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Summary:

The type VI secretion system (T6SS) of many Gram-negative bacteria is one of nine known bacterial secretion systems. Each of these systems plays an important role in bacterial interactions with external organisms and the environment. Specifically, the type VI secretion system functions as a molecular syringe, which delivers proteins from the T6SS-containing bacteria into a target cell. This most commonly occurs as a pathogenic factor or as a means to reduce competition. The T6SS has been found to affect both prokaryotic and eukaryotic cells, including bacteria of the same species [Ma et al., 2009, Liu et al., 2015].

In this project, I investigate whether the H1-T6SS of *P. aeruginosa* PAO1 is constitutively expressed. The T6SS+ bacterial strain, PAO1, was grown in pure culture and with the T6SS- bacteria, *E. coli* K12. The expression of the T6SS was determined via analysis of the *tssA* gene, which encodes an essential protein of the T6SS sheath cap [Navarro-Garcia et al., 2019, Szwedziak et al., 2019, Brunet et al., 2015]. Due to the competitive advantage provided by the PAO1 T6SS, I anticipate that the *tssA* gene, and therefore, the T6SS, will be upregulated only in the PAO1 bacteria grown in close contact with *E. coli* K12 cells.