

## Curriculum Vitae: Peter CARMELIET

Gender: male

Place and date of birth: Leuven, December 8, 1959

Office: VIB-KU Leuven Center for Cancer Biology (CCB)  
Vlaams Instituut voor Biotechnologie (VIB)  
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### **Education**

1984 Doctor in Medicine (M.D.), University of Leuven, Belgium (Maxima cum laude)  
1989 Ph.D.; Aggregation "Higher Education in Medicine", University of Leuven, Belgium

### **Residencies and Research Fellowships**

1978 Visiting research scientist, University of Maryland, Baltimore, USA  
1981 Visiting research scientist, UCSF, San Francisco, USA  
1984-1986 Resident Internal Medicine, University Hospital Leuven, Belgium  
1986 Grass Fellow Marine Biological Laboratories, Woods Hole, MA, USA  
1987 Visiting research scientist, University of Maryland, Baltimore, USA  
1989-1990 Postdoctoral training (NATO Research Fellow, D. Collen Research Foundation Fellow), Harvard Medical School, Boston, MA, USA  
1990-1992 Postdoctoral training (D. Collen Research Fellow); Whitehead Institute, MIT, Cambridge, MA, USA

### **Academic Appointments**

1985-1989 Aspirant "National Fund for Scientific Research of Belgium" (NFWO)  
1990-1994 Research Associate "National Fund for Scientific Research of Belgium" (Aangesteld Navorser, NFWO)  
1993-1995 Lecturer in "Master & Ph.D. Program in Medical and Pharmaceutical Research", Free University of Brussels  
1993-1996 Member of the Bureau of the Department of Molecular and Cardiovascular Biology, Faculty of Medicine, University of Leuven  
1994-1998 Associate Professor (Hoofddocent), Faculty of Medicine, University of Leuven, Belgium  
1994-1996 Adjunct Staff, Cleveland Clinic Foundation, USA  
1995-1997 Visiting Professor, Free University of Brussels  
1996- Group Leader, Laboratory of Angiogenesis and Vascular Metabolism, Vesalius Research Center, VIB – Department of Oncology, KU Leuven  
1996-2008 Adjunct-Director, Center Transgene Technology & Gene Therapy, Flanders Interuniversity Institute for Biotechnology, University of Leuven, Belgium.  
1996- Ph.D. thesis committee, Faculty of Medicine, University of Leuven, Belgium  
1996-1997 Student-Researcher committee, Faculty of Medicine, University of Leuven, Belgium  
1998-2000 Professor (Hoogleraar), Faculty of Medicine, University of Leuven, Belgium  
  
2000- Full Professor (Gewoon Hoogleraar), Faculty of Medicine, University of Leuven, Belgium  
2004 Visiting Scientist, Dartmouth University, NH, USA  
2008-2015 Director, Vesalius Research Center (current Center for Cancer Biology, CCB), VIB  
2015- Visiting Scientist, Department of Pharmacology, Kitasato University, Kanagawa, Japan  
2015- Chief Scientific Strategy Advisor, Oxurion and Oncurious, Leuven, Belgium

- 2018- Guest Professor, State Key Laboratory of Ophthalmology (SKLO) at Zhongshan Ophthalmic Center (ZOC), Sun-Yat-Sen University (SYSU), China
- 2020- Co-founder of spin-off company Montis Biosciences (based on work from the Carmeliet laboratory).  
Joint professor, Health Science Center, Peking University

### **Teaching**

- 1992-2012 Interdisciplinary Seminars in Medicine, University of Leuven, Belgium
- 1993-1997 Seminars in Medical and Pharmaceutical Research, University of Brussels
- 1993-2016 Biotechnology in Medical Science, Bio-Engineering, University of Leuven
- 1994-2016 Theoretical and Applied aspects of Gene Therapy, University of Leuven  
Seminars in Cell- and Gene Biotechnology, Bioengineering in Cell- and Gene Biotechnology, University of Leuven, Belgium.
- 2001-2017 Harvard Medical School, Boston, Massachusetts, USA (Course on Angiogenesis).

