

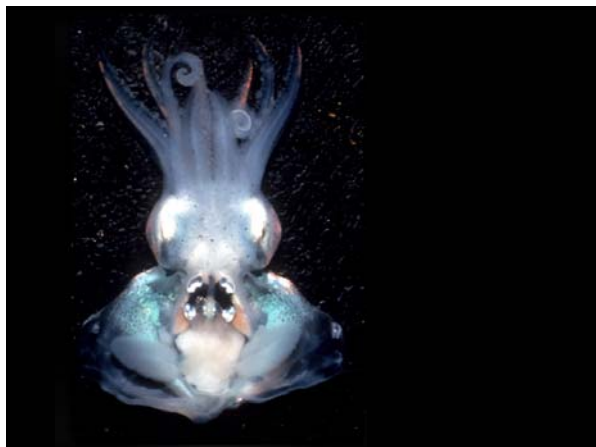
Bacterial Quorum Sensing

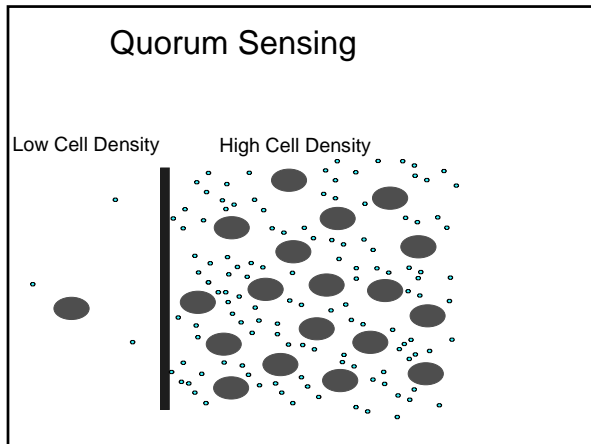
Part 1 Intra- and Inter-Species Communication

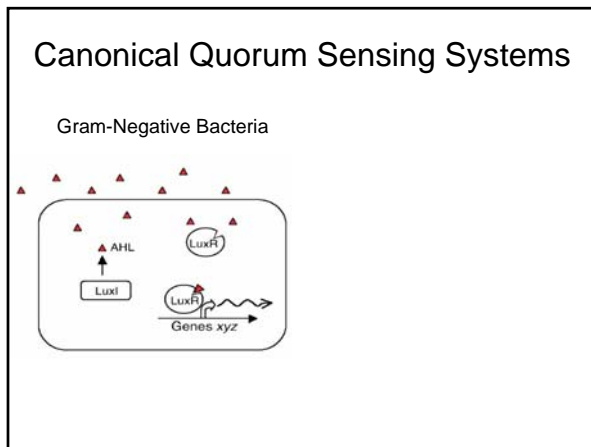
Bonnie Bassler
Princeton University
HHMI

