consortium. In November 2010 one of our PI's joined the new European Network for Translational Research in Atrial Fibrillation (EUTRAF), launched by the European Commission.

CARIM's research program is supported by international non-profit organizations as well as by internationally operating (pharmaceutical and medical device) industries. About 20 % of our current scientific staff is non-Dutch. ■

1992

CARIM, together with the institute for Cardiovascular Research (ICaR) of the Free University of Amsterdam, is recognized as a Research School on Cardiovascular Diseases (CARMA) by the Netherlands Royal Academy of Arts and Sciences.

OCTOBER 1992

First external review of CARIM's research program by an External Review Committee.

1992

Basic scientists and clinicians share the same building and research facilities after the relocation of CARIM to the University Building next to the new Maastricht University Hospital.

1993

The External Review Committee publishes its report on the review of CARIM's research program.

Funding and expenditure at institutional level 2005-2010

K€	2005		2006		2007		2008		2009		2010	
Direct Funding	7.426	45%	7.807	46%	8.055	40%	8.239	45%	8.653	45%	8.411	41%
Resarch Funds	1.869	11%	1.572	9%	1.751	9%	1.411	8%	1.201	6%	2.140	10%
Contracts	7.182	44%	7.766	45%	10.426	51%	8.812	47%	9.384	49%	9.967	49%
Total	**16.477**	**100%**	**17.145**	**100%**	**20.232**	**100%**	**18.462**	**100%**	**19.238**	**100%**	**20.518**	**100%**
Personnel	11.710	71%	11.163	66%	13.401	68%	13.534	77%	14.656	83%	15.032	79%
Other costs	4.687	29%	5.827	34%	6.361	32%	4.100	23%	2.862	17%	3.957	21%
Total	**16.397**	**100%**	**16.990**	**100%**	**19.762**	**100%**	**17.634**	**100%**	**17.518**	**100%**	**18.989**	**100%**
Result	**80**		**155**		**470**		**828**		**1.720**		**1.529**	

Direct Funding = funding provided directly by the Faculty HML

Research Funds = funding received in competition from national and international science foundations (NWO/ ZonMw, STW, KNAW)

Contracts = funding from third parties for specific research activities, from charities, EU-framework programs, industry, etc.

1993

CARIM obtains its first EU grants (more than 2 million guilders).

1993

The EU recognizes CARIM as a host institute for the training of post-docs from European Countries.

1993

7 new PhD-courses are developed and organized within the CARIM - ICaR-VU cooperation.

Research output in 2005-2010

	2005	2006	2007	2008	2009	2010
PhD theses	32	35	37	29	29	33
Scientific publications	436	490	497	465	509	523
Other publications	58	42	49	54	46	60
Total (I)	**526**	**567**	**583**	**548**	**584**	**616**
Academic staff in fte (II) *	38,5	35,7	35,9	37,4	37.0	39.0
Ratio I en II	13,7	15,9	16,2	14,7	15.8	15.8

PhD theses: including PhD theses externally prepared

Scientific publications: Wi-1 publications in refereed SCI-SSCI indexed journals, excluding abstracts, Wi-2 publications in refereed non SCI-SSCI indexed journals, and Letters tot the Editor

Other publications: Wn (publications in national journals), Wb (book, or contribution to book, conference papers/proceedings), Vp (professional publications in national or international periodical)

***Academic staff: PhD students and post-docs not included**

NOVEMBER 1993

First CARIM Lecture by Prof. Marc Verstraete of the Catholic University of Leuven, Belgium “Science, Technology, Non-Science and Pseudo-Science”.

NOVEMBER 1993

First prize for the best PhD thesis defended in 1991-1992 awarded to Dr Harry Boonen (dept. of Pharmacology, division Hypertension).

New contracts and grants concluded in 2010

Funding	Theme I	Theme II	Theme III	Total Support K€
Type 2	794,000	50,000	1,669,216	2,513,216
Type 3	951,000	2,941,000	11,777,000	15,669,000
Type 4	75,000	605,250	247,000	927,250
Type 5	250,000	250,000	250,000	750,000
Total	**2,070,00**	**3,846,250**	**13,943,216**	**19,859,466**

Type 2 = Grants received in competition from national and international science foundations (NWO/ZonMw, STW, KNAW)
Type 3 = Grants received from third parties for specific research activities and from charities (NHS, EU Framework, CTMM, BMM, etc.)
Type 4 = Industry, excl. CTCM (turn over in 2010: 3.200 K€)
Type 5 = Annual support (750 K€) Cardiovascular Center-CARIM “Pieken vanuit de Breedte”

1993

Start of the Biomolecular Core Unit.

1994

Dr Marc van Bilsen (dept. of Physiology) receives a KNAW fellowship of the Royal Academy of Arts and Sciences.

1994

With an NWO grant of 380.000 guilders a fluorescence imaging and microphotometric system (FIMS) is purchased that allows researchers to study intracellular processes with high special and temporal resolution.

Summary of scientific and technical staff CARIM 2010 (in fte)

Research Area	WP1			WP2			WP3			WP4			azM	TOTAL
	Faculty	PhD-stud	Post-doc	WP	PhD-stud	Post-doc	WP	PhD-stud	Post-doc	WP	PhD-stud	Post-doc	WP	
Thrombosis and haemostasis	7.5	5.5	1.0	1.0	1.8	0.3	-	10.2	5.1	0.9	2.5	2.0	0.6	37.7
Cardiac function and failure	15.8	7.9	6.4	-	1.7	0.4	1.0	14.1	4.6	-	1.8	1.8	2.4	57.8
Vascular biology	15.7	11.7	5.4	1.2	1.5	1.0	-	25.6	11.0	-	0.4	3.6	4.8	81.7
Total	**39.0**	**25.0**	**12.7**	**2.2**	**5.0**	**1.6**	**1.0**	**49.9**	**20.6**	**0.9**	**4.8**	**7.3**	**7.8**	**177.8**

	OBP 1	OBP 2	OBP 3	OBP 4	OBP azM	TOTAL
Thrombosis and haemostasis	6.0	-	3.1	1.6	1.3	12.0
Cardiac function and failure	15.8	0.9	5.3	-	1.0	23.0
Vascular biology	18.6	1.8	10.9	0.3	1.9	33.5
Total	**40.4**	**2.7**	**19.2**	**1.9**	**4.2**	**68.4**

WP: scientific staff - OBP: technical staff - azM: University Hospital Maastricht
1: University - 2: NWO/KNAW - 3: non-profit organizations - 4: industry

1995

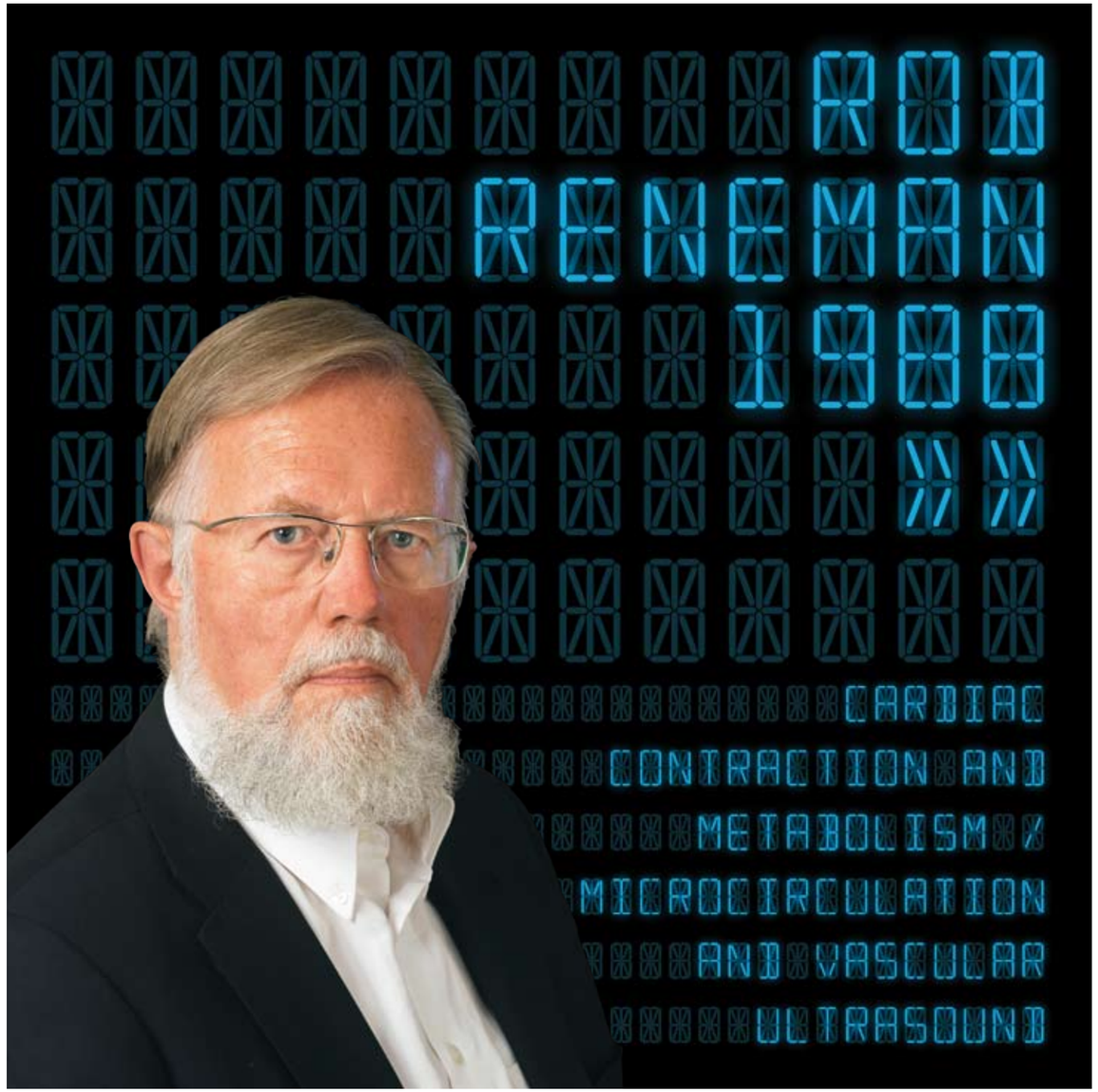
The CARIM Dissertation Award 1993-1994 is awarded to Dr Michael Vork (dept. of Physiology)

1995

Establishment of a human tissue bank together with the University Hospital to create a forum and to facilitate discussion between clinicians and researchers.

1997

Decision to cluster the research within 9 divisions into three main themes: “Thrombosis and Hemostasis”, “Cardiac function and Adaptation” and “Vascular Biology”.



INTERVIEW

Strengths and ideals

‘CARIM is in good hands’

Rob Reneman

Internationally acclaimed scientist Professor Emeritus Rob Reneman (75) is the founder of CARIM and was its first scientific director. Under his leadership, scientists excelled and CARIM established itself on the world stage. Professor Tammo Delhaas (49) completed his PhD under Reneman’s supervision, before pursuing his dream of becoming a pediatric cardiologist. He returned to CARIM to combine clinical experience with fundamental research.

Prof. Emer. Dr. Rob Reneman:
“I arrived in Maastricht in 1974, and in 1975 Professor Tiddens, who was the dean at that time, asked me to set up an organization for biomedical research. We made a number of crucial choices. One of them was to work thematically in a project-based organization. Some themes proved to be more successful than others, and eventually cardiovascular disease emerged as the main one. In the 1980s, the Dutch government provided a limited number of outstanding research groups with additional funding. This gave us the opportunity to hire more people, and to establish ourselves on the international stage.

I am proud to have founded CARIM, but I am particularly
▸▸

1997

Re-recognition of CARIM and ICaR-VU as a Research School on Cardiovascular Diseases.

FEBRUARY 1997

Dr Waander van Heerde (dept. of Biochemistry) is awarded a post-doc stipendium of the Dutch Heart Foundation to execute his research program ‘The influence of annexin V and apoptosis on atherosclerosis’.

proud of my research accomplishments. Certain lines of research in which I was heavily involved, and actually initiated, have been very successful: studies into cardiac contraction and metabolism, microcirculation and vascular ultrasound. I am a generalist, rather than a specialist, so I have always gathered experts around me to transform my ideas into reality. I'm very satisfied with the way they have done this. Especially my long-lasting collaboration with Arnold Hoeks on vascular ultrasound has been a joy!

We – CARIM's first generation of scientists- receive a lot of praise for what we have achieved. But I have to say that the circumstances in the seventies, eighties and early nineties were ideal: there was money, and we could do whatever we wanted. That has changed, and I truly admire the current generation of scientists for their determination to carry out high quality research, despite the murderous competition for funding. CARIM is in good hands with them.

Tammo, for example, has the ideal profile for a top researcher to date. He gathered plenty of clinical experience before he focused on research. Therefore, he is able to ask the right questions in medical sciences, while he is also very capable to conduct patient and fundamental research. I admire his ability of understanding biophysics, as an MD. Systems biology is a bit of a buzz-word these days, but people like ▸▸

'My return to CARIM has been a highlight'

Tammo Delhaas

MARCH 1997

Prof. of Endocrinology Tjerk de Bruin (dept. of Internal Medicine) joins the institute and brings in a NWO pioneer grant entitled 'Metabolic, genetic and molecular mechanisms of hyperlipidemia in insulin resistance'.

MAY 1997

Publication in Nature Medicine by Blankesteijn WM, Essers-Janssen YP, Verluyten MJ, Daemen MJ, Smits JF - A homologue of Drosophila tissue polarity gene frizzled is expressed in migrating myofibroblasts in the infracted rat heart. Nature Med 1997; 3 (5): 541-4

Tammo can truly integrate processes at the cellular, organ and system level, a necessity to understand life and disease."

Prof. Dr. Tammo Delhaas:
"I experienced a moment of inspiration as a medical student at the University of Groningen, when I attended a lecture by a professor of pediatric cardiology. This professor, Jaap Kuipers, spoke about the heart and circulation in a very exciting and fascinating way, explaining the processes and interactions that take place. His integral approach made sense to me: I didn't want to gather knowledge in the way you build a stamp collection.

After earning my PhD in 1993, with Rob as my supervisor, I was determined to become a pediatric cardiologist. However, Rob predicted that I would always remain attracted to research. And he was right: one of the highlights of my career has been my return to CARIM, about ten years ago, when Rob offered me the chance to combine clinical experience with fundamental research. It was exactly what I wanted to do. While Maastricht may not be top of the bill when it comes to pediatric cardiology, it does offer me the right kind of working environment. It allows me to keep track of what is happening in the clinical setting in nearby hospitals such as Leuven, while it also allows me to conduct high quality fundamental research.

I choose my research subjects based on what I find interesting from a scientific and personal point of view, rather than on the funding that might be available. When you capitalize on your strengths, money for research is likely to come your way. Rob has reinforced my personal strengths. He is someone who gives you trust and space. He has also confirmed my belief that you need to keep asking questions, because there's no such thing as a stupid question.

To see how many of Rob's PhD students were able to pursue careers in the academic world, sometimes makes me jealous. Nowadays, it is much harder to keep talented scientists on board. There are hardly any tenure track or staff positions available. Moreover, the university has implemented a hiring freeze. While I appreciate that it has to balance its books, I don't think it's wise to cut research spending. After all, research is what sets the university apart from other educational institutions." ■

1997

Prof. Maurits Allessie (dept. of Physiology) receives a NWO grant.

NOVEMBER1997

The CARIM Dissertation Award 1995-1996 is awarded to Dr Maurits Wijffels (dept. of Physiology)

MAY 1998

10th birthday of CARIM.

INTERVIEW / Strengths and ideals

'When you capitalize on your strengths, money for research is likely to come your way'

Tammo Delhaas

MAY 1998

Prof. Maurits Allessie receives the Distinguished Scientist Award 1997 of the North American Society of Pacing and Electrophysiology.

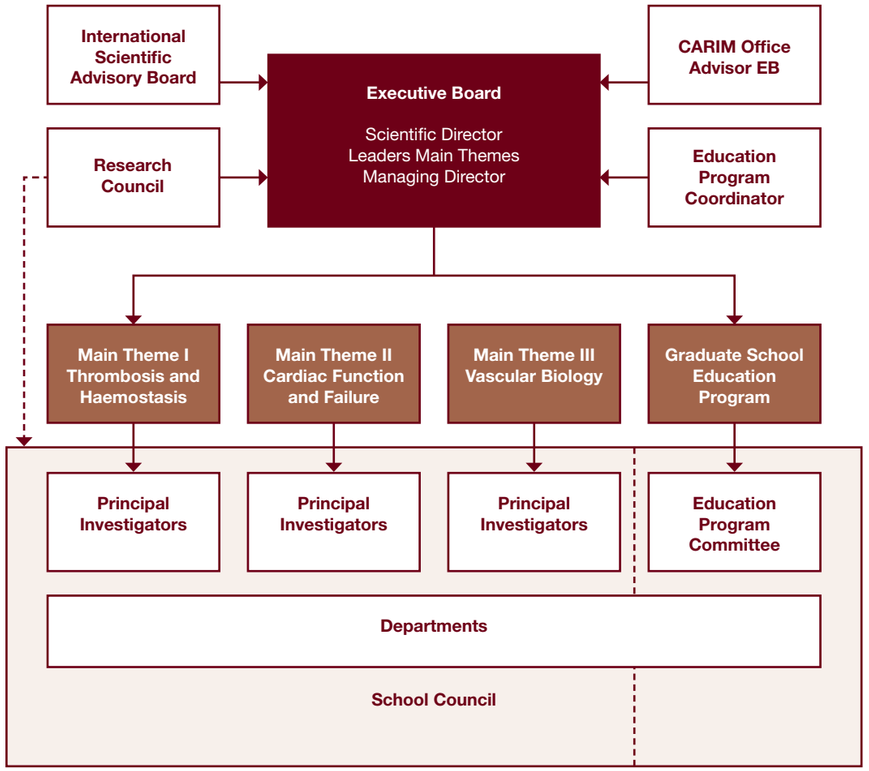
1998

Prof. Coen Hemker is appointed honorary member of the Netherlands Society on Thrombosis and Haemostasis.

1998

Prof. Hein Wellens is awarded the prestigious James B. Herrick Award by the American Heart Association as the first non-American cardiologist.

02_ ORGANIZATION



ORGANIZATION

CARIM's Executive Board 2010 (from left to right)
First row, standing: Tilman Hackeng, Leader Main Theme I, Adriaan Duijvestijn, Education Program Coordinator and PhD coordinator, Rob van der Zander, Managing Director, Harry Crijns, Leader Main Theme II, Second row, sitting: Mat Daemen, Scientific Director (till April 2011), Mark Post, Leader Main Theme III and Scientific Director a.i. from April 2011, Petra Uittenbogaard, advisor.

Organization of our research

The organization of the research school is presented on page 31. Our **Principal Investigators** (PI's) form the foundation of our research environment and educational programs. The **Executive Board** (EB) of the school consists of the **Scientific Director**, the **Managing Director**, and the **Leaders of the Main Themes**. The EB is responsible for the management of the school and meets monthly to discuss and decide upon issues at strategic and tactic level. The Scientific Director has the full and integral responsibility for the school and reports to the Dean of the Faculty of Health, Medicine and Life Sciences (FHML).

