

BAD/NIHR Taster Bursary 2012-2013

Recipient: Dr. Sharleen Hill
Supervisor: Dr. Joyce Teng
Stanford University, USA
Project Title: Transcutaneous Penetration of Topical Rapamycin

I was fortunate enough to be given the opportunity to spend 6 months in California undertaking a research project with the inspiring Dr. Joyce Teng, Director of Paediatric Dermatology at Stanford University. The white-wash, sterile environment of the research laboratory surrounded by pipettes and weighing balances was a stark contrast to the hectic ward environment I had left behind in London. Nervous, having little laboratory experience I was assigned my particular role within the project – proving that the topical rapamycin formulation the group had developed penetrated human skin. Where to begin, I broke out in a cold sweat, conversations of molecular pathways, graphs with strange axes, calculations with ridiculously small numbers, I felt extremely incompetent. I had buried these basic science skills many years ago and was having trouble digging them out. I was humbled by the patience and careful explanations each and every member of the team provided. At the end of the 5 months I was competent at obtaining accurate and reliable results from high-performance liquid chromatography, ELISA assays, basic in-vivo mice experiments and had devised a new technique of proving transcutaneous penetration of topical formulations. I had also gained experience of writing review articles, grant submissions, presenting complex data and using EXCEL spreadsheets. I presented the results of the experiments at the International Investigative Dermatology Conference in Edinburgh in May 2013 and the results will form part of a paper due to be published by the group later in the year.

Through doing this research I gained an in-depth understanding of the structure of the skin, factors effecting transcutaneous penetration and the diseases pachyonychia congenita and the dermatological manifestations of tuberous sclerosis. Aside from the project, I was living in what I now believe to be one of the most beautiful parts of the world. I met and will remain friends with a handful of incredible people. The past 6 months will be forever remembered as a highlight of my career and life in general!

I cannot thank the BAD/NIHR enough for providing me with the funds to cover the travel costs to and from America.