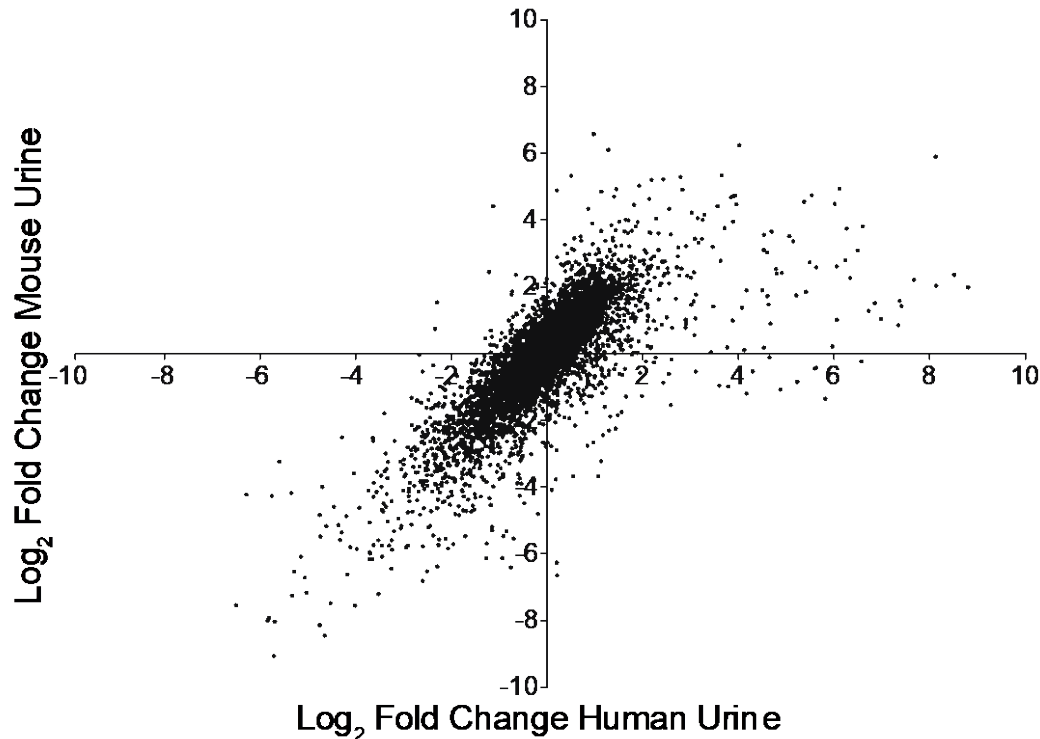




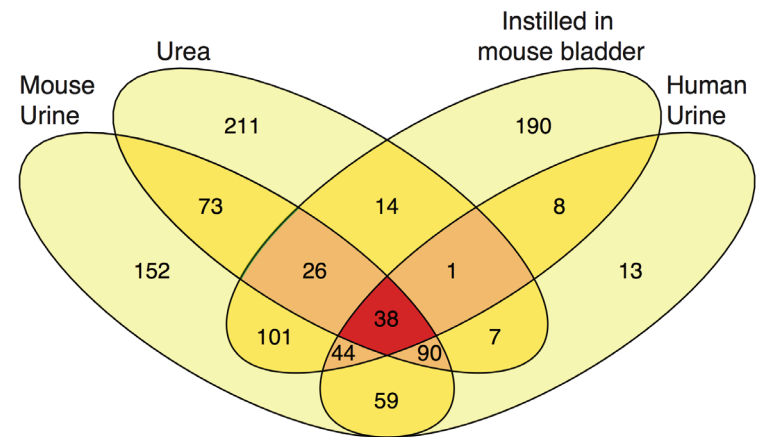
How does *P. aeruginosa* respond
to urine and urea?



