

## **2024-25 UCSF Presidential Chair Project Summary – Loic Yengo, PhD**

### **Proposed Contribution of Dr. Loic Yengo to UCSF and the Center for Diversity in Precision Health**

Because there is a pressing need to advance the development and application of polygenic risk scores for a variety of important and common clinical outcomes that are generally applicable to all, Professor Yengo will spend the winter quarter of 2025 at UCSF. Professor Yengo is an international expert in the analysis of genome-wide association studies, the development of polygenic risk scores, global genetic variation, polygenic structure of disease risk, and the potential application of PRS clinically. The impact of his presence and collaboration at UCSF will be deep, far-reaching and long-lasting.

Through his novel and groundbreaking research studies, developing and applying novel statistical technologies to genome-wide association studies and polygenic risk score development, Dr. Yengo is now internationally established as a leader in this field. During Professor Yengo's visit, he will collaborate with and advise many at UCSF who are conducting genomics research, including characterization of Mendelian disorders, analysis of genome-wide association studies, and undertaking the development and application of polygenic risk scores and their application. This includes numerous faculty, postdoctoral fellows and graduate students. These aspects of human genetics are a critical component of the Center for Diversity in Precision Health. Dr. Yengo is an expert in the analysis of large EHR-based genomic resources. As just one example, he led the statistical genetic analysis of over 5 million individuals to understand the genetic basis for height, published recently in *Nature*. This tour de force of modern genetic analysis is a landmark and model for similar types of studies of clinically important traits.

Dr. Yengo will contribute to the advancement of the Center by helping with the development of coursework and mentoring plans for trainees in the analysis of the large cohorts we have described. But to be clear, his work is not solely focused on genomics, but also the interaction with social and environmental factors that influence common disorders. As such, we anticipate he will also advise on the development of genetic epidemiologic studies that also focus on social determinants of health and health disparities.

Professor Yengo will also provide one or two lectures to the UCSF community on his research and perspectives regarding genomics and precision health, which will be heavily attended by students from a variety of graduate programs including biomedical informatics, biomedical sciences, pharmaceutical sciences and pharmacogenetics, and epidemiology and translational sciences as well as faculty from a variety of UCSF basic science and clinical departments. In addition, we will encourage him to also teach or co-teach a mini course in modern statistical genetics for our trainees (and faculty). We do expect the demands on his time at UCSF will be considerable due to his international recognition as a leader in the field. And we anticipate an especially significant impact on our students, especially those underrepresented in biomedical research.

We also anticipate that the collaborations and connections established with Professor Yengo during his visit will be long lasting. As the Center develops, we imagine him having a continuing role as an advisor and potentially active participant.