

## Joint *i*PSYCH & *i*SEQ seminar

Thursday 15 September 2016 at 10.00 – 11.00



### Professor Jonathan Mill

University of Exeter Medical School and  
King's College London.

## Epigenomic trajectories to neuropsychiatric and neurodegenerative disease

### Abstract:

There is mounting evidence to support a role for developmentally regulated epigenetic variation in the molecular etiology of neuropsychiatric and neurodegenerative disorders. In this talk I will present on-going work from our group aimed at identifying epigenetic variation associated with a diverse range of neuropsychiatric phenotypes including schizophrenia, autism and dementia. I will describe an analysis of dynamic DNA modifications (5mC and 5hmC) across human brain development, highlighting how the prenatal period is a time of considerable epigenomic plasticity in the brain, and the importance of neurodevelopmentally-dynamic loci in neurodevelopmental disease phenotypes. I will also describe the impact of genetic variation on the epigenome during brain development, presenting our recent analysis of DNA methylation quantitative trait loci (mQTLs) in a large collection of fetal and adult brain samples. Although most fetal brain mQTLs are developmentally stable, a subset are characterized by fetal-specific effects and enriched amongst risk loci identified in a recent large-scale genome-wide association study (GWAS) of schizophrenia, a severe psychiatric disorder with a hypothesized neurodevelopmental component. Novel tools mean that it is now feasible to examine epigenetic variation across the genome in large numbers of samples, and I will give an overview of our recent epigenome-wide association studies (EWAS) of schizophrenia and other neuropsychiatric disorders, integrating findings with those from the recent PGC2 GWAS analysis. Finally, I will outline some of the issues related to epigenetic epidemiological studies of neuropsychiatric disease and explore the feasibility of identifying peripheral biomarkers of disease phenotypes manifest in inaccessible tissues such as the brain.

Host: Mette Nyegaard, *i*PSYCH & *i*SEQ, Aarhus University.

Everyone interested is most welcome!

### Venue:

Matematisk Auditorium D1, Ny Munkegade 116, 8000 Aarhus C, bygning 1531, lokale 113.