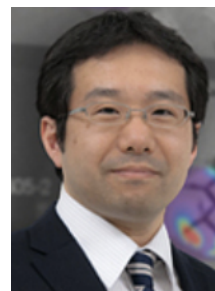


**Principle Investigator: Katsunori Tanaka**

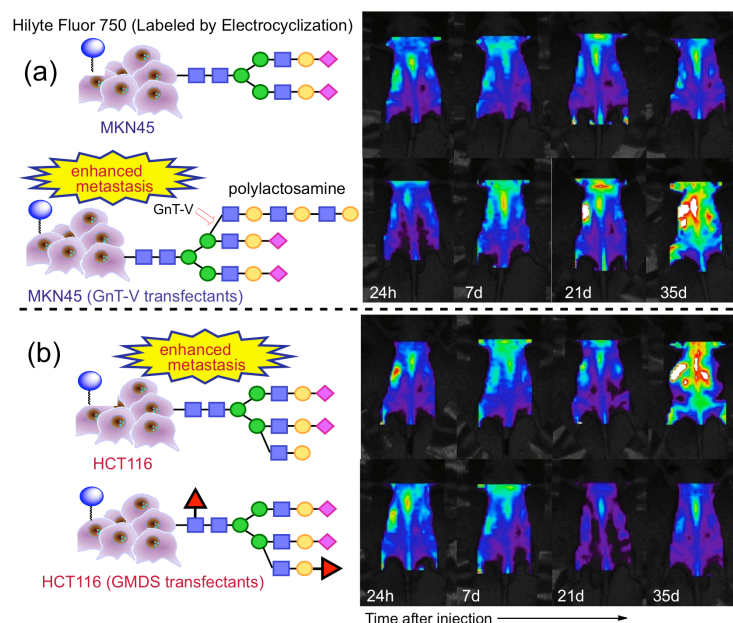
**Grant Title: Imaging and Regulation of Live Cell Dynamics and Functions by Surface Glycans**

**Abstract**

Tumor cell surface was fluorescently labeled by the investing's innovative reaction under the quite mild conditions, and their metastatic potential in mice was efficiently visualized by noninvasive imaging.<sup>1</sup> Especially, the four kinds of human cancer cells (two cancer cell lines, MKN45 and HCT116, and their transfected versions expressing surface glycan-related genes, MKN45-GnT-V and HCT116-GMDS) were labeled by Hilyte Fluor 750, and were injected into the abdominal cavities of BALB/c mice. In accordance with previous findings, a larger polylectosamine structure or the



loss of fucosylation on the cancer cell surfaces, respectively, enhanced the metastatic potential of the tumor cells. The investigator's noninvasive technique provides the landmark opportunity for sensitively monitoring the dynamics of the cancer cells depending on their surface structures and/or the host environments.



The cell surface method for introducing the various glycans and/or positron emitter for PET imaging has also been established.<sup>2,3</sup> This investigator has succeeded in modifying selectively the specific molecules on the cell surface,<sup>4</sup> thus the method developed in this research could be applicable to selectively introducing the functional glycans and/or labels in live systems, i.e., noninvasively imaging and regulation the tumor metastasis.

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