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UM SCHOOL OF MEDICINE SCIENTIST RECEIVES NIH GENOMIC INNOVATOR AWARD

NIH's National Human Genome Research Institute will provide \$2.5 million award to the Institute for Genome Sciences at UMSOM to accelerate genomic discovery

Baltimore, Md., October 1, 2019 – The National Institutes of Health's (NIH) National Human Genome Research Institute (NHGRI) announced today that genomics scientist, Timothy O'Connor, PhD, an Assistant Professor of Medicine at the University of Maryland School of Medicine (UMSOM) and scientist at the Institute for Genome Sciences (IGS) will be one of six new recipients of the NIH Genomic Innovator Awards. The awards provide funding to support early career researchers studying genome biology, genomic medicine, technology development, and societal implications of genomic advances. Dr. O'Connor will receive \$500,000 per year over a five-year project period to identify genomic variants that exist in specific ancestry populations.

In a recent study, published in the journal Nature Communications, Dr. O'Connor was part of a team that conducted a genome-wide meta-analysis that culled data from those of African ancestry and mapped new areas on chromosomes containing genes related to asthma risk. He also served as a lead investigator on a study published in March in the journal Cancer that characterized more than 1000 cancer cell lines by their ethnic ancestry, finding that the vast majority were of European or East Asian ancestry with very few cell lines having African American ancestral origin and with Hispanic and South Asian ancestry being almost entirely absent across all cell lines. He and his UMSOM colleagues noted that the finding called for the need to rectify the ancestral imbalances in these cell lines to effectively study various form of cancer that occur in different ethnic populations due to genetic variations.

“Dr. O'Connor's award demonstrates an important recognition for the School of Medicine and IGS as leading the field of human genomics, especially in providing an in depth analysis of ethnic differences in common diseases like cancer and asthma,” said UMSOM Dean E. Albert Reece, MD, PhD, MBA, who is also the Executive Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor. *“These important research findings have yielded great insights, but they have also raised many questions that still need to be addressed.”*

Unlike more traditional NIH research grants, the Genomic Innovator Award allows for flexibility in research pursuits by providing funding to investigators who already have outstanding records of productivity as they pursue important research areas. It enables them to pursue new directions as they arise without the need to revise their grant application. This program contributes to the ongoing NIH effort to accelerate scientific innovation by promoting stable funding to



investigators, prompting improved productivity and facilitating flexible, ambitious and creative research.

Dr. O'Connor has been active with several international consortia that are examining broader, genomic questions. He is working with the Trans-Omics for Precision Medicine (TOPMed) consortium that is part of the NIH's broader Precision Medicine Initiative, which aims to provide disease treatments tailored to an individual's unique genes and environment. His aim is to develop tools and methods that can be used across layers of data in order to improve that analysis of one of the largest sequencing initiatives, involving more than 140,000 genomes.

“One of the greatest benefits of this award is that it gives us the latitude to do innovative research, and we can expand our role in TOPMed and other consortia,” explained Dr. O'Connor. ***“We want to use multi-omics data, such as rare genomic variation, metabolomics, and transcriptomics, to investigate systems biology questions, including how these processes impact human health and disease.”***

Dr. O'Connor was recruited to UMSOM and IGS in 2013 from the University of Washington. He earned his PhD in Evolutionary Genetics from the University of Cambridge in 2011. His laboratory explores the effects of evolution and population structure on the genomic architecture of disease and other phenotypes in order to better understand the origin of phenotypic diversity. He and his colleagues are developing new algorithms and statistics to apply to interdisciplinary biological problems and are particularly focused on next-generation sequencing with a particular focus on explaining phenotypic differences among certain populations including Hispanic Americans and the Old Order Amish.

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About the University of Maryland School of Medicine

The University of Maryland School of Medicine was chartered in 1807 and is the first public medical school in the United States and continues today as an innovative leader in accelerating innovation and discovery in medicine. The School of Medicine is the founding school of the University of Maryland and is an integral part of the 11-campus University System of Maryland. Located on the University of Maryland's Baltimore campus, the School of Medicine works closely with the University of Maryland Medical Center and Medical System to provide a research-intensive, academic and clinically based education. With 43 academic departments, centers and institutes, and a faculty of more than 3,000 physicians and research scientists and more than \$400 million in extramural funding, the School is regarded as one of the leading biomedical research institutions in the U.S. with top-tier faculty and programs in cancer, brain science, surgery and transplantation, trauma and emergency medicine, vaccine development and human genomics, among other centers of excellence. The School is not only concerned with the health of the citizens of Maryland and the nation, but also has a global presence, with research and treatment facilities in more than 35 countries around the world.

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About the Institute for Genome Sciences



The Institute for Genome Sciences, founded in 2007, is an international research center within the University of Maryland School of Medicine. Comprised of an interdisciplinary, multidepartment team of investigators, the Institute uses the powerful tools of genomics and bioinformatics to understand genome function in health and disease, to study molecular and cellular networks in a variety of model systems, and to generate data and bioinformatics resources of value to the international scientific community.

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