The research within CARIM concentrates on three major themes: Theme I: Thrombosis and Haemostasis, Theme II Cardiac Function and Failure, and Theme III Vascular Biology. Each theme consists of multiple (interdisciplinary) research programs, led by a program leader whom within CARIM is called Principal Investigator. Each PI is responsible for the scientific progress of the program, the mentoring of PhD students and post-docs and the financial basis of the program. All three themes involve basic as well as clinical programs. The Principal Investigators, together with all the chairmen of the departments connected to CARIM, constitute the **School Council**. The School Council meets two times a year and is headed by the Scientific Director.

The **Education Program Committee** coordinates both the PhD and Master's programs and advises the Executive Board on all issues regarding these educational programs. Our **International Scientific Advisory Board** (ISAB) meets biannually and advises the CARIM board on research and educational strategies. At the end of 2009 the Executive Board established the **Research Council**. Main task of the Research Council is to review all the project proposals before they are submitted to the grant organizations. This council advises the board and PI's on the quality of all research proposals and meets monthly.
From the end of 2009 we have started to bring together our 27 PI's into research clusters, with the aim to stimulate cooperation between programs that partially overlap each other, and eventually to get more earning power in European and national (NWO) grant programs. In 2010 and 2011 these clusters will be further developed, so that in the long term the three main themes will disappear. To guarantee a good balance between individuality and collectivity, the PI-structure will be maintained. The three senior researcher positions in CARIM's Executive Board (at present the theme leaders) will stay necessary to support the scientific director in the decision-making process on strategic and financial issues, the human resource management, organization and management of the school. For more information please visit our website at www.carimmaastricht.nl

International Scientific Advisory Board

- Professor Pim van Aken, chairman
- Professor Günther Breithardt, Universitätsklinikum Münster, Germany
- Professor David Lane, Imperial College London, UK
- Professor Alain Tedgui, INSERM Paris, France
- Professor Renu Virmani, Baylor College of Medicine, Houston, USA
- Professor Anthony Ware, Lilly Corporate Center Indianapolis, USA
- Professor John Yudkin, University College London, UK

Executive Board

- Professor Mat Daemen, Scientific Director (till April 2011)
- Professor Harry Crijns, Leader Main Theme II
- Professor Tilman Hackeng, Leader Main Theme I
- Professor Mark Post, Leader Main Theme III (from April 2011 Scientific Director a.i.)
- Professor Coen Stehouwer, Leader Main Theme III a.i. (from April 2011)
- Rob van der Zander, Managing Director
- Petra Uittenbogaard, advisor and project manager

▸▸

JULY 1998

Institution of the first Hustinx chair, occupied by Prof. Patrick Williamson from the Ivy League Institute, Amherst College and the University of Massachusetts.

JULY 1998

Dr Tilman Hackeng (dept. of Biochemistry) is appointed as KNAW Fellow by the Royal Academy of Arts and Sciences.

1998

Prof. Robert Reneman becomes 'Knight in the Order of the Netherlands Lion'.

1998

Formalization of the already existing informal collaboration with Circulation-Lariboisière, a distinguished center of medical research in Paris.

JANUARY 1999

The KNAW and Association of Universities in the Netherlands (VSNU) publish their third 5-yearly Report on (Bio) Medical and Health Sciences Research in the Netherlands: 'Overall CARIM is truly outstanding and has several excellent features: the group has integrated basic research with relevance to cardiovascular disease from bench to bedside with clinical research.' CARIM receives the highest level of appreciation on all its aspects.

Education Program Committee

- Dr Adriaan Duijvestijn, chairman, Education Program Coordinator and coordinator Research Master
- Dr Marc van Bilsen, PhD Coordinator (from January 2011)
- Dr Matthijs Blankesteijn, staff member
- Dr Vanessa van Empel, MD (since March 2010)
- Dr Eline Kooi, staff member
- Professor Hans Vink, staff member
- Kelly van Bragt, PhD student
- Ellen Dirkx, PhD student (since January 2010)
- Romy Kremers, master student (since February 2010)
- Auke Otten, master student (till November 2010)
- Timo Rademakers, PhD student
- Michael Rutjens (since November 2010)

Research Council

- Professor Harry Crijns
- Professor Mat Daemen, chairman
- Professor Tilman Hackeng
- Professor Johan Heemskerk (deputy member: Professor Hugo ten Cate)
- Professor Jo de Mey (deputy member: Professor Hans Vink)
- Professor Mark Post
- Professor Frits Prinzen (deputy member: Professor Stephane Heymans)
- Professor Chris Reutelingsperger (deputy member: Dr Gerry Nicolaes)
- Professor Uli Schotten
- Professor Johannes Waltenberger (deputy member: Professor Leo Koole)
- Professor Leon de Windt (deputy member: Dr Matthijs Blankesteijn)
- Professor Joachim Wildberger
- Dr Menno de Winther

FEBRUARY 1999

Prof. dr James B. Bassingthwaighte, University of Washington, occupies the Edmond Hustinx chair.

MAY 1999

External review of the Graduate School.

SEPTEMBER 1999

CARIM's founding father Prof. Robert Reneman steps down as Scientific Director of CARIM and is appointed as president of the Royal Netherlands Academy of Arts and Sciences.

CARIM Office

The CARIM Office consists of Riet Daamen, Johanna Roona, Saskia Vocks and Esther Willigers.
The administrator is Martin Tossings.

HR-support

Two persons of the central Human Resources Department of Maastricht University are related to CARIM; Patrick Janssen and Yves Engelen.

Administrative support

The central Administrative Service Center (ASC) of Maastricht University provides accounting support for the CARIM research projects on a part-time basis. In 2010 the administrative staff consisted of: Esther van Heel, Henny Kerckhoffs, Igor Muijtjens, Nancy Smits, and Joost von Weersch.

Participating departments and disciplines

The research in the three main themes involves the research activities of people working in several departments/disciplines of Maastricht University Medical Center+:

Basic Research Departments

- Biochemistry
- Biomedical Engineering
- Genetics and Molecular Cell Biology
- Pharmacology and Toxicology
- Physiology

Clinical Departments

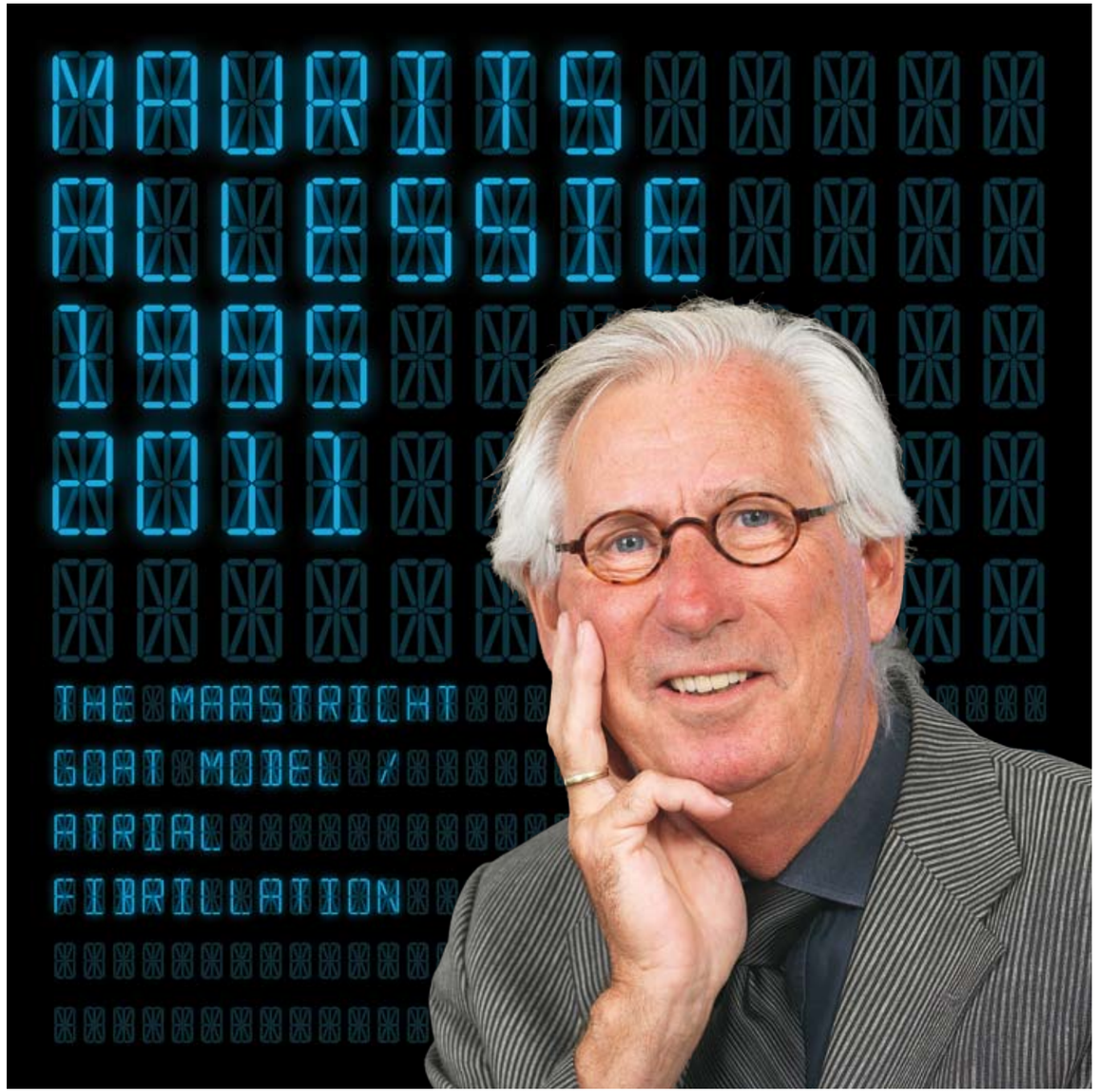
- Cardiology
- Cardio-thoracic Surgery
- Clinical Chemistry
- Internal Medicine, including Immunology
- Medical Microbiology and Virology
- Neurology
- Pathology
- Radiology
- Surgery

1999

Prof. Harry Struijker Boudier (dept. of Pharmacology) appointed as CARIM's second Scientific Director.

1999

The Boards of Maastricht University, Medical Faculty and Academic Hospital Maastricht donate a significant financial impulse to strengthen Genetics, Molecular Biology, Developmental Biology and clinical Thrombosis and Haemostasis research.



INTERVIEW

No compromises

‘We made our choices intuitively’

Maurits Allessie

Professor Emeritus Maurits Allessie (65) has just been awarded the distinction of Knight of the Order of the Netherlands Lion for his contributions to science. The highly accomplished physiologist is probably best known for the Maastricht Goat Model, which showed that atrial fibrillation (AF) begets itself and will get worse over time. He believes that his laissez faire approach to research is outdated. But his successor, Professor of Cardiac Electrophysiology Uli Schotten (43), feels that the younger generation can learn from Allessie’s uncompromising attitude to research.

Prof. Emer. Maurits Allessie:
“It’s about 15 years ago now that we published the Maastricht Goat Model, but it is one of those studies that continues to be relevant and continues to be cited. That is, of course, the best thing that can ever happen to a researcher.

I was part of the first wave of scientists to come to Maastricht. It was a difficult choice: I loved doing research, but I wanted to become a cardiologist, because of the money and status involved. In the end, I followed my heart instead of my wallet, because Maastricht offered me the unique opportunity ▸▸

1999

The CARIM Dissertation Award 1997-1998 is awarded to Dr Gerry Nicolaes (dept. of Biochemistry) for his thesis ‘Regulation thrombin formation via the protein C pathway in normal and hypercoagulable states’.

1999

Founding of Synapse BV by Prof. Coen Hemker, within the context of UM Holding. Profits will be reinvested in CARIM’s research program.

to help set up a whole new electrophysiology department. Having a limited budget, we had to make some tough choices. I decided to focus on developing a mapping method, and made it possible to measure the electrical activity at hundreds of places in the heart at once. In hindsight, the choice to concentrate on the mapping method was a stroke of genius. And so too was the decision to study atrial fibrillation. At the time, everybody was still busy exploring life-threatening ventricular arrhythmias. But once these ventricular arrhythmias could be treated with an implantable defibrillator, the attention shifted to atrial fibrillation and I was ahead of the game.

In those days, we made our choices intuitively; we followed the path as it appeared before us. You can't do that anymore.

Nowadays, you need to write a research proposal in which you plan five years ahead. You are required to explain yourself whenever you want to deviate from it, while we used to change our minds every month! For this reason it is important for CARIM that young people are taking the lead. They are the children of this time, better equipped to deal with today's requirements. For example, since Uli has taken over the lab, he has expanded it and broadened its scope. While I always focused more on the macro-level, he has incorporated research on the cell and on the molecular level.
▸▸

‘Science is becoming increasingly businesslike’

Uli Schotten

▸ NOVEMBER 1999

Dr Marc van Bilsen (dept. of Physiology) appointed as Established Investigator of the Dutch Heart Foundation.

NOVEMBER 1999

Publication in Nature Medicine by Lutgens E, Gorelik L, Daemen MJ, de Muinck ED, Grewal IS, Koteliansky VE, Flavell RA – Requirement for CD154 in the progression of atherosclerosis. Nat Med 1999; 5 (11): 1313-6

1999 ▸

Start of the Physiome Project, initiated by Hustinx Professor James Bassingthwaighte.

The ease with which he has accomplished this is astonishing."

Prof. Dr. Uli Schotten:
"When I told my family and friends about my plans to study medicine and to become a medical doctor, most of them were very surprised. In their view, I was always much more interested in basic research and more likely to end up in a research lab rather than at a patient's bedside. The actual choice was difficult for me, but in the end they were right: even though I was trained in cardiology for four years, I eventually chose a career in fundamental research.

I joined CARIM in 1998, on a Casimir-Ziegler grant, which underpins an exchange program for post-doc researchers between The Netherlands and North Rhine-Westphalia. My new team had an excellent international reputation, and CARIM offered an inspirational academic environment. Therefore, I wanted to stay. And Maurits made sure that I could.

Working alongside him has taught me an important lesson about the way to approach research: while science is becoming increasingly businesslike with choices to make partly depending on economic reasoning or large consortia's policies, Maurits has always remained a true scientist, not interested in compromising for strategic or pragmatic purposes. He has shown me that you can still be a very successful researcher when you follow this approach, even in this day and age.

The list of his scientific achievements is very long. A lot of my work is based on work Maurits has done. I am adding some new approaches, and have broadened the scope of our research. For example, we are extensively exploring the role of altered calcium handling for proarrhythmic mechanisms and signaling pathways in atrial fibrillation.

However, having a broader scope presents a challenge: you need to stay competitive in more areas of research. Maurits sometimes asks me: 'Don't you think you need to make choices, narrow your focus?' While I can see his point, I also strongly feel the necessity to keep modernizing our research, and to explore interesting applications of new and alternate techniques. In this way, I hope to be able to further develop the field of electrophysiology. In the past years, we have done a lot of basic research and gained many new insights into the pathophysiology of atrial fibrillation. However, we have been less successful in translating our findings into better patient care. We will now head into that direction." ■

DECEMBER 1999

Publication in The Lancet by Rosing J, Middeldorp S, Curvers J, Christella M, Thomassen LG, Nicolaes GA, Meijers JC, Bouma BN, Büller HR, Prins MH, Tans G – Low-dose oral contraceptives and acquired resistance to activated protein C: a randomized cross-over study. Lancet 1999; 354(9195): 2036-40

JANUARY 2000

Prof. Michel Safar, Hôpital Broussais (Paris, France) occupies the Edmond Hustinx chair.

Uli Scholten

'A broader scope presents a challenge: you need to stay competitive in more areas of research'

Uli Schotten

2000

Major revision of the PhD Program into 6 mandatory introductory courses and some voluntary courses. Founding of the later called Papendal Courses; a core-program existing of 3 main state-of-the-art courses in Cardiovascular Biology taught by staff-members from CARIM and ICaR-VU.

2000

Two core facilities on transgenic research are created in close collaboration with the animal facility and the Genome Center.

