Dr. Richard McCulloch

Doctor

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After completing my PhD, studying chromosome division and recombination in bacteria in the Department of Genetics, University of Glasgow, I began post-doctoral work in the Netherlands Cancer Institute, supported by a Wellcome Trust International Travelling fellowship, in which I dissected the cis and trans-acting factors needed for trypanosome antigenic variation. This work revealed that the locus-directed reaction of VSG switching exploits a fundamental DNA repair pathway termed homologous recombination. I then established my own lab in the Wellcome Centre for Molecular Parasitology with the support of a Royal Society University Research fellowship, during which I broadened the focus of my work to establish the study of DNA recombination and repair in kinetoplastid parasites. In collaboration with a number of colleagues, we have dissected the machineries and regulation of homologous and non-homologous recombination, mismatch repair and nucleotide excision repair in African and American trypanosomes. Recently, we have begun to study the process of nuclear DNA replication, a much neglected area in all protistan parasites. We have demonstrated considerable divergence in the trypanosome replication initiation machinery and have mapped replication origins and dynamics genome-wide, both in *T. brucei* and in *Leishmania*.