Quantifying functional phenotypes in human pluripotent stem cell derived cardiomyocytes for disease modelling and drug discovery

Meer, B.J. van

Curriculum vitae

Berend van Meer was born on August 2, 1988 (Bloemendaal, the Netherlands). After graduating from secondary school in 2006 (Stedelijk Gymnasium Haarlem) he started a bachelor in Electrical Engineering at Delft University of Technology. During his bachelor he became interested in the field of Organs-on-Chips and did a six month internship under supervision of Prof. Dr. Ronald Dekker at Royal Philips N.V. in collaboration with Dr. Stefan Braam and Prof. Dr. Christine Mummery in the Leiden University Medical Centre (LUMC) with the aim to develop a cardiac muscular thin film using human stem cell derived cardiomyocytes. He graduated with an A+ result for his bachelor thesis and was awarded the IEEE Benelux Computer Society "Best High Tech Start-up Business Plan".

During his bachelor, Berend was co-founder of the Lisa Waller Hayes Foundation (LWH Foundation, now: Living With Hope), a non-profit organization that fights pancreatic cancer by raising awareness and funds for research. In 2011, he co-founded Technological Innovations in Medicine (TIM), a start-up company aimed to improve patient care with technological solutions, which led to the spin-out OSAsense, a home use screening tool to detect sleep apnea.

During his master Electrical Engineering – Microelectronics track, started in 2011, he focused mainly on biosensors, nanoelectronics and microfabrication, but also did a Strategic Marketing internship at Royal KPN N.V. where he developed a roadmap for emerging technologies of interest to the company. Berend graduated with an A+ result for his Master thesis where he developed a Skin-on-Chip model under supervision of Prof. Dr. Ronald Dekker at the Delft Institute of Microsystems and Microelectronics in collaboration with Prof. Dr. Sue Gibbs at the Vrije Universiteit Medical Centre.

Next, he started his PhD research in 2014 under supervision of Prof. dr. Christine Mummery and Dr. Leon Tertoolen in the department of Anatomy and Embryology at the LUMC. During his PhD research he was awarded two travel awards (Safety Pharmacology Society and Keystone) and a EIT Health PhD Transition Fellowships (€ 10,000). He has been selected and invited for several talks at scientific conferences and at two TEDx events. In 2020, he received the Hugo van Poelgeest Award for advancing research in animal alternatives for drug testing and disease modelling.

Since 2019, Berend has focused on bringing Organ-on-Chip technology closer to the societal application and is currently employed both at the LUMC and the University of Twente. He works on setting up academic centers of expertise that facilitate biological qualification and open technology platforms to Organ-on-Chip researchers and start-

up companies. In addition, he is coordinating several research projects in the group of Prof. Dr. Christine Mummery.

Berend lives in Haarlem, together with Mariëtte Kooren and their son Tijl.

List of publications

Blinded, Multicenter Evaluation of Drug-induced Changes in Contractility Using Human-induced Pluripotent Stem Cell-derived Cardiomyocytes

Berend J van Meer*, Umber Saleem*, Puspita A Katili, Nurul A N Mohd Yusof, Ingra Mannhardt, Ana Krotenberg Garcia, Leon Tertoolen, Tessa de Korte, Maria LH Vlaming, Karen McGlynn, Jessica Nebel, Anthony Bahinski, Kate Harris, Eric Rossman, Xiaoping Xu, Francis L Burton, Godfrey L Smith, Peter Clements, Christine L Mummery, Thomas Eschenhagen, Arne Hansen, Chris Denning

* Contributed equally
Published in Toxicological Sciences (2020), doi: 10.1093/toxsci/kfaa058

Simultaneous measurement of excitation-contraction coupling parameters identifies mechanisms underlying contractile responses of hiPSC-derived cardiomyocytes

Berend J. van Meer, Ana Krotenberg, Luca Sala, Richard Davis, Thomas Eschenhagen, Chris Denning, Leon G.J. Tertoolen, Christine L. Mummery

Published in Nature Communications (2019), doi: 10.1038/s41467-019-12354-8

Quantification of Muscle Contraction In Vitro and In Vivo Using MUSCLEMOTION Software: From Stem Cell-Derived Cardiomyocytes to Zebrafish and Human Hearts

Berend J. van Meer*, Luca Sala*, Leon G. J. Tertoolen, Godfrey L. Smith, Francis L. Burton, Christine L. Mummery

* Contributed equally
Published in Current Protocols in Human Genetics (2018), doi: 10.1002/cphg.67

MUSCLEMOTION: A Versatile Open Software Tool to Quantify Cardiomyocyte and Cardiac Muscle Contraction In Vitro and In Vivo

Berend J van Meer*, Luca Sala*, Leon T Tertoolen, Jeroen Bakkers, Milena Bellin, Richard P Davis, Chris N Denning, Michel A Dieben, Thomas Eschenhagen, Elisa Giacomelli, Catarina Grandela, Arne Hansen, Eduard Holman, Monique R Jongbloed, Sarah M Kamel, Charlotte D Koopman, Quentin Lachaud, Ingra Mannhardt, Mervyn P Mol, Diogo Mosqueira, Valeria V Orlova, Robert Passier, Marcelo C Ribeiro, Umber Saleem, Godfrey Smith, Francis LL Burton, Christine L Mummery

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Small molecule absorption by PDMS in the context of drug response bioassays

BJ van Meer, H. de Vries, K.S.A Firth, J. van Weerd, L.G.J. Tertoolen, H.B.J. Karperien, P. Jonkheijm, C. Denning, A.P. IJzerman, CL Mummery

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Nikolas Gaio, Berend van Meer, William Quirós Solano, Lambert Bergers, Anja van de Stolpe, Christine Mummery, Pasqualina M. Sarro and Ronald Dekker

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BJ van Meer, LG Tertoolen, CL Mummery

Published in Stem Cells (2016), doi: 10.1002/stem.2403

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