

研究題目 Investigation of the temporal dynamics of T cell differentiation upon antigen recognition in vivo using a novel technology

研究組織

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共同研究者： Joint Usage, A-1. Next-generation sequencing and microarray analyses (Prof. Toyomasa Katagiri)

【1】研究の概要

[1-1]本研究の目的・概要

The project aimed to reveal the temporally dynamic changes of T cell transcriptome during activation and differentiation in vivo. Doing so, it aimed to establish a collaboration between Imperial College London and Tokushima University.

[1-2]研究の方法・経過

We performed RNA-seq of T cells from fluorescent timer reporter mice for T cell receptor (TCR) signalling, using our Tocky (Timer of cell kinetics and activity, Bending et al, *J Cell Biol*, 2018). Tocky uses Fluorescent Timer protein in combination with computer algorithms to reveal the in vivo dynamics of cellular signalling and differentiation events in vivo.

【2】研究成果

[2-1]本共同研究で明らかになった研究成果

We revealed the time-dependent

dynamics of differentiating T cells upon receiving TCR signals. We visualised the relationship between differentiating T cells and identified key genes for each differentiation stage, and thus revealed the temporal dynamics of T cell differentiation in vivo.

[2-2]本共同研究による波及効果及び今後の発展性

The successful completion of the project has demonstrated the feasibility of the collaborations and the joint usage. We plan to further develop the collaborative project.

【3】主な発表論文等

[3-1]論文発表

Manuscript in preparation.

【4】今後の課題等

To publish the manuscript in preparation. To secure further funding to develop the collaborative research.