Project Title: Multi-omic analysis of large-scale cancer cell line data	**Code: CMRI4**
Host School / Institute: Children's Medical Research Institute	**Address:** Children's Medical Research Institute, 214 Hawkesbury Rd, Westmead, NSW
Certificates & Clearances required: No	
Primary Supervisor: Dr Rebecca Poulos	
Phone: 0468 612 653 (mob) 8865 2836 (work)	**Email:** rpoulos@cmri.org.au
Co-Supervisor/team: The student will join the Cancer Data Science group at the "ACRF International Centre for the Proteome of Human Cancer" (ProCan), a research program at the Children's Medical Research Institute. Co-supervision by Dr Qing Zhong (Group Leader).	
Project Type: Data Analysis	
Project Category: Cancer; Bioinformatics	
Skills / Attributes of a successful student: The student selected for this project must have experience using programming languages (Python or R). The successful student will also have an interest in cancer biology, but background knowledge in this area is not essential. The successful student will be self-motivated and a diligent worker. Attention-to-detail is required, as well as enthusiasm, willingness to work hard, learn new things and ask lots of questions.	
Project Keywords: Cancer; Bioinformatics; Data science; Genomics; Proteomics	

Project Description: Come and join our cancer research team at the "ACRF International Centre for the Proteome of Human Cancer" (ProCan). ProCan is a ground-breaking international research program, generating the largest ever collection of cancer proteomes worldwide.

To provide training at the start of your Summer Research Scholarship, we will pay for you to attend AMSI BioInfoSummer (2-6 December). AMSI BioInfoSummer is a key national training event, held this year at the University of Sydney. Here, you will gain new knowledge and skills relating to research in bioinformatics. You will use these skills when you return to CMRI, to integrate genomic and proteomic datasets generated from hundreds of cancer cell lines. Your goal will be to assess how mutations in cancer affect gene expression and protein regulation. Your results will provide invaluable data for further in-depth research to improve our understanding of cancer biology, with the aim of finding new biomarkers that can predict drug response in cancer.

You will conduct your research in the Cancer Data Science group in ProCan. You will use your programming skills (Python or R) to integrate cancer mutation data with data from the transcriptome and proteome. You will improve your data analysis skills, grow your understanding of cancer biology and learn how to do cutting-edge bioinformatic research. You will be supervised by Dr Rebecca Poulos, who is an NHMRC Early Career Fellow with first-author publications in journals including Nature and Cell Reports. During your research program, you will also interact with other members of the Cancer Data Science team, including Dr Qing Zhong (Group Leader and project co-supervisor) and five PhD-qualified researchers with expertise in cancer biology, statistics, machine learning and data science.