P. aeruginosa has a conserved transcriptional response to mammalian urine



Down regulated genes



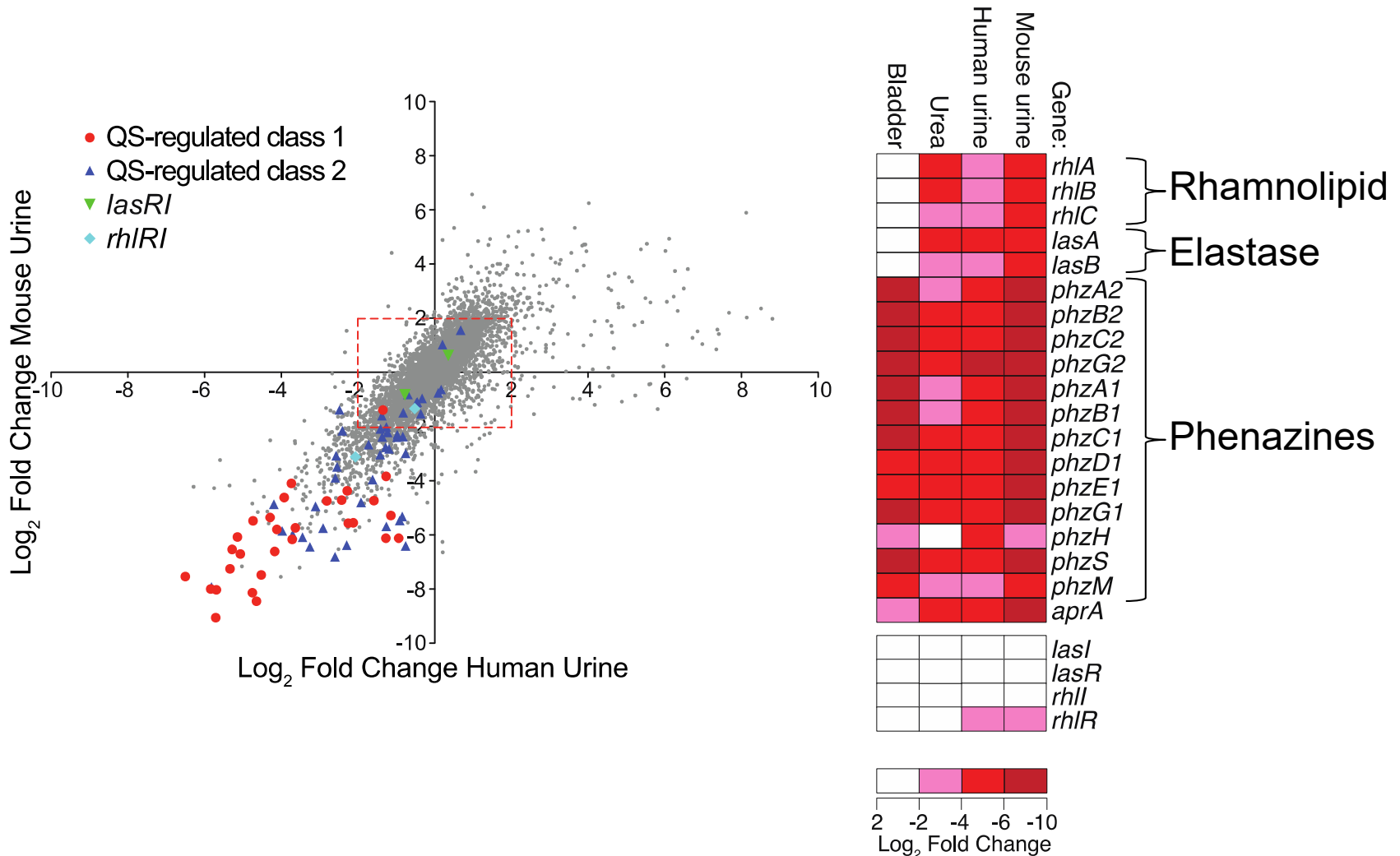
Stephanie Cole



Cherisse Hall

