

微生物学研究室 Microbiology Laboratory

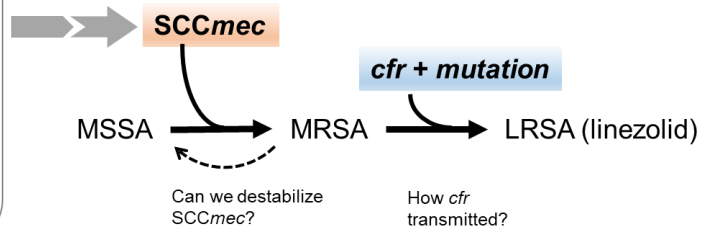
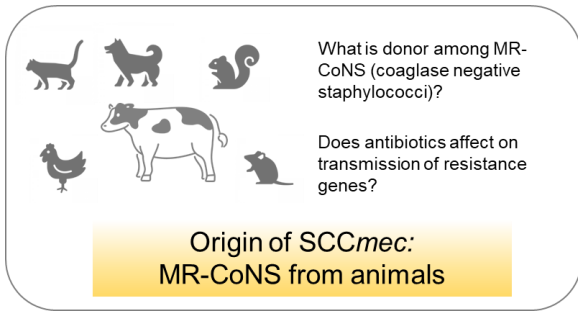
細菌が、感染症を成立させたり宿主との共生を維持したりするために備えている生存戦略を明らかにする。

We aim to clarify bacterial survival strategies in the context of infectious diseases and symbiotic status.

HP URL

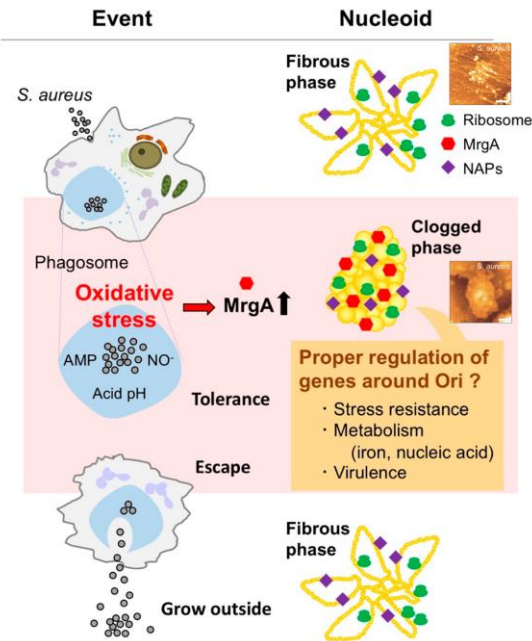


Acquisition and stabilization of antibiotics resistance



MRSA (methicillin-resistant *Staphylococcus aureus* メチシリン耐性黄色ブドウ球菌) is one of the most serious concerns in AMR (antimicrobial resistance) issues. We investigate how methicillin resistance of MRSA is acquired and stabilized, and how resistance to "last resort" anti-MRSA drugs could be acquired in future. We are the only group capable of testing SCC transfer experimentally.

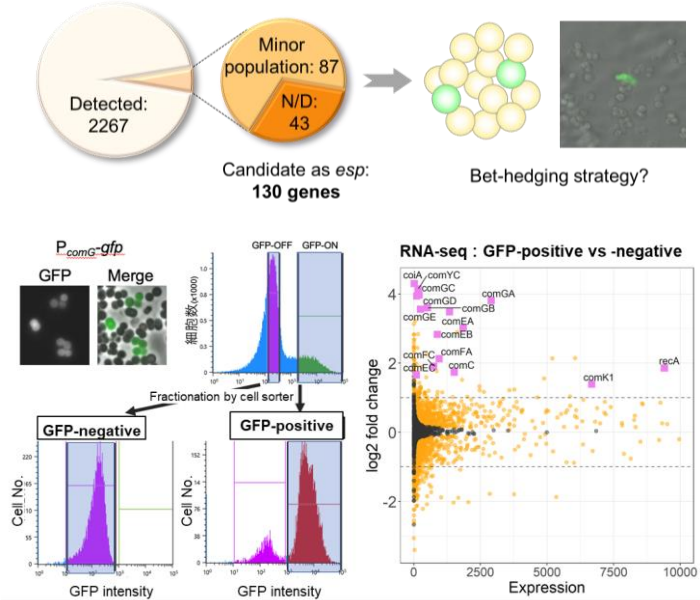
Nucleoid dynamics



Hypothesis: Nucleoid clogging affects the expression of a series of genes around Ori on the genome, which allows the bacteria to be pathogenic in the host environment. We challenge to prove this hypothesis.

Population heterogeneity

List of *esp* gene based on expression level



Genes of "esp" are expressed in minor subpopulations. The function of many *esp* genes is unknown. We try to clarify the function through identification of co-expressed genes with each *esp* gene.

Reference

- ◆ Natural transformation allows transfer of SCCmec-mediated methicillin resistance in *Staphylococcus aureus* biofilm. Nat Commun 13, 2477. 2022.
- ◆ What happens in the staphylococcal nucleoid under oxidative stress? Microorganisms 7, 631. 2019.

Contact

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Location

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