### **Awards and Honors**

- 1984 Award of the Belgian Society for Cardiology, Belgium
- 1990 R. Stock Prize, University of Leuven, Belgium
- 1994 G. Zambon Prize, Group Zambon, Belgium
- 1994 Award of the Restenosis Summit VI, Cleveland Clinic Foundation, OH, USA
- 1995 Marion Barnhart Memorial Award, XVth Congress, Intl Society of Thrombosis and Hemostasis, Jerusalem, Israel
- 1996 Annual Owren Lecture on Hemostasis, The Norwegian Academy of Science and Letters, Oslo, Norway  
Medal of the British Society of Hematology, Birmingham, U.K.
- 1998 Biannual Prize of the International Society of Fibrinolysis  
Triannual Prize of Smith-Kline Beecham (Royal Academy of Belgium)
- 1999 Annual R. Berne Award of Vascular Biology, University of Virginia, Charlottesville, USA.  
Bekales Prize for Cardiology  
Investigation Achievement Award, Intl Society of Thrombosis and Hemostasis  
Elected Member of the European Molecular Biology Organization (EMBO)
- 2001 Elected as Fellow of the American Heart Association
- 2002 *Nobel Forum Lecture* (invited by Nobel Committee & Karolinska Institute)  
Elected Member, American Society of Clinical Investigation  
Harvey's Centennial Celebration Lecture, Padova, Italy  
E.Giles Award, Calgary, Canada  
Outstanding Investigator Award, International Society of Heart Research  
*Francoqui Prize 2002*, Belgian Academy Medicine  
Bristol Myers Squibb Unrestricted Grant  
Liliane Bettencourt Life Sciences Award 2002
- 2003 George Brown Lecture and *Plenary Lecture* (Am Heart Assoc Meeting; Chicago)  
Marion Barnhardt Award, Intl Society Thromb Hemost (Birmingham, 2003)  
Perspectives in Molecular Medicine Lecture (Goethe University Frankfurt, Germany)  
Ernst Schering Lecture, Berlin, Germany
- 2004 *Benditt Award*, North American Vascular Biology Organization, Toronto, Canada  
Elected as Fellow of the Intl Society Heart Research  
Elected as Fellow of the Intl Society of Clinical and Applied Thrombosis and Hemostasis  
Einthoven lecture, Weinstein Symposium, Netherlands
- 2005 *Interbrew-Baillet Latour Prize*, 2005, Belgium (jointly with Désiré Collen).  
ICRH Distinguished Lecture and Prize in Cardiovascular Sciences, Institute of Circulatory and Respiratory Health, Vancouver, Canada
- 2006 *Feodor Lynen Lecture*, Nature Biotechnology Winter Symposium, Miami, USA  
*Sheila Essay Award*, American Academy of Neurology, San Diego, USA  
*Presidential Special Lecture*, Society of Neuroscience Annual meeting, Atlanta, USA  
*Holst Memorial Award*, University of Eindhoven, Netherlands  
*Francoqui Leerstoel*, University of Liege, Belgium
- 2007 Lucian Award for research in Circulatory Disease, McGill University, Canada  
European Society Cardiology *William Harvey Lecture* on Basic Science, ESC meeting, Vienna, Austria

- Francqui Leerstoel*, University of Brussels, Belgium  
*Roger Guillemin Nobel Lecture*, Salk Institute, La Jolla, USA  
*Ariens Lecture*, Dutch Society of Pharmacology, Lunteren, The Netherlands
- 2008 *Francqui Leerstoel*, Université Catholique de Louvain, Brussels, Belgium
- 2009 *Prijs Baron van Gysel de Meise*, Geneeskundige Stichting Koningin Elisabeth, Brussels, Belgium  
*Paulo Gontijo Prize*, Instituto Paulo Gontijo, Sao Paulo, Brazil
- 2010 Ernst Jung Medical Award 2010, Hamburg, Germany  
Joseph Maisin Prize for Excellence 2010 for Fundamental Biomedical Research, Brussels, Belgium  
*Doctor Honoris Causa*, Johann Wolfgang Goethe University, Frankfurt, Germany  
EU - ERC Advanced Grant, European Community  
Elected as Member of the German Academy of Sciences Leopoldina
- 2011 Awarded the Blaise Pascal Medal in Medicine and Life Sciences by the European Academy of Sciences  
*Ham-Wasserman Lecture* – American Society of Hematology, San Diego
- 2013 Michael de Burgh Daly Prize Lecture, IUPS – Physiological Society, Birmingham, UK  
Hubertus Wald Award 2013 – Hubertus Wald Foundation, Hamburg, Germany
- 2014 Lola & John Grace Distinguished Lectures in Cancer Research, ISREC, Lausanne, Switzerland  
Pieter Brakman Lecture, VU Medical Center, Amsterdam, the Netherlands  
Joseph Austin McCartney and Ruth McCartney Hauck Visiting Professor - CCaTS Grand Rounds Lecture, Mayo Clinic – Rochester, USA
- 2015 Münster Heart Center Award – University Hospital Münster, Germany  
Noble title of Baron, granted by King Filip of Belgium  
Bristow Lecture, Distinguished Lecture Series, Department of Pharmacology, College of Medicine at Chicago, Chicago, USA
- 2016 EAS Anitschkow Prize, European Atherosclerosis Society, Innsbruck, Austria  
Honorary Award Lecture on Basic Science, German Cardiac Society, Mannheim, Germany
- 2017 Nominated as member of the Royal Netherlands Academy of Arts and Sciences (KNAW)  
Distinguished Career Award, BACH-ISTH, Berlin, Germany
- 2018 ARC Foundation Léopold Griffuel Award, Paris, France  
Heineken Prize for Medicine, KNAW, the Netherlands  
Honorary Ramzi S. Cotran Lecture, Department of Pathology, Boston Children’s Hospital, USA  
IBIS Distinguished Investigator, UIMP-IBiS School of Biomedicine, Sevilla
- 2019 APVBO Award, APVBO conference, Guangzhou, China  
The Terry Wagner Lecture, Grover Conference, Sedalia, Colorado, USA  
Honorary Skou Professor, Aarhus University, Denmark