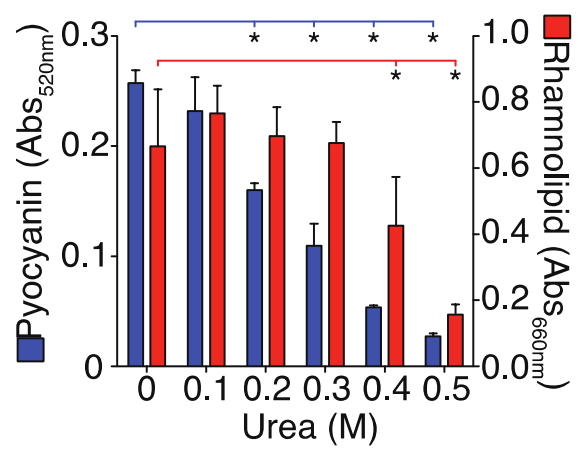
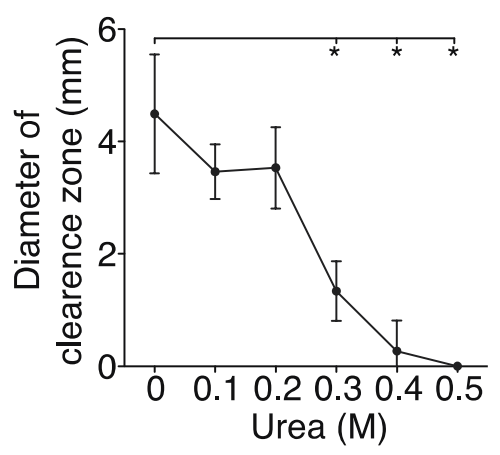
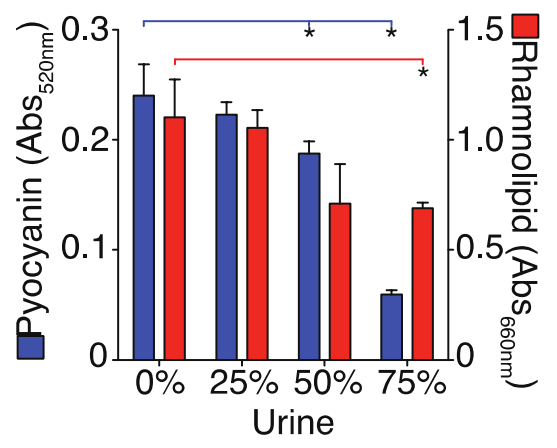
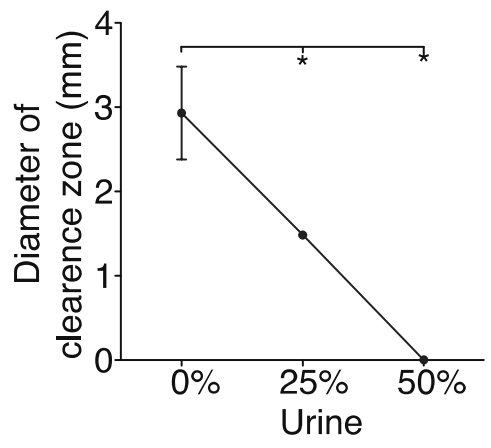