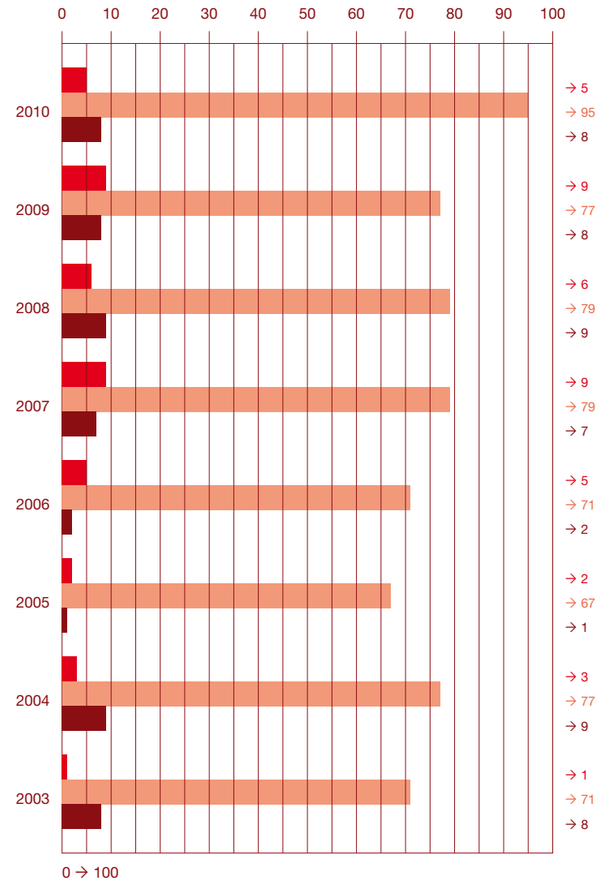
03_ SUMMARY SCIENTIFIC OUTPUT

MAIN THEME I

THROMBOSIS AND HAEMOSTASIS

- **PhD theses**
- **Scientific publications** (Wi-1, Wi-2 and Letters to the Editor)
- **Other publications** (Wn, Wb/conference papers, Vp)

Wi-1 = scientific publication in refereed SCI-SSCI indexed journals
Wi-2 = scientific publication in refereed non SCI-SSCI indexed journals
Wn = scientific publication in national journal
Wb = book, or contribution to book, conference papers/proceedings
Vp = professional publication in national or international periodical

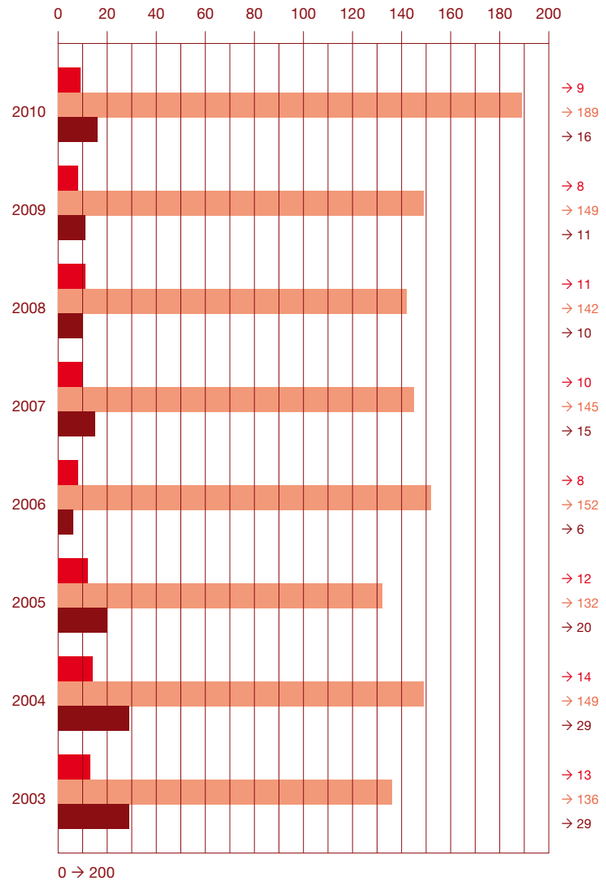


MAIN THEME II

CARDIAC FUNCTION AND FAILURE

- **PhD theses**
- **Scientific publications** (Wi-1, Wi-2 and Letters to the Editor)
- **Other publications** (Wn, Wb/conference papers, Vp)

Wi-1 = scientific publication in refereed SCI-SSCI indexed journals
Wi-2 = scientific publication in refereed non SCI-SSCI indexed journals
Wn = scientific publication in national journal
Wb = book, or contribution to book, conference papers/proceedings
Vp = professional publication in national or international periodical

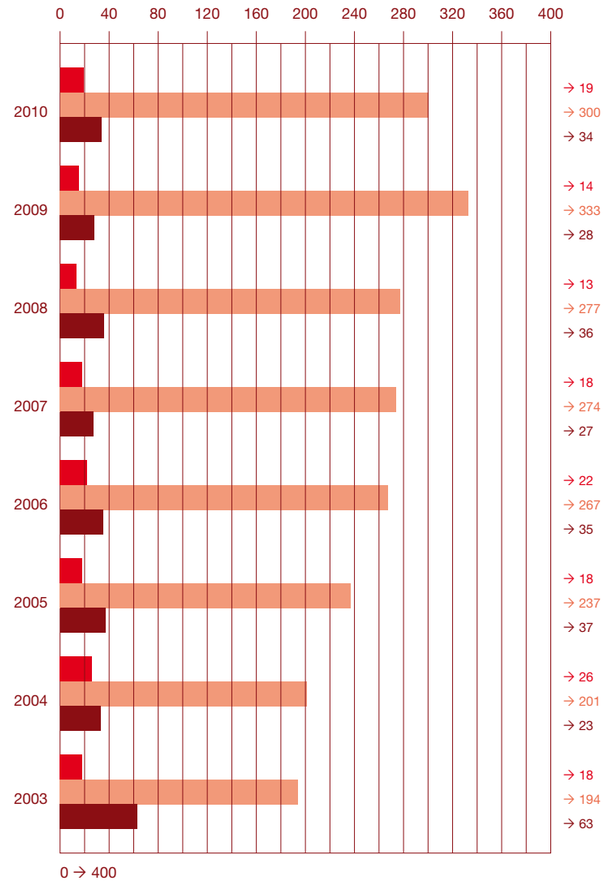


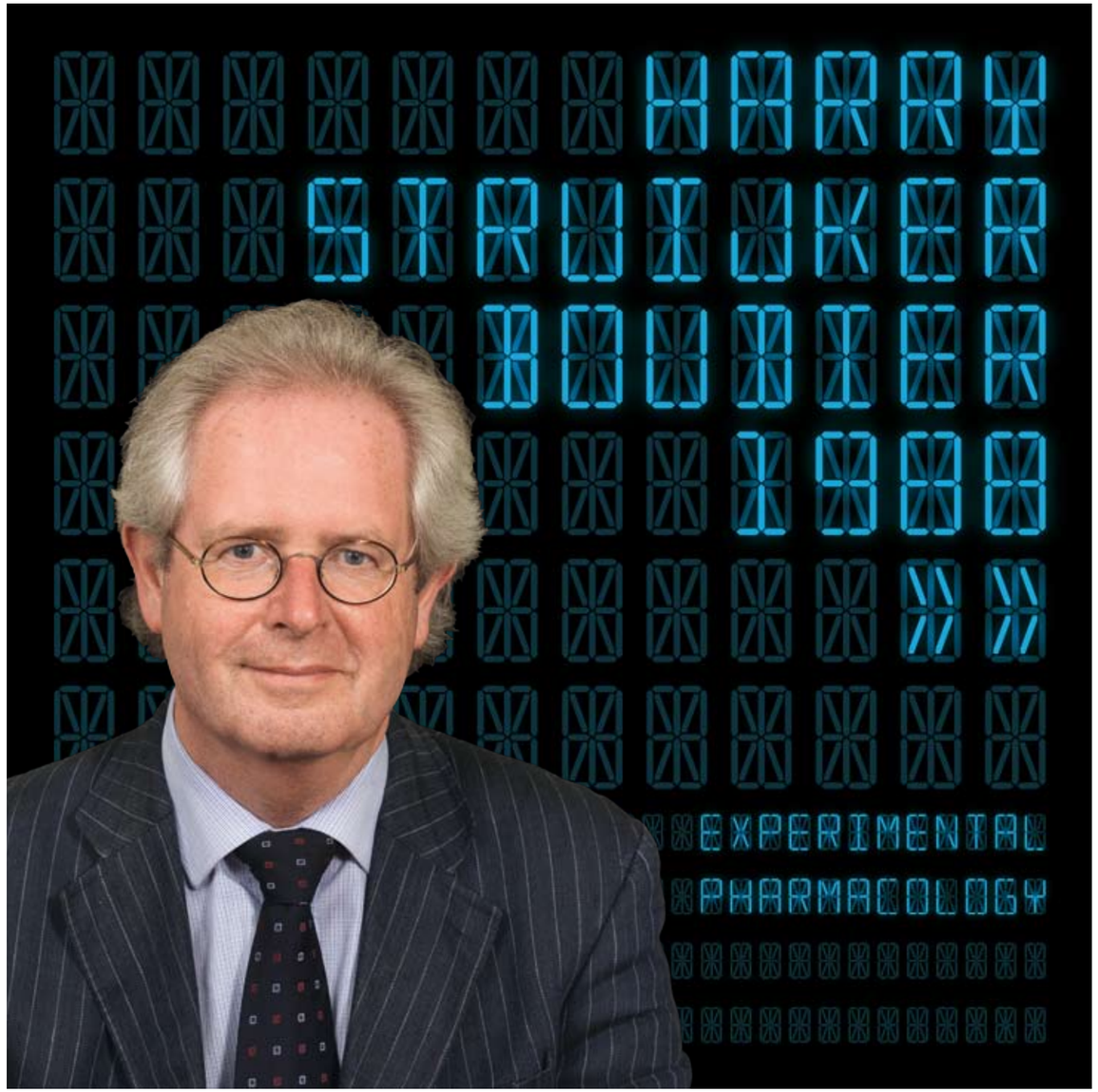
MAIN THEME III

VASCULAR BIOLOGY

- **PhD theses**
- **Scientific publications** (Wi-1, Wi-2 and Letters to the Editor)
- **Other publications** (Wn, Wb/conference papers, Vp)

Wi-1 = scientific publication in refereed SCI-SSCI indexed journals
Wi-2 = scientific publication in refereed non SCI-SSCI indexed journals
Wn = scientific publication in national journal
Wb = book, or contribution to book, conference papers/proceedings
Vp = professional publication in national or international periodical





INTERVIEW

The joy of progression

Prof. Dr. Harry Struijker Boudier (61) was CARIM's scientific director between 1999 and 2006. Under his reign, the institute expanded its expertise in molecular biology and clinical thrombosis, strengthened its international reputation, while also adopting an organizational structure in which Principal Investigators lead the way. Supporting fellow scientists to reach their potential has been a driving force in his career, says pharmacologist Struijker Boudier.

Passport
Harry Struijker Boudier earned his PhD in chemistry from Radboud University Nijmegen in 1975. He then moved to Mississippi, USA, to work with Professor Guyton in his world-renowned physiology and biophysics lab. He returned to the Netherlands in 1977, joining Maastricht University.
Professor Struijker Boudier has dedicated his academic life to researching the effects of medication on the cardiovascular system, while also fulfilling an impressive string of managerial and advisory roles.

Prof. Dr. Struijker Boudier:
"What first attracted me to Maastricht was the opportunity to help shape a young faculty. In 1980, I was appointed Professor of Pharmacology, and soon after I founded the pharmacology department, together with Professor Rahn. My main area of expertise was in experimental pharmacology, while he was more focused on the clinical side. When CARIM was founded in 1988, my department became the pharmacological arm of the institute. I was appointed division leader and, from 1993 onwards, I was Chairman of the Executive Board. In this position, I worked side-by-side with the then scientific director Rob Reneman. So, when I took over from him in 1999, I was well prepared for the job. Rob had
▸▸

APRIL 2000

On the occasion of Prof. Hein Wellens' departure as Head of the Cardiology department, the Hein Wellens Chair for clinical cardiovascular research is created. Prof. Hein Wellens also becomes 'Knight in the Order of the Netherlands Lion'.

2000

Comprehensive programs in Bioengineering are started in collaboration with the Technical University Eindhoven.

‘Whenever one of our researchers is awarded a PhD, I see it as a joint accomplishment of the senior and the junior scientist’

Harry Struijker Boudier

shaped CARIM into a solid, well-organized and well-respected institute. CARIM had made a name for itself in the Netherlands as well as abroad. I wanted to further strengthen CARIM’s international reputation, especially within Europe. Therefore, I travelled extensively to represent CARIM on the international stage and to forge partnerships with leading cardiovascular research institutes around the world. In addition, we started the tradition of hosting monthly master classes, inviting leading cardiovascular scientists from abroad to present their work in Maastricht. Thus, our international reputation grew and flourished.

I also saw the need to change CARIM’s organizational structure. Working in divisions had been very useful in CARIM’s early days. It had helped with organizing large chunks of research. But now it was time to move away from a subject-centered approach in which the departments were leading. Instead, we adopted a model that allowed our top scientists, Principal Investigators, to have direct responsibility for their entire research projects, including staff and finances. Our structure has now become a model for many scientific institutes around the world. It is one of the reasons why I still serve on several advisory boards of institutes abroad.

JUNE 2000

On the occasion of his retirement Prof. Coen Hemker becomes ‘Knight in the Order of the Netherlands Lion’.

2000

The French President Jacques Chirac appoints Prof. Robert Reneman ‘Commandeur l’Ordre de la Légion d’Honneur’.

2000

Start of the Proteomics Group and Bioinformatics Group BiGCaT.

Major player

My appointment as scientific director coincided with the implementation of an intensified research strategy by the university and the academic hospital. For CARIM it meant extra funding to strengthen its research into molecular biology, genetics, developmental biology, and clinical thrombosis and hemostasis. In the years before, we had missed out on a number of grants, due to insufficient expertise in these areas. With the funding in place, we started to actively recruit scientific talent in these fields, and sent a number of our young researchers abroad for training. Our investment soon paid off, especially in the fields of molecular biology and clinical thrombosis.
Within five years, we established ourselves as a major player: Daemen and Hofker succeeded in unraveling the molecular process underlying unstable atherosclerotic plaques; Rosing and Ten Cate made breakthroughs in thrombosis research; Reutelingsperger discovered Annexin V and its role in cell death; and four of our Principal Investigators, Yigal Pinto, Marc van Bilsen, Matthijs Blankesteijn and Stephane Heymans made major advances in understanding the molecular processes underlying heart failure.
Unfortunately, we could not duplicate this immediate success in the other two fields, developmental biology and genetics. We struggled to recruit developmental biology experts. So, instead, we sought close cooperation with Professor Carmeliet at the University of Leuven. We have since trained a number of young scientists in this field, and our developmental biology research is now in better shape. As for genetics, the Maastricht Study will hopefully help to further strengthen our expertise (see also page 72).

Highlights

To me, Mat Daemen’s groundbreaking research in the area of the atherosclerotic plaque and Jos Smits’ success in the field of molecular imaging were the greatest scientific highlights during my time as scientific director of CARIM. Jos Smits was the first to obtain a major grant for research into molecular imaging, conducted by a consortium consisting of CARIM, Eindhoven University of Technology, Organon and Philips Electronics. More than twenty of our young scientists have since earned a PhD researching this subject.

Whenever one of our researchers is awarded a PhD, it gives me great joy. I see it as a joint accomplishment of the senior and the junior scientist. The privilege of working with, guiding and supporting fellow scientists was definitely a driving factor during those years as director. Unfortunately in 2005, I fell ill. Professor Jan Rosing had to take over all my duties of scientific director overnight. I was absent for more than a year, and during this time he did an excellent job leading

▸▸

2000

Dr Joost Luiken (dept. of Physiology) receives the Genetech Research Award 2000 of the American Physiological Society for his discovery of a new regulatory mechanism for fatty acid uptake by muscles.

2000

Prof. Robert Reneman is awarded the prestigious Malpighi Award of the European Society of Microcirculation, Stockholm.

CARIM. In the end, I decided to stand down as scientific director because of my health. This opened the door for Mat Daemen to become my successor.

I have since joined the research team of vascular pharmacologist Jo de Mey. I enjoy working with and coaching the young people in the team. I am also getting more and more involved in CARIM's educational programs: While we have a great PhD program, we need to put more effort into our Master's program, because we are not attracting enough graduate students. I hope that my role on the NWO VENI advisory board will help us to gain further insight in how to best train young talent.
Overall, I am optimistic about the future of CARIM. We have an excellent team of Principal Investigators who, together, will be able to move the institute forward." ■

2000

Dr Tilman Hackeng (dept. of Biochemistry) and Dr Cees Vink (dept. of Medical Virology) are appointed as Senior Fellow and Fellow by the Royal Academy of Arts and Sciences respectively.

November 2000

The annually organized CARIM-lecture is called the Robert Reneman Lecture in honor of CARIM's founding father.

'Our organizational structure serves as a model for many scientific institutes around the world'

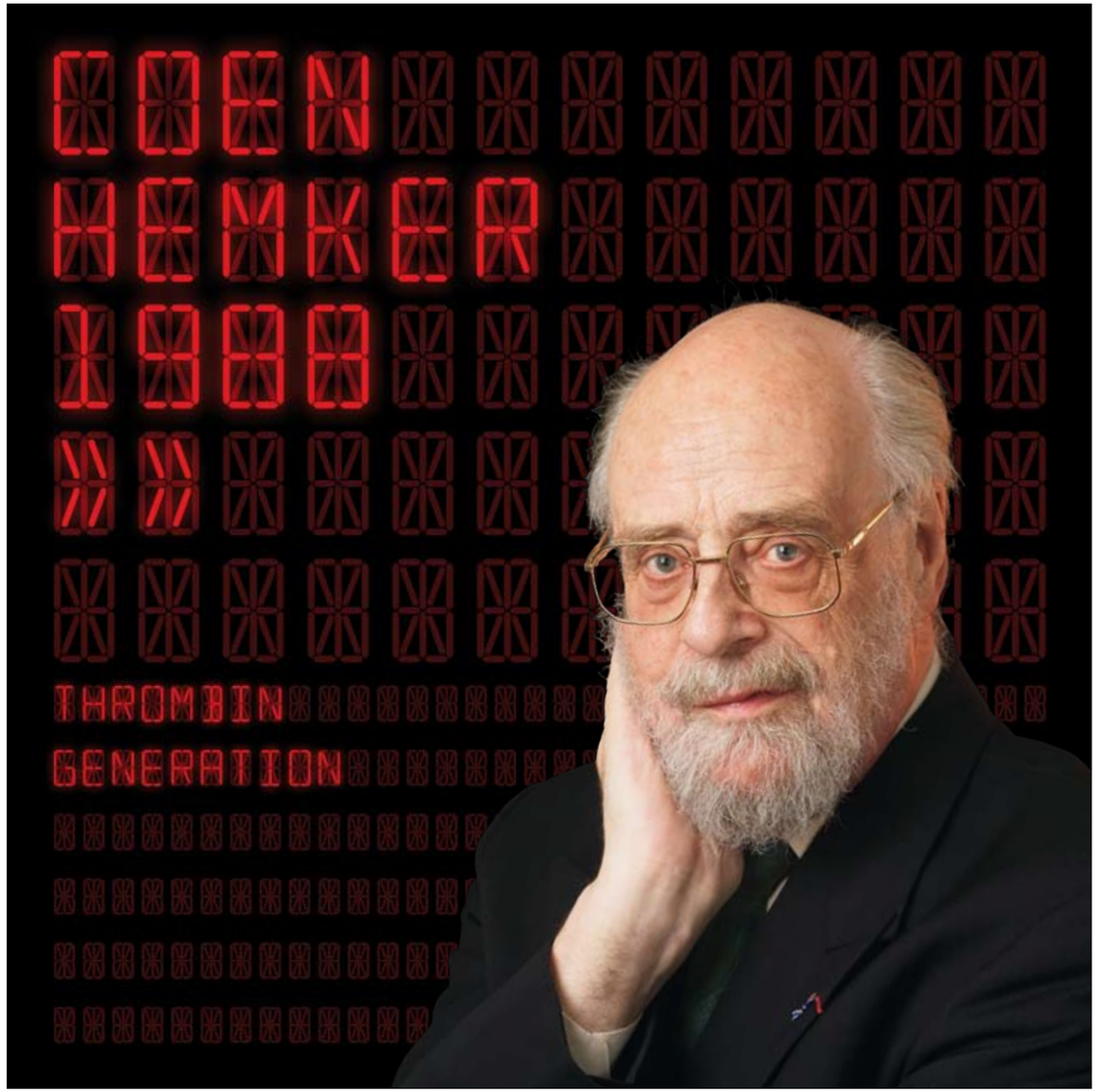
Harry Struijker Boudier

December 2000

Dr Leo Hofstra (dept. of Cardiology) and Dr Tammo Delhaas (dept. of Physiology) are appointed as clinical fellows by the Dutch Heart Foundation.

2001

Prof. Harry Struijker Boudier receives an honorary doctorate of the University of Liège, Belgium.



INTERVIEW

A special breed of people

‘I wanted to give research more prominence’

Coen Hemker

He is a world-leading scientist in the field of hemostasis and thrombosis, member of the KNAW since 1987, one of the founders and former Rector Magnificus of Maastricht University, and he has a lecture hall and research foundation named after him. Nevertheless, the career of Professor Emeritus Coen Hemker (76) is far from over: he is still actively pursuing his research on thrombin generation. Biochemist Dr. Gerry Nicolaes (42) emphasizes that working together on socially relevant goals is the greatest thing about CARIM.

