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2021 SEA Faculty Meeting Abstract

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Exploring Phage Immunity Systems with Activities to Learn Fundamental Concepts and to Read a Scientific Paper: QUBES Pedagogical Resources for SEA-PHAGES Faculty

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Many of the phages isolated in the SEA-PHAGES program are temperate and able to produce lysogens. Concepts associated with lysogeny and immunity are therefore important for students to understand as they annotate their phages, but these can be challenging for many students. We developed two jigsaw assignments designed to increase students’ understanding of phage immunity systems, as well as to assist students in learning how to read and understand a scientific paper. In the first jigsaw activity, student groups research and discuss terms associated with phage immunity systems to develop vocabulary. Reconfigured groups then focus on describing either systems of host cell integration or immunity. The second jigsaw activity is built around reading a research paper on a phage immunity topic. Each student in a group is responsible for understanding and explaining one figure or table from a research article investigating phage immunity. As a group, students summarize the research goals, key findings, and next steps. These type of jigsaw activities allow individual students to become experts on one part of a topic and then teach this information to their peers. The activities can be adapted to both online and in-person classes. Both activities include detailed background information for instructors, and a deep list of potential research papers to explore.