The Lister Institute of Preventive Medicine

Nurturing the future leaders in biomedical research

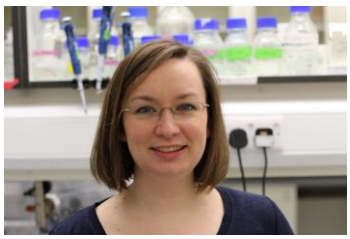
Research Prize Winners 2015

Dr Aga Gambus
School of Cancer Sciences, University of Birmingham
The perfectly executed replication of the genome is essential for maintenance of genome stability. Dr Gambus's group aims to understand how the post-translational modification of proteins by the members of ubiquitin family (UBLs) regulate the process of unperturbed DNA replication. Their recent findings shed light onto the mechanism of polyubiquitylation dependent replisome disassembly upon replication fork termination. The work funded by the Lister Research Prize will determine the enzymes involved in this novel mechanism and their importance for genome stability.

Dr Ragnhildur Thóra Káradóttir
Wellcome Trust - MRC Stem Cell Institute, University of Cambridge
Myelin enwraps neuronal axons, to speed information flow between neurons: essential for cognitive abilities, perception and movement. In disease, when myelin is damaged it leads to both mental and physical disability. Myelin regeneration can occur spontaneously in demyelinating disease, such as multiple sclerosis, but this process often fails. The Lister Institute Research Prize 2015 will fund Dr Káradóttir's new approach to understanding how neurons regulate this spontaneous regenerative process, and thus potentially identify novel therapeutic avenues to enhance myelin regeneration.

Dr Serge Mostowy
MRC Centre of Molecular Bacteriology and Infection, Imperial College London
Bacterial infections continue to be responsible for immense human suffering and mortality throughout the world. Research is required to bring deeper and more complete understanding of the processes that govern bacterial infections. The results generated from Dr Mostowy's research studying bacterial autophagy and the cytoskeleton in host defence can provide fundamental advances in understanding the biology of cellular immunity. This should provide vital clues towards new strategies aimed at combating infectious diseases, and possibly other human diseases that arise from a dysfunctional host response, including Crohn's disease and Parkinson's disease.

Dr Erica Watson
Department of Physiology, Development and Neuroscience, University of Cambridge
Mounting evidence suggests that exposure to environmental stressors (e.g. poor nutrition) contributes to an increased risk for disease up to five generations later. Though not well understood, this non-conventional mode of transgenerational inheritance likely occurs through epigenetic rather than genetic mechanisms. The work funded by the Lister Institute Research Prize 2015 will enable Dr Watson's group to explore how feto-placental growth defects and congenital malformations are epigenetically-transmitted via the germline using a mouse model of abnormal folate metabolism.



Dr Steven West
Department of Molecular Biology and Biotechnology, University of Sheffield
RNA processing mechanisms are ubiquitously required to derive function from primary transcripts. In the case of human protein-coding transcripts, a pre-messenger RNA is synthesised by RNA polymerase II that must be matured further by capping, splicing and cleavage and polyadenylation. Remarkably, these maturation steps occur during transcription itself via functional coupling to Pol II. The importance of these processes is highlighted by their fundamental nature but also by the large number of human diseases that are linked to their mis-regulation. Dr West's lab works on the basic mechanisms of transcription and mRNA maturation. The Lister Award will allow them to investigate how these are perturbed in disease.