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Module Description:
This resource is an easily adaptable lab module that can be used in existing undergraduate molecular biology lab courses to conduct authentic scientific research. Students use a variety of databases to identify likely candidate genes whose expression may be altered by a given miR, and then experimentally test their predictions in human cells. This inquiry-based module gives students a taste of real scientific research and excites them about the possibility that, even as a student, they have the potential to contribute to this cutting edge research.

Teaching Setting:
This module was used in a large enrollment (100 students per quarter), upper division molecular biology lab course. The students meet for a common lecture by the instructor, and then are split into 5 lab sections of twenty students each. Each lab section is run by a graduate student TA, and the students work through the activities of the lab module in pairs. However, the module is easily adapted to a number of different contexts, since the technical complexity of the activities is not very high.

QUBES Citation:
Related Materials and Opportunities:

This resource is also published in the journal CourseSource, an open-access journal of peer-reviewed teaching resources for undergraduate biological sciences. See the resource’s CourseSource citation below.


This resource is included in the Network for Integrating Bioinformatics into Life Sciences Education (NIBLSE; pronounced "nibbles") collection. NIBLSE is a National Science Foundation (NSF) Research Coordination Network for Undergraduate Biology Education (RCN-UBE) with the long-term goal to establish bioinformatics as an essential component of undergraduate life sciences education. Learn more about NIBLSE. View the December 2018 NIBLSE Newsletter and subscribe to the NIBLSE newsletter.