Stanford

Michitaka Nakano

Postdoctoral Scholar, Hematology

Bio

BIO

I am a MD/PhD postdoctoral fellow and medical oncologist with a long-standing interest in translational cancer research. My long-term goal is to be a lab-based physician-scientist and independent academic researcher, translating basic cancer research, and mentoring next-generation scientists. My thesis work in Japan focused on cancer stem cell equilibrium by uniquely applying organoid culture as a method to elucidate cancer stem cell dynamics, which was awarded in Japanese Cancer Association. Along with the development of the field represented by success in T cell checkpoint, my interest gradually shifted to immune oncology while I examined numerous numbers of cancer patients as a medical oncology fellow. My postdoctoral fellowship at Calvin Kuo Lab in Stanford (2019-present) focuses on tumor immune microenvironment. Kuo lab developed a unique 3D air-liquid interface (ALI) organoid system that cultures tumors while preserving their endogenous infiltrating immune cells (T,B ,NK, Myeloid cells). My postdoctoral work will prove the significance of organoids as a translational tool to discover tumor-immune interaction by novel checkpoint inhibitors for immune cells, which can be broadly applicable to basic cancer biology, precision medicine, therapeutics validation and biomarker discovery.

HONORS AND AWARDS

- Young Investigator Award, Japanese Cancer Association (2023)
- Research Fellowship, The Uehara Memorial Foundation (2022)
- School of Medicine Dean's Postdoctoral Fellowship, Stanford University School of Medicine (2022)
- Overseas Research Fellow, Japan Society for the Promotion of Science (2020-2021)
- Grant-in-Aid for Early-Career Scientists, Japan Society for the Promotion of Science (2019)
- Paper of the year 2019, Department of Medicine and Biosystemic Science, Kyushu University (2019)
- Research grant, The Shin-Nihon Foundation of Advanced Medical Research (2018)
- Research grant, Fukuoka Foundation for Sound Health Cancer Research Fund (2018)
- Single Cell Gene Expression Analysis Awards, WAT-NeW, TakaraBio and Fluidigm (2014)
- AZKK Science Promotion Grant, Astra Zeneca (2013)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Certified Fellow, Japanese Society of Internal Medicine (2018 - present)
- Board Certified Fellow, Japanese Society of Medical Oncology (2018 - present)

PROGRAM AFFILIATIONS

- SPARK at Stanford

PROFESSIONAL EDUCATION

- Master of Medicine, Unlisted School (2009)
- Doctor of Philosophy, Unlisted School (2019)
- Ph.D., Kyushu University (2019)
- Fellow, Kyushu University/National Kyushu Cancer Center , Oncology (2018)
- Residency, Aso Iizuka Hospital (2011)
- M.D., Kyushu University (2009)

STANFORD ADVISORS

- Calvin Kuo, Postdoctoral Faculty Sponsor
- Calvin Kuo, Postdoctoral Research Mentor

