2025 President's Commendation, Kanazawa University

Academic Category

IMAI Shota

Division of Nano Life Science, Graduate School of Frontier Science Initiative [Doctoral Level Section]

This award recognizes the successful establishment of a novel immune-regulatory platform that induces antigen-specific regulatory T cells (Tregs) in vivo by displaying peptide–MHC class II (pMHCII), IL-2, and TGF-β on the surface of exosomes. The work presents a new therapeutic strategy for autoimmune and allergic diseases that does not rely on conventional systemic immunosuppression. Owing to its high originality and significance in both basic and translational research, the achievement has received strong international recognition.

MIZUNO Kosuke

Division of Nano Life Science, Graduate School of Frontier Science Initiative [Doctoral Level Section]

To understand the principles of multicellular pattern formation, he designed artificial cell-cell communications and reconstructed the behavior of multicellular systems. In particular, the elucidation of pattern formation mechanisms driven by the coordination between secreted factors and cell adhesion represents a highly original achievement, supported by outstanding experimental techniques. This work has received high recognition both domestically and internationally.

KIMATA Kai

Division of Biological Science and Technology, Graduate School of Natural Science and Technology [Master's Level Section]

To enhance the accuracy of off-target prediction in CRISPR/Cas9 genome editing, he combined DNABERT—a DNA-sequence-trained adaptation of Google's BERT model—with epigenetic features, including histone methylation, histone acetylation, and ATAC-seq profiles. This integrated approach achieved high predictive performance and outperformed existing methods.

PUTRI KHARISMA SURYA

Division of Mathematical and Physical Sciences, Graduate School of Natural Science and Technology [Doctoral Level Section]

She proposed a novel Lagrange–Galerkin moving mesh method capable of accurately capturing the generation and propagation of spatially localized spike structures, and carried out a rigorous numerical analysis of the method. In the context of one-dimensional convection–diffusion problems, she derived theoretical conditions that prevent mesh overlap when mesh vertices are moved and established optimal error estimates for the numerical method. These achievements substantially advance the theoretical foundation of moving-mesh methods and demonstrate originality and outstanding analytical depth.

TAKAHASHI Rio

Division of Health Sciences, Graduate School of Medical Sciences [Master's Level Section]

She elucidated the selective suppression of hematopoiesis by IFN-γ and the proliferative advantage of HLA-deficient hematopoietic stem cell clones, clearly demonstrating a disease progression mechanism dependent on immunological attack. This research provides insights that could form the foundation for rare disease medicine and iPS cell-based therapies, holding significant potential to advance from understanding disease mechanisms to diagnostic method development and future drug discovery research.

SUGIYAMA Haruka

Division of Health Sciences, Graduate School of Medical Sciences [Master's Level Section]

She identified an "adapter protein" that controls the substrate specificity of protein phosphatase and demonstrated that different adapter proteins are involved in the dephosphorylation of different phosphorylated residues. These findings indicate that adapter proteins play a crucial role in phosphatase substrate specificity. This achievement received high international acclaim.

KASAMA Haruki

Division of Medicine, Graduate School of Medical Sciences [Doctoral Program]

He newly discovered that "Laeverin," previously known as a placenta-specific molecule, is expressed in cancer cells undergoing the metastatic process—such as circulating tumor cells (CTCs) in the blood and peritoneal seeding—in refractory metastatic cancers and recurrent cancers. Furthermore, using mouse models, he demonstrated the therapeutic efficacy of an antibody-drug conjugate (ADC) targeting Laeverin. These findings represent highly valuable and promising scientific achievements that open new avenues for treating refractory cancers.

ZHANG YUANYUAN

Division of Medicine, Graduate School of Medical Sciences [Doctoral Program]

She almost fully elucidated the mechanism by which pancreatic cancer acquires resistance to CDK4/6 inhibitors and demonstrated the efficacy of combination therapy with CDK4/6 inhibitors and anti-EGFR antibody drugs using animal models. These achievements have garnered high international acclaim and could serve as a catalyst for introducing molecularly targeted drugs into pancreatic cancer treatment.

