



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

17 October 2017

UCT receives funding from Chan Zuckerberg Initiative for research to map all cells in a human body

The University of Cape Town has been awarded a grant for the work of Professor Musa Mhlanga in the Chan Zuckerberg Initiative's first open request for applications in support of the Human Cell Atlas community. Mhlanga's research will contribute to a global initiative to map all of the cells in a human body. The grant represents an opportunity for South Africa to be involved in world-leading medical research.

Professor Musa Mhlanga at the University of Cape Town's (UCT) Institute for Infectious Disease & Molecular Medicine (IDM) is among 38 recipients being recommended for funding by the Chan Zuckerberg Initiative as part of its Human Cell Atlas project. The funding is being made possible in part by a grant from the Chan Zuckerberg Initiative donor advised fund, an advised fund of Silicon Valley Community Foundation. Dr Mhlanga's co-principal investigator in the grant is Dr Macha Nikolski of the University of Bordeaux.

Of the grantees, nine – including the Mhlanga Lab – are outside the US. Mhlanga says he hopes to harness the opportunity to extend South Africa's involvement in collaborative, world-leading research.

The Chan Zuckerberg Initiative is a philanthropic organisation established by Facebook founder Mark Zuckerberg and his wife Dr Priscilla Chan, a paediatrician and philanthropist, in 2015. The organisation's current focus is supporting science, through biomedical research, and education, through personalised learning. One of its first research projects is the Human Cell Atlas, an international collaboration to map and characterise all of the cells in the human body. This is the project through which Mhlanga was awarded.

"The Human Cell Atlas is not only going to revolutionise the way we see human biology, but it's also going to revolutionise medicine," says Mhlanga, who was among nearly 500 applicants of which about 8% were recommended for funding.

The Human Cell Atlas will study and document the types, numbers, locations, relationships and molecular parts of every human cell. This information will allow us to better understand how healthy cells work and what goes wrong when cells aren't healthy. The data generated by the project will be made openly and freely available, becoming a fundamental resource for scientists.

Mhlanga compares the significance of the Human Cell Atlas to that of the Human Genome Project: a 13-year, international collaboration to sequence the entire human genome. "Once we have cellular resolution for the trillions of cells in your body, we will be able to say whether a particular cell signature or cell structure signifies the onset of Alzheimer's or schizophrenia, or infectious disease, for example."

"Diseases like mental illness will change dramatically because we will have the ability to peer into the brain and understand its onset, and potentially how to rebalance things – this will be absolutely transformative. And that's just giving you a glimpse of the possibilities that the Human Cell Atlas will create."

The funding that the Mhlanga Lab has been awarded facilitates their participation in the initial phase of the Human Cell Atlas, which involves exploring and developing tools that will be applied in the project's future phases of mapping and characterising all human cells.

Mhlanga and his colleagues are developing a technique, called spatially resolved omics, that aims to apply cell biology methods in a novel way to visualise – at the level of an individual cell and single molecules – the relationship between where RNA (ribonucleic acid) is located in a cell and where proteins from that RNA are located. RNA is a molecule (much like DNA) that carries code ('copied' from DNA) dictating how proteins are constructed (translated). If they are successful, the researchers' new technique will help to quantitatively answer questions like: Once RNA has been made, where does it go in the cell? Where in the cell are proteins made? Do they move once they are made and, if so, where to? In what quantities do they collect?

As a global collaboration with far-reaching implications, the Human Cell Atlas – and the grant awarded to the Mhlanga Lab – represents an opportunity that could revolutionise our understanding of human disease and medicine. "It's an opportunity for Africa to participate in high-impact research – a region that normally isn't involved in this type of work. It's a way to make scientific knowledge creation, and access to it, more equitable," says Mhlanga.

"This grant is another step in my personal journey to make an impact and contribute positively to developing basic scientific research and knowledge creation in South Africa."

Professor Musa Mhlanga of the IDM at UCT



ENDS

Issued by: UCT Communication and Marketing Department

Thami Nkwanyane

Media Liaison and Monitoring Officer
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5672
Cell: (072) 563 9500
Email: thami.nkwanyane@uct.ac.za
Website: www.uct.ac.za