

Background

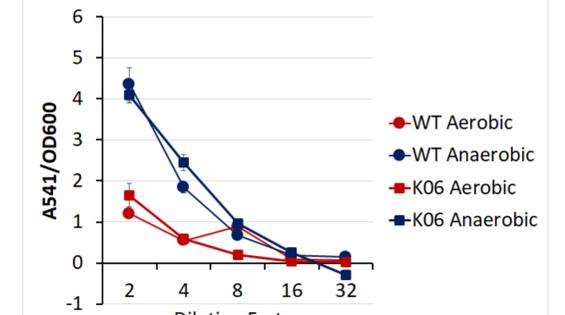
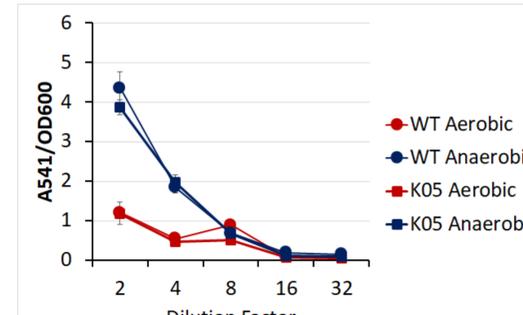
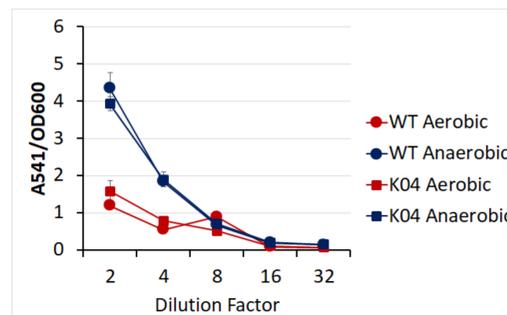
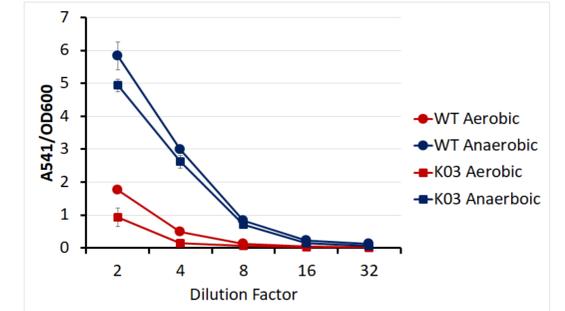
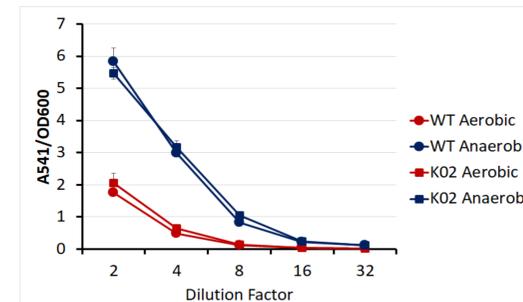
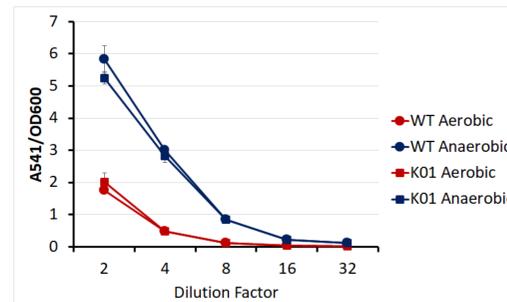
-*Listeria* is a dangerous human pathogen transmitted through consumption of contaminated food products.

-During infections, *Listeria* is exposed to the anaerobic intestinal lumen. However, the mechanisms modulating how *Listeria* responds to the anaerobic environment are not fully understood.

-FNR/CRP is a family of transcription factors that are known to respond to environmental oxygen levels. *Listeria* has multiple FNR/CRP proteins.

-Listeriolysin O (LLO) is a secreted toxin necessary for *Listeria* to establish infections. We have previously found that oxygen is a key regulator in LLO production.

Results



Averages of triplicates are plotted. Three independent experiments were performed to ensure reproducibility.

Main Objectives

Determine the level of LLO production in *Listeria* wildtype and mutants deficient in FNR/CRP grown under aerobic or anaerobic conditions.

Research Methods

1. Grow *Listeria* aerobically and anaerobically in BHI broth
2. Perform Hemolytic assay to determine levels of LLO in *Listeria* by reading absorbance at 540nm

Central hypothesis

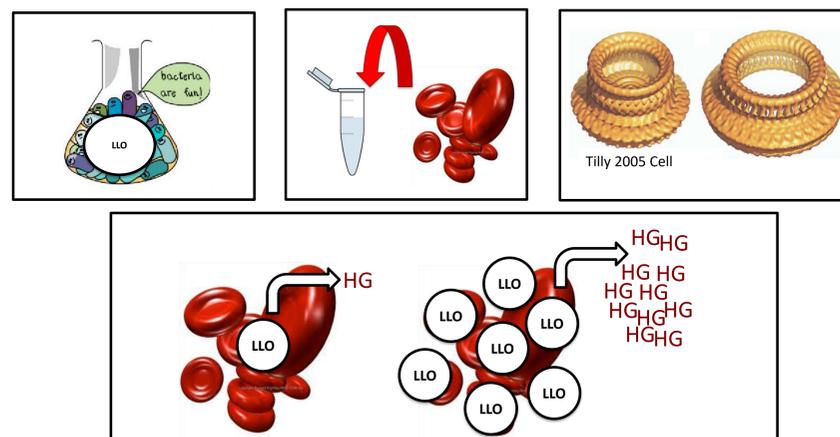
If a specific FNR/CRP protein is involved in *Listeria* LLO production in response to anaerobic conditions, the mutant deficient in that factor would exhibit a different phenotype from the wildtype bacteria.

Conclusions

-My preliminary results show that *Listeria* can up-regulate listeriolysin O production in response to anaerobic conditions.

-This research also shows that each mutant, similarly to the WT, produced more listeriolysin O under anaerobic conditions than aerobic conditions.

-I will continue my investigations in the future on the remaining 7 mutants.



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