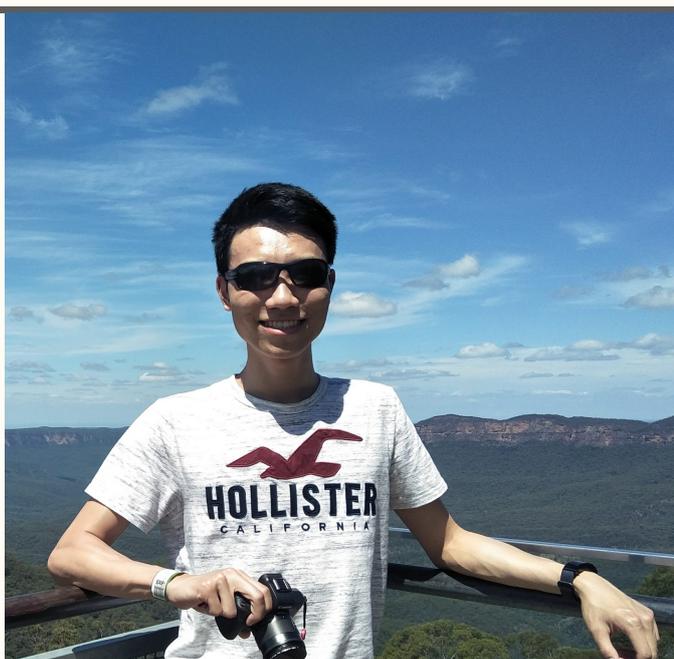


# SCISOC SPOTLIGHT

BY THE CAMBRIDGE UNIVERSITY SCIENTIFIC SOCIETY

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### RESEARCH FOCUS:

TRIM21-MEDIATED  
INTRACELLULAR ANTIBODY  
IMMUNITY

In addition to antiviral immunity, **the natural function of TRIM21 as a cytosolic antibody receptor has been exploited to enable the utilization of off-the-shelf antibodies to achieve fast degradation of cellular proteins** in a technique known as “Trim-away”. This technique has enabled functional studies of proteins that were previously intractable to genetic-based techniques such as RNAi and CRISPR. My first project was to study the **importance of the TRIM21 system in human immunity to viral infection** by investigating the impact of naturally occurring missense mutations on TRIM21 function. The outcome of this **study showed that human TRIM21 is highly conserved compared to other immune genes and that the vast majority of coding mutations did not have a detrimental effect**. This finding provided evidence that TRIM21 mediated antiviral immunity is important and conserved in the human population. My second project **focused on the molecular mechanisms by which TRIM21 is regulated and activated upon detection of virus-antibody complex** and how the **subsequent catalysis occurs to activate downstream intracellular immune signaling and effector functions**.

## WHY RESEARCH?

I have long had an interest in viruses and how they interacted with their host. It seems bizarre to me how something that is as simple as a virus particle, on the border of life, can wreak havoc in complex multicellular organisms such as ourselves. For example, HIV which persists in its human host using a mere nine genes and fifteen viral proteins but causes catastrophic immune failure if left unchecked. The Cambridge pre-clinical medicine course has equipped me with the necessary theoretical knowledge, and a successful Part II project experience made me decide that I wanted to pursue further research. I really enjoyed the process of formulating research questions, designing and performing the necessary experiments and getting first-hand results.



**"This groundbreaking discovery has revolutionised our understanding of antibody immunity and has important implications for future vaccine and gene therapy design."**

## ONE PIECE OF ADVICE...

My advice would be to make sure that research is something that you truly enjoy doing before embarking on a lengthy PhD study. Get involved in shorter-term research such as summer project, Part II project or even a master's project to help you with your decisions. You should also think about the subject area that interests you and try to get some experience in the relevant field if possible. Don't be afraid to step outside your comfort zone and try something different but bear in mind any time limitations and what you can realistically achieve. You should plan ahead and research available funding options. Lastly, who you work with is just as important as what you do, so make sure that you do some background research and arrange to meet your potential supervisors if at all possible.