The branching of life: human iPSC-based angiogenesis-on-chip

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Kendy Eduardo Urdaneta Gonzalez was born in Maracaibo (Venezuela), where the sun and Caribbean meet the eternal lightning in "Catatumbo", in 1993. Following his high school program in sciences, Kendy worked in the family-run enterprise as a truck and heavy equipment technician while embarking his studies in Biology at Universidad del Zulia. In 2014, Kendy moved to Caracas for the first bachelor's research internship to investigate the heavy chain of Myosin II (MHCII) of the striated muscle for the purpose of crystallization and three-dimensional reconstruction (Venezuelan Institute of Scientific Research, IVIC, 2014). Then, Kendy began medical school to explore how alterations in biological mechanisms lead to disease. In doing so, he was involved in projects exploring the gut-brain-axis disturbances in children with autism spectrum disorders (Department of Biology & Faculty of Medicine, Universidad del Zulia, 2015- 2019). This led to being awarded the "Cum Laude" honor and the position of assistant lecturer in biochemistry.

In 2019, Kendy received a summer school scholarship from the Pontificia Universidad Católica de Chile. Later in the year, Kendy received the Erasmus Mundus Scholarship to pursue a joint master's degree in Innovative Medicine in Europe. Kendy's curriculum is marked by the sociopolitical crisis in Venezuela. To date, more than 8 million Venezuelans were forced to leave the country, including him. During the masters, Kendy joined the Endothelial Biomedicine & Vascular Drug Targeting Laboratory (EBVDT) in the University Medical center Groningen (UMCG) as a research intern to study the kinetics of endothelial activation-related molecules in polymicrobial sepsis (2019). Next, he performed a research internship outside academia, joining in CC Diagnostics, a start-up developing a novel host methylation-based tool for cervical cancer screening (2020). As part of the program, Kendy further expanded the industrial aspects through workshops at the Medical Faculty in Mannheim in the University of Heidelberg. Lastly, Kendy returned to the EBVDT group for his master thesis project exploring the SARS-CoV-2 effects upon the renal microvasculature from deceased patients with COVID-19. Kendy received the joint master's degree from the University of Groningen and Uppsala University in the summer of 2021.

Afterwards, Kendy joined the Orlova group at Leiden University Medical Center (LUMC) for an internship on human induced pluripotent stem cell-derived endothelial cell (hiPSC-EC) differentiation and vasculature-on-chip models before starting as a PhD candidate in the same group in 2021. During his PhD, Kendy worked on understanding the angiogenic processes using hiPSC-ECs incorporated into microfluidic devices. In addition, the use of hiPSC-ECs from type 2 hereditary hemorrhagic telangiectasia (HHT2) patients were explored for phenotypic modeling. Kendy attended multiple Dutch, European and International meetings and conferences focused on microphysiological models. Also, he was awarded a small grant to carry extra animal-free based and drug testing experiments for HHT2. In the future, Kendy aims to continue pursuing his passion for translational vascular biology while obtaining his medical license. Most importantly, Kendy will continue advocating for human and social rights, diversity, freedom of speech, respect and people's self-determination in any settings, including academia.

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