

Wednesday 22 October at 10:30 am
AUDITORIUM FRANÇOIS JACOB



Prof Satoshi Yamaguchi

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Invited by Florian Mueller and Isabella Gariboldi
Photonic Bioimaging Platform, DT C2RT, BCI

Photoresponsive Cell Anchoring Surfaces for Single-Cell Phenotypic Imaging

Until now, the mechanisms by which immune cells exert cytotoxic effects on cancer cells have been evaluated solely based on average values across entire cell populations. As a result, it has been challenging to obtain information about rare cancer cells that evade immune attack or rare immune cells with exceptionally high cytotoxic activity against cancer cells. To address these challenges, we developed a dual-cell measurement technology that employs a photoactivatable cell-anchoring surface to position single immune cells and single cancer cells adjacent to each other on a substrate, thereby enabling comprehensive analysis of their interactions at the single-cell level. For example, classification of the time-lapse imaging data using machine learning revealed the presence of NK cells that induced either apoptosis-like or necrosis-like cell death. Thus, this dual-cell measurement technology represents a promising platform for immune diagnostics, therapeutic cell discovery, and quality control of CAR-T cells. In this seminar, I would also like to provide a detailed introduction to our original photoresponsive cell-anchoring surfaces, including their development history, the unique mechanism of cell attachment and other application studies.

For any questions email: florian.muller@pasteur.fr and maria-isabella.gariboldi@pasteur.fr