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Modeling vascular diseases using human induced pluripotent stem cells

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CURRICULUM VITAE

Xu Cao was born on 7th 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[#], Xu Cao[#], 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**, [#]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[#], Viviana Meraviglia[#], Giulia Campostrini[#], 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

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