Down-regulated genes are controlled by quorum sensing



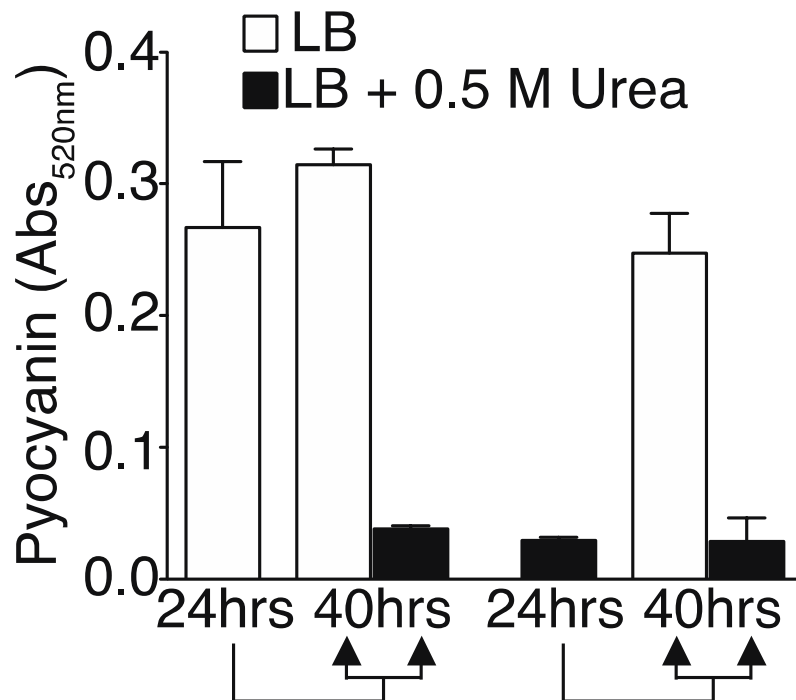


Urine and Urea suppress QS-regulated phenotypes





Urea inhibition of *P. aeruginosa* QS signaling is reversible

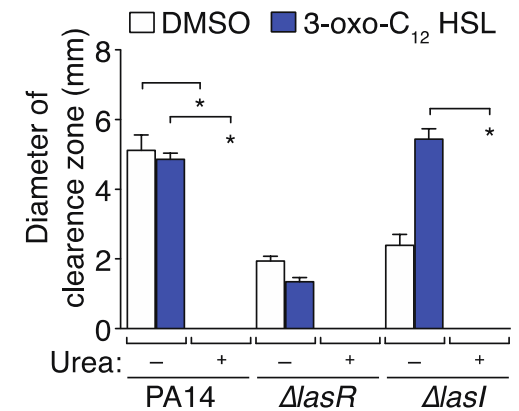
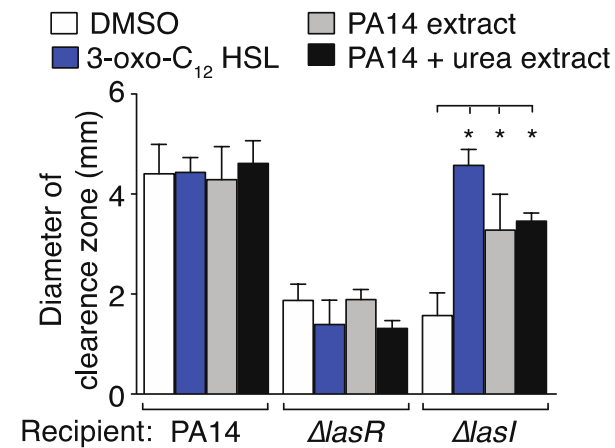
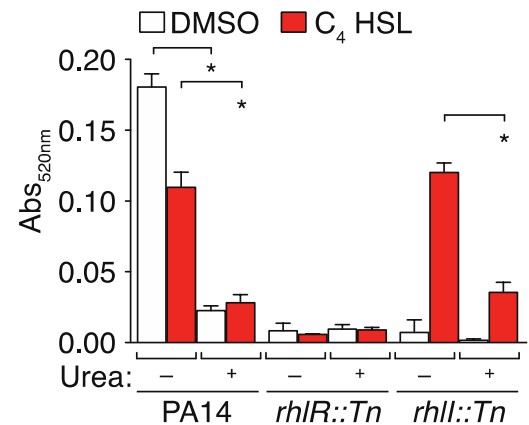
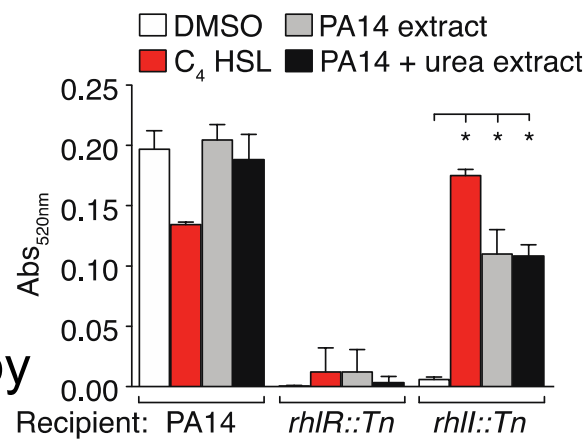




Urea inhibits perception of QS molecules rather than production

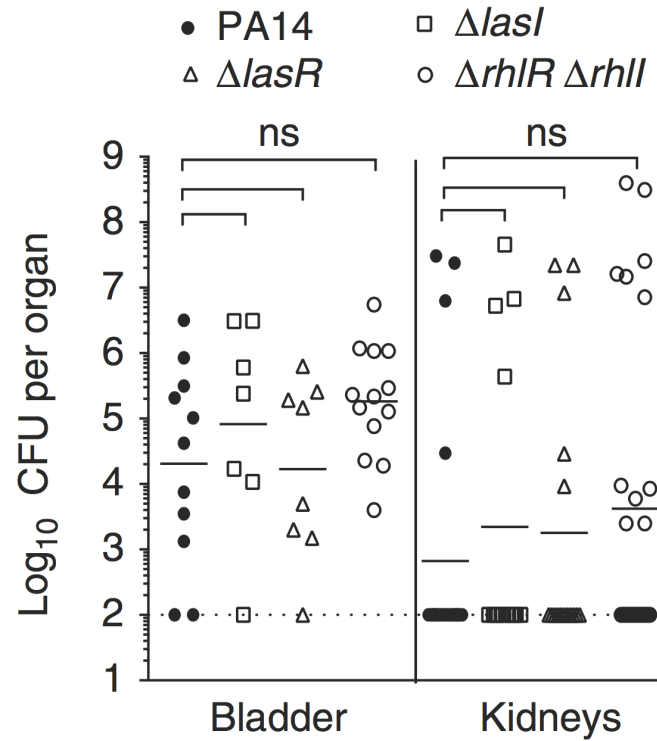
QS molecules are produced by *P. aeruginosa* grown with 0.5 M urea

