

NIH awards UCSF diabetes researcher 1.8M grant for innovative scientific work

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UCSF researcher Michael McManus has recently received a Transformative Research Award from the NIH to pursue highly innovative scientific work. Pictured, from left to right, are Michael McManus, and members of the lab who participated in the project: Susan Carpenter, Atri Choksi, Joseph Choe, Ravi Desai, Vanille Greiner, and Matias Alvarez-Saavedra. (Photo credit: Kathleen Jay/UCSF)

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McManus, lab receive Transformative Research Award to develop novel DNA barcoding technology

BY KATHLEEN JAY

SAN FRANCISCO (Oct. 9, 2014) -- This week, the National Institute of Health ^[1] (NIH) announced that UCSF Diabetes Center ^[2] researcher Michael McManus ^[3], PhD, received a 2014 Transformative Research Award ^[4] to develop a novel DNA barcoding technology.

The award ? which supports the work of exceptionally creative scientists pursuing high-risk, high-reward scientific research projects -- will provide the McManus lab \$1.8M over the next five years to develop technology that will track the ancestry of individual cells.

"We are extremely appreciative and honored to have received this prestigious award from the NIH Directors Office," McManus, an Associate Professor of Microbiology and Immunology, the Vincent and Stella Coates Endowed Chair in the UCSF Diabetes Center and the founder and director of the UCSF W.M. Keck Center for Noncoding RNAs, said.

By combining new technologies -- deep sequencing and programmable DNA binding enzymes -- the McManus team aims to develop a single-cell lineage tracer, for which each cell writes its own unique barcode. In doing so, researchers will be able to track the evolutionary history of an individual cell to its origin -- a single, fertilized egg.

"Like tracing a family tree, we'll be able to construct ancestry trees for individual cells in the body, and be able to establish the relationships between healthy and unhealthy cells,"

McManus said. "Knowing the relationships between cells will help us to understand pathogenic cells in cancer, neurological disease, and diabetes. In effect, our technology may help us plot the best treatment options and to anticipate disease outcome."

Collaborators on McManus's team include Susan Carpenter, Atri Choksi, Ravi Desai, Vanille Greiner, Joseph Choe, and Matias Alvarez-Saavedra.

"We are delighted to receive the Transformative Research Award," Carpenter, a senior post-doc in the McManus lab, said. "It will allow us to develop a technology to identify the origin of every cell in the human body.?"

"This work is so new and cutting-edge, there will likely be many applications in other research projects that we can't even envision right now," Mathias Hebrok, PhD and Director of the UCSF Diabetes, said. "Michael McManus and his lab's highly creative approach get us closer to understanding the complexity of diseases such as diabetes with the ultimate aim of identifying a cure."

For more information, visit diabetes.ucsf.edu. [5]

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[1] <http://nih.gov>

[2] <http://diabetes.ucsf.edu>

[3] <https://diabetes.ucsf.edu/michael-mcmanus>

[4] <http://commonfund.nih.gov/TRA>

[5] <http://diabetes.ucsf.edu>.