DEPARTMENT SEMINAR

日時：6 月 25 日（火）16:00-17:00
場所：工学部3号館8B04

演者：桐野 陽平 博士
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Immunostimulatory short non-coding RNAs derived from tRNAs and rRNAs

Immune receptors that recognize single-stranded RNA (ssRNA), such as Toll-like receptor 7 (TLR7), play a pivotal role in the innate immune response. Beyond ssRNAs from external pathogens like bacteria and viruses, endogenous self-short non-coding RNAs (sncRNAs), such as microRNAs, have also been identified as activators of TLR7. However, the full spectrum of such endogenous ligands has yet to be comprehensively elucidated. This knowledge gap is partly attributed to the limitations of standard sncRNA-seq, which fails to capture non-miRNA-sncRNAs lacking 5'-phosphate and 3'-hydoroxyl ends. Recent advancements in various non-standard sncRNA-seq methods have expanded the array of potential endogenous sncRNA ligands that may activate ssRNA-sensing immune receptors. This progress is exemplified by our recent discovery that, during the immune response, tRNA-derived sncRNAs stimulate TLR7 and thereby promote proinflammatory cytokine production in macrophages. Here, we present our recent research on immunostimulatory sncRNAs derived from tRNAs and rRNAs, and their differential expression patterns in the circulation of patients infected with *Mycobacterium tuberculosis* or suffering from chronic obstructive pulmonary disease.

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