### **Membership in Professional Societies**

- 1993- International Society on Thrombosis and Haemostasis  
1994- International Society of Fibrinolysis  
1996- Council of the European Vascular Biology Association (invited member)  
1997- North American Vascular Biology Association  
1998 Council Member, Intl Society Thrombosis and Hemostasis, Class 2004 (by election)  
1998- Secretary of the European Vascular Biology Association  
2009- European Research Institute for Integrated Cellular Pathology (ERI-ICP)  
2010- German Academy of Sciences Leopoldina  
2011- European Academy of Sciences (eurasc)  
2017- Royal Netherlands Academy of Arts and Sciences (KNAW)  
2018- Metabolomics Society  
2018- European Association for Cancer Research (EACR)  
2018- European Academy of Cancer Sciences (EACS)  
2019- Academia Europaea (EA)

### **Editorial tasks**

- Editorial Board: Science (from mid 2005), Cancer Cell (from 2004), Journal of Clinical Investigation (from 2005), Circulation Research (2004), Atherosclerosis Thrombosis and Vascular Biology, European Heart Journal (2004), Cancer & Metabolism (from 2012), Hypoxia Signaling (Honorary Editorial Board, 2013), Trends in Cancer (2015)
- Nature Reviews Cancer (Angiogenesis Highlights Advisor) (2002-2004)

- Guest Editor of the Special Volume on Gene Transfer (Cardiovascular Research), Seminars in Cell & Developmental Biology (special seminar on "Angiogenesis").
- Solicited reviewer for: Nature, Nature Medicine, Nature Genetics, Nature Cell Biology, Nature Neuroscience, Nature Biotechnology, Science, Cell, Developmental Cell, Molecular Cell, Genes Development, Journal of Clinical Investigation, New England Journal of Medicine, Proceedings National Academy of Sciences USA, Journal of Cell Biology, Circulation, Circulation Research, Annals of Neurology, Development, Developmental Biology, Blood, Journal of Biochemistry, PloS, American Journal of Human Genetics, Journal Neuroscience, Trends in Cardiovascular Medicine, American Journal of Pathology, International Journal of Cancer, Thrombosis Hemostasis, Arteriosclerosis Thrombosis and Vascular Biology, Cardiovascular Research, Journal of Physiological Science, Biophysical Biochemical Acta, Developmental Dynamics, Journal of Vascular Research, Biochemical Pharmacology, European Journal of Physiology, Journal of Neurogenetics.
- Solicited reviewer of grants: EMBO, NMRC Australia, Dutch Heart Foundation, Weizmann Institute, European Community Biomed programs, Human Frontiers Science Program, Wellcome Trust UK, NATO, Telethon, National Research Fund Luxemburg, AIRC program on metastatic disease Italy
- Section editor of Volume Angiogenesis @ annualreviews.org

