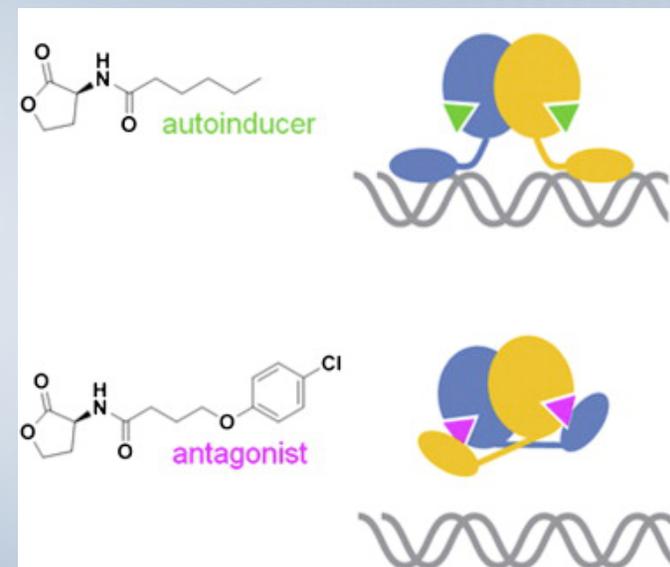


A Strategy for Antagonizing Quorum Sensing

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- Among the complex molecular processes involved in the development of bacteria-borne disease is quorum sensing, the way bacteria communicate and coordinate collective behaviors via the exchange of molecules called autoinducers. By studying how to inhibit quorum sensing, scientists may be able create antibacterial pharmaceuticals for a variety of ailments.
- Recently, in part due to work performed at NSLS, researchers from Princeton University and the Howard Hughes Medical Institute learned how to block a quorum-sensing mechanism in the bacteria *Chromobacterium violaceum*, commonly found in tropical soils and water. Although this pathogen rarely infect humans, the group's success indicates that their work could lead to therapeutics for diseases caused by other bacteria types.
- The researchers used x-rays at NSLS to “see,” for the first time, the molecular structure of a quorum-sensing receptor bound to an antagonist of their target. The resulting x-ray crystal structures showed that the antagonists function by stabilizing an inactive conformation of the receptor protein. This information should be valuable in designing second-generation quorum-sensing antagonists with improved functional properties.



Quorum-sensing antagonists that function by stabilizing closed receptor conformations

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