Prof. Emer. Dr. Coen Hemker:
“I belonged to the group of seven people who founded the university in Maastricht in the mid-seventies. I was the only basic research scientist among them. In those days, research was more or less an illegal activity: many wanted Maastricht to be a teaching university without a research function, because of the costs.

In 1982, I became president of the university, and I wanted to give research more prominence. A publication in a Dutch national newspaper aided me in my plight. It ranked the top medical research teams in the country, and two out of the ▸▸

APRIL 2001

Foundation of the second spin-off company VitaK BV by Dr Cees Vermeer (dept. of Biochemistry).

MAY 2001

Prof. Peter de Leeuw (dept. of Internal Medicine) is the first Dutchman who receives the RD Wright Fellowship of the High Blood Pressure Research Council of Australia.

top ten were based in Maastricht. Two of our cardiovascular research teams belonged to the runners-up. The timing of that article was perfect, because there was a real political threat to not only axe academic research in Maastricht, but in fact the entire faculty of medicine.

Before I served as president, I had worked on turning the clinical subject of hemostasis and thrombosis into a bio-chemical one, recruiting one biochemist from every Dutch university to make sure we covered a broad spectrum. After my presidency, in 1985, everything was going so well in my department, that I wasn't really needed there anymore. So I went to Paris to work in a clinical lab again. I have since been working on thrombin generation. The thrombin generation test measures the amount of thrombin generated, rather than the time it takes for a blood clot to form. This method isn't new, but it was abandoned in the 1960s because, at that time, the test was far too time consuming.
However, now we are able to do 24 of them automatically in half an hour. This achievement has been a highlight of my career. The test can, for example, serve to see whether a woman who wants to take the Pill will have an increased risk of suffering thrombosis.

In short, I first spent twenty years turning a clinical subject into a biochemical one, and the last twenty years I have been ▸▸

'I am confident that we will take CARIM to the next level'

Gerry Nicolaes

2001

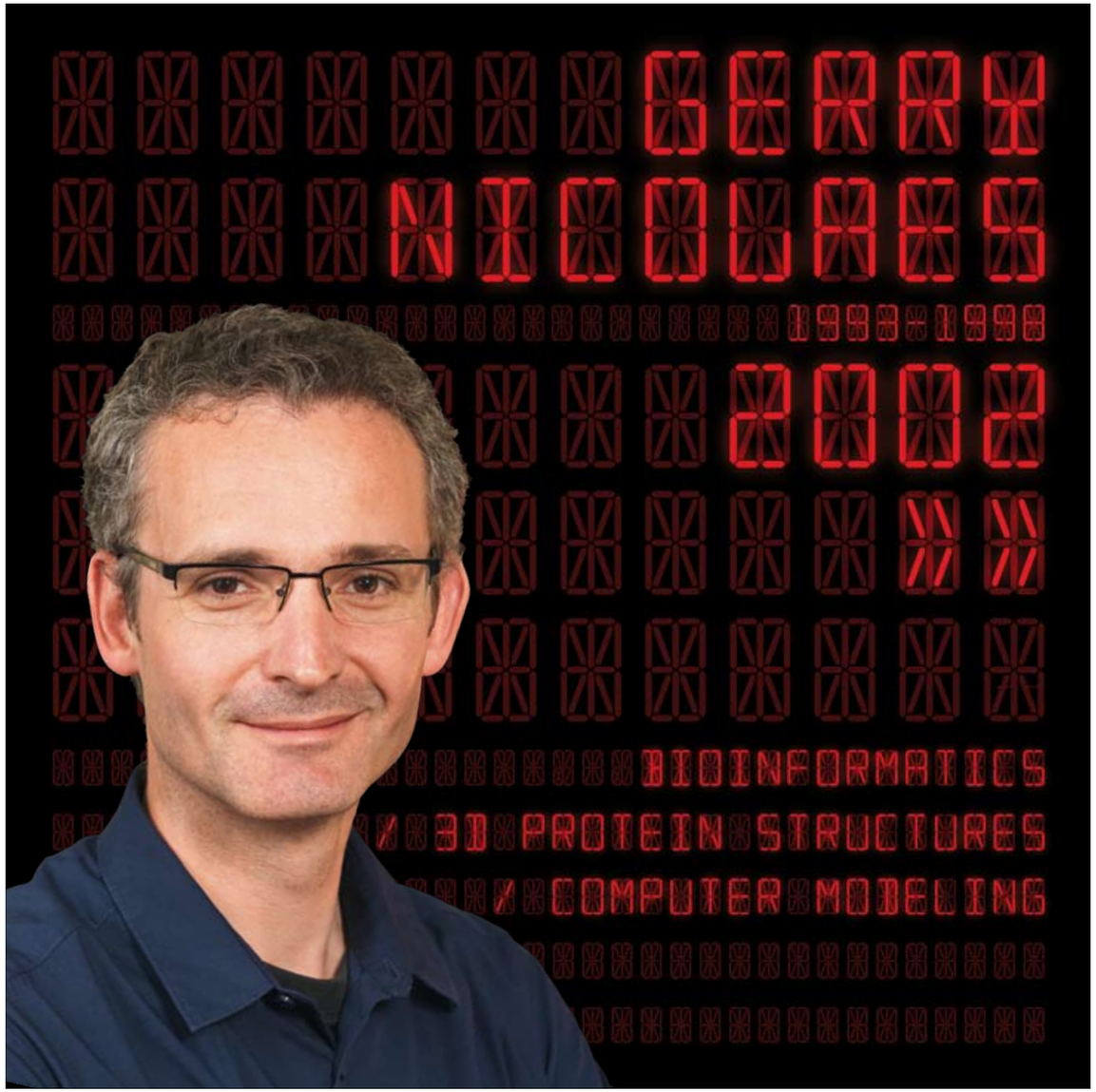
Start of the international Marie Curie PhD program funded by the European Union.

NOVEMBER 2001

The CARIM Dissertation Award 1999-2000 is awarded to Dr K. Ho (dept. of Radiology) for his thesis 'MR angiography of the lower extremities'.

2001

NWO funds a two-photon excitation laser scanning microscope.



doing the reverse. This interaction between basic research and clinical application is essential for CARIM, and Gerry Nicolaes is a scientist who clearly takes this approach. When you are working on medical applications, you will never struggle to explain the significance, which is politically important. Within this context, you then have the opportunity to conduct quality fundamental research."

Dr. Gerry Nicolaes:
"Professor Hemker is a giant within our field, who has put thrombin generation on the map. He is very driven and will not rest until he has explored every option to solve a problem. He knows how to convince other scientists to work with him on a common goal from their own unique scientific perspective. Scientists are a special breed of people. Trying to push them in a certain direction will not work. You are much better off seducing them by making your ideas sound really fun and interesting.

Hemker was my promotor when I was a PhD student. Nowadays we still work together on some small projects. He is more of a clinical and analytical scientist, while I focus on biomedicine and bioinformatics. I study proteins and try to understand them from the perspective of their 3D structure. I build protein structures by using computer models, and then try to fit small molecules into these structures, hoping to develop new types of therapeutics.
An early highlight of my career was a research study with Professor Jan Rosing, when I was a PhD student. At the time, there had been a number of deaths in England that seemed to be caused by new, third generation oral contraceptives. The pharmaceutical industry did not acknowledge the causal relationships between the cases and the use of contraceptives, but our research indicated that the third-generation Pill caused blood clots to form more quickly than second-generation oral contraceptives. Our study was published in the Lancet, and featured on the national news. More recently, I have been involved in a study that showed how computer models can help to predict which molecules will interfere with binding of proteins to membrane surfaces, such as from activated cells. Up till then, this was considered impossible. Our research findings make lab work more efficient: instead of having to test 1 million substances to see which one will bind, we only need to test about 1,000. The best thing about CARIM is that it brings together scientists from many disciplines to work on shared and socially relevant goals. I really believe in this approach, and I hope that we will continue to excel. It is up to us to take CARIM to the next level, and I am confident that we will." ■

DECEMBER 2001

Publication in Nature Medicine by Dumont EA, Reutelingsperger CP, Smits JF, Daemen MJ, Doevendans PA, Wellens HJ, Hofstra L - Real-time imaging of apoptotic cell-membrane changes at the single-cell level in the beating murine heart. Nat Med 2001; 7 (12): 1352-5

2002

The Royal Academy of Arts and Sciences extends the accreditation of the Research School on Cardiovascular Diseases for the period 2002-2007.

INTERVIEW / A special breed of people

'The best thing about CARIM is that it brings together scientists from many disciplines'

Gerry Nicolaes

JANUARY 2002

Prof. Monica Galli (Milan, Italy) occupies the Edmond Hustinx chair.

JULY 2002

Dr Joost Luiken (dept. of Physiology) and Dr Matthijs Blankesteijn (dept. of Pharmacology) receive a NWO VIDI fellowship.

04_ EVENTS AND HIGHLIGHTS 2010

SCIENTIFIC HIGHLIGHTS 2010

In 2010 the hard work of our researchers paid off in **523 scientific publications** in peer refereed journals (477 Wi-1 publications, excluding abstracts, and 29 Letters to the editor), **33 PhD theses, 3 patents**, 2.5 million Euros funding received in competition from national and international science foundations and 16.6 million Euros funding from third parties, charities, EU-framework programs, industry, etc. In 2010 the overall average Impact Factor (5.5) remained almost at the same approximate level compared to 2009 (5.8). Bibliometric analyses (1997-2008) illustrate that publications from CARIM have been cited 1.61 times more often than the world mean for the cardiovascular field.

TOP PUBLICATIONS

Top publications with the highest Impact Factor in 2010*

* with CARIM researcher as first and/or last author

Glatz JF, Luiken J, Bonen A –
Membrane Fatty Acid Transporters as Regulators of Lipid Metabolism: Implications for Metabolic Disease.
Physiological Reviews 2010; 90: 367-417 IF 37.726

Koenen RR, Weber C –
Therapeutic targeting of chemokine interactions in atherosclerosis.
Nature Reviews Drug Discovery 2010; 9: 141-153 IF 29.059

Da Costa Martins PA, Salic K, Gladka MM, Armand AS, **Leptidis S, El Azzouzi H,** Hansen A, Coenen-de Roo CJ, Bierhuizen MF, Van der Nagel R, Van Kuik J, De Weger R, De Bruin A, Condorelli G, Arbones ML, Eschenhagen T, **De Windt LJ –**
MicroRNA-199b targets the nuclear kinase Dyrk1a in an auto-amplification loop promoting calcineurin/NFAT signaling.
Nature Cell Biology 2010; 12: 1220-U231 IF 19.527

▸▸

AUGUST 2002

Dr Yigal Pinto (dept. of Cardiology) receives a NWO VIDI fellowship.

OCTOBER 2002

Dr Tilman Hackeng (dept. of Biochemistry) receives a NWO VIDI fellowship.

2002

Prof. Harry Struijker Boudier receives the Prix Descartes Huygens from the French ambassadress Mrs. Anne Gazeau-Secret.

TOP PUBLICATIONS

Goossens P, Gijbels MJJ, Zernecke A, Eijgelaar W, Vergouwe MN, Van der Made I, Vanderlocht J, Beckers L, Buurman WA, Daemen M, Kalinke U, Weber C, Lutgens E, De Winther MPJ –
Myeloid Type I Interferon Signaling Promotes Atherosclerosis by Stimulating Macrophage Recruitment to Lesions.
Cell Metabolism 2010; 12: 142-153 IF 17.35

Borissoff JI, Heeneman S, Kilinc E, Kassak P, Van Oerle R, Winckers K, Govers-Riemslag JWP, Hamulyak K, Hackeng TM, Daemen M, Ten Cate H, Spronk HMH -
Early Atherosclerosis Exhibits an Enhanced Procoagulant State. *Circulation 2010; 122: 821-U145 IF 14.81*

De Groot NMS, Houben RPM, Smeets JL, Boersma E, Schotten U, Schalij MJ, Crijns H, Allessie MA –
Electropathological Substrate of Longstanding Persistent Atrial Fibrillation in Patients With Structural Heart Disease Epicardial Breakthrough.
Circulation 2010; 122: 1674-1682 IF 14.816

Hristov M, Gumbel D, Lutgens E, Zernecke A, Weber C –
Soluble CD40 Ligand Impairs the Function of Peripheral Blood Angiogenic Outgrowth Cells and Increases Neointimal Formation After Arterial Injury.
Circulation 2010; 121: 315-324 IF 14.816

Oostendorp M, Douma K, Wagenaar A, Slenter J, Hackeng TM, Van Zandvoort M, Post MJ, Backes WH –
Molecular Magnetic Resonance Imaging of Myocardial Angiogenesis After Acute Myocardial Infarction.
Circulation 2010; 121: 775-U85 IF 14.816

Shagdarsuren E, Bidzhekov K, Mause SF, Simsekyilmaz S, Polakowski T, Hawlisch H, Gessner JE, Zernecke A, Weber C –
C5a Receptor Targeting in Neointima Formation After Arterial Injury in Atherosclerosis-Prone Mice.
Circulation 2010; 122: 1026-U139 IF 14.816

Sayre MR, Koster RW, Botha M, Cave DM, Cudnik MT, Handley AJ, Hatanaka T, Hazinski MF, Jacobs I, Monsieurs K, Morley PT, Nolan JP, Travers AH, Gorgels AP –
Adult Basic Life Support Chapter Collaborators. Part 5: Adult basic life support: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations.
Circulation 2010; 122 (16 Suppl 2): S298-324 IF 14.816

Lutgens E, Lievens D, Beckers L, Wijnands E, Soehnlein O, Zernecke A, Seijkens T, Engel D, Cleutjens J, Keller AM, Naik SH, Boon L, Oufella HA, Mallat Z, Ahonen CL, Noelle RJ, De Winther MP, Daemen MJ, Biessen EA, Weber C –
Deficient CD40-TRAF6 signaling in leukocytes prevents atherosclerosis by skewing the immune response toward an anti-inflammatory profile.
Journal of Experimental Medicine 2010; 207: 391-404 IF 14.505

De Jager J, Kooy A, Lehert P, Wulffele MG, Van der Kolk J, Bets D, Verburg J, Donker AJM, Stehouwer CDA –
Long term treatment with metformin in patients with type 2 diabetes and risk of vitamin B-12 deficiency: randomised placebo controlled trial.
British Medical Journal 2010; 340: 7 IF 13.66

Bieghs V, Wouters K, Van Gorp PJ, Gijbels MJJ, De Winther MPJ, Binder CJ, Lutjohann D, Febbraio M, Moore KJ, Van Bilsen M, Hofker MH, Shiri-Sverdlov R –
Role of Scavenger Receptor A and CD36 in Diet-Induced Nonalcoholic Steatohepatitis in Hyperlipidemic Mice.
Gastroenterology 2010; 138: 2477-U351 IF 12.899

Bekkers S, Yazdani SK, Virmani R, Waltenberger J –
Microvascular Obstruction Underlying Pathophysiology and Clinical Diagnosis.
Journal of the American College of Cardiology 2010; 55: 1649-1660 IF 12.64

De Vos CB, Pisters R, Nieuwlaat R, Prins MH, Tieleman RG, Coelen RJS, Van den Heijkant AC, Allessie MA, Crijns H –
Progression from Paroxysmal to Persistent Atrial Fibrillation Clinical Correlates and Prognosis.
Journal of the American College of Cardiology 2010; 55: 725-731 IF 12.64

Eurlings LWM, Van Pol PEJ, Kok WE, Van Wijk S, Lodewijks-van der Bolt C, Balk A, Lok DJA, Crijns H, Van Kraaij DJW, De Jonge N, Meeder JG, Prins M, Pinto YM -
Management of Chronic Heart Failure Guided by Individual N-Terminal Pro-B-Type Natriuretic Peptide Targets Results of the PRIMA …
Journal of the American College of Cardiology 2010; 56: 2090-2100 IF 12.64

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JANUARY 2003

JANUARY 2003

Dr Cees Vink (dept. of Medical Virology) is promoted from junior Academy Researcher to senior Academy Researcher of the Royal Academy of Arts and Sciences.

JANUARY 2003

The group of Hemker and Béguin publishes a method to measure thrombin generation in real time in plasma which is at the basis of broad application of this technique in clinical research: Hemker HC, Giesen P, Al Dieri R, Regnault V, de Smedt E, Wagenvoord R, Lecompte T, Béguin S - Calibrated automated thrombin generation measurement in clotting plasma. Pathophysiol Haemost Thromb 2003; 33(1): 4-15

APRIL 2003

Prof. Maurits Allessie is elected as a Member of the Royal Netherlands Academy of Arts and Sciences (KNAW) and as one of the first KNAW Academy Professors.

APRIL 2003

NWO VENI grants for Dr Ann-Pascale Bijnens (dept. of Pathology), Dr Tim Leiner (dept. of Radiology), Dr Patrick Beisser (dept. of Medical Virology).

APRIL 2003

Major financial boost (11 million Euros) with a Dutch Government/BSIK grant to a consortium on molecular imaging, led by CARIM researcher Prof. Jos Smits (dept. of Pharmacology).

