Identifying Potential Targets of Micro RNAs

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Although only becoming prominent in the late 1990s, the world of gene regulation by micro RNAs (miRs) is expanding at a dizzying rate as we discover more about their relevance to health and disease. Today, miRs are being investigated as drug targets, as well as potential therapeutics for diseases ranging from cancer to jet lag! This lab module uses *in silico* approaches to identifying potential targets of specific miRs of interest. Along the way, students are exposed to primer design for PCR, database mining, combining data from different data sets to make intelligent predictions, and the shortfalls of bioinformatics approaches in biology research. The primers designed in this module can then be used in a wet lab module where students can actually test if their predictions for miR targets are borne out experimentally. All of the tools used in this module are available online for free, making this a very economical lab module to run. These modules are particularly exciting since they incorporate an authentic research experience; students could potentially identify interesting miR targets that have not yet been discovered. At UCI, this module is being used in conjunction with the research laboratory of Dr. Irene Munk Pedersen to identify novel targets of interesting miRs in human cell lines.

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