68th IRCMS Seminar

Date: **September 2, 2020 (Wednesday)**

Time: 17:00-18:00

Venue: 1F Meeting Lounge, International Research Center for Medical Sciences (IRCMS)

* To prevent the spread of COVID-19, the seats will be limited to 15.
This seminar will be simultaneously distributed by Zoom.

Speaker: Masahiro Ono, MD, PhD
Senior Lecturer, Imperial College London
(Visiting Associate Professor, IRCMS)

Title: Mechanisms of T cell-mediated immune regulation at the single cell level

Abstract:

We study temporally dynamic mechanisms underlying T cell differentiation and responses. This seminar will aim to show that, in order to understand immune regulation, it is indispensable to analyse time-dependent dynamics of the differentiation and function of individual T cells. I will discuss recent findings by single cell RNA-seq analysis, which shows that the differentiation of Treg and effector T cells is dynamically regulated in cancer microenvironments (1) and in COVID-19 patients (2). In addition, I will introduce our single-cell tool for time domain analysis, Timer of Cellular Kinetics and Activity(Tocky), and show new temporally dynamic mechanisms of T cell regulation in vivo, which was revealed by the Tocky technology (3, 4). Lastly, future perspectives will be discussed.

Reference:

1. Bradley A, Hashimoto T, and Ono M. (2018) Elucidating T cell activation-dependent mechanisms for bifurcation of regulatory and effector T cell differentiation by multidimensional and single cell analysis, Front Immunol, doi 10.3389/fimmu.2018.01444.
2. Kalfaoglu B, Almeida-Santos J, Tye CA, Satou Y, Ono M. (2020) T-cell hyperactivation and paralysis in severe COVID-19 infection revealed by single-cell analysis. bioRxiv 2020:2020.05.26.115923. doi: 10.1101/2020.05.26.115923
3. Bending D, Prieto-Martin P, Paduraru A, Ducker C, Marzaganov E, Laviron M, Kitano S, Miyachi H, Crompton, T, and Ono M.(2018) A timer for analyzing temporally dynamic changes in transcription during differentiation in vivo. J Cell Biol, doi 10.1083/jcb.201711048.
4. Bending D, Paduraru A, Prieto-Martin P, Crompton T, and Ono M (2018) A temporally dynamic Foxp3 autoregulatory transcriptional circuit controls the effector Treg programme. EMBO J, 10.15252/embj.201899013.

- Anyone in Kumamoto Univ. who wants to join is welcome, but please pre-register by the following URL to secure your seat / receive the Zoom meeting information.
  (The seats will be secured to participants in order of registration.)
  http://ircms.kumamoto-u.ac.jp/symposium_reserve/symposium/reservation/
- Please wear a face mask when you join.

IRCMS
Organizer: Assoc. Prof. Masaya Baba
International Research Center for Medical Sciences (IRCMS)
TEL:096-373-6847 FAX:096-373-6869 ircms@jimu.kumamoto-u.ac.jp