TOP PUBLICATIONS

Liehn EA, Piccinini AM, **Koenen RR,** Soehnlein O, Adage T, Fatu R, Curaj A, Popescu A, **Zernecke A,** Kungl AJ, **Weber C –**
A New Monocyte Chemotactic Protein-1/Chemokine CC Motif Ligand-2 Competitor Limiting Neointima Formation and Myocardial Ischemia/Reperfusion Injury in Mice.
Journal of the American College of Cardiology 2010; 56: 1847-1857 IF 12.64

Scheffers IJM, Kroon AA, Schmidli J, Jordan J, **Tordoir JJM,** Mohaupt MG, Luft FC, Haller H, Menne J, Engeli S, Ceral J, Eckert S, Erglis A, Narkiewicz K, Philipp T, **De Leeuw PW -**
Novel Baroreflex Activation Therapy in Resistant Hypertension Results of a European Multi-Center Feasibility Study.
Journal of the American College of Cardiology 2010; 56: 1254-1258 IF 12.64

Schotten U, Verheule S, Kerfant BG, Greiser M –
Enhanced Late Na+ Currents in Atrial Fibrillation New Drug Target or Just an Epiphenomenon?
Journal of the American College of Cardiology 2010; 55: 2343-2345 IF 12.64

Duckers C, Simioni P, Spiezia L, Radu C, Dabrilli P, Gavasso S, **Rosing J, Castoldi E -**
Residual platelet factor V ensures thrombin generation in patients with severe congenital factor V deficiency and mild bleeding symptoms.
Blood 2010; 115: 879-886 IF 10.555

Lievens D, Zernecke A, Seijkens T, Soehnlein O, **Beckers L, Munnix ICA, Wijnands E, Goossens P, Van Kruchten R,** Thevissen L, Boon L, Flavell RA, Noelle RJ, Gerdes N, **Biessen EA, Daemen M, Heemskerk JWM, Weber C, Lutgens E –**
Platelet CD40L mediates thrombotic and inflammatory processes in atherosclerosis.
Blood 2010; 116: 4317-4327 IF 10.555

Rennenberg R, **Van Varik BJ, Schurgers LJ, Hamulyak K, Ten Cate H,** Leiner T, **Vermeer C, De Leeuw PW, Kroon AA –**
Chronic coumarin treatment is associated with increased extracoronary arterial calcification in humans.
Blood 2010; 115: 5121-5123 IF 10.555

Top publications
with the highest Impact Factor in 2010*
(* with CARIM researcher as co-author)

Jones RB, **Cohen Tervaert JW,** Hauser T, Luqmani R, Morgan MD, Peh CA, Savage CO, Segelmark M, Tesar V, **Van Paassen P,** Walsh D, Walsh M, Westman K, Jayne DRW -
European Vasculitis Study, G. Rituximab versus Cyclophosphamide in ANCA-Associated Renal Vasculitis.
New England Journal of Medicine 2010; 363: 211-220 IF 47.05

Kaandorp SP, Goddijn M, Van der Post JAM, Hutten BA, Verhoeve HR, **Hamulyak K,** Mol B, Folkeringa N, Nahuis M, Papatsonis DNM, Buller HR, **Van der Veen F,** Middeldorp S –
Aspirin plus Heparin or Aspirin Alone in Women with Recurrent Miscarriage.
New England Journal of Medicine 2010; 362: 1586-1596 IF 47.05

Kaiser C, Galatius S, Erne P, Eberli F, Alber H, Rickli H, Pedrazzini G, Hornig B, Bertel O, Bonetti P, De Servi S, **Brunner-La Rocca HP,** Ricard I, Pfisterer M, Grp B-PS –
Drug-Eluting versus Bare-Metal Stents in Large Coronary Arteries.
New England Journal of Medicine 2010; 363: 2310-2319 IF 47.05

Sarwar N, Gao P, Seshasai SRK, Gobin R, Kaptoge S, Di Angelantonio E, Ingelsson E, Lawlor DA, Selvin E, Stampfer M, **Stehouwer CDA,** Lewington S, Pennells L, Thompson A, Sattar N, White IR, Ray KK, Danesh J –
Emerging Risk Factors Collaboration. Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies.
Lancet 2010; 375: 2215-2222 IF 30.758

Kaptoge S, **Stehouwer CDA,** et al. –
Emerging Risk Factors Collaboration. C-reactive protein concentration and risk of coronary heart disease, stroke, and mortality: an individual participant meta-analysis.
Lancet 2010; 375: 132-40 IF 30.758

Vlooswijk MCG, Jansen JFA, De Krom M, Majoie HJM, **Hofman PAM, Backes WH,** Aldenkamp AP –
Functional MRI in chronic epilepsy: associations with cognitive impairment.
Lancet Neurology 2010; 9: 1018-1027 IF 18.126

▸▸

MAY 2003

CARIM is included as one of the core members in the European Vascular Genomics Network, the first cardiovascular network-of-excellence selected in the EU.

OCTOBER 2003

Dr Gerry Nicolaes (dept. of Biochemistry) receives a NWO VIDI fellowship.

NOVEMBER 2003

Dr Xander Wehrens (dept. of Cardiology) receives the CARIM Dissertation Award 2001-2002.

DECEMBER 2003

Dr Esther Lutgens (dept. of Pathology) receives a NWO VENI fellowship.

DECEMBER 2003

Dr Marc van Bilsen (dept. of Physiology) and Prof. Jan Glatz (dept. of Physiology) receive a NWO program grant.

DECEMBER 2003

Jan Glatz is appointed as Dutch Heart Foundation Professor.

TOP PUBLICATIONS

Parker BD, **Schurgers LJ,** Brandenburg VM, Christenson RH, **Vermeer C,** Ketteler M, Shlipak MG, Whooley MA, Ix JH –
The Associations of Fibroblast Growth Factor 23 and Uncarboxylated Matrix Gla Protein With Mortality in Coronary Artery Disease.
The Heart and Soul Study Annals of Internal Medicine 2010; 152: 640-+ IF 16.225

Berres ML, **Koenen RR,** Rueland A, Zalvidar MM, Heinrichs D, Sahin H, Schmitz P, Streetz KL. Berg T, Gassler N, Weiskirchen R, Proudfoot A, **Weber C,** Trautwein C, Wasmuth HE -
Antagonism of the chemokine ccl5 ameliorates experimental liver fibrosis in mice.
J Clin Invest 2010; 120: 4129-4140 IF 15.387

Bonta PI, Pols TWH, Van Tiel CM, Vos M, Arkenbout EK, Rohlena J, Koch KT, De Maat MPM, Tanck MWT, De Winter RJ, Pannekoek H, **Biessen EAL,** Bot I, De Vries CJM –
Nuclear Receptor Nurr1 Is Expressed In and Is Associated With Human Restenosis and Inhibits Vascular Lesion Formation In Mice Involving Inhibition of Smooth Muscle Cell Proliferation and Inflammation.
Circulation 2010; 121: 2023-U135 IF 14.816

Drechsler M, **Megens RTA, Van Zandvoort M, Weber C, Soehnlein O –**
Hyperlipidemia-Triggered Neutrophilia Promotes Early Atherosclerosis.
Circulation 2010; 122: 1837-+ IF 14.816

Lijfering WM, Middeldorp S, Veeger N, **Hamulyak K,** Prins MH, Buller HR, Van der Meer J –
Risk of Recurrent Venous Thrombosis in Homozygous Carriers and Double Heterozygous Carriers of Factor V Leiden and Prothrombin G20210A.
Circulation 2010; 121: 1706-1712 IF 14.816

Storkebaum E, De Almodovar CR, **Meens M,** Zacchigna S, Mazzone M, Vanhoutte G, Vinckier S, Miskiewicz K, Poesen K, Lambrechts D, **Janssen GMJ, Fazzi GE,** Verstreken P, Haigh J, **Schiffers PM,** Rohrer H, Van der Linden A, **De Mey JGR,** Carmeliet P –
Impaired Autonomic Regulation of Resistance Arteries in Mice With Low Vascular Endothelial Growth Factor or Upon Vascular Endothelial Growth Factor Trap Delivery.
Circulation 2010; 122: 273-U107 IF 14.816

PATENTS

Blankesteijn M –
Antagonistic peptides for frizzled-1 and frizzled-2.
Patent application 09154475.9
International publication date: September 8, 2010

De Windt LJ, Da Costa Martins PA –
Means and methods for counteracting, delaying and/or preventing adverse energy metabolism switches in heart disease: PPARdelta.
Patent application WO2010005295
International publication date: January 14, 2010

Pisters R, Hermans M –
Medicijn Manager.
Registration date: August 24, 2010

2003

Prof. Robert Reneman is elected Fellow of the International Academy for Medical and Biological Engineering.

2003

Prof. Coen Hemker is appointed as correspondent of the Académie Nationale de Médecine (Paris) and as foreign member of the division Biology and Pharmacology of this Academy.

JANUARY 2004

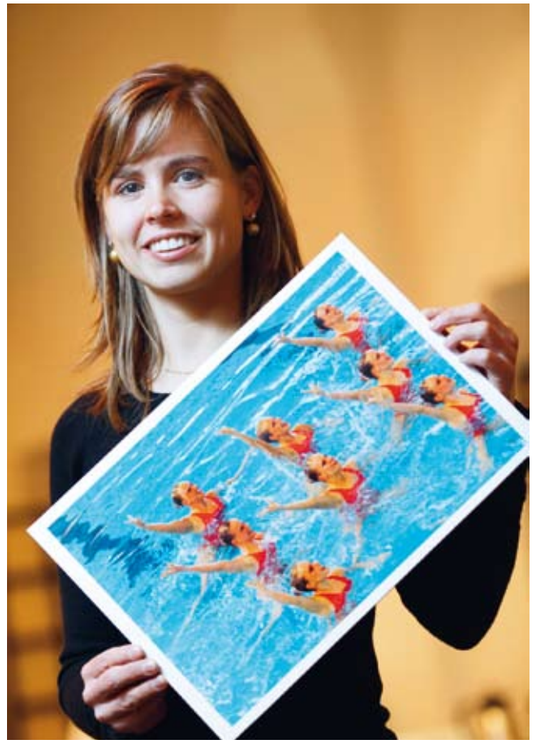
Prof. Mark Kockx (Middelheim Hospital, Antwerp, Belgium) occupies the Edmond Hustinx chair.

2004

Technological innovation on novel molecular imaging technologies together with Philips and Organon, novel cardiovascular biomaterials with DSM, and new drug targets for atherotrombosis and heart failure (with Organon).

2004

Accreditation of the 2-years Research Master ‘Cardiovascular Biology and Medicine’.



NHS E. Dekker Program: Irene van Geldorp

NHS E. Dekker Program: Ward Vanagt

SCIENTIFIC GRANTS, AWARDS AND HONORS

In this part we present most of the CARIM researchers that were successful in obtaining project and personal grants or awards and prizes.

NWO VENI and VIDI laureates

In November the Netherlands Organization for Scientific Research (NWO) granted a VENI fellowship to **Judith Sluimer** (dept. of Pathology) and a VIDI fellowship to **Dietbert Neumann** (dept. of Molecular Genetics). Judith Sluimer received a 250 K€ grant to conduct her original research project on hypoxia in atherosclerotic plaque-macrophages over a three year period. Sluimer's project proposal **'Oxygen in atherosclerosis: tidy up?'** deals with one of the causes of the aggravation of atherosclerosis; improper disposal of dead cells in the vessel wall. She believes that by increasing low oxygen pressure in the vessel wall, the removal of dead cells will be improved, thereby reducing atherosclerosis.

Dietbert Neumann will develop his own line of research on dysfunction of muscle glucose uptake and storage in patients with type 2-diabetes and the Wolff-Parkinson-White syndrome. Within his 800 K€ granted project **'Regulated sugar for my sweetheart!: Glycogen-targeting of AMP-activated protein kinase'**, Neumann will attempt to interfere with the cellular localization of the energy sensor AMP-activated protein kinase to affect glucose utilization for the treatment of human disease.

Leducq Foundation

Paula da Costa Martins received a Transatlantic Career Development Award of the Leducq Foundation, a personal grant of 225 K€, for her research project 'MiR-216a: a cell death regulating MicroRNA's during myocardial repair'.

NHS E. Dekker Program

In the framework of the NHS E. Dekker Program **Irene van Geldorp** (dept. of Biomedical Engineering) received a grant for Researchers in Pediatric Cardiology for her research towards better pacing therapies in patients with congenital heart disease. **Ward Vanagt** (dept. of Physiology) received a Junior Staff Member NHS Dekker stipend for his research on new methods for damage control in the heart after anoxia.

NHS Project Grants

Seven project proposals were funded with project grants (total amount 1.596 K€) made possible by the Dutch Heart Foundation (NHS): **Paul Volders, Bram Kroon, Marleen van Greevenbroek, Matthijs Blankesteijn, Paula da Costa Martins, Harry Crijns and Menno de Winther** all received a NHS project grant.

(See full overview on the next page)
▸▸

MAY 2004

Official operational launch of the first European Network of Excellence EVGN in Paris. CARIM participates in 8 work packages in which 46 CARIM researchers, PhD-students and technicians are involved.

SEPTEMBER 2004

Dr Bram Kroon (dept. of Internal Medicine) is appointed as Clinical Established Investigator by the Dutch Heart Foundation.

OCTOBER 2004

Dr Esther Lutgens (dept. of Pathology) receives a Post-doc Stipend of the Dutch Heart Foundation.

NOVEMBER 2004

Dr Yigal Pinto (dept. of Cardiology) is appointed as member of the Young Academy by the Royal Academy of Arts and Sciences.

2004

Start of the research program 'Molecular Imaging in ischemic heart disease' carried out in a consortium with the faculty of Biomedical Engineering of TU/e, Philips Research and Organon and subsidized by the Dutch government in the framework of BSIK.

NHS Project Grants

AWARDEES	DEPT.	NHS PROJECT GRANTS
Matthijs Blankesteijn	Pharmacology	Blocking Wnt/frizzled signaling: a novel therapeutic approach to prevent heart failure development after myocardial infarction Project Grant: 220 K€
Paula da Costa Martins	Cardiology	The embryonic transcription factor HAND2 (dHAND) regulates left and right ventricular remodeling towards dilated cardiomyopathy Project Grant: 240 K€
Harry Crijns	Cardiology	Assessment of the substrate for atrial fibrillation using tissue velocity imaging of the fibrillating atrial wall Project Grant: 161 K€
Marleen van Greevenbroek	Internal Medicine	The classical, the lectin and the alternative pathways of complement activation and risk of cardiovascular disease Project Grant: 248 K€
Bram Kroon	Internal Medicine	The effects of vitamin K2 supplementation on the progression of coronary Artery calcification Project Grant: 241 K€
Paul Volders	Cardiology	Importance of the KCNQ1 transmembrane segment S6 for the adrenergic control of cardiac repolarization Project Grant: 236 K€
Menno de Winther	Molecular Genetics	The role of type I interferons in atherosclerosis development and plaque stability Project Grant: 250K€

Kootstra Fellowships

Three of our young talented students were awarded a Kootstra Fellowship: **Marten Hoeksema** (dept. of Molecular Genetics), **Chahinda Ghossein** (dept. of Obstetrics), and **Floor Steegh** (dept. of Pathology). The main objectives of the Kootstra Talent Fellowship Program are financial support for young talented students to a) bridge the time between graduation in Medicine, Health or Life Sciences and the start of an official contract as a PhD-student, b) bridge the time between graduation of the PhD-student and the start of an official contract as a post-doc, or c) be able to combine their studies in Medicine, Health or Life Sciences with an active involvement in scientific research.

Professor Struijker Boudier knighted

April 29 Professor Harry Struijker Boudier (61) has been awarded the royal distinction of a Knight of the Order of Oranje Nassau. Professor Struijker Boudier, as one of our scientific directors, has fulfilled a major role in building the national and international image and successes of the current School of Cardiovascular Diseases (CARIM). Professor Struijker Boudier has been head of the department of Pharmacology for fifteen years. Within this period he has also been chairman of the Board of CARIM, continued by a seven years-period in the role of scientific director. At the moment Professor Struijker Boudier is vice-president of the Council of the European Society of Hypertension. In 2001 he was appointed honorary doctor at the Université de Liège and in 2002 he received the prestigious Prix Descartes-Huygens of the French Government. From 2003 he is a member of the Dutch Academy of Technology and Innovation. Professor Struijker Boudier was mentor of 37 PhD students, of which five have been appointed Professor nowadays.
See the interview with Professor Struijker Boudier on page 46.

In 2010 many CARIM researchers were awarded with prizes and travel grants. An overview of these laureates in alphabetical order is given in the figure on the next page.

▸▸

▸ 2004

The Research Group Thrombosis and Haemostasis succeeds in developing conformation-specific anti-bodies specifically recognizing either the active, carboxylated form of MGP, or undecarboxylated, inactive MGP species.

JANUARY 2005

Two VIDI grants are awarded to Dr Menno de Winther (dept. of Molecular Genetics) and Dr Ferdinand le Noble (dept. of Physiology) by NWO.

OVERVIEW AWARDS, PRIZES AND PERSONAL GRANTS

AWARDEES	DEPT.	AWARD/PRIZE	INSTITUTION
Anette Christ	Pathology	Poster Award winner with the poster 'The role of dentric cells in human atherosclerosis lesions'	European Society of Cardiology, congress 'Frontiers in Cardiovascular Research'
Judith Cosemans	Biochemistry	Young Investigator Prize for best paper on platelets	Journal of Thrombosis and Haemostasis
Miren David	Cardiology	Research Grant 2010: 25 K€	European Society of Cardiology
Irene van Geldorp	Biomedical Engineering	Researcher in Pediatric Cardiology Grant: 82 K€	NHS E. Dekker Program
Pieter Goossens	Molecular Genetics	Prize for the best presentation	13th Dutch Atherosclerosis day, Dutch Atherosclerosis Society
Evelien Hermeling	Physiology	Westerhof Award	Cardiovascular System Dynamics Society, Fukuoka, Japan
Ben Janssen	Pharmacology	Visual sonics echo scanner Grant : 300 K€	NWO
Joost Lumens	Physiology	Second prize in the Sagawa Award	Cardiovascular System Dynamics Society, Fukuoka, Japan
Merlijn Meens	Pharmacology	ASPET Travel Award to attend Experimental Biology	American Society of Pharmacology and Experimental Therapeutics, Anaheim, CA, USA
An Moens	Cardiology	Nomination for the 'Outstanding Young Translational Researcher-lecture'	American Heart Association, Basic Cardiovascular Science meeting
Dietbert Neumann	Molecular Genetics	VIDI fellowship Grant: 800 K€	NWO
Marjorie Poggi	Pathology	Atherothrombosis Research Grant: 50 K€	European Society of Cardiology
Timo Rademakers	Pathology	Poster prize	13th Dutch Atherosclerosis day, Dutch Atherosclerosis Society
Judith Sluimer	Pathology	VENI fellowship Grant: 250 K€	NWO
Ward Vanagt	Physiology	Junior Staff Member Grant: 136 K€	NHS E. Dekker Program

MARCH 2005

Dr Sofia Xanthoulea (dept. of Molecular Genetics) and Dr Tosca van Hooy (dept. of Biochemistry) and Dr Peter Heeringa (dept. of Internal Medicine) receive a VENI grant.

2005

Extension of the research program in the area of cardiovascular biomedical materials via a strategic alliance with DSM.

MAY 2005

The Dutch Government decides to support the foundation of the Top Institute Pharma. CARIM is one of the founding members of this top institute.

JULY 2005

CARIM organizes the first Summer School of the EVGN; 64 PhD students from 11 European countries participate.

SEPTEMBER 2005

Prof. Coen Stehouwer receives the prestigious Castelli Pedroli Prize of the European Association for the Study of Diabetes for excellence in research on cardiovascular complications of diabetes mellitus.

EVENTS AND HIGHLIGHTS

The Maastricht Study: from challenge to reality

CARIM's Principal Investigator Prof. **Coen Stehouwer** is initiator of the Maastricht Study; a large, longitudinal population based cohort study focused on type 2 diabetes, and its related co-morbidities. Primary objectives of the Maastricht Study are to study: 1) the current prevalence and incidence of type 2-diabetes and both its classic and its 'emerging' complications, 2) (new) determinants of the development and progression of type 2-diabetes, and 3) (new) determinants of how type 2-diabetes leads to both its classic and its 'emerging' complications. We have the ambition to include 10.000 individuals living in the Southern part of the Netherlands (Maastricht and Heuvelland). Participants are 40 to 75 years old, and half of them will have type 2-diabetes. For more detailed information please visit www.demaastrichtstudie.nl.

In January a MRI scanner, needed for several diagnostic measures, was obtained **as part of a Philips-Maastricht University deal** in 2009. The MRI scanner is exclusively designated for the Maastricht Study. In August the research facility of the Maastricht Study has been delivered.
The Maastricht Study Research Center houses high tech research equipment and representative facilities for participants (both researchers and experimental subjects) in one building. In October the Medical Ethics Committee gave its final approval to the study design and research protocol. In that way the first experimental subject could be included in the study just before the end of 2010.

