

Using Molecular Tools to Identify Antibiotic Resistance Genes in Environmental DNA (eDNA)

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The spread of antibiotic resistance is one of the major public health threats facing the world today. We will demonstrate two scaffolded activities developed in collaboration between miniPCR bio and the PARE project (prevalence of antibiotic resistance in the environment) that introduce students to genetic approaches to tracking antibiotic resistance in the environment. In the first activity, using a case study approach, students build lab skills by performing PCR and gel electrophoresis as they track a simulated antibiotic resistance outbreak. Next, students engage in the problem directly, choosing locations to investigate, collecting soil, and extracting environmental DNA (eDNA). Then, using PCR, they probe for the genetic signatures of specific common antibiotic resistance genes. Students upload their data to a geo-tagged national database as part of a collective effort in antibiotic resistance surveillance.

Keywords: antibiotic resistance, PCR, eDNA, microbiology

Mission, Review Process & Disclaimer

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