



埼玉大学グローバル化推進経費支援事業

Faculty of Science, SAITAMA Univ.

第3回HiSEP Special Seminar

『バクテリアのコミュニケーション』

(抗生物質に代わる感染症治療薬の開発を目指して)

Tackling bacterial communication as an alternative to the use of antibiotics

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Infections caused by Multi-drug resistant (MDR) pathogenic bacteria are expected to be the first cause of death by 2050. Therefore, we are in deep need of identifying alternative treatments to overcome this important healthcare threat. Among the different strategies that are being explored to fight MDR bacteria, interfering with the elaborated communication mechanisms evolved by pathogenic bacteria to coordinate their attack is one of the most promising strategies. Best characterized microbial communication systems are based on the emission of chemical signals, called autoinducers, that control many important biological functions such as antibiotic biosynthesis, virulence, plasmid conjugal transfer, swarming, endospores formation, or biofilm differentiation, in a process known as Quorum Sensing. Due to the importance of quorum sensing in bacterial pathogenesis, other bacteria and higher organisms have developed mechanisms to disrupt the bacterial communication channels as a defense mechanism. These mechanisms, generally known as Quorum Quenching strategies, are being explored for the control of MDR bacteria and are already being applied in other biotechnological fields, such as waste-water treatment plants or avoiding microbial-induced corrosion. Moreover, experimental evidence is being accumulated on the microbial emission and response to physical signals such as sound waves, electromagnetic radiation, and electric currents, but the role of these physical communication systems in microbial pathogenesis remains unknown. This lecture will review the different languages developed by microbes and how they were discovered, as well as some of the current applications of quorum quenching strategies.

Date & Time : 18:00-19:20 on July 8, 2021

This is an **ONLINE-SEMINAR** with ZOOM service, for all students in the Faculty of Science and for those who are interested in natural sciences. Contact "hisep.saitama@gmail.com" to get the ZOOM connection URL.

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