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## **Modeling vascular diseases using human induced pluripotent stem cells**

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### **Citation**

Cao, X. (2020, September 9). *Modeling vascular diseases using human induced pluripotent stem cells*. Retrieved from <https://hdl.handle.net/1887/136521>

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**Author:** Cao, X.

**Title:** Modeling vascular diseases using human induced pluripotent stem cells

**Issue Date:** 2020-09-09

## CURRICULUM VITAE

Xu Cao was born on 7<sup>th</sup> July, 1990 in Linyi, Shandong Province, China. Xu obtained his Bachelor degree in Biotechnology at Shandong University in 2012. During his bachelor study, he performed an internship in the group of Prof. Dong Li at Qilu Hospital of Shandong University, where he conducted his bachelor thesis entitled “Optimization of culture condition for hematopoietic stem cell isolated from rat bone marrow”. From 2012 to 2015, Xu did his Master studies at the Institute of Zoology, Chinese Academy of Science in Beijing, China, supervised by Prof. Baoyang Hu. During his master study, he worked on establishing a knock-in reporter human embryonic stem cell (hESC) line for two specific genes of dopaminergic neuron (DA) progenitor cells using CRISPR/Cas9, as well as studying the influence of the stiffness of extracellular matrix (ECM) and the density of ECM protein on neuronal differentiation from hESCs. After obtaining his master degree, he moved to Netherlands to pursue a doctorate degree in Leiden University Medical Center, under the supervision of Prof. Dr. C.L Mummery and Dr. V.V. Orlova. He was mainly work on the modeling of vascular diseases using human induced pluripotent stem cells (hiPSCs). The results of the research are shown in this thesis. After obtaining his PhD, he plans to carry out a postdoc in the US.

# LIST OF PUBLICATIONS

## **Differentiation and Functional Comparison of Monocytes and Macrophages from hiPSCs with Peripheral Blood Derivatives**

Xu Cao, Gopala Krishna Yakala, Francijna E. van den Hil, Amy Cochrane, Christine L. Mummery and Valeria V. Orlova

Published in **Stem Cell Reports**, Vol. 12, pages 1282–1297, June 11, 2019 Doi: 10.1016/j.stemcr.2019.05.003

## **An efficient Protocol for Derivation and Functional Characterization of Monocytes and Macrophages from hiPSCs**

Xu Cao, Francijna E. van den Hil, Christine L. Mummery and Valeria V. Orlova

Published in **Current Protocols in Stem Cell Biology**, 2020 e108, Volume 52 Doi: 10.1002/cpsc.108

## **Transcriptional Dynamics During the Segregation of Endothelial and Myocardial Lineages from Cardiac Mesoderm**

Xu Cao, Maria Mircea, Gopala Krishna Yakala, Francijna E. van den Hil, Hailiang Mei, Konstantinos Anastassiadis, Christine L. Mummery, Stefan Semrau and Valeria V. Orlova

Manuscript in preparation

## **Vascular Defects Associated with Hereditary Haemorrhagic Telangiectasia Revealed in Patient-derived Isogenic iPSCs in 3D Microfluidic Chips**

Valeria V. Orlova, Xu Cao, Amy Cochrane, Roderick C. Sliker, Christian Freund, Francijna van den Hil, David Lemmonier, Gonzalo Sánchez-Duffhues, Hailiang Mei, Cornelius J.J. Westermann, Repke J. Snijder, Frans Disch, Johannes Kristian Ploos van Amstel, Peter ten Dijke, Franck Lebrin, Hans-Jurgen Mager, Christine L. Mummery

Manuscript in preparation

## **Pseudomyogenic Hemangioendothelioma Recapitulated in Endothelial Cells from Human Induced Pluripotent Stem Cells Engineered to Express the SERPINE1-FOSB Translocation**

David G.P. van IJendoorn, Daniela C.F. Salvatori<sup>#</sup>, Xu Cao<sup>#</sup>, Francijna van den Hil, Inge H. Briaire-de Bruijn, Danielle de Jong, Hailiang Mei, Christine L. Mummery, Karoly Szuhai, Judith V.M.G. Bovée, Valeria V. Orlova

