

Donnelly Centre Tech Talks

Informal trainee-organized seminars and discussions to foster collaboration within the Donnelly Centre via the exchange of expertise and equipment for experimental techniques



Application of CRISPR/Cas9 technology for functional genomics screens in mammalian cells

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Forward genetic screens provide a powerful tool to identify genes or genetic networks that contribute to specific biological phenotypes or diseases and therefore hold great potential for elucidating gene function and revealing therapeutic targets for diseases. The advent of CRISPR/Cas technology has revolutionized genome editing in higher eukaryotes and enables efficient gene manipulation in mammalian cells. CRISPR guide-RNA libraries allow facile generation of a pool of genetically perturbed cells and its application in genetic screens has marked a major breakthrough for functional genomics in mammalian cells. In this TechTalk, I will highlight the expanding CRISPR toolbox and its manifold applications for genetic screens in mammalian cells, including the identification of genes required for cellular fitness, the discovery of genes whose knockout influence drug sensitivity or the study of genetic interactions in human cells. I will further discuss the necessary steps for the successful performance of pooled CRISPR/Cas screens and will highlight CRISPR screening related resources we have developed in the Moffat lab.