### ***Participation in scientific advisory boards & international meetings***

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|------|---|
| 1993 | Scientific Program Committee, XIIth Intl Congress "Fibrinolysis", Belgium.  |
| 1995 | Scientific Program Committee, XIIIth Intl Congress "Fibrinolysis", Barcelona  |
| 1996 | Scientific Program Committee, VIth Intl Congress, Metastasis Society, Belgium.<br>Scientific Program Committee, IXth Intl Vascular Biology Meeting, Seattle<br>Scientific Advisory Committee, 1 <sup>st</sup> European American Conference, Paris   |
| 1997 | Scientific Advisory Committee XIXth Meeting European Society Cardiology, Stockholm, Sweden.   |
| 1998 | Chairman Vth Intl Meeting, European Vascular Biology Association, Belgium<br>Scientific Advisory Board, 70th Europ Atheroscl Assoc Congress, Israel<br>Co-chairman, Scientific Subcommittee on Animal, Cellular, and Molecular Models of Thrombosis   |
| 1999 | Co-chairman IIGB Intl Meeting "Vasculogenesis & Angiogenesis", Naples, Italy<br>Chairman Intl Meeting "Angiogenesis", Eur Society Hematology, Paris, France.<br>Co-organizer 4 <sup>th</sup> FASEB Conference, Vermont, USA.<br>Co-organizer "1 <sup>st</sup> US-European Meeting Mol Basis Cardiovasc Diseases", Paris<br>Scientific Advisory Committee, VIIth Intl Workshop "Plasminogen Activation", Diablerets, Switzerland.<br>Scientific Advisory Committee, XXth Intl Meeting ISHR, the Netherlands.<br>Scientific Advisory Committee, XVIIth Intl Congress ISTH, Washington USA.<br>Scientific Advisory Board, Max-Planck-Institut für physiologische und klinische Forschung, Bad Nauheim, Germany<br>Co-chairman, Scientific Subcommittee on Animal, Cellular, and Molecular Models of Thrombosis |
| 2000 | Chairman Intl Meeting "Angiogenesis", European Society of Hematology, Paris.<br>Chairman, Subcommittee on Animal, Cellular and Molecular Models of Thrombosis, International Society on Thrombosis and Haemostasis.<br>Co-organizer 19 <sup>th</sup> World Congress Intl Union Angiology, Ghent, Belgium.<br>Co-organizer Intl Congress European Tissue Repair Society, Brussels, Belgium<br>Co-organizer 1st "European Life Scientist Organization" (ELSO), Geneva.<br>Co-organizer 2 <sup>nd</sup> International Symposium "Cardiovascular physiology of mice", Amsterdam<br>Scientific Advisory Committee XVth Intl Congress "Fibrinolysis", Japan.<br>Scientific Advisory Board, Wellcome Trust Centre Human Genetics, Oxford   |
| 2001 | Chairman Intl Congress "Angiogenesis", European Society of Hematology, Paris<br>Chairman, Subcommittee on Animal, Cellular and Molecular Models of Thrombosis, International Society on Thrombosis and Haemostasis.<br>Co-chairman 'Euroconference on Angiogenesis', Paris, 2001<br>Member, Scientific Advisory Board, Wellcome Trust Centre Human Genetics, Oxford.  |
| 2002 | Co-chairman International Keystone Symposium on 'Angiogenesis', Banff, Canada<br>Scientific Program Committee XIIth Intl Vascular Biology Meeting, Tokyo  |
| 2003 | Scientific Advisory Board: Cancer Research Institute, University Lausanne, Switzerland;   |

	Wellcome Trust Centre Human Genetics, Oxford, UK.
2005	Scientific Advisory Board: XIV Intl Symposium on Atherosclerosis, Rome, Italy Scientific Evaluation Committee: Centro Nacional de Investigaciones cardiovasculares "Carlos III" (CNIC), Madrid, Spain
2006	Scientific Advisory Board: Centro Nacional de Investigaciones Oncologicas (CNIO), Madrid, Spain
2008	Co-chairman International Keystone Symposium on "Molecular Mechanisms of Angiogenesis in Development and Disease", Vancouver, Canada
2012	Co-organizer Cell Symposium: Angiogenesis, Metabolic regulation and Cancer Biology, Leuven, Belgium
2014	Co-organizer Keystone Symposium: Metabolism and Angiogenesis, Whistler, Canada
2015	Co-organizer AACR Annual Meeting, Philadelphia, USA
2015	Co-organizer AACR Tumor Angiogenesis Meeting, Boston, USA
2016	Co-organizer VIB Conference Series, Metabolism & Angiogenesis, Leuven, Belgium
2017	Scientific Advisory Board: Centro Nacional de Investigaciones Cardiológicas (CNIC), Madrid, Spain Scientific Board REGMED XB, Utrecht, Nederland
2018	Co-organizer VIB Conference Series, Metabolism & Angiogenesis, Leuven, Belgium
2019	Co-organizer Keystone Symposium: Cancer Metastasis: The Role of Metabolism, Immunity and the Microenvironment. Florence, Italy Co-organizer APVBO, China
2020	Member Advisory Board International Conference on Genomics (ICG-15), Wuhan, China

## Research activities

<i>Research position</i>	Group Leader, supervising the Laboratory of Angiogenesis and Vascular Metabolism, the team includes 50 staff-members: senior scientists, post-doctoral and pre-doctoral students and laboratory assistants
<i>Research Areas</i>	We study the molecular basis of: (i) angiogenesis in health and disease; (ii) endothelial cell metabolism in angiogenesis.
<i>Publications</i>	The author's scientific output consists of 717 published research papers, and survey articles in peer-reviewed international journals, and 30 survey chapters in books. 88 932 citations, H-index: 140. The author's scientific analysis in the Angiogenesis domain has been highlighted in "The Special Topics site" of the ISI Essential Science Indicators (ESI, 2004). <a href="http://archive.is/jsih">http://archive.is/jsih</a> An analysis by Kevin W. Boyack at SciTech Strategies, Inc. lists Peter Carmeliet in the global top 400 most influential scientists in biomedical research (2014). <a href="http://www.nature.com/news/bibliometrics-is-your-most-cited-work-your-best-1.16217">http://www.nature.com/news/bibliometrics-is-your-most-cited-work-your-best-1.16217</a> An analysis by Clarivate Analytics (2019) lists Peter Carmeliet as a one of the world's most impactful scientific researchers and highly cited researchers. <a href="https://recognition.webofsciencegroup.com/awards/highly-cited/2019/">https://recognition.webofsciencegroup.com/awards/highly-cited/2019/</a> In a worldwide analysis of Highly Cited Researchers (h>100) according to their Google Scholar Citations public profiles by the Ranking Web of Universities, Peter Carmeliet ranks on position 216, the second ranked Life Scientist in Belgium. <a href="http://www.webometrics.info/en/hlargerthan100">http://www.webometrics.info/en/hlargerthan100</a> .