Under review in **Cell Reports Medicine**, <sup>#</sup>joint second author

**Cardiac- but not dermal fibroblasts induce structural and functional maturation of hiPSC-derived cardiomyocytes in 3D microtissues via CX43 gap-junctions**

Elisa Giacomelli<sup>#</sup>, Viviana Meraviglia<sup>#</sup>, Giulia Campostrini<sup>#</sup>, Amy Cochrane, Xu Cao, Ruben W.J van Helden, Ana Krotenberg Garcia, Maria Mircea, Sarantos Kostidis, Richard P. Davis, Berend J van Meer, Carolina R Jost, Abraham J Koster, Hailiang Mei, David G. Míguez, Aat A Mulder, Mario Ledesma-Terrón, Giulio Pompilio, Luca Sala, Daniela C.F. Salvatori, Roderick C. Sliker, Elena Sommariva, Antoine A. F. de Vries, Martin Giera, Stefan Semrau, Leon GJ Tertoolen, Valeria V Orlova\* & Milena Bellin\* & Christine L Mummery\*

Published in **Cell Stem Cell**, 2020, 1934-5909, Doi: 10.1016/j.stem.2020.05.004

**Phosphatidic Acid Improves Reprogramming to Pluripotency by Reducing Apoptosis**

Yuan Jiang, Mingxia Du, Menghua Wu, Yanbing Zhu, Xing Zhao, Xu Cao, Xin Li, Peipei Long, Wei Li, Baoyang Hu

Published in **Stem Cells and Development**, 25(2016), 43-54. Doi: 10.1089/scd.2015.0159

# ACKNOWLEDGMENTS

The PhD marathon is coming to an end and I would like to express my sincere appreciation to all people that helped and accompanied me in the past 5 years and made this wonderful and tough journey possible.

I would like to start by thanking to my supervisor Valeria Orlova. Thank you for taking me as your PhD student at the beginning: for training and pushing me to become an independent researcher while always having you to back me up; for sharing that passion and motivation for science; for all your help with my publications and thesis and for your valuable advice not only on my research career but also on my life in general as a friend.

I want to express my great gratitude to my promoter Christine Mummery. For offering this great working opportunity which is a turning point of my life. For your guidance, support and advice along the journey of my PhD. For your great help with this thesis. I am lucky and honored for being mentored by you.

A great thanks to all technicians of Anatomy and Embryology Department, for your assistance with my PhD work. Specially to Lisa van den Hil, for training me at the start of my PhD, answering my questions, conducting experiments (numerous qPCR) and contribution to the manuscripts.

To my dear friends Karina and Oleh, for sharing both good and bad moments with me inside and outside the lab, which for sure made my PhD journey less stressful. To Yang, Lettine and Jun, for those joyful moments during our lunches.

To Gopi Karishna Yakala, for all your help with my research project and contribution to the manuscript, also for sharing research experience, giving advice and company for lunches. To Amy Cochrane for advice and helping with the manuscript. To Maria Mircea and Stefan Semrau, for the great help and contribution with our collaborative projects.

Great thanks to my paranymphs Karina and Lisa, for the great work you have done

and lots of help in this graduation process.

To Richard, Christian and Milena and Daniela, for your great suggestions and help with my research, for sharing knowledge and experience during our numerous group meetings in the past 5 years.

To all ANA fellow PhD students and postdocs, for being helpful and nice, good company and creating great memories along this journey. I am really happy to work with you all.

To Atie, for all your help with the administration work. To Daniel and Paul, for the IT support which is really helpful.

To my wife Merissa, thanks for appearing in my life, for your love and patience to be my side at the toughest times during this journey. Thanks for your words and smiles that keeping me optimistic and energetic about work and life.

最后，我想感谢远在中国的我的家人们对我生活和工作的鼓励和支持！感谢父母对我一直以来对我竭尽所能的培养和我所取得的成绩的肯定，以及对我常年不能陪伴左右的包容和理解。