WTDTP Projects for September 2023

Project Reference: T23/45

Project Title: **Why are men and women so different? – Investigating sex-specific genomic-risk and telomere length**

Theme(s): Cross-Theme Project - Themes 2 and 3

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Project Summary: Men and women differ in more ways than can be explained by the sex chromosomes and sex remains a strong risk factor for many diseases. Men are known to be at increased risk of coronary artery disease (CAD) and experience disease earlier in life than women. So where do the differences come from?

Telomeres are specialist structures at the end of chromosomes that protect DNA from damage and determine cellular lifespan. As we age, telomere length (TL) gets shorter and was previously considered a marker of biological age. Men are known to have shorter TL, and shorter TL is causally associated with increased CAD risk. TL has also been linked to many other diseases and risk factors. It is therefore a natural extension to fully investigate the sex-specific effects of TL on disease risk whilst utilising sex-specific genetic effects.

The student will learn to utilise big data analyses on genuine clinically relevant research questions. Determining the genetic role of sex in disease and risk factor related associations would add new knowledge into disease aetiology and has the potential to drive targeted sex-specific preventative and therapeutic interventions.