## Translational (clinical) impact of research

2006-2009: *Oxford Biomedica Ltd.* is testing the therapeutic potential of VEGF-B gene therapy for the treatment of Amyotrophic Lateral Sclerosis (ALS) in preclinical animal models

2006-2015: *Neuronova Ltd.* is testing the therapeutic potential of intracerebroventricular VEGF protein drug delivery as novel therapy for ALS in preclinical models as well as in clinical phase Ib/IIa studies; VEGF delivery has received orphan designation.

2009-2014: *Thrombogenics N.V. & Roche Ltd* are testing the therapeutic potential of anti-PIGF (TB-403) delivery as novel anti-cancer treatment in preclinical models and phase I clinical trials.

2017-2020: *Oncurious N.V.* is testing anti-PIGF (TB-403) delivery for the treatment of medulloblastoma in

pediatric cancer patients in phase Ia/II clinical trials; Peter Carmeliet is Chief Scientific Strategy Advisor. TB-403 delivery has received orphan designation.

2017-2020: *Oxurion N.V.* is testing the intra-ocular delivery of anti-PIGF (THR-317) for the treatment of diabetic retinopathy in a phase II clinical trial. "In July 2018, Day 150 (90 days after last injection) topline data from this study showed that in the 8mg anti-VEGF treatment naïve group, 30% of these patients achieved a  $\geq 10$  letter vision gain and 10% showed a  $\geq 15$  letter vision gain."

2015-2020: Together with the VIB Drug Discovery Team, the Carmeliet laboratory is developing small molecule inhibitors for PFKFB3.

2020: A spin-off company (Montis Biosciences) has been started to develop anti-cancer drugs, based on the recent research of the Carmeliet laboratory.

## Grants

1994-1999	VLAB/COT-008, Belgium; €1.25 mio
1996-1999	Human Frontiers Science GR 363/95; €0.64 mio
1996-2001	VIB, Belgium; €11.1 mio
1998-2001	EU Grant BMH4-CT98-3380; €0.75 mio total (coordinator: €0.133 mio)
1998-2000	FWO-7.0019.98 Levenslijn, Belgium, €0.29 mio
1999-2001	FWO Angiogenesis G.0125.00, Belgium; €0.0775 mio
1999-2001	ASLK Cancer, Belgium; €0.15 mio
2000-2004	GOA/KULeuven, Belgium; €1.5 mio
2001-2004	FWO Gas6 G0265-01, Belgium; €0.125 mio
2000-2002	Thromb-X, Belgium (corporate); €0.5 mio
2001-2003	EU grant 'Angionet' QLRT-2000-0530, €0.56 mio
2001-2003	EU grant 'Atronet' QLGI-CT2001-1172, €0.25 mio
2002-2006	VIB, Belgium; €9,8 mio
2002-2005	FWO PIGF G.0121.02, Belgium; €0.15 mio
2002-2005	FWO Neuro G.0113.02, Belgium; €0.275 mio
2001-2007	Interuniversity Attraction Pole; €0.75 mio
2002-2003	Muscle Dystrophy Association; €0.225 mio
2002-2007	Bristol Squibb Myers Research Grant; €0.56 mio
2003-2007	FWO G.0378.03, Belgium; €0.27 mio
2003-2007	FWO G.0281.03, Belgium; €0.29 mio
2003-2006	European grant QLRT-2001-01955; €0.42 mio
2003-2005	Forton Fund for Mucoviscidosis Res., Belgium; €0.1 mio
2003-2005	AHAF Alzheimer's Disease Res. Prog., USA; €0.1 mio
2003-2004	IFP Zurich, Switzerland; €0.075 mio
2004-2005	Association Française contre les Myopathies (AFM), France; €0.015 mio
2004-2006	Muscle Dystrophy Association; €0.363 mio
2004-2007	Philip Morris Research Grant Foundation; €0.8 mio
2004-2007	FWO G.0265.04, Belgium; €0.4 mio
2004-2008	European grant 6 <sup>th</sup> Framework; €1.25 mio
2004-2006	IWT Belgium; €1.0 mio
2005-2008	Amyotrophic Lateral Sclerosis Association; €0.175 mio
2005-2008	FWO Lymphangiogenesis G.0567.05, Belgium; €0.22 mio
2005-2009	GOA/KULeuven, Belgium; €1.5 mio
2005-2006	Charcot Stichting – Belgische Vereniging voor Neurologie, Belgium; €0.04 mio
2005-2006	Inbev Baillet Latour Prize, Belgium; €0.025 mio
2006-2008	Littlefield AACR Research grant; \$0.250 mio
2007-2011	VIB Belgium, €5.8 mio
2007-2010	FWO Axon Guidance, Belgium; €0.375 mio
2007-2011	Interuniversity Attraction Pole; €0.80 mio
2007-2010	Motor Neuron Disease Organization, UK; £0.2 mio
2007-2014	Methusalem – KULeuven, Belgium: €6.65 mio
2007-2009	IWT, Belgium; €0.72 mio
2008-2009	GSKE, Belgium; €0.05 mio
2009-2009	EFSD – Diabetes; €0.01 mio
2009-2011	Susan G. Komen for the Cure – Research Grant; €0.48 mio
2009-2012	Belgische Stichting tegen Kanker, €0.32 mio
2009-2012	FWO G.0676.09N VEGF & Neuromuscular Junction, Belgium; €0.371 mio

