

CURRICULUM VITAE KAZUMA KIYOTANI

Date of Birth: January 3, 1979

CURRENT POSITION

Group Leader, Immunopharmacogenomics Group, Cancer Precision Medicine Center, Japanese Foundation for Cancer Research



ACADEMIC QUALIFICATION

- 2003-2006 Doctor of Philosophy, Graduate School of Pharmaceutical Sciences, Hokkaido University, Sapporo, Japan (Prof. Tetsuya Kamataki)
- 2001-2003 Master of Science, Graduate School of Pharmaceutical Sciences, Hokkaido University, Sapporo, Japan (Prof. Tetsuya Kamataki)
- 1997-2001 Bachelor of Science, Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo, Japan (Prof. Tetsuya Kamataki)

CAREER HISTORY

- 2017-present **Group Leader**, Immunopharmacogenomics Group, Cancer Precision Medicine Center, Japanese Foundation for Cancer Research
- 2013-2016 **Research Professional**, Department of Medicine, The University of Chicago, Chicago, IL, USA
- 2011-2013 **Assistant Professor**, Division of Genome Medicine, Institute for Genome Research, The University of Tokushima, Tokushima, Japan
- 2007-2011 **Research Scientist**, Laboratory for Pharmacogenetics, RIKEN Center for Genomic Medicine, Yokohama, Japan
- 2006-2007 **Assistant Professor**, Faculty of Pharmacy, Takasaki University of Health and Welfare, Takasaki-shi, Gunma, Japan

RESEARCH EXPERIENCE

- 2013-present **Genomic and Immunopharmacogenomic analysis of cancers**: Developed the method to analyze immune repertoires (T-cell receptor/B-cell receptor sequencing), and analyzed T-cell receptor repertoires of tumor-infiltrating T-lymphocytes in several types of cancer. Developed the bioinformatics pipeline to predict neoantigens from exome/RNA sequencing data, and the method to screen neoantigen-specific cytotoxic T cells.
- 2011-2013 **Genome analysis of breast cancers**: Identified novel somatic alterations in triple-negative breast cancer using next-generation sequencer. Analyzed functional significance of these somatic alterations in cancer development.
- 2007-2011 **Pharmacogenomics of anti-cancer drugs**: Identified maker SNPs associated with efficacy and adverse reaction of anti-cancer drugs, including tamoxifen, docetaxel and gemcitabine, using genome-wide SNP genotyping system and SNP genotyping of candidate genes.
- 2001-2007 **Relation of CYP genetic polymorphisms to individual drug disposition**: Identified novel polymorphism of cytochrome P450 (CYP) genes. Analyzed functional significance of novel CYP polymorphism using E. coli expression system, human liver samples, in vivo analysis and in silico analysis.
- 2000-2001 **Roles of hamster CYP2As in mutagenic activation of N-**

nitrosamins: Established expression system of hamster CYP2As using Salmonella typhimurium YG7108. Investigated mutagenic capacity of hamster CYP2As to N-nitrosamins using mutation assay.

AWARDS

- 2011 Third Japan Research Foundation for Clinical Pharmacology Research Award
- 2010 Scientific Award of the 31th Annual Meeting of Japanese Society of Clinical Pharmacology and Therapeutics
- 2003 DMPK Award for the Most Frequently Downloaded Original Article in 2003
- 2002 DMPK Award for the Most Frequently Downloaded Original Article in 2002

RESEARCH GRANTS

- 2012-2013 Grant-in-Aid for Scientific Research (C) (24501342) of Ministry of Education, Culture, Sports, Science and Technology of Japan
- 2010-2011 Grant-in-Aid for the Takeda Science Foundation
- 2010-2011 Grant-in-Aid for Young Scientists (B) (22790179) of Ministry of Education, Culture, Sports, Science and Technology of Japan
- 2008-2009 Grant-in-Aid for the Japan Research Foundation for Clinical Pharmacology
- 2008 Grant-in-Aid for the Kobayashi Institute for Innovative Cancer Chemotherapy
- 2007-2009 Grant-in-Aid for Young Scientists (B) (19790132) of Ministry of Education, Culture, Sports, Science and Technology of Japan

PUBLICATIONS (ONLY 2016-2017; TOTAL 64)

1. Vassiliki Saloura, Aiman Fatima, Makda Zewde, Kazuma Kiyotani, Ryan J Brisson, Jae-Hyun Park, Yuji Ikeda, Theodore Vougiouklakis, Riyue Bao, Tanguy Y. Seiwert, Nicole A Cipriani, Mark W. Lingen, Everett E. Vokes, Yusuke Nakamura. Characterization of the tumor T-cell receptor repertoire and immune microenvironment in patients with locoregionally advanced squamous cell carcinoma of the head and neck. Clin Cancer Res in press (2017).
2. Taigo Kato, Tomoyuki Iwasaki, Motohide Uemura, Akira Nagahara, Hiroki Higashihara, Keigo Osuga, Yuji Ikeda, Kazuma Kiyotani, Jae-Hyun Park, Norio Nonomura, Yusuke Nakamura. Characterization of the cryoablation-induced immune response in kidney cancer patients. Oncolmmunology in press (2017).
3. Kazuma Kiyotani, Jae-Hyun Park, Hiroyuki Inoue, Aliya Husain, Sope Olugbile, Makda Zewde, Yusuke Nakamura, Wickii T. Vigneswaran. Integrated analysis of somatic mutations and immune microenvironment in malignant pleural mesothelioma. Oncolmmunology 6, e1278330 (2017).
4. Yuji Ikeda, Kazuma Kiyotani, Poh Yin Yew, Sho Sato, Yuichi Imai, Rui Yamaguchi, Satoru Miyano, Keiichi Fujiwara, Kosei Hasegawa, Yusuke Nakamura. Clinical significance of T cell clonality and expression levels of immune-related genes in endometrial cancer. Oncol Rep 37, 2603-2610 (2017).
5. Vassiliki Saloura, Theodore Vougiouklakis, Makda Zewde, Xiaolan Deng, Kazuma Kiyotani, Jae-Hyun Park, Yo Matsuo, Mark Lingen, Takehiro Suzuki, Naoshi Dohmae, Ryuji Hamamoto, Yusuke Nakamura. WHSC1L1-mediated EGFR mono-methylation enhances the cytoplasmic and nuclear oncogenic activity of EGFR in head and neck cancer. Sci Rep 7, 40664 (2017).

