

BCH 252 Seminar Series



**Professor Martin Bushell, Senior Group
Leader, Cancer Research UK Beatson
Institute**

**Seminar Title: "How do microRNAs
work?"**

Abstract: The discovery of microRNAs (miRNAs) has revolutionised the way in which we view gene expression. In human`s there are approximately 1000 miRNAs in the genome, each on average targeting ~200 different mRNAs, with estimates suggesting that at least 60% of all protein encoding mRNAs are controlled by miRNAs. Intensive analysis of tissues from a large diverse set of human diseases has shown dramatic alterations in the miRNAs profiles following disease onset. Moreover, global changes in miRNA function either by, alterations in the miRNA biogenesis pathways or changes in the target mRNA's 3'UTR length have been observed in many disease settings.

Regardless of the dysregulation mechanisms, miRNAs have been shown to be sufficient and required for the development of a number of diseases, particularly cancer. These small non-coding RNA molecules inhibit gene expression by binding to complementary regions within target mRNAs. It is well known that following engagement with the target mRNA, miRNAs induce both the translation repression and cause mRNA destabilisation of the targeted mRNA. However, the exact mechanism by which these small RNA molecules control gene expression has remained elusive. Here I will discuss our investigations into how miRNAs control gene expression, help sculpt the mRNA landscape and define cellular fate decisions.

ZOOM Link: [https://ucr.zoom.us/j/97233953239?
pwd=U2w1VWdtcDI4WW8rRXdTUVp2WWp4dz09](https://ucr.zoom.us/j/97233953239?pwd=U2w1VWdtcDI4WW8rRXdTUVp2WWp4dz09)

Meeting ID: 972 3395 3239

Passcode: 609143

**Tuesday, January 18th, 2022
12:00 p.m. - 12:50 p.m.**

Host: Dr. Sean O'Leary