2009-2010	FWO G.0567.05N, Lymphangiogenomics Belgium; € 0,195 mio
2009-2012	FWO G.0677.09N, VEGF & Cerebellum development, Belgium; €0.08 mio
2009-2011	EU FP7 Health – Infarct Cell Therapy; €0.3 mio
2010-2013	FWO G.0532.10N EC Metabolism & Cancer, Belgium; €0.32 mio
2010-2013	FWO G.0764.10N Genetic screening & angiogenesis, Belgium; €0.416 mio
2010-2013	FWO G.0765.10N Oxygen Sensors & ALS, Belgium; €0.26 mio
2010-2012	Motor Neuron Disease Organization, UK; £0.175 mio
2010-2011	Emmanuel Vanderschueren Research Grant, Belgium; €0.1 mio
2011-2014	Amyotrophic Lateral Sclerosis Association (ALSA), PHDs/ALS, USA; \$0.24 mio
2011-2016	ERC-2010-AdG, EC Metabolism, Targeting endothelial metabolism: A novel anti-angiogenic therapy, €2.365 mio
2012-2016	VIB Belgium, €6.3 mio
2012-2015	FWO G.0595.12N Oxygen sensors & neural stem cells, Belgium; €0.415 mio
2012-2015	FWO G.0671.12N Dendritic spine remodeling, Belgium; €0.516 mio
2012-2015	FWO G.0598.12N Glutamine metabolism & angiogenesis, Belgium; €0.18 mio
2012-2016	AXA Investigation Grant: Endothelial metabolism, Belgium; €0.963 mio
2013-2017	Stichting tegen Kanker, PFKFB3 & anti-cancer strategy; €0.36 mio
2013-2018	Interuniversity Attraction Poles – Cancer & epigenetics; €0.9 mio
2013-2016	FWO G.0602.13N Role of PHD2 in breast cancer metastasis; €0.3 mio
2013-2016	FWO G.0834.13N Role of PFKFB3 in angiogenesis & metabolism; €0.12 mio
2014-2017	FWO G.0658.14N Pericyte cell metabolism in angiogenesis: role of PFKFB3; €0.494 mio
2014-2017	FWO G.0794.14N Role of fatty acid Metabolism in angiogenesis; €0.28 mio
2014-2016	Opening The Future – Charity Funding; €0.4 mio
2014-2021	Methusalem – KULeuven, Belgium: €6.65 mio
2015-2018	FWO.G.0699.15N Role of PKM1/2 in endothelial metabolism and angiogenesis; €0.28 mio
2016-2017	EFSD Diabetes Grant, Control of glycaemia in health and diabetes by production of glucose from the endothelium; €0.4 mio
2016-2019	FWO G0B0916N: The unexpected role of gluconeogenesis in endothelial cells and angiogenesis; €0.503 mio
2016-2019	FWO G0B1116N: The role of peroxisomal fatty acid beta-oxidation in angiogenesis; €0.517 mio
2016-2017	ERC-POC: Translating fundamental insights in endothelial metabolism: PFKFB3 drug discovery and development; €0.15 mio
2016-2018	Fritz Thyssen foundation: Tumor endothelial cell metabolism as potential target for metastatic colorectal cancer; €0.1 mio
2017-2020	Stichting tegen Kanker, Improving immunotherapy via tumor vessel normalization by blocking endothelial cell glycolysis; €0.6 mio
2017-2020	Kom op Tegen Kanker, Tumor vessel normalization by targeting endothelial cell metabolism: a novel strategy to improve combination chemo/immuno-therapies against cancer; €0.45 mio
2017-2023	Advanced ERC grant, Preclinical concept validation of tumor endothelial cell metabolism for novel anti-angiogenic therapy; €2.5 mio
2018-2020	RegMed XB Vlaanderen, Metabolic dissection of kidney vascularization: Discovery and validation of endothelial metabolic targets for therapeutic regenerative kidney medicine; €2 mio VIB-KU Leuven
2019-2021	FWO G0E4419N: Development of PFKFB3 blockers for anti-angiogenic tumor therapy
2020-2023	FWO G0B7920N: The tumor endothelium: an overlooked target to improve immunotherapy?; €0.514 mio

