My project concerns recently described mutations in the *TERT* gene in cutaneous melanoma; this gene encodes for a component of telomerase, the critical enzyme that permits the immortalisation of cancer cells. In this project I will attempt to determine the timing of the acquisition of these mutations during melanomagenesis by microdissection of different regions of primary cutaneous melanomas. This aim has necessitated the design and optimisation of novel, highly sensitive mutation detection assays which may have future clinical utility. It is hoped that these mutations may prove to be a useful biomarker in order to identify high risk melanocytic proliferations, as well as provide biological insight into the early development of melanocytic neoplasia. I would like to thank the Foundation for this generous grant which has facilitated this work.