0.5 M urea interferes with perception of QS by *P. aeruginosa*



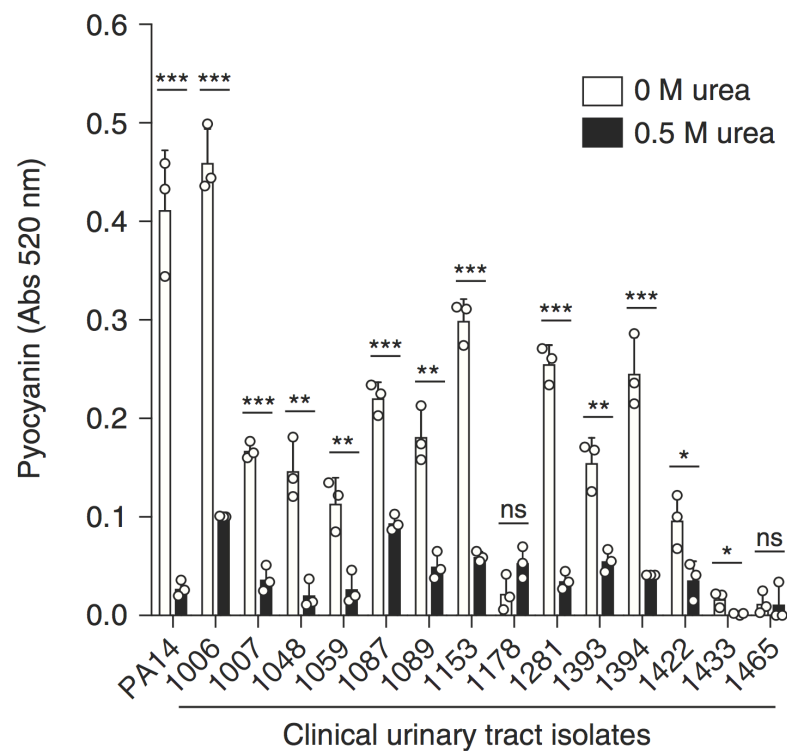
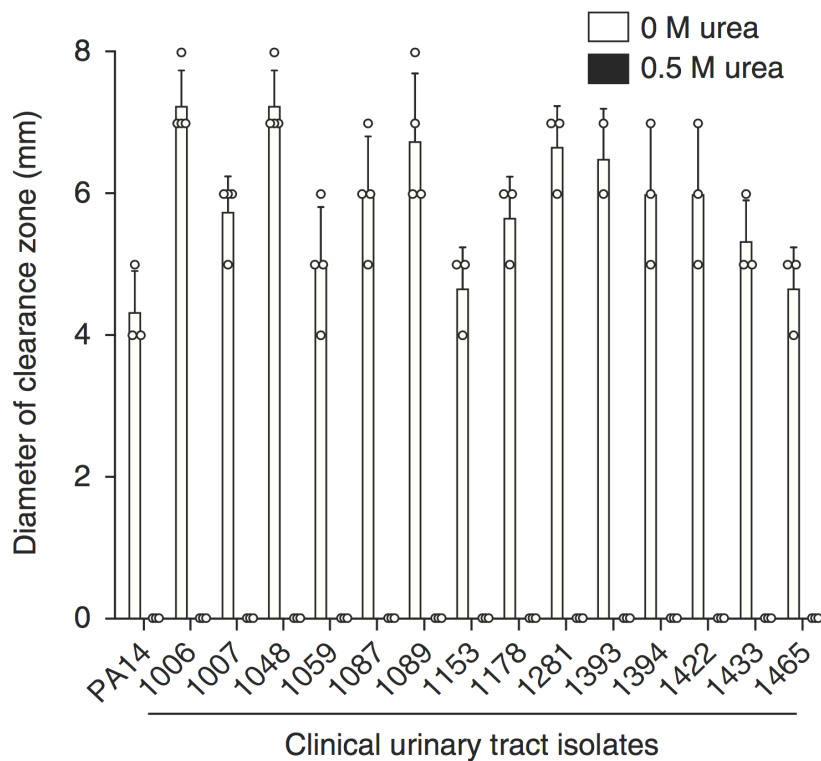


QS is dispensable for *P. aeruginosa* CAUTI





Urea suppresses QS by clinical *P. aeruginosa* isolates





Conclusions

- Host urine contains urea that alters *P. aeruginosa* to utilize a biofilm that is dependent on extracellular DNA
- Host urine alters *P. aeruginosa* transcription response by shutting down QS signaling
- *P. aeruginosa* factors that contribute to CAUTI are distinct from virulence factors required for infections at other sites



Future Directions

- What are the virulence factors of *P. aeruginosa* that contribute to CAUTI?
- What is the mechanism of inhibition of QS by urea/urine?
- What is the metabolic change of *P. aeruginosa* during CAUTI?



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