Echo scanner

In August Dr **Ben Janssen** (dept. of Pharmacology) obtained a large NWO grant of 300 K€ within the 'Investment Subsidy NWO Medium programme for the acquisition of equipment' (the so called 'NWO-Middelgroot'). With this subsidy, NWO seeks to encourage and support investments in research infrastructure. NWO pays a maximum of 75% of each grant. The university or institute makes a minimum contribution of 25%. With this NWO grant CARIM could pursue a VisualSonics echo scanner. Dr Ben Janssen will be project leader. The ultrasound equipment funded shall enable the researchers to non-invasively image the molecular disease processes that cause cardiovascular diseases and to assess the effectiveness of new treatments, within the context of preclinical models.

External Review Committee Cluster Cardiac Hypertrophy and Heart Failure
(from left to right) Professor Stefan Engelhardt (Technische Universität München, Germany), Petra Uittenbogaard (CARIM), Professor Emer. Pim van Aken (chair), Prof. Emer. Günther Breithardt (Universitätsklinikum Münster, Germany), Professor David Eisner (University of Manchester, United Kingdom)

External review research program on Cardiac Hypertrophy and Heart Failure

On October 21 and 22 an external committee, consisting of Professor Günther Breithardt, Professor David Eisner, Professor Stefan Engelhardt and Professor Pim van Aken (chair), visited our institute. The external review was not obligatory, but is part of a new CARIM policy. In 2009 the CARIM Board decided to stimulate and facilitate collaboration between CARIM researchers, by means of bringing together the Principle Investigators around several research themes. Main objectives of this organizational operation are to increase focus and visibility of the research and, above all, to stimulate scientific quality. The cluster containing the Cardiac Hypertrophy and Heart Failure programs was the first one to be reviewed by an external expert committee.

The preparatory process turned out to be a fruitful and successful exercise in itself. All PI's participating in the cluster Cardiac Hypertrophy and Heart failure conducted their SWOT-analysis. The Committee very much appreciated the Self Evaluation Report which was judged to "provide a concise description of the content of the research programs, as well as the perspectives and expectations." In its evaluation report the committee reported that: "The research program is relatively young but strong, and its full value will most likely become clear within several years. The best that is ▸▸

▸ NOVEMBER 2005 | 2005 | **FEBRUARY 2006** | MARCH 2006 | JULY 2006 ▸

Dr Saraswati Pokharel (dept. of Cardiology) receives the CARIM Dissertation Award 2003-2004 for her thesis 'How the rennin angiotensin system influences the cardiac matrix via transforming growth factor B signaling'.

CARIM and azM invest in a joint facility for mass spectrometry; a Qstar ESI-Q-TOF and a 4800 MALDI-TOF/TOF mass spectrometer are acquired.

Dr Ygal Pinto (dept. of Cardiology) is granted an established investigatorship by the NHS.

Dr Hans Vink (dept. of Physiology) is granted an established investigatorship by the NHS.

NWO allocates a VIDI grant to Dr Elisabetta Castoldi (dept. of Biochemistry) and a VENI grant to Dr Ronit Sverdlov (dept. of Molecular Genetics).

coming out of this part of CARIM is internationally competitive." The Committee was very positive about the vitality and success rate of acquiring external research funding. The number of publications and particularly the high ranking journals in which papers have been published was commented positively. The Committee noted particular strengths, specifically in gene regulation, inflammation and electromechanics related to heart failure and cardiac hypertrophy. "While it was appreciated that the quality of these programs is excellent, there exists room for improvement of collaboration and integration within the cluster. All participating groups, even the very best, would benefit from a stronger mutual exchange of expertise, of resources and cooperation. Also first class genetics could be key to the future success of many CARIM research areas".

EUTRAF

On 1st of November, the European Commission has launched a new large scale collaborative project aiming at improvement of patient care in patients with Atrial Fibrillation. The "European Network for Translational Research in Atrial Fibrillation" (EUTRAF) was granted a total amount of 12 million Euros for integrated research in order to explore disease mechanisms and to develop better diagnostic means and new therapies in patients with Atrial Fibrillation. The total funding period of this network is 5 years. CARIM PI Professor **Uli Schotten** (dept. of Physiology) was appointed as technical field manager in the EUTRAF initiative. EUTRAF is a multidisciplinary consortium of expert groups involved in atrial fibrillation research and consists of academic research groups and industry partners. CARIM was granted 1,4 million Euros within this Seventh Framework Programme of the EU. ■

People and Acknowledgements

In 2010 we watched several colleagues come and leave. Other colleagues made a step in their scientific careers.

In January 2010 we welcomed Professor **Harald Schmidt** and Professor Hans Peter Brunner-La Rocca. **Hans Peter Brunner-La Rocca** (dept. of Cardiology) has been appointed Professor Cardiology with a focus on Clinical Heart Failure, and is PI of the research program Clinical Aspects of Heart Failure. Harald Schmidt has been appointed chairman of the department of Pharmacology. Dr **Tammo Delhaas** (dept. of Biomedical Engineering) was appointed Professor of Biomedical Engineering in the Faculty of Health Medicine and Life sciences. In June Dr **Johan Heemskerk** (dept. of Biochemistry) was appointed Professor Cell Biochemistry of Thrombosis and Haemostasis. In July no less than three CARIM researchers were appointed as Professors; Dr **Bert Smeets** (dept. of Genetics) as Professor Clinical Genomics with focus on Mitochondrial Disorders, Dr **Stephane Heymans** (dept. of Cardiology) as Professor Idiopathic Cardiomyopathies, and Dr **Leon de Windt** (dept. of Cardiology) as Professor Molecular Cardiovascular Biology. In August Dr **Cees Wittens** (dept. of Surgery) was appointed Professor Venous Surgery. From October Professor **Raymond Kim**, Duke Medical Center, Durham, USA was appointed as Hein Wellens visiting professor till October 2011 in the department of Cardiology. In November Dr **Geert-Willem Schurink** (dept. of Surgery) was appointed Professor Vascular Surgery.

Three Professors of our Biochemistry department, **Tilman Hackeng, Hugo ten Cate** and **Johan Heemskerk**, were appointed in the Scientific Organization of the International Society of Thrombosis and Haemostasis Conference 2013 in Amsterdam.

In 2010 the following members in our research staff left our institute. January 2010 Professor **Jan Lodder** (dept. of Neurology) retired. In March Professor **Leo Hofstra** (dept. of Cardiology) left for a position in a private health care venture in cardiology in Utrecht. Dr **Tim Leiner** (dept. of Radiology) accepted a position in University Medical Center Utrecht. At the end of 2010 Dr **Valère Goossens** (dept. of Medical Microbiology) and PI Professor **Johannes Waltenberger** (dept. of Cardiology) continued their careers elsewhere. Johannes went to the Universitätsklinikum in Münster, Germany. ■

2006

The Dutch Government decides to support the Centre for Translational Medicine (CTMM).

OCTOBER 2006

The Dutch Heart Foundation awards Dr Isabella Ferreira (dept. of Internal Medicine) a post-doc fellowship in the framework of the E. Dekker program.

OCTOBER 2006

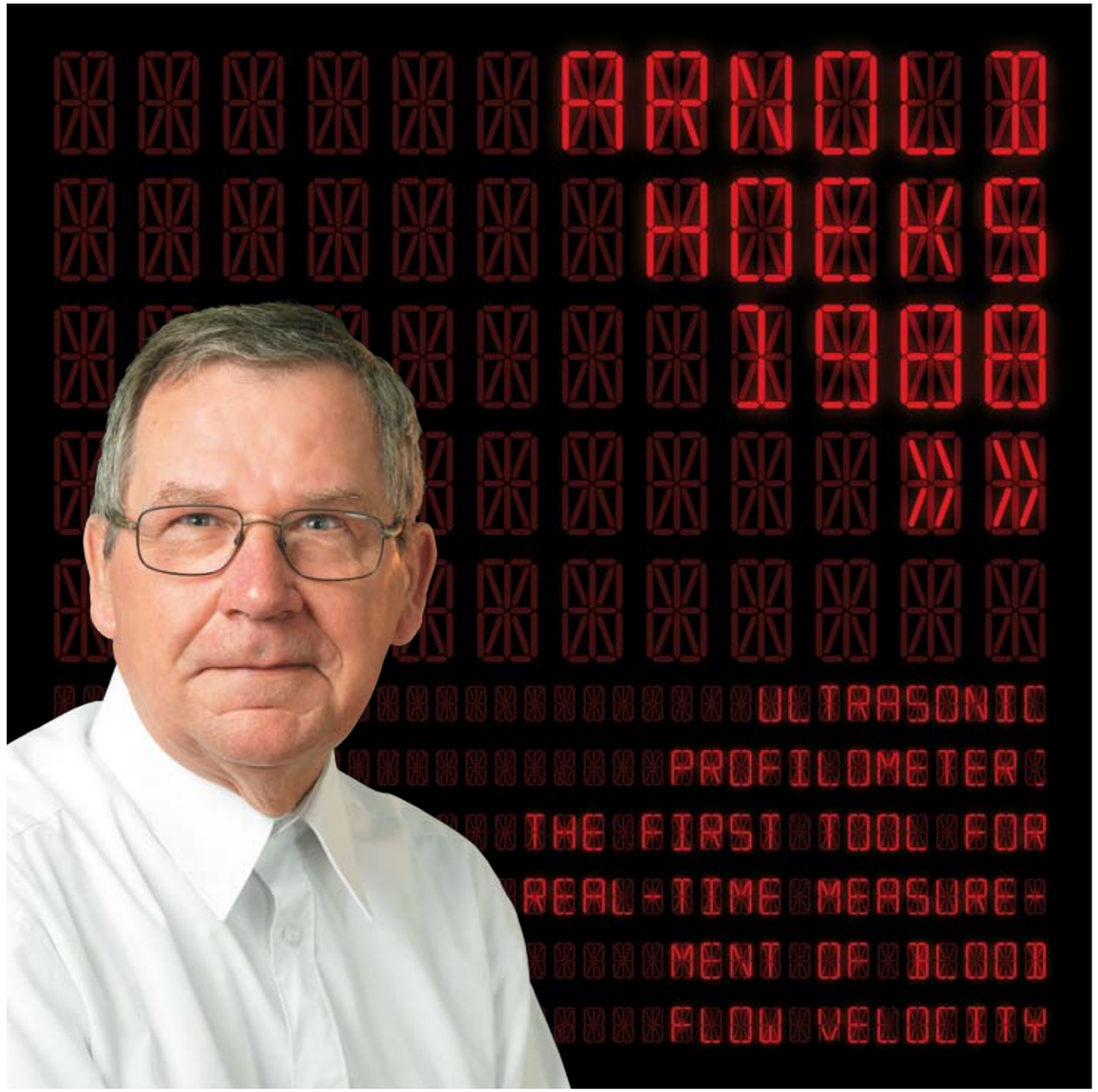
Prof. Mat Daemen (dept. of Pathology) is appointed as scientific director.

2006

Celebration of 20 years Cardiothoracic Surgery in Maastricht and the performance of the first open heart procedure by Prof. Olaf Penn.

JANUARI 2007

Merger of the Faculty of Medicine and the Faculty of Health Sciences into one Faculty of Health Medicine and Life Sciences.



INTERVIEW

Wiring up the world of medicine

‘It is time to solve the puzzle’

Arnold Hoeks

The 30-year age gap between Professor Emeritus Arnold Hoeks (64) and Post-doc Researcher Koen Reesink (34) is definitely not an issue. They are united by their passion for biomedical engineering and by great mutual respect. Reesink says of Hoeks: “He has helped to lay the foundations for our area of research.” Hoeks, in return, envies Reesink’s ability to keep up with the developments in a large number of related fields.

Prof. Emer. Dr. Ir. Arnold Hoeks:
“I joined the cardiovascular research team in Maastricht in 1976. At that time, microprocessors and computers were just coming on the scene. I was assigned to develop a tool for measuring blood flow velocity in real-time. Such an instrument didn’t exist yet. I hardly knew where to start, but I managed to develop one from scratch. It was painstaking work: I was forever wiring up microprocessor chips on circuit boards. It took me two years to build a working system, the first ultrasonic profilometer in the world that could be used in clinical trials.

From then on, my work progressed step by step: I developed related technologies to measure changes in blood vessel
▸▸

2007

Alliance with the CardioVascular Center in the academic Hospital Maastricht to strengthen the collaboration between basic and clinical cardiovascular research.

MARCH 2007

External Review of CARIM. The ERC rates the research and education program ‘very good to excellent’.

diameters, and in the thickness of blood vessel walls. These are my contributions to the global scientific community. For me personally, however, the most exciting moment in my career took place in the early eighties. In those days, blood flow velocity could only be measured accurately up to a certain speed, the so-called Nyquist limit. One evening, I discovered a way to solve this problem. Exhilarated, I wrote on the blackboard for all my colleagues to see: 'Nyquist has been conquered!'

Back then, we were a small group of scientists and we each had our own specific contributions to make to a common goal. When I look at the current generation of CARIM researchers, there is not just coherence between their work, but also within the individuals. Koen, for example, is a scientist who can keep up with, and understand the progress in a number of scientific fields. I envy that ability. It is an asset that will ultimately help us find out what exactly causes a stroke. Over the years, we have made so much progress in understanding many aspects of cardio-vascular disease. Now it is time to integrate our findings and solve the puzzle."

▸▸

'I believe in working at the crossroads of scientific disciplines'

Koen Reesink

JUNE 2007

Foundation Leducq decides to grant the European-North American Atrial Fibrillation Research Alliance with CARIM represented by Prof. Maurits Allessie (dept. of Physiology) as Core Member and Dr Uli Schotten (dept. of Physiology) as Associated Member.

JULY 2007

NWO allocates 2 VIDI grants to Dr Esther Lutgens (dept. of Pathology) and Dr Uli Schotten (dept. of Physiology).

Dr. Ir. Koen Reesink:
“Two years ago, I was awarded a Veni grant. This has enabled me to continue working at CARIM as a post-doc researcher. My work focuses on developing methods to determine whether a patient’s high blood pressure is the cause, or the result of arterial stiffness. Finding a method to unearth this information will contribute to accurately diagnosing patients with cardiovascular disease.

I embarked on this career journey without a clear goal in mind. My motto was: live by the day and I just enjoyed science. I first got a degree in electrical engineering, and then decided I wanted to explore physiology too. I had always been interested in the softer side of science, so what better subject to study than life and human beings.

I believe in working at the crossroads of scientific disciplines. These are the places where most progress can be made. It is difficult, but there are some scientists who have the ability to bridge the gaps between scientific fields. However, they are scarce, and they will often find themselves in no-mans land. Therefore, my ultimate goal is to have a research team in which such scientists are united, focusing on bridging the gaps in order to solve clinical problems. I believe CARIM provides the right kind of environment for conducting interdisciplinary research. Professors are very approachable and open to new ideas. In addition, its excellent international reputation helps to open doors around the world. Professor Hoeks, for example, has a terrific network. His research has been influential across the globe and across the scientific spectrum, from epidemiology to fundamental sciences. His work has been cited in numerous studies. In my view, this has not just happened because Professor Hoeks is a top scientist in his field, but also because of his ability to speak the languages of experts in other fields. Wherever I go, I meet people who respect and admire him.” ■

SEPTEMBER 2007

Official kick-off of the research master ‘Cardiovascular Biology and Medicine’ with 10 Master students.

NOVEMBER 2007

Dr Marijke Kuijpers (dept. of Biochemistry) wins the CARIM Dissertation Award 2005-2006 for her thesis ‘Platelet receptors and procoagulant activity in thrombus formation’.

INTERVIEW / Wiring up the world of medicine

‘CARIM’s excellent international reputation helps to open doors around the world’

Koen Reesink

2007

CARIM enters a new Center of Excellence in the 6th Framework of the EU: ‘Ingenious Hypercare’.

DECEMBER 2007

The NHS awards Dr Menno de Winther (Molecular Genetics) an Established Investigatorship, Dr Marjo Donners (dept. of Cardiology) with a fellowship grant, and Dr Paul Volders (dept. of Cardiology) with a junior staff position in the framework of the Dr. E. Dekker program.

05_ EDUCATION

TRAINING THE NEXT GENERATION OF SCIENTISTS

CARIM School for Cardiovascular Diseases offers a flexible and integrated education and training program that suits individual ambitions of our students. The education program consists of a Research Master in Cardiovascular Biology and Medicine and a Physician-Clinical Investigator Program (MSc/MD) and a contiguous PhD (doctoral) training program. The content of the education program has been developed by CARIM's top researchers. Its framework has been created by senior educators of Maastricht University, who have earned an excellent international reputation for their didactic system that is based on problem-based learning. For more details on our Education program please visit www.carimmaastricht.nl. ■

RESEARCH MASTER

The two-year research master's program 'Research Master in Cardiovascular Biology and Medicine' offers a balanced mix of theoretical and practical courses, allowing students to develop various competencies needed to become highly qualified cardiovascular scientists. August 2010 five students received their Research Master's degree, and 3 of them continued in a PhD-program within our institute, one of them had already started a PhD track and one of them continued a PhD track within GROW School for Oncology and Developmental Biology. Nine new students entered the CBM Research Master's program in 2010. ■

Graduates CARIM Research Master's in CBM in 2010

Rio Putra Juni Perangin Angin
Judith van Haare
Auke Otten
Tom Seijkens
Emiel van der Vorst









PhD PROGRAM

Our PhD program is accessible for our own Research Master or for excellent students from other national or international biomedical Masters. At the end of 2010, 117 PhD students attended our PhD program.

