

MEDICAL STUDENT ESSAY PRIZE WINNER:  
**DR HENRY LEE-SIX**



**PROJECT: Mutational landscape of normal colon.**

*'The Dr Falk-Guts essay prize allows me to share our work with a wider audience. It recognises that all the late nights and weekends that our lab spend at the scientific coalface do mean something. I am proud, for all of us who worked on this and for those whose work I have built upon, to have been awarded it.'*

*Dr Henry Lee-Six is currently completing an intercalated MB/PhD at the Wellcome Sanger Institute in Cambridge. He will return to take up his 4th year of medicine at the University of Cambridge in September.*

'I have just finished the research component of the Cambridge MB/PhD programme. When I began my PhD, I was looking for a project that had the potential to make a real difference to patients' lives while also revealing new and exciting biology. I wanted to try to understand how cancer happens through the lens of Darwinian evolution. Working on this project with Mike Stratton allowed me to do exactly that.

'All cancers were once normal cells. Normal cells become cancerous through the acquisition of particular typos in their DNA code (or mutations) that cause them to behave selfishly, dividing and outcompeting their normal neighbours until they have formed a tumour.

'It is the mutations that occur in normal cells, therefore, that set a normal cell on the road to cancer. In the human large bowel, although fledgling and fully-fledged cancers have been heavily investigated, we know remarkably little about the processes that cause mutations in normal cells. In an attempt to describe them, we dissected hundreds of microscopic samples of normal human bowel with a laser and sequenced them to read their DNA code.

We found that many different processes operate in normal human bowel, and that there was a remarkable diversity in the processes active between different people, and even between different biopsies from the same person.

'We hope that future research will pinpoint the agents responsible for each of these mutational processes, allowing us to avoid them or develop drugs to protect us against them, and so prevent bowel cancer from occurring in the first place.'

*Dr Lee-Six's supervisor  
Professor Sir Michael Stratton comments:*

'Henry Lee-Six conceived and conducted his exploration of the somatic mutations present in normal colorectal cells with extraordinary vision, thoughtfulness, critical perspective and sheer aplomb providing our first picture of the mutational processes operative and the very earliest stages of colorectal cancer.

'Henry is an extremely talented young researcher with deep scientific instincts coupled to a formidable intellect, an abundance of humility and an exceedingly likeable personality. Following this body of work for his PhD, he is currently completing his medical studies and the world of biomedical science looks forward with anticipation to his speedy return.'

