Project Title: Development of an Intron Retention database	**Code: CENT5**
Host School / Institute: Centenary Institute	**Address:** Building 93, Royal Prince Alfred Hospital, Missenden Rd, Camperdown NSW
Certificates & Clearances required: No	
Primary Supervisor: Dr Ulf Schmitz	
Phone: 02 9565 6209	**Email:** u.schmitz@centenary.org.au
Co-Supervisor/team: The Computational BioMedicine laboratory at the Centenary Institute has 6 members, including 1 Research Assistant, 2 PhD students, a Master student, and 1 MD student. We develop integrative workflows combining various computational disciplines with experimentation to address questions around non-coding RNAs, post-transcriptional gene regulation and cancer biology.	
Project Type: Data Analysis; Design	
Project Category: Bioinformatics; Molecular biology	
Skills / Attributes of a successful student: HTML, JavaScript, R Markdown (Shiny, reveal.js), MySQL, CGI, CSS	
Project Keywords: alternative splicing; web design; data visualisation; databases	

Project Description: In a large-scale analysis of alternative splicing across 2,500 human tissue samples and cell lines, we generated a wealth of data regarding gene-, cell type-, tissue-, and disease-specific intron-retention events (Middleton, et al., 2017). This data is in parts accessible through a rudimentary web interface (http://mimirna.centenary.org.au/irfinder/database/). In this project, we will develop a sophisticated database and web interface design to provide an efficient and rich user experience facilitating a rapid success in the hunt for information about intron-retention.

The new IRBase 2.0 will provide data in interactive graphs and customized data retrieval options.

Middleton, R, et al. 'IRFinder: assessing the impact of intron retention on mammalian gene expression. Genome Biology' 2017;18(1):51.