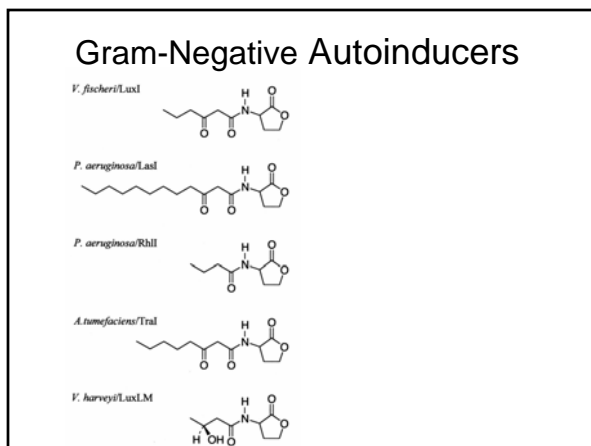


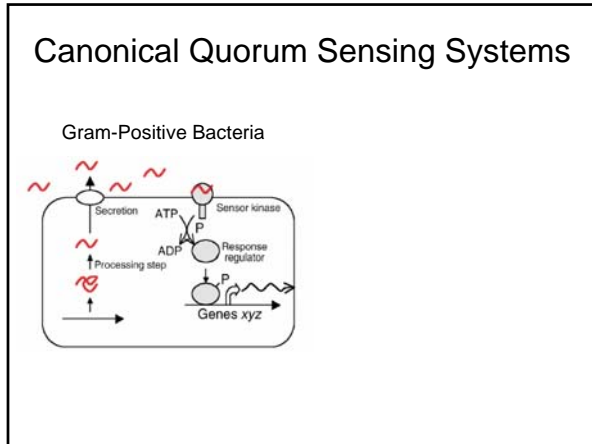


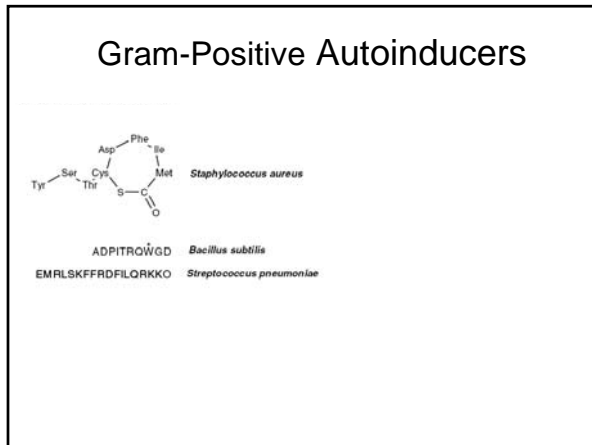






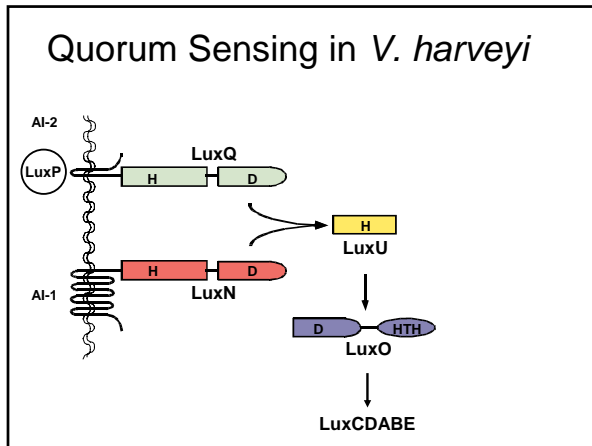




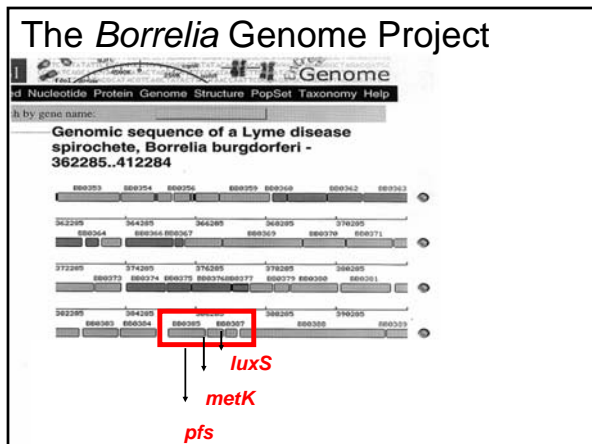


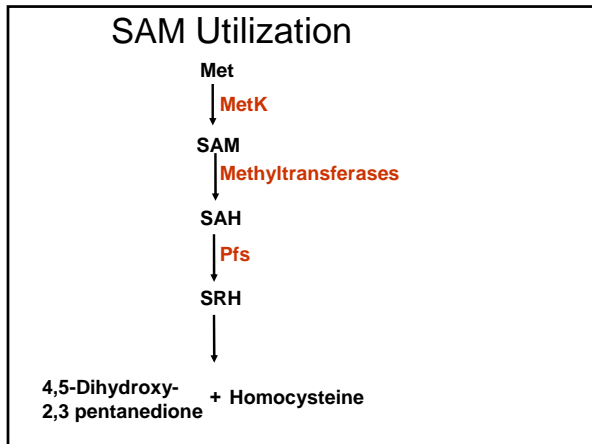
Quorum-Sensing-Controlled Genes

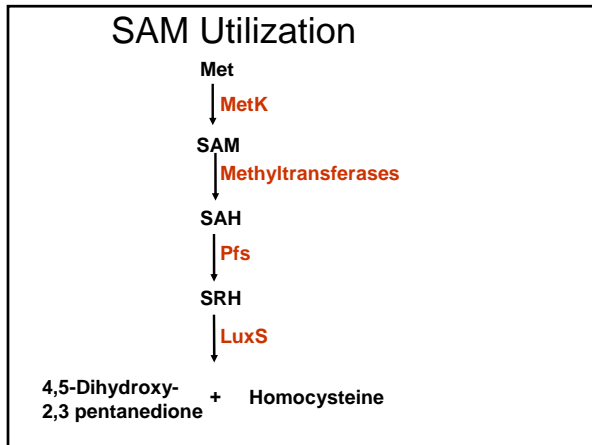
<i>V. fischeri</i>	Bioluminescence
<i>P. aeruginosa</i>	Virulence Factors, Biofilms
<i>A. tumefaciens</i>	Mating, Transfer of Mobile DNA
<i>E. carotovora</i>	Virulence Factors, Antibiotic Synthesis