2020-2023	EU Horizon2020 consortium partner, MiCrovasculaR rarefaction in vascUlar Cognitive Impairment and heArt failUre (CRUCIAL, 8481098); €0.778 mio
2020-2022	EU Horizon2020 consortium partner, Controlled Organoids transplantation as enabler for regenerative medicine translation (ORGANTRANS, 874586); €0.602 mio
2020-2022	KU Leuven, Development of a new point-of-care COVID-19 screening using exhaled-breath volatilome analysis; €0,149 mio
2020-2023	Forton Grant, Role of endothelial cells in cystic fibrosis; €0,260 mio

### **Patent Applications – Applied / Licensed**

<b>Application nr</b>	<b>Description</b>	<b>Inventor(s)</b>	<b>Ownership</b>
WO 2000/76309	Non-human transgenic animals deficient in Gas6 function and their use	Carmeliet P, Collen D. Garcia de Frutos P Aparicio C Dahlback B	DCRF
PCT/EP01/07779	A transgenic animal model for cardiac arrhythmias	Carmeliet P., Collen D., Nuyens D.	VIB, DCRF
WO 2001/56593	Vascular endothelial growth factor (VEGF), placenta growth factor (PIGF) or both for preventing or treating ischemic diseases or stroke.	Carmeliet P., Collen D.	DCRF, VIB
WO 2001/76620	Use of VEGF and homologues to treat neuron disorders	Carmeliet P., Collen D., Oosthuysen B.	VIB, DCRF
WO 2001/78778	Use of inhibition of Gas6 function or of a Gas6 receptor for preventing and treating a cardiovascular disease	Carmeliet P., Collen D., Angellilo-Scherrer A.	VIB, DCRF
WO 2001/85796	Use of inhibitors of placental growth factor for the treatment of pathological angiogenesis, pathological arteriogenesis, inflammation, tumour formation and/or vascular leakage	Carmeliet P., Collen D., De Falco S., Menotti R.	VIB, DCRF
WO 2002/086497	Use of hypoxia inducible factor 2alpha for curing neonatal respiratory distress syndrome and as a target for the treatment of pulmonary hypertension	Carmeliet P. Compernelle V.	VIB, DCRF
WO 2002/00248	Use of urokinase inhibitors for the treatment and/or prevention of pulmonary hypertension and/or cardiac remodeling	Carmeliet P., Collen D., Levi M.M Heymans S	VIB DCRF
WO 2003/051347	Use of urokinase receptor antagonists to modulate ischemia-reperfusion injury	Carmeliet P., Collen D., Van Aken H. Theilmeier G	VIB, DCRF
WO 2003/063904	Tissue adhesion formation control	Carmeliet P. Collen D. Koninckx P	VIB, DCRF, LRD