FAN QIYAN

Division of Medicine, Graduate School of Medical Sciences [Doctoral Program]

Using a mouse model that visualizes the endoplasmic reticulum stress response, she demonstrated that non-neuronal cells are the primary sites of endoplasmic reticulum stress response activation in conditions such as traumatic brain injury and cerebral infarction. Furthermore, she revealed that vascular endothelial cells constitute the largest proportion of cells in which the endoplasmic reticulum stress response is induced. These findings have been published in internationally renowned academic journals and have received high acclaim both domestically and internationally.

ECHIGO Hiroaki

Division of Pharmacy, Graduate School of Medical Sciences [Doctoral Program]

Targeted alpha therapy using the radionuclide astatine-211 led to the development of a novel tumor-directed peptide exhibiting enhanced tumor accumulation and therapeutic efficacy. Incorporation of an albumin-binding moiety enabled precise modulation of pharmacokinetics, resulting in improved antitumor effects while minimizing adverse side effects. Furthermore, therapeutic efficacy was further enhanced through combination therapy with immune checkpoint inhibitors and was successfully demonstrated in an orthotopic brain tumor model. These achievements have been highly recognized both domestically and internationally, highlighting their potential for next-generation cancer therapy in nuclear medicine.

WANG YAN

Division of Pharmaceutical Sciences, Graduate School of Medical Sciences [Doctoral Level Section]

She focused on microplastics transported across national borders in the atmosphere, conducting collection and analysis over a one-year period at the Kanazawa University Wajima Air Monitoring Station. The results revealed that microplastics originating from the Asian continent were detected for the first time during the dominant winter monsoon period. Furthermore, it became clear that the transportation deposition of domestically generated microplastics during summer is also significant. This study represents the first report clarifying the environmental behavior of atmospheric microplastics in Japan's background regions.

NAGAOKA Mai

Division of Pharmaceutical Sciences, Graduate School of Medical Sciences [Doctoral Level Section]

The drug-metabolizing enzyme AADAC hydrolyzes the antifungal agent ketoconazole, generating toxic metabolites at the cellular level. In contrast, *in vivo*, AADAC reduces systemic ketoconazole exposure, thereby attenuating its inhibitory effect on adrenal steroidogenesis, and consequently conferring protection against ketoconazole-induced liver injury in mice. This study demonstrates the importance of organism-level analyses in elucidating the mechanisms of drug-induced liver injury and represents a significant contribution to the advancement of drug discovery and pharmaceutical safety evaluation.

BAI PENGCHU

Division of Pharmaceutical Sciences, Graduate School of Medical Sciences [Doctoral Level Section]

Carbonaceous aerosol, including organic carbon (OC) and elemental carbon (EC), collected from 2016 to 2021 were analyzed at the Kanazawa University Wajima Air Monitoring Station, which is capable of highly sensitive evaluation of the impacts of long-range transported air pollution. Elevated concentrations were observed during periods dominated by the East Asian winter monsoon, revealing the influence of combustion-related air pollution originating from the Asian continent. While EC concentrations showed a marked decrease, OC exhibited an increasing trend, suggesting the increasing importance of elucidating the environmental behavior of secondary carbonaceous aerosols.

YOKOSEKI Itsuki

Division of Pharmaceutical Sciences, Graduate School of Medical Sciences [Doctoral Level Section]

Using three-dimensional cultured human proximal tubule cells, he elucidated the mechanism by which activation of the nuclear receptor FXR suppresses the expression of the drug transporters OAT1 and OAT3. He also demonstrated that FXR agonists mitigate nephrotoxicity induced by nucleotide analogs, which results from intracellular accumulation mediated by these transporters. These findings deepen our understanding of mechanisms controlling renal transporters and provide crucial insights for developing preventive and therapeutic approaches, and have been highly recognized both domestically and internationally.

Arts and Athletics Category

TANIMOTO Sayuka

Division of Geosciences and Civil Engineering, Graduate School of Natural Science and Technology [Master's Level Section]

She won the first place women's triple jump at the 2025 All Japan University Track & Field Challenge Meeting.