

Vacation Studentship: Medical Student Case Study



In 2017, Emmanouil Tasos was awarded a Vacation Studentship to work on a research project at the Vascular Research Clinic, Addenbrooke's Hospital, Cambridge, during the second year of medical studies. We caught up with Emmanouil to find out what impact the studentship has had on his career.

- What made you apply for the award while you were studying medicine?

During my second year at the University of Cambridge, I was fortunate to get in touch with the department of Experimental Medicine and Immunotherapeutics at Addenbrooke's Hospital through my undergraduate Physiology supervisor, who was also one of my eventual summer project supervisors. I was interested in the fields of cardiology and pharmacology and my selected project, which I would be joining for 8 weeks, was an excellent intersection of the two fields. The Vacation Studentship was a tremendous opportunity to help me pursue this project, as it would allow me to stay on site for 8 weeks to perform the necessary data collection and analysis with appropriate supervision and evolving discussion with my supervisors about the direction of the project.

- Briefly tell us about the project you worked on.

My project focused on investigating the role of neuronal nitric oxide and adrenaline in the vasodilatory response to mental stress. During mental stress, it has been previously identified that the peripheral vessels dilate with mental stress through the release of nitric oxide, reducing peripheral vascular resistance, but it was unclear whether this was due to the release of nitric oxide by the endothelium or mediated by the sympathetic nervous system, or what the role and extent of involvement of each mechanism was if both contributed to this vasodilatory response. To investigate this, we investigated whether exposing participants to mental stress affected their peripheral blood flow and to what extent this was inhibited by propranolol (which would inhibit adrenergic activity) and SMTC (a selective inhibitor of neuronal nitric oxide synthase), which would illustrate the presence or absence and specific roles of the above two systems. We investigated these effects on 7 healthy male subjects who were reviewed on multiple visits under controlled circumstances.

The administration of propranolol and SMTC simultaneously decreased forearm blood flow to a much greater extent than each agent individually, which indicates that there is a biphasic response mediating peripheral vasodilation in mental stress, involving both neuronal-derived nitric oxide (through the activity of neuronal nitric oxide synthase) and adrenaline.

- Did the experience influence what you did when you completed your degree, or is it otherwise having an impact on the direction you are taking in your career?

The Vacation Studentship was a very rewarding experience for me within the world of scientific research, as it allowed me to pursue my interests through my involvement in this project and enabled me to continue my work with the department in a different project concerning clinical trials of antihypertensive medications in sub-Saharan Africa. In addition, I gained new research skills and was then further encouraged by this experience to continue working with new departments and for new objectives in similar fields, which included my Bachelor of Arts intercalated degree in Physiology, Development and Neuroscience. Although in the intervening years since the Vacation Studentship my clinical aspirations have changed and I am now aiming to enter Ophthalmology specialty training, the experience was still a pivotal point for me and affected my studies and career path by engendering an interest in research that I have continued to cultivate to this day.

- What does your current role involve?

I am now a junior doctor in Addenbrooke's Hospital, Cambridge, and Hinchingsbrooke Hospital, Huntingdon. I am on a sabbatical from formal training (colloquially termed as a 'Foundation Year 3') and am applying for specialty training this autumn, hopefully starting training in the summer of 2024. In my current role, I split my clinical time between the General Medicine departments in both hospitals. In addition, I continue teaching medical students, remain involved in research projects and am undertaking a Postgraduate Certificate in Medical Education from the University of Warwick.

- What advice would you give to medical students considering applying for an award?

For medical students who are applying, my advice would be to make sure they have a project with clear objectives and close supervision in place and have discussed those details with their supervisor in advance. This was a setup I was fortunate to have during my research project and I believe it benefitted me significantly, as it helped me remain focused and disciplined on my work and provided me with valuable insight into how I can improve my own research skills. Furthermore, I would also advise that any student who is interested in the Studentship carefully considers the future direction of their career and how the project would help them achieve this, but to also be open-minded about the fact that their fields of scientific and clinical interest might change over time as they are exposed to other fields of clinical medicine and research.