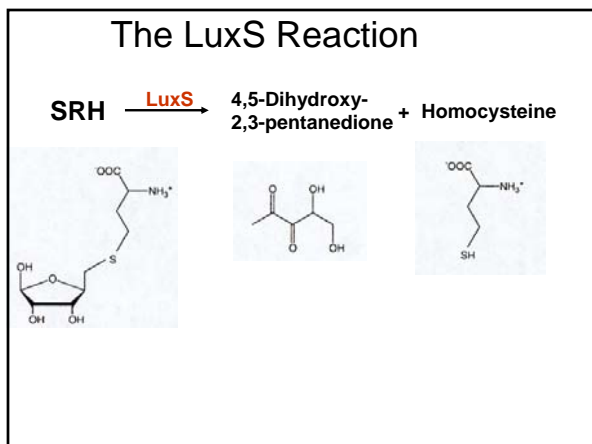


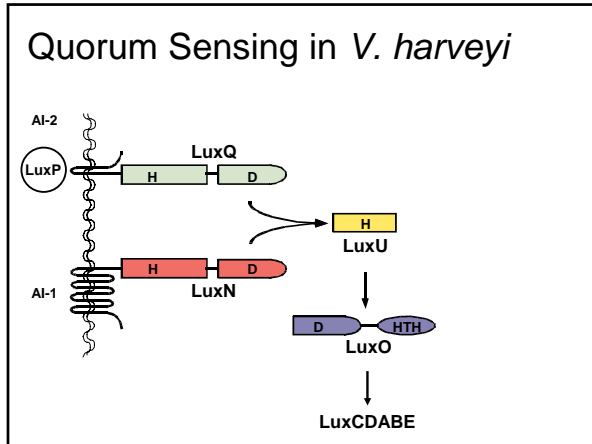
- ### Bacteria That Contain *luxS*
- (A sample of 299/534 genomes sequenced)
- Actinobacillus actinomycetemcomitans*
 - Bacillus anthracis*
 - Bacillus subtilis*
 - Borrelia burgdorferi*
 - Campylobacter jejuni*
 - Clostridium acetobutylicum*
 - Clostridium difficile*
 - Escherichia coli O157:H7*
 - Enterococcus faecalis*
 - Haemophilus influenzae*
 - Klebsiella pneumoniae*
 - Neisseria gonorrhoeae*
 - Neisseria meningitidis*
 - Porphyromonas gingivalis*
 - Salmonella typhi*
 - Salmonella typhimurium*
 - Shigella flexneri*
 - Staphylococcus aureus*
 - Streptococcus pneumoniae*
 - Streptococcus pyogenes*
 - Vibrio cholerae*
 - Vibrio vulnificus*
 - Yersinia pestis*