Besides our regular PhD program, we offer the EuCAR program, which is a joint initiative of CARIM and our German partner institute IMCAR in Aachen. This EuCAR-group involves 14 PhD students who are labeled as EuCAR PhD. Each PhD project is supervized by at least one investigator from IMCAR, Aachen and one from CARIM, Maastricht. EuCAR students will obtain a PhD in Aachen as well as in Maastricht. ■

Number of PhD students at 31.12.2010

Funding source	PhD students 2007	PhD students 2008	PhD students 2009	PhD students 2010
University	23	28	28	31
NWO	9	7	6	8
Non-profit + Industry	49	58	62	78
TOTAL	**81**	**93**	**96**	**117**

Photos page 84
Impression of the graduated students of the CBM Research Master's program

PhD DELIVERABLES

In 2010 26 PhD students finished their theses within our institute, and 7 theses were externally prepared. The table below illustrates the numbers of PhD students in the years 2004-2010, related to the period in which they obtained their degree. The graphics on pages 43-45 present the number of PhD theses on the level of our research themes. ■

Year intake	2004	2005	2006	2007	2008	2009	2010
Cohort volume (annual intake)	23	30	23	28	26	41	38
Male	12	19	8	16	14	23	15
Female	11	11	15	12	12	18	23
PhD from abroad	10	5	6	7	9	19	16
Thesis completed	12	12	10	1	0	0	-
Mean duration (in months)	61	56	50	45	-	-	-
Ongoing	4	13	9	26	22	37	38
Drop out	7	5	4	1	4	4	-

Three Italian PhD-students defend their thesis
A unique event in the history of Maastricht University was a simultaneous PhD defense of three PhD-students, all three from Italy. All three did their research on the relationship between nutrition and cardiovascular diseases. **Augusto Di Castelnuovo** found that the expectation of death resulting from cardiovascular diseases diminishes by 20 percent through drinking two glasses of red wine every day. **Romina di Giuseppe** showed that this beneficial effect attributes to the combination of alcohol and anti-oxidants in red wine. Finally, **Emanuela Napoleone** revealed that the anti-oxidants prevent the forming of tissue in the blood vessels. All three were supervised by emeritus Professor Coen Hemker, because he has close ties with their professor at the Nu Re Artu Institut in Campobasso. Because in Italy there are no possibilities for medical doctors to take a doctoral degree, the three chose Maastricht to obtain their PhD degree. ■

CARIM THESES IN 2010

Oostendorp M – CUM LAUDE
Quantitative contrast-enhanced MRI of the microvasculature
Promotor: Prof Dr M. Post
Co-promotor: Dr W. Backes
Maastricht University, January 15, 2010

Miserus R-J –
Molecular imaging of atherosclerosis and thrombus formation
Promotores: Prof Dr M. Daemen and Prof Dr J. van Engelshoven
Co-promotores: Dr E. Kooi and Dr S. Heeneman
Maastricht University, January 22, 2010

Lievens D –
Cell-type specific CD40-CD40L interactions atherosclerosis
Promotores: Prof Dr M. Daemen and Prof Dr E. Biessen
Co-promotor: Dr E. Lutgens
Maastricht University, January 28, 2010

Schols S –
Thrombin generation and fibrin formation in dilutional coagulopathy: towards improved peri-operative transfusion protocols
Promotor: Prof Dr H. ten Cate
Co-promotores: Dr J. Heemskerk and Dr L. van Pampus
Maastricht University, February 19, 2010

Bai L –
Immunosuppressive and anti-proteolytic therapy in vascular diseases
Promotores: Prof Dr M. Daemen and Prof Dr E. Biessen
Co-promotor: Dr S. Heeneman
Maastricht University, March 10, 2010

Scheffers I –
Carotid baroreflex activation; a novel method to treat resistant hypertension
Promotor: Prof Dr P. de Leeuw
Co-promotores: Dr A. Kroon and Dr J. Tordoir
Maastricht University, March 12, 2010

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JANUARY 2008

CARIM researchers succeed in defining the structure of membrane-bound human blood coagulation Factor Va. Stoilova-McPhie S, Parmenter CD, Segers K, Villoutreix BO, Nicolaes GA – Defining the structure of membrane-bound human blood coagulation factor Va. J Thromb Haemost 2008; 6(1): 76-82

MARCH 2008

Dr Judith Sluimer (dept. of Pathology) receives a NWO Rubicon grant to spend two years as a post doc in the lab of Dr. Ira Tabas at the Columbia University in New York.

2008

Four cardiovascular first-call project proposals in the Center for Molecular Medicine (CTMM) receive funding: Circulating Cells, TRIUMPH, PREDICCt and COHFAR. CARIM researchers are participating in all four projects.

MAY 2008

About 50 PhD students participate in the first CARIM PhD weekend held in Rolduc, Kerkrade.

CARIM THESES IN 2010

Afrasiabi A –
Molecular Genetic Analysis of Patients with Rare Bleeding; disorders in South Iran
Promotores: Prof Dr C. Hemker and
Prof Dr P. Manucci (Milan)
Co-promotor: Dr F. Peyvandi (Milan)
Maastricht University, March 17, 2010

Swinnen M –
Matricellular Proteins: crucial regulators of cardiac remodeling
Promotores: Prof Dr Y. Pinto and Prof Dr P. Carmeliet
Co-promotor: Dr S. Heymans
Maastricht University, March 31, 2010

Van Straten B –
Outcome following ten years coronary artery bypass surgery; risk factors for early and late mortality and morbidity
Promotores: Prof Dr J. Maessen, Prof Dr A. van Zundert (Gent) and Prof Dr O. Penn
Maastricht University, April 8, 2010

Laeremans H –
Discovery of ligands for Frizzled and their promises for the diagnosis and treatment of cardiovascular disease
Promotor: Prof Dr J. Smits
Co-promotores: Dr H. Ottenheijm and Dr M. Blankesteijn
Maastricht University, May 19, 2010

De Jager J –
The effects of metformin on metabolism and Cardiovascular disease in type 2 diabetes.
Promotor: Prof Dr C. Stehouwer.
Co-promotor: Dr A. Kooy
Maastricht University, May 27, 2010

Van Hoek F –
Hemodialysis Access-Induced Distal Ischemia (HAIDI); diagnosis and surgical management
Promotor: Prof Dr P. Kitslaar
Co-promotores: Dr M. Scheltinga and Dr J. Tordoir
Maastricht University, May 28, 2010

Di Castelnuovo A –
The protective effect of Moderate Alcohol Consumption against Cardiovascular disease and total Mortality: Epidemiological evidence
Promotores: Prof Dr C. Hemker and
Prof Dr G. de Gaetano (Italy)
Co-promotor: Dr M. Donati (Campobasso Italy)
Maastricht University, June 2, 2010

Di Giuseppe R –
A nutritional approach to prevent cardiovascular disease: from single foods to complex dietary pattern
Promotores: Prof Dr C. Hemker and
Prof Dr G. de Gaetano (Italy)
Co-promotor: Dr L. Iacoviello (Campobasso, Italy)
Maastricht University, June 2, 2010

Napoleone E –
Modulation of tissue factor expression in vascular cells
Promotores: Prof Dr C. Hemker and
Prof Dr G. de Gaetano (Italy)
Co-promotor: Dr R. Lorenzet (Campobasso, Italy)
Maastricht University, June 2, 2010

Greiser M –
Remodeling of intracellular calcium handling in fibrillating atria
Promotor: Prof Dr M. Allessie
Co-promotor: Dr U. Schotten
Maastricht University, June 3, 2010

Wijnen E –
Online flow measurement in hemodialysis vascular access
Promotor: Prof Dr K. Leunissen
Co-promotores: Dr F. van der Sande and Dr J. Tordoir
Maastricht University, June 3, 2010

Simons A –
To drain or not to drain; quantification of drainable intravascular venous volume during extracorporeal life support
Promotor: Prof Dr J. Maessen
Co-promotores: Dr Ir K. Reesink and Dr P. Weerwind
Maastricht University, June 23, 2010

Lumens J –
Patient-Specific Cardiovascular Modeling in Pulmonary Hypertension. Assessment of Hemodynamic and Mechanical Ventricular Interaction
Promotores: Prof Dr T. Arts and Prof Dr T. Delhaas
Maastricht University, July 2, 2010

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JUNE 2008

The subcommittee for Medical Sciences of the Research School Accrediation Committee (ECOS) grants the application for reaccreditation of the Research School for Cardiovascular Diseases with another six years.

AUGUST 2008

NWO grants a VENI fellowship to Dr Koen Reesink (dept. of Biophysics), Dr Blanche Schroen (dept. of Cardiology) and 1 VIDI fellowship to Dr Stephane Heymans (dept of Cardiology).

2008

Dr Esther Lutgens receives the Sofia Kovaleskaja Award from the Humboldt foundation in Germany.

2008

Three CARIM project proposals in the second CTMM call are rewarded with together 35 million Euros; INCOAG (project leader Prof. Hugo ten Cate), PARISk (project leader Prof. Mat Daemen) and Eminence (project leader Prof. Mark Post).

CARIM THESES IN 2010

Kornmann L –
Molecular imaging of large arteries by ultrasound - Potentials and pitfalls
Promotores: Prof Dr A. Hoeks and Prof Dr R. Reneman
Co-promotor: Dr K. Reesink
Maastricht University, September 8, 2010

Van Leeuwen M –
OxLDL-specific antibodies and neutrophils; their relevance in mouse atherosclerosis
Promotores: Prof Dr J. Cohen Tervaert and Prof Dr P. Heeringa (RUG)
Co-promotores: Dr A. Duijvestijn and Dr M. de Winther
Maastricht University, October 29, 2010

Brands J –
Agonist-induced modulation of glycocalyx barrier properties in the microcirculation
Promotores: Prof Dr H. Vink (UvA) and Prof Dr J. Spaan (UvA)
Co-promotor: Dr J. van Teefelen
Maastricht University, October 29, 2010

Rademakers L –
Resynchronization of the ischemic asynchronous heart
Promotores: Prof Dr J. Maessen and Prof Dr F. Prinzen
Maastricht University, November 19, 2010

Merry A –
Coronary heart disease in the Netherlands: Incidence etiology and risk prediction
Promotores: Prof Dr Ir P. van der Brandt and Prof Dr A. Gorgels
Co-promotores: Dr L. Schouten and Dr Ir J. Boer
Maastricht University, December 10, 2010

Gerretsen S –
MR Imaging of coronary atherosclerosis
Promotor: Prof Dr J. Engelshoven
Co-promotores: Dr T. Leiner and Dr E. Kooi
Maastricht University, December 10, 2010

Kwee R – CUM LAUDE
Imaging of carotid atherosclerosis
Promotores: Prof Dr J. Wildberger and Prof Dr W. Mess
Co-promotores: Dr E. Kooi and Dr R. van Oostenbrugge
Maastricht University, December 13, 2010

PHD THESES EXTERNALLY PREPARED

Bakker W –
Vascular Insulin Resistance Through Fat. Intracellular Signaling, Genetic Interferences and Hemodynamics
Promotores: Prof Dr V. van Hinsbergh and Prof Dr C. Stehouwer
Co-promotores: Dr P. Sipkema and Dr E. Eringa
Free University Amsterdam, May 20, 2010

Arbouw M –
Assessment of drug therapy in Parkinson's disease
Promotores: Prof Dr A. Egberts (Enschede), Prof Dr H. Guchelaar and Prof Dr C. Neef
Co-promotor: Dr K. Movig
Utrecht University, June 29, 2010

Van Vliet J –
Revealing the genetic roots of obesity and type 2 diabetes
Promotores: Prof Dr M. Hofker and Prof Dr C. Wijmenga
University of Groningen, July 7, 2010

Bruins Slot M –
Biomarkers for the diagnosis of acute coronary syndrome. Studies in primary care
Promotores: Prof Dr A. Hoes and Prof Dr J. Glatz
Co-promotores: Dr F. Rutten and Dr G. van der Heijden
Utrecht University, November 4, 2010

Leguy C –
On the clinical estimation of the hemodynamical and mechanical properties of the arterial tree
Promotores: Prof Dr Ir F. van den Vosse and Prof Dr Ir A. Hoeks
Co-promotor: Dr Ir E. Bosboom.
Eindhoven University of Technology, October 4, 2010

Ketel I –
Vascular function and insulin sensitivity in lean obese women with PCOS
Promotores: Prof Dr C. Lambalk and Prof Dr C.Stehouwer
Co-promotores: Dr E. Serné and Dr P. Homburg
Free University Amsterdam, November 17, 2010

Lopata R –
2D And 3D ultrasound strain imaging. Methods and in vivo applications
Promotores: Prof Dr Ir J. Thijssen and Prof Dr R. de Groot
Co-promotores: Dr Ir. C. de Korte and Dr L. Kapusta
Radboud University Nijmegen, December 3, 2010

2008

Top Institute Pharma allocates 3 million Euros for the project "Metalloproteases and novel targets in endothelial dysfunction" led by Prof. Jo De Mey (dept. of Pharmacology).

OCTOBER 2008

The International Scientific Advisory Board (ISAB) pays a two day visit to the institute and reviews CARIM's research and educational programs as very good to excellent.

NOVEMBER 2008

Prof. Hugo ten Cate and Prof. Karli Hamulyak publish their article Rivaroxaban for thrombo-prophylaxis in the New England Journal of Medicine 2008; 359(20): 2174-2175.

JANUARY 2009

Dr Rory Koenen publishes an article in Nature Medicine: Disrupting functional interactions between platelet chemokines inhibits atherosclerosis in hyperlipidemic mice. (Nature Medicine 2009; 15: 97-103)

PhD AWARD 2010

Since 2009 a CARIM-funded PhD position is available to stimulate talented Master students to practice designing, writing and defending a PhD project proposal, the so-called PhD Award. The best project proposal is selected from those of the top 2nd year Research Master's students as well as from top Master's students not involved in the CBM Research Master program. Four enthusiastic talented students were selected to present and discuss their proposal at a meeting with the CARIM Research Council: Auke Otten, Rio Putra Juni, Judith van Haare and Emiel van der Vorst. On May 10th the jury selected **Emiel van der Vorst** (supervisors Menno de Winther and Marjo Donners) as the best out of four finalists with his proposal titled 'Atheroprotective mechanisms of HDL-medicated modulation of macrophage phenotype and function'. ■

NEW PhD COORDINATOR

Mid 2010 Dr **Marc van Bilsen** (Associate professor of Molecular Physiology) was appointed PhD Coordinator. The PhD Coordinator serves as a mentor for all CARIM PhD students and as a contact person for their supervisors. The PhD coordinator is also member of the CARIM Education Program Committee (EPC). This EPC coordinates both the PhD and Master's programs and advises the Executive Board on all issues regarding these educational programs. Marc has started a project to further improve the quality of the supervision and education of our PhD students by developing a new CaRES Research, Education and Supervision plan. ■

FEBRUARY 2009

Prof. Christian Weber is awarded a 1.25 million Euros VICI grant on his project 'Putting a brake on atherosclerosis'. In December he also receives an Advanced Investigator Grant of the European Research Council (2.5 million Euros) and a 700 K€ grant of the Deutsche Forschungsgemeinschaft.

MARCH 2009

Dr An Moens and Dr Paul Volders (both dept. of Cardiology) are granted a VIDI fellowship by NWO.

KNOWLEDGE TRANSFER

The CARIM Lecture series and the yearly CARIM Symposium are means to update the knowledge of our graduate students, our researchers and other external people with interest in the field of cardiovascular research. In 2010 8 lectures were organized in the CARIM Lecture Series.

CARIM Lecture Series 2010

DATE: 27.01.2010
LECTURER: Prof. S. Massberg, University of Munich, Germany
LECTURE TITLE: Platelets - multi-talented players in vascular remodeling and inflammation
Organizer: Dr. Esther Lutgens, dept. of Pathology

DATE: 24.03.2010
LECTURER: Dr. D. Schrijvers, University of Antwerp, Belgium
LECTURE TITLE: (Auto-)Phagocytosis in Atherosclerosis: Implications for plaque stability
Organizer: Dr. Judith Sluimer, dept. of Pathology

DATE: 01.06.2010
LECTURER: Prof. Barry Mc Grath, Monash University, Melbourne, Australia
LECTURE TITLE: What blood pressure targets should we aim at: Recent data on isolated clinic hypertension and hyperglycaemia
Organizer: Prof. Harald Schmidt, dept. of Pharmacology

DATE: 03.06.2010
LECTURER: Prof. Jim A Hamilton, Boston University School of Medicine, USA
LECTURE TITLE: Non-invasive MRI discrimination of stable and vulnerable therosclerotic plaque in an animal model
Organizer: Prof. Jan Glatz, dept. of Molecular Genetics

DATE: 17.06.2010
LECTURER: Prof. Armin J Reininger, University Clinic Munich, Germany
LECTURE TITLE: New Insights in Thrombosis and Haemostasis: How Platelets and von Willebrand Factor Perform Better When Stressed
Organizer: Prof. Johan Heemskerk, dept. of Biochemistry

DATE: 18.06.2010
LECTURER: Dr. Daniel Sedding, University of Gießen, Germany
LECTURE TITLE: Role of Bone Marrow-derived vs. perivascular stem cells in atherosclerosis- and restenosis development
Organizer: Dr. Judith Sluimer, dept. of Pathology

DATE: 18.11.2010
LECTURER: Prof. Paul Saftig, University of Kiel, Germany
LECTURE TITLE: Proteolysis in and at the plasma membrane: Insights from knockout mouse studies
Organizer: Dr. Marjo Donners, dept. of Molecular Genetics

DATE: 15.12.2010
LECTURER: Dr. Olivier Sperandio, Université Paris Diderot, Paris, France
LECTURE TITLE: Unraveling the chemical space of Protein Protein Interaction inhibitors (i-PPI): From knowledge to drug design
Organizer: Dr. Gerry Nicolaes, Dept. of Biochemistry

Cardiovascular Grand Rounds Maastricht

The successful Cardiovascular Grand Rounds Maastricht initiative that started October 2009 has been given follow-up in 2010. Three lecture series were organized, with cardiovascular lectures on a weekly basis. For the full programs please visit www.carimmaastricht.nl, 'CARIM Lectures' in the 'Education' section. ■












SECOND I'MCARIM WEEKEND

On May 7th and 8th the second I'MCARIM weekend took place in the historic environment of a former abbey, Rolduc conference center in Kerkrade. Forty six PhD students and Master students attended the weekend. The first day of the conference consisted of presentations of three CARIM staff members in different stages of their career; Professor Tilman Hackeng, Professor Leon de Windt and Dr Judith Sluimer.

The lecture series was intermitted by an outdoor social program in the rain. All participants were divided into groups, who had to conduct both physical and tactical exercises in which team work was the key strategy to succeed.

At the end of the day the keynote lecture was given by Professor Rainer Goebel. Professor Goebel, is full professor for Cognitive Neuroscience in the Psychology Department of Maastricht University, director of the Maastricht Brain Imaging Centre (http://mbic.unimaas.nl) and Research Director of the FPN Maastricht Research Institute. Professor Goebel presented his pioneer top research work on functional MRI and taught our PhD students about reaching the top in science, and of course staying there.

On the second day the career possibilities of PhD students were highlighted from the perspective of the job coach in a workshop "Career perspectives" (Frans Willems) and by the director of the Maastricht Centre for Entrepreneurship Professor Jan Cobbenhagen. After lunch time, presentations were given by four PhD students; Anette Christ (dept. of Pathology), Julian Ilcheff (dept. of Biochemistry), Lian Engelen (dept. of Internal Medicine) and Martin Schmitt ("EuCAR-PhD" in IMCAR, Aachen, Germany). ■

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Impression of the I'MCARIM weekend 2010

MARCH 2009

CARIM researchers are successful in three projects in the BioMedical Materials (BMM) consortium; iValve (project leader Prof. Mark Post), PENT and IDiDAS.

APRIL 2009

Prof. Coen Stehouwer and Dr Miranda Schram (dept. of Internal Medicine) receive 11 million Euros funding for the Maastricht Study by the European Regional Development Fund, the Weijerhorst Foundation, the Dutch Ministry of Economic Affairs, and the Provincial Council of Limburg.