Publications

PUBLICATIONS

- **RHAMM marks proliferative subpopulation of human colorectal cancer stem cells.** *Cancer science*
  Nakano, M., Taguchi, R., Kikushige, Y., Isobe, T., Miyawaki, K., Mizuno, S., Tsuruta, N., Hanamura, F., Yamaguchi, K., Yamauchi, T., Ariyama, H., Kusaba, H., Nakamura, et al
  2023
- **Macrophages are primed to transdifferentiate into fibroblasts in malignant ascites and pleural effusions.** *Cancer letters*
  Ito, M., Nakano, M., Ariyama, H., Yamaguchi, K., Tanaka, R., Semba, Y., Sugio, T., Miyawaki, K., Kikushige, Y., Mizuno, S., Isobe, T., Tanoue, K., Taguchi, et al
  2022: 215597
- **Organoid Models of Tumor Immunology.** *Trends in immunology*
  Yuki, K., Cheng, N., Nakano, M., Kuo, C. J.
  2020
- **Organoids as Oracles for Precision Medicine in Rectal Cancer.** *Cell stem cell*
  Kolahi, K. S., Nakano, M., Kuo, C. J.
  2020; 26 (1): 4-6
- **Dedifferentiation process driven by TGF-beta signaling enhances stem cell properties in human colorectal cancer** *ONCOGENE*
  Nakano, M., Kikushige, Y., Miyawaki, K., Kunisaki, Y., Mizuno, S., Takenaka, K., Tamura, S., Okumura, Y., Ito, M., Ariyama, H., Kusaba, H., Nakamura, M., Maeda, et al
  2019; 38 (6): 780–93
- **Epithelial-mesenchymal transition is activated in CD44-positive malignant ascites tumor cells of gastrointestinal cancer** *CANCER SCIENCE*
  Nakano, M., Ito, M., Tanaka, R., Ariyama, H., Mitsugi, K., Makiyama, A., Uchino, K., Esaki, T., Tsuruta, N., Hanamura, F., Yamaguchi, K., Okumura, Y., Sagara, et al
  2018; 109 (11): 3461–70
- **PD-1+TIM-3+T cells in malignant ascites predict prognosis of gastrointestinal cancer** *CANCER SCIENCE*
  Nakano, M., Ito, M., Tanaka, R., Yamaguchi, K., Ariyama, H., Mitsugi, K., Yoshihiro, T., Ohmura, H., Tsuruta, N., Hanamura, F., Sagara, K., Okumura, Y., Nio, et al
  2018; 109 (9): 2986–92
- **Pemetrexed combined with platinum-based chemotherapy for advanced malignant peritoneal mesothelioma: retrospective analysis of six cases.** *Anticancer research*
  Nakano, M., Kusaba, H., Makiyama, A., Ariyama, H., Arita, S., Oda, H., Esaki, T., Takayoshi, K., Uchino, K., Tamura, S., Kumagai, H., Iwama, E., Shirakawa, et al
  2014; 34 (1): 215-20
- **Complete Remission of Widely Metastatic Human Epidermal Growth Factor Receptor 2-Amplified Pancreatic Adenocarcinoma After Precision Immune and Targeted Therapy With Description of Sequencing and Organoid Correlates.** *JCO precision oncology*

King, D. A., Smith, A. R., Pineda, G., Nakano, M., Michelini, F., Goedegebuure, S. P., Thyparambil, S., Liao, W. L., McCormick, A., Ju, J., Cioffi, M., Zhang, X., Hundal, et al
2023; 7: e2100489

- **Immune organoids: from tumor modeling to precision oncology.** *Trends in cancer*
  Dao, V., Yuki, K., Lo, Y., Nakano, M., Kuo, C. J.
  2022

- **An expanded universe of cancer targets.** *Cell*
  Hahn, W. C., Bader, J. S., Braun, T. P., Califano, A., Clemons, P. A., Druker, B. J., Ewald, A. J., Fu, H., Jagu, S., Kemp, C. J., Kim, W., Kuo, C. J., McManus, et al
  2021; 184 (5): 1142–55

- **Activation of central/effector memory T cells and T-helper 1 polarization in malignant melanoma patients treated with anti-programmed death-1 antibody** *CANCER SCIENCE*
  Yamaguchi, K., Mishima, K., Ohmura, H., Hanamura, F., Ito, M., Nakano, M., Tsuchihashi, K., Ota, S., Wada, N., Uchi, H., Ariyama, H., Kusaba, H., Niiro, et al
  2018; 109 (10): 3032–42

- **E-cadherin regulates proliferation of colorectal cancer stem cells through NANOG** *ONCOLOGY REPORTS*
  Tamura, S., Isobe, T., Ariyama, H., Nakano, M., Kikushige, Y., Takaishi, S., Kusaba, H., Takenaka, K., Ueki, T., Nakamura, M., Akashi, K., Baba, E.
  2018; 40 (2): 693–703

- **Genome-wide CRISPR-Cas9 Screen Identifies Leukemia-Specific Dependence on a Pre-mRNA Metabolic Pathway Regulated by DCPS** *CANCER CELL*
  Yamauchi, T., Masuda, T., Canver, M. C., Seiler, M., Semba, Y., Shboul, M., Al-Raqad, M., Maeda, M., Schoonenberg, V. C., Cole, M. A., Macias-Trevino, C., Ishikawa, Y., Yao, et al
  2018; 33 (3): 386-+

PRESENTATIONS

- Invited Speaker - "Exploring the basis of cancer stem cells", Symposium, The 79th Annual Meeting of the Japan Cancer Association (10/1/2020 - 10/3/2020)
- Invited Panelist/Speaker - "Oncology Seminar for Students and Residents", Workshop, The 16th Annual Meeting of JSMO (7/21/2018 - 7/21/2018)