

MEDICAL STUDENT PRIZE WINNER:
JOCELYN CHEUK



PROJECT: The Development of Obesity and Type 2 Diabetes Harnessing the Gut Microbiota and Host Genetics

'I am honoured to receive the Core Dr Falk Medical Student Prize this year – it has definitely encouraged and inspired me to undertake further work within the discipline. The opportunity to complete a laboratory project in this field as part of my intercalated degree has been an eye-opening experience and I am grateful for the support and guidance that I have received throughout the year. It has allowed me to gain invaluable insight into the field of research and has taught me a wide range of skills and techniques that will undoubtedly prove beneficial in my future career.'

Jocelyn Cheuk has just completed an intercalated Masters in Medical Sciences at the Faculty of Medicine at Southampton University. She will return to take up her 4th year medical studies at Southampton University in September.

The Health Survey of England conducted in 2015 showed that more than 60% of the UK population is either overweight or obese and this figure has tripled since 1975. Obesity and its associated comorbidities place a great financial burden on NHS resources, therefore it is important to address the causes and understand the predisposing risk factors. Diet, lifestyle and genetic factors are traditionally known as the key risk factors of obesity, however more recently the gut microbiome has also been found to play an important role in the development of obesity.

The gut microbiome plays such a vital role in maintaining our health status that it has been referred as our "forgotten metabolic organ" or "the second genome". Although our knowledge of the gut microbiome has dramatically increased in recent years as a result of the emphasis placed into this area of research, there are still many gaps and a vast potential for novel discoveries within the field that lie ahead of us. I hope to be able to contribute to this exciting discipline and therefore chose to undertake my project in this area.

My project aims to investigate the underlying metabolic mechanisms that link one single gene defect with the development of obesity and type 2 diabetes, harnessing the gut microbiome in a mouse model. The results so far have already shown that the change of living environment (change of gut microbiome) significantly modulates the gene expressions and clinical presentations of metabolic pathways in genetically susceptible individuals. I am now hoping to extend my work into other key metabolic organs such as the pancreas and small intestines, as well as other components of the signalling pathways in order to further dissect the potential underlying mechanisms. I hope that my research will bring new insights into the preventative measures and effective treatments for obesity.

Ms Cheuk's Supervisor Dr Sylvia Pender comments:

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