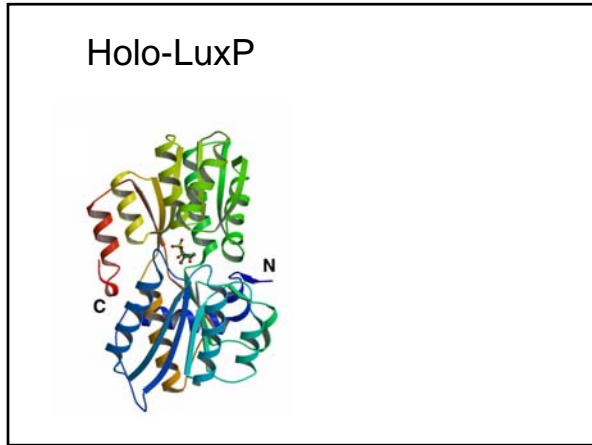


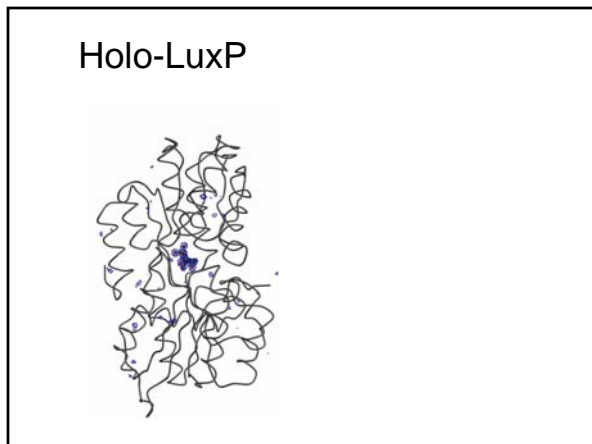


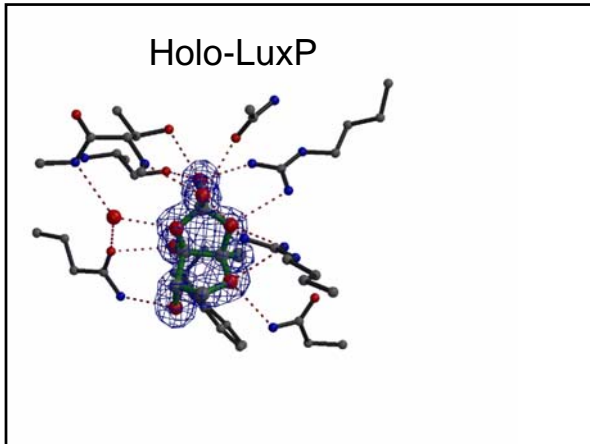


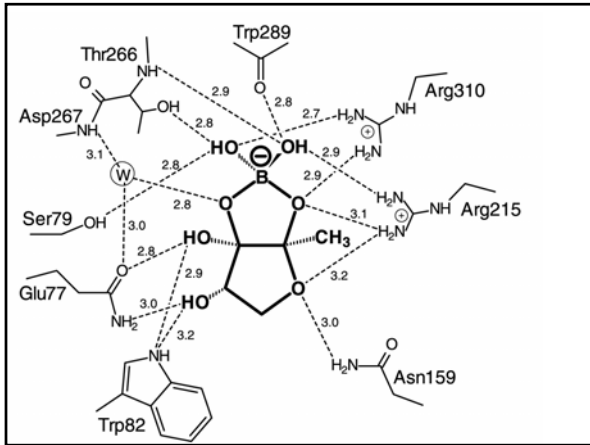


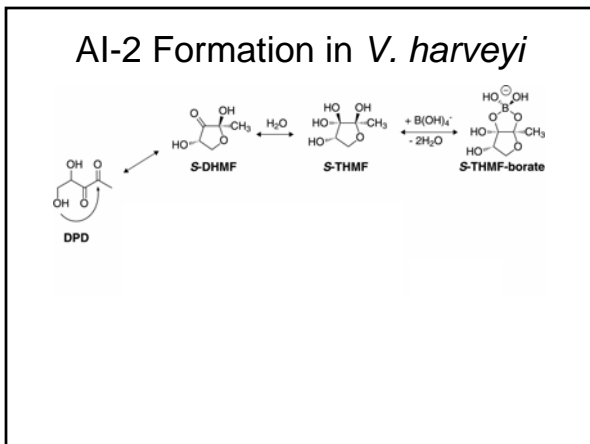


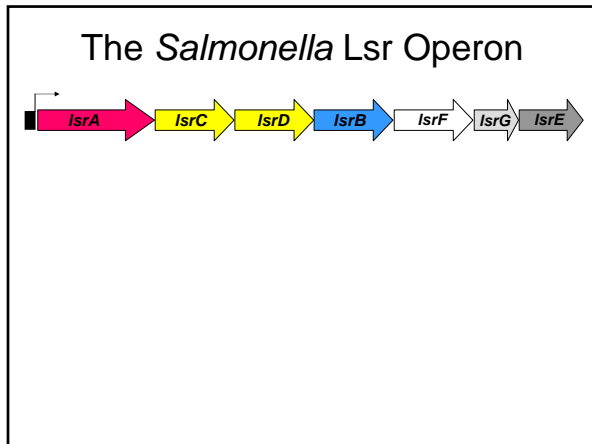


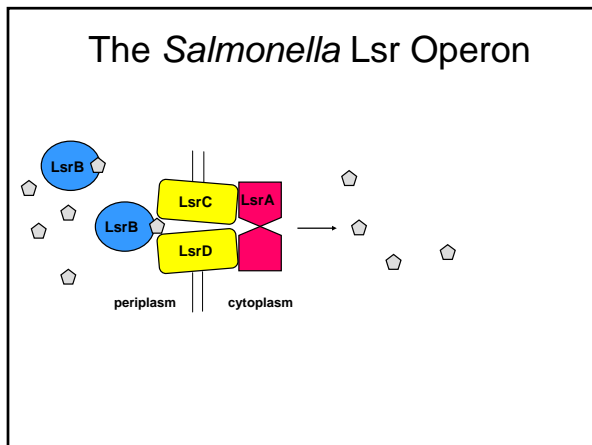


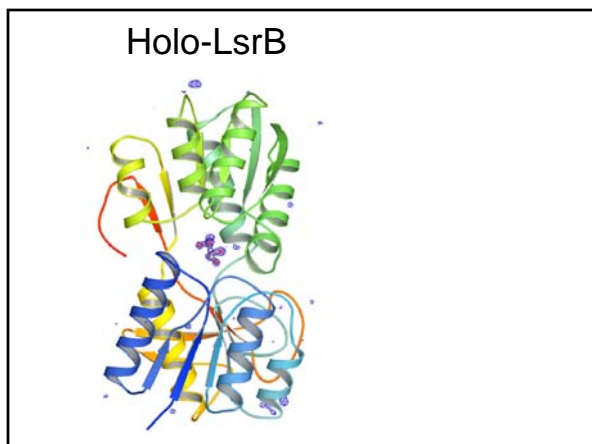


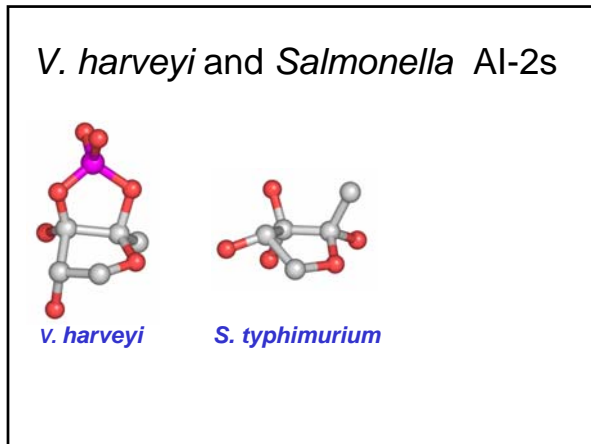


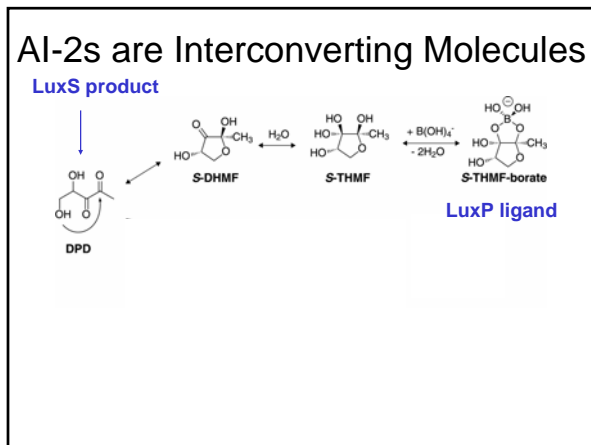


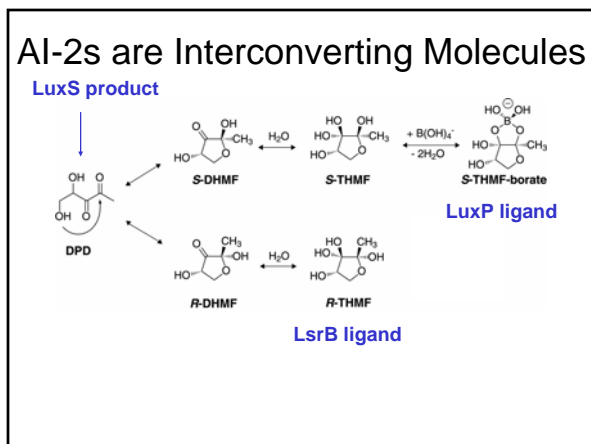












Quorum Sensing In Bacteria

Bacteria Talk to Each Other

Multiple Languages
i.e., intra- and inter-species communication

Bacteria Distinguish Self from Other

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i.e., molecules that tell "who" the other is

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Similar to Higher Organisms

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Natural Anti-Quorum Sensing Strategies Already Exist