		Molinas Sanabria C	
WO 2003/000183	Method of treating atherosclerosis and other inflammatory diseases	Carmeliet P., Hicklin D., Liao F., Lutun A. & Wu Y.	Imclone Systems Incorporated, VIB
WO 2003/000009	Stimulation of vascularization with VEGF-B	Eriksson U., Li X., Carmeliet P., Collen D.	Ludwig Institute for cancer research, VIB
WO 2003/066097	A novel target to inhibit angiogenesis	Carmeliet P. Moons L.	VIB, DCRF; LRD
US 2003/0211994	Composition and method for modulating vasculogenesis or angiogenesis	Li X., Eriksson U., Carmeliet P., Collen D.	Ludwig Institute for Cancer Research, VIB
WO 2004/002525	Placental growth factor as a target for the treatment of osteoporosis	Carmeliet P., Collen D., Bouillon R., Carmeliet G.	VIB, DCRF, LRD
WO 2004/0070018	VEGF-B and PDGF modulation of stem cells	Alitalo K., Eriksson U., Ylä-Herttua S. Salven P., Rajantie I., Carmeliet P., Collen D.	Ludwig Institute for Cancer Research, VIB
WO 2005/032572	Means and methods for the recruitment of stem cells	Carmeliet P., Twja M.	VIB, DCRF
WO 2005/007183	Treatment of anemia	Angelillo-Sherer A., Carmeliet P., Collen, D.	VIB, Thromb-X
WO 2005/043993	Transgenic amphibian models for lymphatic vessel development	Carmeliet P.	VIB, DCRF
WO 2005/117946	Treatment of amyotrophic lateral sclerosis	Carmeliet P.	VIB, DCRF
WO 2007/003609	Treatment of liver cirrhosis and its complications	Carmeliet P. Colle I. Geerts A.	VIB, DCRF, UGent
WO 2007/0828899	Inhibitors of Prolyl-hydroxylase 1 for the treatment of skeletal muscle degeneration	Carmeliet P. Aragonés J.L.	VIB, LSRP
WO 2008/006819	Use of PPAR-alpha agonists to treat skeletal muscle wasting disorders	Carmeliet P.	VIB, LSRP, Carmeliet P.
WO 2006/099698	Novel anti-PlGF antibody	Carmeliet P. Stassen J.M. Collen D.	VIB, DCRF Thromb-X
WO 2008/028888	Means and methods for the stimulation of skeletal muscle regeneration	Carmeliet P. Minchiotti G.	VIB, LSRP
WO 2010/084134	PHD2 inhibition for blood vessel normalization and uses thereof	Mazzone M. Carmeliet P.	VIB, LSRP
WO 2010/037864	Inhibition of PlGF to treat Philadelphia chromosome positive leukemia	Loges S. Carmeliet P.	VIB, LSRP
WO 2011/121036	Induction of arteriogenesis by cell therapy with polarized myeloid cells	Mazzone M. Carmeliet P.	VIB, LSRP
WO 2011/001413	Extracellular allosteric inhibitor binding domain from a tyrosine kinase receptor	Herbert C., Rousseau F., De Smet F., Schymkowitz J., Carmeliet P.	VIB, LSRP, Sanofi, VUB

WO 2011/015348	Responsiveness to angiogenesis inhibitors	Carmeliet P., Lambrechts D. Scherer S., Foerzler D. Delmar P	VIB, LSRP Hoffmann-La Roche
WO 2012/119949	Means and methods for the treatment of neurodegenerative disorders	Carmeliet P. Quaegebeur A.	VIB, LSRP
WO 2013/007766	Means and methods for the treatment of pathological angiogenesis	Carmeliet P.	VIB, LSRP
WO 2013/076029	Responsiveness to angiogenesis inhibitors	Lambrechts D. Carmeliet P. de Haas S. Scherer S.	VIB, LSRP Hoffman-La Roche
EP 13179243.4	Glutamine synthetase inhibitors for inhibition of pathological angiogenesis	Carmeliet P.	VIB, LSRP
EP 13179300.2	Carnitine palmitoyltransferase 1 inhibitors for inhibition of pathological angiogenesis	Carmeliet P.	VIB, LSRP
09790002PCT	Means and methods for treating lung hypoplasia	J. Deprest, N. Al-Juffali P. De Coppi, S. Janes P. Carmeliet, S. Lougogeorgakis	VIB, UCL, KUL

### ***Contribution to the careers of junior scientists***

Selected list of alumni: In total, P. Carmeliet trained 68 postdocs of which 38 have an independent position: 53% in academia, 29% in clinic, 18% in industry.

Joanna Kalucka (Assistant Professor, Aarhus Institute of Advanced Studies, Denmark), Anna Rita Cantelmo (Young Group leader, University of Lille, France), Lena-Christin Conradi (Physician, Clinic for General, Visceral and Pediatric Surgery, University Medical Center Göttingen, Germany); Ulrike Brüning (GL at the Max-Delbrück Center, Berlin Campus Buch, Germany); Brian Wong (Assistant Professor of Surgery, Department of Surgery, Washington University School of Medicine, St. Louis, USA); Ilaria Decimo (Assistant professor, Dep of diagnostics and public health, University of Verona, Italy); Katrien De Bock (Assistant professor, ETH Zürich, Institute of movement sciences, Switzerland); Thomas Schmidt (GL, Univ. Heidelberg, Germany); Carmen Ruiz de Almodóvar (GL, Univ. Heidelberg, Biochemistry Center, Heidelberg, Germany); Sonja Loges (Max-Eder Group Leader, Targeted Oncology Group, Medical Clinic Center for Oncology, Hamburg, Germany); Martin Schneider (Emmy Noether-Group Leader, Univ. Heidelberg, Germany); Massimiliano Mazzone (GL, Center Cancer Biology, VIB, KU Leuven, Belgium); Julian Aragones (GL, Universidad Autónoma de Madrid, Madrid, Spain); Diether Lambrechts (GL & acting director, Center Cancer Biology, VIB, KU Leuven, Belgium).