

Title: Integrating Biological Sciences and AI for Next-Generation Immunotherapy

Date: 22nd July 2025

Venue: Imperial College London – Flowers Building, G47A, South Kensington Campus, London SW7 2AZ

Organiser: Department of Life Sciences, Imperial College London

Agenda with Speakers and Topics

8:30 – Registration

8:30 – 9:00 Arrival Refreshment (Foyer)

9:00 – 9.30

Welcome Greetings: Prof Dan Davis, Head of Department (HoD), Department of Life Sciences, Imperial College

UK-Japan Collaboration Focus– “*How can we develop long-lasting UK-Japan Collaborations?*”

UK Chair (In Person): Prof Dan Davis (HoD, DoLS, Imperial College)

Japan Chair (In Person): Prof Takamasa Ueno (Kumamoto University)

9:30 – 12:20 Session 1. Integrating Molecular Biology and Immunology for New Immunotherapy

Session 1.1: 9:30 – 10:30

Prof Lucy Walker (Professor, UCL): *Immune Regulation of Type 1 Diabetes* (30 min)

Prof David Sansom (Professor, UCL): *Control of CTLA-4 function by monomers, dimers and heterodimers* (30 min)

10:30 – 10:50 Coffee Break (Foyer, 20 min)

Session 1.2: 10:50 – 12:20

10:50– 11:20 **Dr Il-mi Okazaki** (Associate Professor, University of Tokyo): *LAG-3, a key immune checkpoint molecule for CD4 T cells in autoimmunity and cancer* (30 min)

11:20– 12:20 **Keynote Lecture: Prof Taku Okazaki (Professor, University of Tokyo):** *Understanding and manipulating immune checkpoints in cancer and autoimmunity* (60 min)

12:20 – 13:30 **Lunch (Foyer)**

13:30 – 14:40 Session 2. Integrating Immunology and AI for Next-Generation Immunotherapy

- **Dr Masahiro Ono** (Reader, Imperial): *Integrating Machine Learning Approaches and Immunology* (45 min)
- **Early Career speakers from Department of Life Sciences** (25 min)

14:40 – 15:00 Coffee Break (Foyer, 20 min)

15:00 – 16:30 Session 3. Integrating Immunology, Radiology, and Virology for Novel Cancer Treatment

Session 3.1: 15:00 – 15:45

- **Prof Yorifumi Satou** (Professor, Kumamoto University): *Discovery of viral silencer element controlling HTLV-1 latency by recruiting RUNX complex* (30 min)
- **Ms Ishrat Jahan** (PhD student, Kumamoto University): *The establishment of a transgenic mouse system to analyse HTLV-1-driven CD4+ T cell immortalisation mechanism* (15 min)

Session 3.2: 15:45 – 16:30

- **Dr Lizzie Appleton** (ICR) *alling dynamics in oncolytic virotherapy/immunotherapy combinations* (15 min)
- **Dr Charleen Chan** (ICR) *Dynamics of T-cell-driven immune responses to (chemo)radiation in head and neck cancer* (15 min)
- **Dr Erik Wennerberg** (ICR) *Decoding the multiple roles of P2X7 receptor signalling in anti-tumour immunity* (15 min)

16:30 – 16:50 **JSPS Announcement**

16:50 – 18:30 **Drink Reception (Foyer)**



JSPS

Supported by the Japan Society for the Promotion of Science (JSPS), the Institute of Cancer Research/Imperial College Centres for Convergence Science and Immunotherapy of Cance, and The Centre for Immunotherapy of Cancer

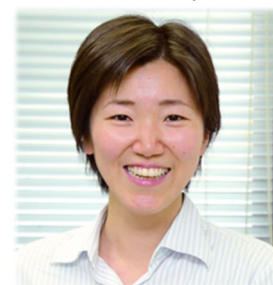
Introduction of Speakers

Prof Taku Okazaki played a central role in the discovery and mechanistic elucidation of the PD-1 immune checkpoint pathway. Between 1999 and 2008, in the lab of Prof Tasuku Honjo in Kyoto, the Nobel Laureate in 2018 for the discovery of PD-1, he led the PD-1 research group and authored the seminal PNAS 2001 paper that first revealed the SHP2-mediated inhibition of TCR signalling by PD-1, which is now recognised as the core mechanism of PD-1-mediated immune suppression. Throughout the 2000s, Prof Okazaki was the lead scientist behind a body of work that laid the foundations for the success of anti-PD-1 immunotherapy and its clinical translation. His role in driving discovery from within the laboratory was indispensable.



Dr Il-mi Okazaki is a pioneering molecular biologist and immunologist who made possible many key discoveries, from AID to LAG3, first in the Honjo lab and later in the Okazaki lab. Her first milestone finding was **the discovery of AID's role in class switch recombination and somatic hypermutation** (Okazaki et al, Nature, 2002; Yoshikawa, Okazaki, et al, Science 2002), conducted as part of the AID group in the Honjo lab. These foundational discoveries on AID laid the groundwork for the study of the APOBEC family in cancer genomics.

In 2008, Prof Okazaki and Dr Il-mi Okazaki established their own laboratory at Tokushima University, launching a highly innovative research programme. Notably, Dr Il-mi Okazaki led the groundbreaking screening experiments that **identified CIITA as the regulator of LAG3–MHC II interaction** (Nat Immunol 2018). Together, they have published a series of high-impact studies, including the dissection of **cis PD-L1:CD80 interactions** and their therapeutic implications (Science 2019). Since relocating to the University of Tokyo in 2019, they have jointly led a series of influential studies redefining immune regulation. Dr Il-mi Okazaki has continued to lead the laboratory's projects, driving both experimental design and execution.



Prof Yorifumi Satou has devoted his career to uncovering the pathogenesis of HTLV-1-induced adult T-cell leukaemia, which remains prevalent in Japan. His research began in 2001 at Kyoto University, where he initiated studies on HTLV-1. From 2011 to 2013, he joined the Bangham lab at Imperial College London as a postdoctoral researcher, focusing on HTLV-1–host T-cell interactions. Since 2013, based at Kumamoto University, Prof Satou has expanded his research to the genomic and epigenetic mechanisms of viral latency. His recent landmark paper (Sugata et al., Nat Microbiology, 2025) identified a unique silencer element in the HTLV-1 genome regulated by Runx1, highlighting a fundamental distinction between HTLV-1 and HIV. His longstanding ties to the UK and contributions to retroviral immunopathology make him a particularly valued participant in this symposium.