6. Kazuma Kiyotani, Tu M. Mai, Yusuke Nakamura. Comparison of exome-based HLA class I genotyping tools: identification of platform-specific genotyping errors. *J Hum Genet* 62, 397-405 (2017).
7. Kai Lee Yap, Larissa V. Furtado, Kazuma Kiyotani, Emily Curran, Wendy Stock, Jennifer L. McNeer, Sabah Kadri, Jeremy P. Segal, Yusuke Nakamura, Michelle M. Le Beau, Sandeep Gurbuxani, Gordana Raca. Diagnostic evaluation of RNA sequencing for the detection of genetic abnormalities associated with Ph-like acute lymphoblastic leukemia (ALL). *Leuk Lymphoma* 58, 950-958 (2017).
8. Hiroyuki Inoue, Jae-Hyun Park, Kazuma Kiyotani, Makda Zewde, Azusa Miyashita, Masatoshi Jinnin, Yukiko Kiniwa, Ryuhei Okuyama, Ryota Tanaka, Yasuhiro Fujisawa, Hiroshi Kato, Akimichi Morita, Jun Asai, Norito Katoh, Kenji Yokota, Masashi Akiyama, Hironobu Ihn, Satoshi Fukushima, Yusuke Nakamura. Intratumoral expression levels of PD-L1, GZMA, and HLA-A along with oligoclonal T cell expansion associate with response to nivolumab in metastatic melanoma. *Oncoimmunology* 5, e1204507 (2016).
9. Makoto Nakakido, Kenji Tamura, Suyoun Chung, Koji Ueda, Risa Fujii, Kazuma Kiyotani, Yusuke Nakamura. Phosphatidylinositol glycan anchor biosynthesis, class X containing complex promotes cancer cell proliferation through suppression of EHD2 and ZIC1, putative tumor suppressors. *Int J Oncol* 49, 868-876 (2016).
10. Toshihiro Kimura, Satoshi Fukushima, Azusa Miyashita, Jun Aoi, Masatoshi Jinnin, Takayuki Kosaka, Yukio Ando, Masakazu Matsukawa, Hiroyuki Inoue, Kazuma Kiyotani, Jae-Hyun Park, Yusuke Nakamura, Hironobu Ihn. Myasthenic crisis and polymyositis induced by one dose of nivolumab. *Cancer Sci* 107, 1055-1058 (2016).
11. Vassiliki Saloura, Theodore Vougiouklakis, Makda Zewde, Kazuma Kiyotani, Jae-Hyun Park, Guimin Gao, Theodore Karrison, Mark Lingen, Yusuke Nakamura¹, Ryuji Hamamoto. WHSC1L1 drives cell cycle progression through transcriptional regulation of CDC6 and CDK2 in squamous cell carcinoma of the head and neck. *Oncotarget* 7, 42527-45238 (2016).
12. Kenji Tamura, Shoichi Hazama, Rui Yamaguchi, Seiya Imoto, Hiroko Takenouchi, Yuka Inoue, Shinsuke Kanekiyo, Yoshitaro Shindo, Satoru Miyano, Yusuke Nakamura, Kazuma Kiyotani. Characterization of the T cell repertoire by deep T cell receptor sequencing in tissues and blood from patients with advanced colorectal cancer. *Oncol Lett* 11, 3643-3649 (2016).
13. Christopher G. Chapman, Rui Yamaguchi, Kenji Tamura, Jerome Weidner, Seiya Imoto, John Kwon, Hua Fang, Poh Yin Yew, Susana R. Marino, Satoru Miyano, Yusuke Nakamura, Kazuma Kiyotani. Characterization of T-cell receptor repertoire in inflamed tissues of patients with Crohn's disease through deep sequencing. *Inflamm Bowel Dis* 22, 1275-1285 (2016).
14. Yuji Ikeda, Kazuma Kiyotani, Poh Yin Yew, Taigo Kato, Kenji Tamura, Kai Lee Yap, Sarah M Nielsen, Jessica L Mester, Charis Eng, Yusuke Nakamura, Raymon H Grogan. Germline PARP4 mutations in patients with primary thyroid and breast cancers. *Endocr Relat Cancer* 23, 171-179 (2016).
15. Matthias Leisegang, Boris Engels, Karin Schreiber, Poh Yin Yew, Kazuma Kiyotani, Christian Idel, Ainhoa Arina, Jaikumar Duraiswamy, Ralph R. Weichselbaum, Wolfgang Uckert, Yusuke Nakamura, Hans Schreiber. Eradication of Large Solid Tumors by Gene Therapy with a T-Cell Receptor Targeting a Single Cancer-Specific Point Mutation. *Clin Cancer Res* 22, 2734-2743 (2016).