CARIM SYMPOSIUM 2010

CARIM's annual scientific symposium was held on November 10 in Maastricht. Lectures were given by CARIM PhD Award winner 2010 Emiel van der Vorst, CARIM staff members Professor Christian Weber, Professor Leon de Windt and VENI laureate Dr Judith Sluimer, and Professor Jan Cobbenhagen, director of the Maastricht Centre for Entrepreneurship.
As in previous years, the heart of the program consisted of a poster session, in which both representatives of CARIM's main research themes and research master students presented their recent research findings. The Robert Reneman Lecture 2010 entitled "Cardiovascular disease networks: systems genetics studies of human cells and of mice" was given by Professor Aldons Jake Lusis. Lusis is professor of Genetics at UCLA, Los Angeles, CA, USA and is renowned for his integrated approach in unraveling the functional relevance of genetic and environmental interactions of common diseases such as atherosclerosis. This integrated approach, involving functional genomic data resources, mouse animal models, human studies and statistical modeling to generate biologic networks, is a perfect example of a systems biology approach to atherosclerosis.

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Impression of the CARIM Symposium 2010

JUNE 2009

For the development of a European Cardiovascular Campus, project leader Prof. Mat Daemen, in cooperation with Prof. Michael Jacobs, are granted 623 K€ by Senter Novem.

SEPTEMBER 2009

The Dutch Heart Foundation grants two large projects with each 250 K€: a project of Dr An Moens and a project of Stephane Heymans (both dept. of Cardiology). Heymans also receives a 230 K€ grant from the Research Foundation of Flanders.

OTHER CARIM LECTURES, SEMINARS AND SYMPOSIA 2010

Over 25 lectures, seminars and conferences have been organized by our research staff last year.

From February 24 till 27 a very successful **European Vascular Course 2010** was organized by Prof. **Michael Jacobs** (dept. of Surgery). Almost 1100 registered specialists and over 300 participants of the medical industry came to Maastricht to join the EVC 2010. The education and training value of the congress was highly rated and the scientific level most appreciated. Overall more than 50 edited videos were integrated in the scientific program, showing technical aspects of surgical and endovascular procedures.

On April 16 Prof. **Tammo Delhaas** (dept. of Biomedical Engineering) and Prof. **Frits Prinzen** (dept. of Physiology) organized an International Symposium on **Innovations in Electro-Mechanical Therapies for the Heart.**

The inaugural mini-symposium of Prof. **Chris Reutelingsperger** (dept. of Biochemistry) called **"Cell death in disease Apoptosis or necrosis, does it matter?"** was held on October 15. On November 11 Dr **Paul Volders** (dept. of Cardiology) and Dr **Ronald Westra** (Bioinformatics, dept. of Knowledge Engineering) organized a full-day workshop **"Frontiers in Computational Electrocardiology 2010: Focus on Systems Biology"**. FiCE was an interdisciplinary symposium where cardiologists, computer scientists, mathematicians, and basic scientists in the field of cardiovascular (electro)physiology were brought together. The workshop provided an opportunity to interact with national and international experts and to discuss the integrative aspects of systems biology in the cardiovascular system. Special attention was given to clinical application of systems biology in daily management of cardiovascular risk patients.

On December 3 Prof. **Hugo ten Cate,** Prof. **Karly Hamulyák and** Prof. **Johan Heemskerk** organized the **International Symposium on Bleeding**. The symposium aimed on evoking lively discussions between scientists form laboratory and hospital on many aspects of inherited and acquired bleeding disorders. Established scientists and clinicians discussed questions on bleeding risk, bleeding prevention and antithrombotic treatment, from different practical points of view: platelet function, thrombin generation, genetic deficiency, anti-thrombotics, blood transfusion and major trauma. The symposium was an initiative of the newly founded Thrombosis Expertise Center of Maastricht UMC+. The TEC aims to improve clinical treatment of patients with bleeding or thrombotic disorders by informing health care providers and by stimulating research in this area. ■

OCTOBER 2009

Top Institute Pharma allocates 917€K€for the project 'Renin-angiotensin system blockade beyond angiotensin II', in which Prof. Jo De Mey participates.

2009

Opening of the Coen Hemker lecture theatre at FHML (Maastricht University).

INTERVIEW

Spreading ideas across the globe

‘Maastricht University should provide full support for CARIM’

Hein Wellens

Professor Emeritus Hein Wellens (75) and his former PhD student Paul Volders (42), cardiologist and principal investigator at CARIM, have been working closely together for two decades to advance the understanding of cardiac arrhythmias and to improve their management. Both believe that, in Maastricht, interested and motivated young academic talent is present and able to pursue and expand cardiovascular research within the CARIM structure, thereby continuing the important global role of CARIM and its significance for Maastricht University.

Prof. Emer. Dr. Hein Wellens:
“I came to Maastricht in 1977 to develop academic cardiology in a city hospital that was promoted to hospital of the newly established university in Maastricht. There was no money available and I had a very difficult time getting things off the ground. Fortunately, I had worked in Amsterdam with a team that was world-renowned for its research on cardiac arrhythmias. For that reason, many cardiologists from all over the world who were interested in the management of life-threatening heart rhythm disturbances wanted to come and work with me in Maastricht. This was great, because they brought their own financial resources, helping ▸▸

DECEMBER 2009

Dr Esther Lutgens is appointed Established Investigator by the Dutch Heart Foundation.

DECEMBER 2009

96 PhD-students are taking their training in CARIM.

APRIL 2010

Prof. Harry Struijker Boudier is awarded the royal disctinction of a Knight of the Order of Oranje Nassau.

me to create a school of clinical arrhythmology and to spread our ideas across the globe. Until my retirement at the end of 2000, 130 international cardiologists participated in this exercise, many of them becoming leading arrhythmology experts in their own country.

A problem for our clinical cardiology department was the absence of facilities to do basic research. That was the reason for us to make better contact with the basic cardiovascular researchers in the biomedical center next door, and to establish CARIM. To do translational research between basic information and clinical application was our goal.
We owe much of the success of CARIM to the three scientific directors we have had over the years: Reneman, Struijker Boudier and Daemen. Their vision and understanding helped to shape CARIM into one of the leading cardiovascular research institutes in the world.

To me, Paul Volders personifies what CARIM stands for.
He is both a cardiologist caring for patients and a very high level investigator able to bring new information from the laboratory to the clinic. He has the ideas and the intellectual and social skills to lead, to motivate and to be innovative with his own research group. His activities as a leader and his scientific publications have led to international recognition, also enabling him to attract funding for his projects at the

▸▸

‘CARIM has the potential to grow’

Paul Volders

SEPTEMBER 2010

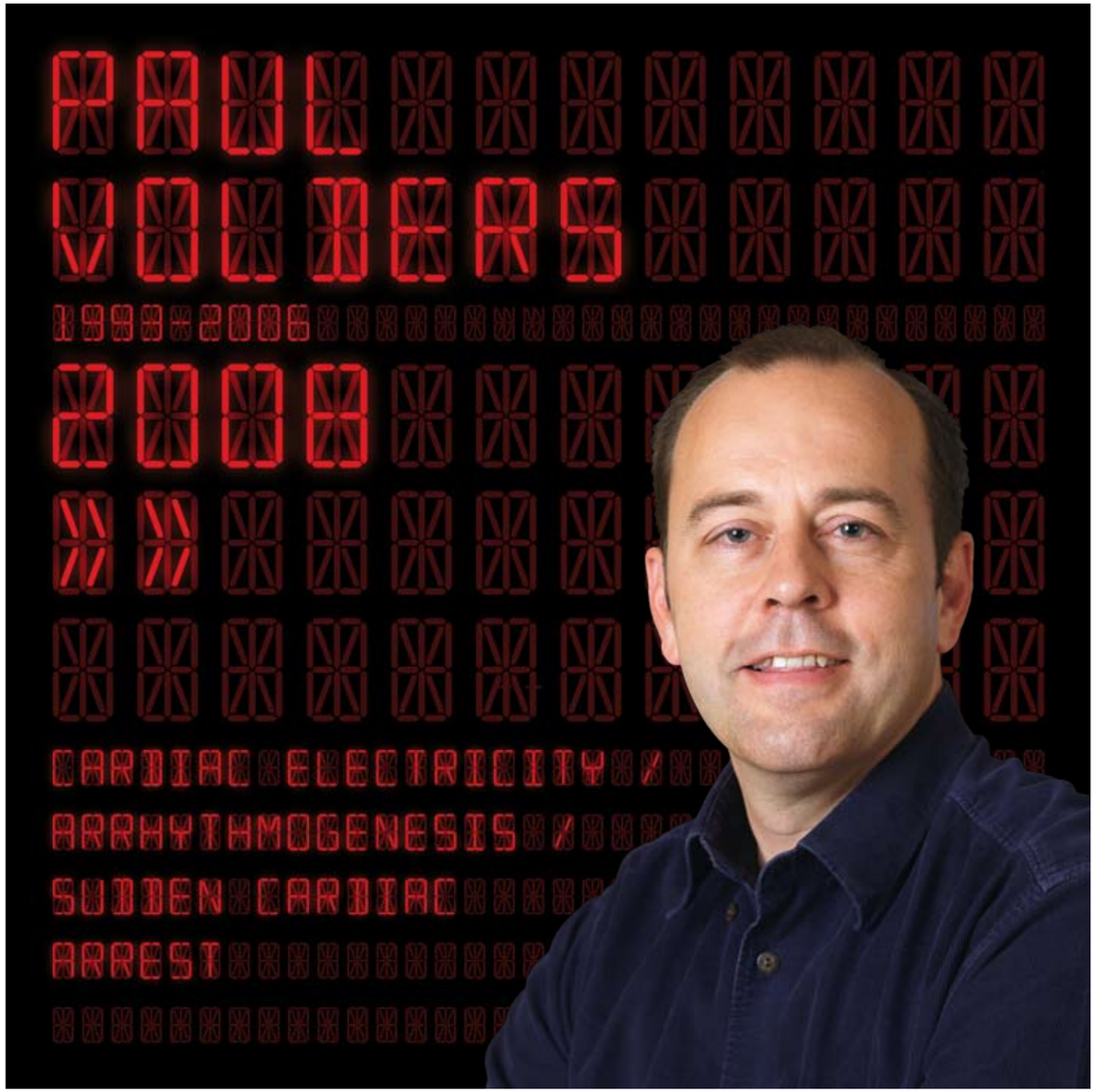
Official start of the Maastricht Study.

OCTOBER 2010

First external review of the research programs in the cluster Hypertrophy and Heart Failure.

NOVEMBER 2010

Prof. Uli Schotten (dept. of Physiology) is appointed technical field manager in the EUTRAF initiative, a multidisciplinary consortium of expert groups involved in atrial fibrillation research within the 7th Framework Programme of the EU.



national and international level. He is looking for new tools to understand cardiac arrhythmias and currently involving mathematicians in his studies. With people like Paul Volders, CARIM will continue to be a successful enterprise. However, it is essential that Maastricht University realizes the importance and value of CARIM and does its utmost to guarantee better financial support. Since more and more of the financial means go through Brussels, with often politically based decisions, optimal contacts with those decision makers is an issue that CARIM should take seriously."

Dr. Paul Volders:
"When I joined CARIM in 1993 as a PhD student, it was a great opportunity for me to become part of a strong research team, and to work with the world's leading experts in cardiovascular medicine, most notably Hein Wellens. I hoped that it would be the start of my own successful scientific career. I dreamed about –one day- establishing my own, strong research team. I haven't been disappointed. Hein Wellens, well-known for having made fundamental advances in research on cardiac arrhythmias, has also proven to be a true mentor, friend, inspirator, visionary and teacher. He is somebody you want to work with, and I consider him a friend for life.

There have been numerous personal highlights over the years. At first, what mattered most to me was personal recognition; a grant or a special award, for example. But nowadays, I also take great satisfaction in the successes of the young people in my team. I lead a ten-strong team of national and international scientists who conduct research into cardiac electricity, arrhythmogenesis and sudden cardiac arrest. It is inspiring to see them taking what they have learned here and spreading this knowledge across the globe.

As an institute, we have made major contributions to the scientific understanding of medical conditions such as sudden cardiac death, arrhythmias, myocardial infarction and heart failure. CARIM has the potential to grow by further establishing itself as a center of excellence for cardiovascular research. In order to achieve this, CARIM needs to remain strongly focused on translating its findings in basic research into the clinical setting, in order to further improve patient care. It will be crucially important to create stronger ties between CARIM and Maastricht University Medical Center Plus. In fact, I believe that Maastricht UMC+ should make more use of the expertise of CARIM to organize top-referral disciplines in various cardiovascular fields to improve its own academic status." ■

'I take great satisfaction in the successes of the young people in my team'

Paul Volders

NOVEMBER 2010

NWO grants a VENI fellowship to Dr Judith Sluimer (dept. of Pathology) and a VIDI fellowship to Dr Dietbert Neumann (dept. of Molecular Genetics).

DECEMBER 2010

In the framework of the E. Dekker Program Dr Irene van Geldorp (dept. of Biomedical Engineering) and Dr Ward Vanagt (dept. of Physiology) receive a Junior Staff Member NHS Dekker stipend.

DECEMBER 2010

Dr Paula da Costa Martins (dept. of Cardiology) receives a Transatlantic Career Development Award of the Leducq Foundation.

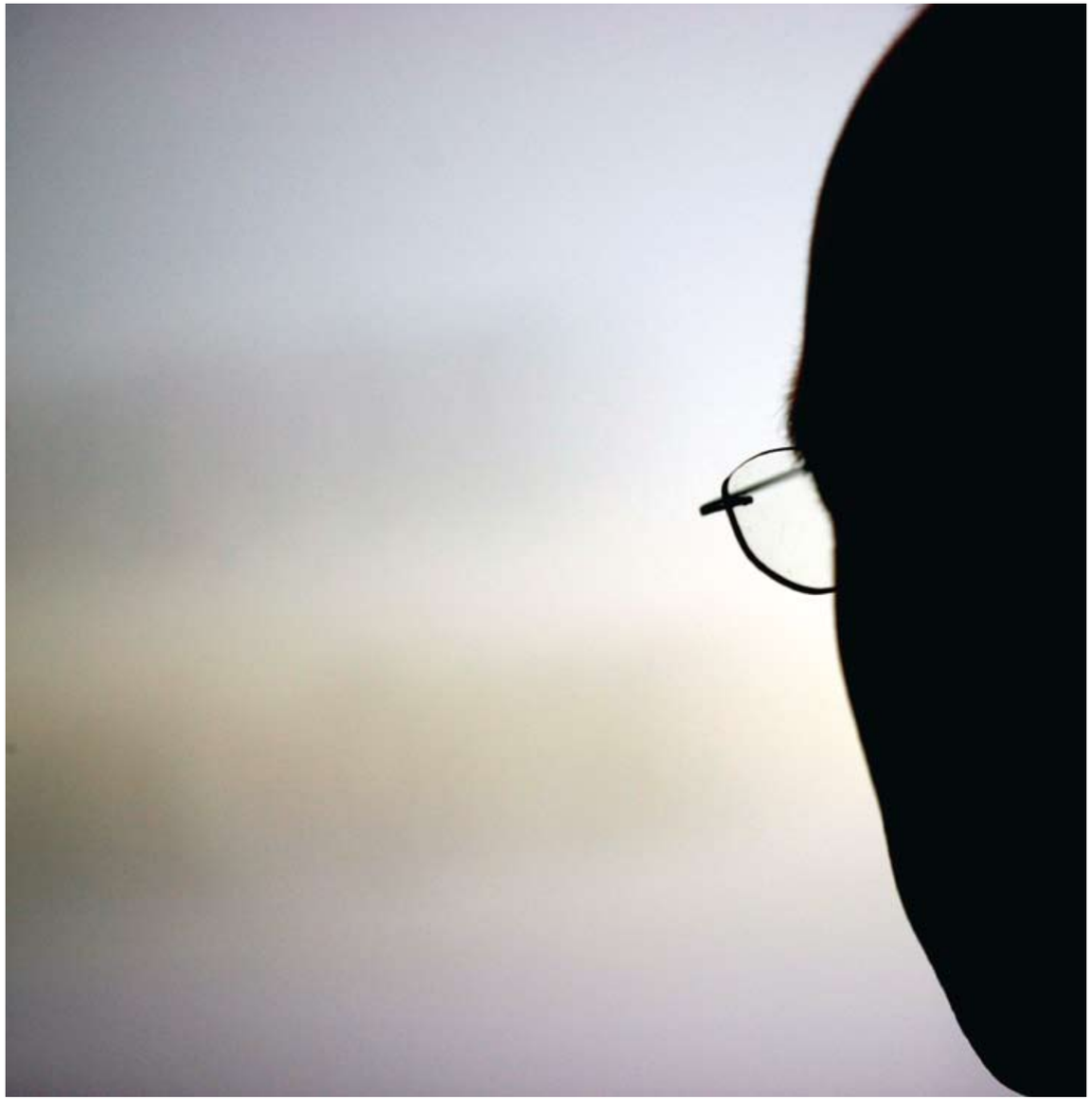
LIST OF ABBREVIATIONS

A-I

ASC	Administrative Service Center
AF	Atrial fibrillation
azM	University Hospital Maastricht
BMM	BioMedical Materials program
CARIM	Cardiovascular Research Institute Maastricht
CBM	Research Master's Cardiovascular Biology & Medicine
CTCM	Clinical Trial Center Maastricht
CTMM	Center for Translational Molecular Medicine
DAS	Dutch Atherosclerosis Society
DFG	Deutsche Forschungsgemeinschaft
DiMI	European Network on Diagnostic Molecular Imaging
EB	Executive Board
EPC	Education Program Committee
EuCAR	Euregio Cardiovascular International Research Training Group
EU Framework	European Union Framework
EUTRAF	European Network for Translational Research in Atrial Fibrillation
EVGN	European Vascular Genomics Network
FHML	Faculty of Health Medicine and Life Sciences (Maastricht University)
FPN	Faculty of Psychology and Neuroscience (Maastricht University)
FP6, FP7	Sixth and Seventh European Framework Programme
GROW	School for Oncology and Developmental Biology (Maastricht University)
ICaR	Institute for Cardiovascular Research (VU, Amsterdam)
ICIN	The Netherlands Heart Institute
IMCAR	Institute for Molecular Cardiovascular Research, Aachen, Germany
INSERM	Institut national de la santé et de la recherche médicale (France)
ISAB	International Scientific Advisory Board

K-Z

KNAW	Royal Netherlands Academy of Arts and Sciences
M.Sc.	Master of Science
Maastricht UMC+	Maastricht University Medical Center+
MD	Doctor of Medicine
NHS	Netherlands Heart Foundation
NWO	Netherlands Organisation for Scientific Research
OBP	Technical staff
PI	Principal Investigator
SCI-SSCI	Science Citation Index-Social Science Citation Index
STW	Technology Foundation STW
SWOT-analysis	Analysis of Strengths, Weaknesses, Opportunities and Threats
TEC	Thrombosis Expertise Center of Maastricht UMC+
TU/e	Eindhoven University of Technology
UCLA	University of California, Los Angeles
UKA	Universitätsklinikum Aachen, Germany
UM	Maastricht University
VU	Free University, Amsterdam
WP	Scientific staff
WWO	Dutch University Education Act
ZonMw	Netherlands Organisation for Health Research and Development



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