AARHUS UNIVERSITY
Department of Biomedicine
Personalized Medicine

regionmidtjylland midt AARHUS UNIVERSITY
Center for Genomics
and Personalized Medicine

iPSYCH

Aarhus University Honorary Doctorate Seminar

Friday 13 September 2019 at 10.00 – 11.15

Professor Mark Daly,
Institute for Molecular Medicine Finland.
Analytic and Translational Genetics Unit, USA.
Broad Institute of Harvard and MIT, USA.

Talk:

Global partnerships: From Psychiatric Genetics to FinnGen and opportunities in discovery, prevention and personalized medicine.

Venue:

Eduard Biermann Auditory, The Lakeside Theatres, Aarhus University, Bartholins Allé 3, 8000 Aarhus C.

Programme

10.00 – 10.05	Welcome by Anders Børglum
10.05 – 10.50	AU Honorary Doctorate lecture by Mark Daly
10.50 – 11.15	Open discussion

Biosketch:

Mark Daly, PhD, was appointed Director of the Institute for Molecular Medicine Finland (FIMM) in February 2018. He retains also his affiliations in Boston at the Harvard Medical School, Massachusetts General Hospital and as an institute member of the Broad Institute and co-director of the Program in Medical and Population Genetics.

Daly received his B.S. in physics from the Massachusetts Institute of Technology and his Ph.D. in human genetics from Leiden University, Netherlands. He received the Curt Stern Award from the American Society of Human Genetics in 2014 and is a member of the National Academy of Medicine.

His research primarily focuses on the development and application of statistical methods for the discovery and interpretation of genetic variation responsible for complex human disease. In addition to foundational work in human genetics methodology, his lab has made major contributions to gene discovery in inflammatory bowel disease, autism and schizophrenia - primarily through catalyzing global collaborative research efforts which he continues to help lead. He is a co-architect of the FinnGen project, a landmark public-private effort to integrate decades of medical registry data with genomic data in 10% of the Finnish population.

Mark Daly has been an author on more than 450 peer-reviewed manuscripts with a total of more than 200,000 citations, has an h-index of 178, and has been listed by Thompson ISI/Science Watch in 2008 and 2010 as one of the top ten authors ranked by number of high-impact papers. Mark was the recipient of the Curt Stern Award from the American Society of Human Genetics in 2014 and was elected to the National Academy of Medicine in 2017.

Abstract:
This lecture will highlight the role of global partnerships, first in current progress in psychiatric genetics and then looking forward to future progress in personalized medicine through national biobank studies. With significant power from the landmark iPSYCH study (along with collaborators at the Statens Serum Institut and colleagues at the Broad Institute), progress in psychiatric genetics, particularly in the global Psychiatric Genomics Consortium has been swift and informative – first through genomewide association studies and now through exome sequencing.

I will then introduce the FinnGen Project, launched in 2017, which aims to collect and analyze genome and national health registry information on 500,000 Finns (almost 10% of the population). Supported by a unique public-private partnership, FinnGen is made possible by the progressive Biobank Act and other legislation in Finland permitting the research use of national health data. The study has a focus on generating insights relevant to common diseases and will therefore utilize both deeply studied legacy collections, the subjects of which in many cases are now quite old, and newly recruited patients from hospital clinics throughout Finland (more than 200,000 individuals have already been newly recruited).

The study utilizes the extensive longitudinal health register data available on all Finns. As in Denmark, Finland has established national registers, digitalized in some cases from the 1960s, that record every hospital and outpatient visit, every prescription drug purchase, all cancer cases, causes of death, usage of social services and many others. This data provides unique opportunities to study disease associations (GWAS and PheWAS), disease trajectories and comorbidities. FinnGen aims not only to provide novel insights into potential therapeutic targets via the unique population genetic history of Finns, but also demonstrate through decades of longitudinal health data the potential of genetic risk prediction as a tool for enhancing public health screening and overall demonstrate an early example of the responsible and effective partnership between research and personal medical data on a population wide level that can lead to really impactful personalized medicine. Ultimately transformative, comprehensive and durable insights will be possible, however, only when many such studies in diverse populations can be brought together. To this end, plans for a global biobank network that can facilitate meta-analyses across national boundaries will be discussed and early progress noted.