**Elevator Speech**

I wanted to find ways to identify drugs that efficiently eliminate the effects of pathogenic bacteria without them gaining resistance, so I used the process of QS in pseudomonas aeruginosa, which is an opportunistic pathogen involved in several diseases like cystic fibrosis and pneumonia. This bacterium uses QS to regulate its ability to quickly mutate and gain resistance to antibacterial drugs by using biofilms and secreting pyocyanin, which protects the culture from environmental stress and other competing microbes. When doing this, I needed an approach to measure and compare the QS cycle. This is not easy as QS is a cycle, not a single level and the differences between these curves can be very small or reversed through time, causing the rankings to differ. There was a need to develop an approach that precisely ranks, quantifies, and compares these curves. When searching in the literature, there was no approach to do this, so I made one which is the LQSM approach. I then applied this approach by knocking out different genes to figure out which ones are most important in the QS cycle for them to be used as drug targets.

* Find ways to identify drugs that eliminate effect of pathogenic bacteria using QS in PA
  + Explain why bacteria is bad
* Needed approach to measure the QS cycle
  + Not easy since it is a cycle, not a single level and the difference between the curves can be very small or reversed through time, causing rankings to differ
  + Precisely quantify, compare and rank these curves
* No approach for this in the literature, so I developed one which is the LQSM approach
* Applied approach by knocking out different genes important to QS pathway
  + Allows for the identification of the most important genes to QS for them to then be used as drug targets