

# World Premier International Research Center Initiative (WPI) FY 2024 WPI Project Progress Report (The center selected in and before FY2020)

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Research Center	Institute for the Advanced Study of Human Biology		
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Common instructions:

\* Unless otherwise specified, prepare this report based on the current (31 March 2025) situation of your WPI center.

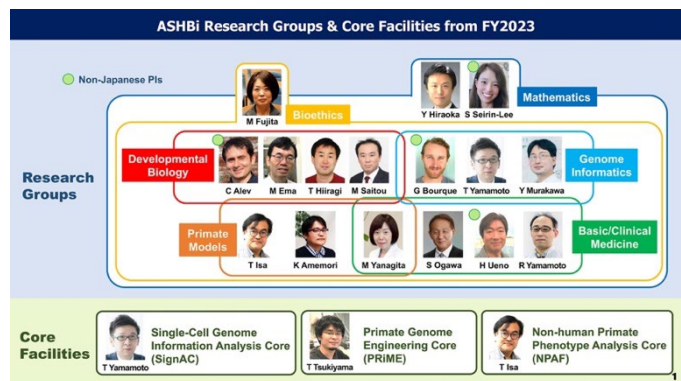
\* So as to execute this fiscal year's follow-up review on the "last" center project plan, prepare this report based on it.

\* Use yen (¥) when writing monetary amounts in the report. If an exchange rate is used to calculate the yen amount, give the rate.

➢ Prepare this report within 10-20 pages (excluding the appendices, and including Summary of State of WPI Center Project Progress (within 2 pages)).

## Summary of State of WPI Center Project Progress (write within 2 pages)

ASHBi has grown progressively as an institute that investigates the key concepts of human biology (see 1. **Advancing Research of the Highest Global Level**). ASHBi consists of 16 PIs and 3 core heads (4 non-Japanese PIs, 3 female PIs, 2 PIs co-appointed as core heads). As of April 2025, ASHBi consists of 72 researchers [non-Japanese: 32 (44%); female: 21 (29%)], 68 graduate students [non-Japanese: 24 (32%); female: 27 (36%)], and 35 supporting staff. The external funding acquired by ASHBi PIs in FY2024 was more than 2 billion yen. In FY2024, **Single-Cell Genome Information Analysis Core (SignAC)** has further strengthened its position as a leading core facility, by adding long-read sequencing to its services, which has resulted in >130 million yen in total revenue (see 3. **Realizing an International Research Environment** and 4. **Making Organizational Reforms**).



During FY2024, ASHBi published 82 papers. The representative papers include: "Temporal variability and cell mechanics control robustness in mammalian embryogenesis" *Science* (Hiragi, PRiME; **Focus Areas 2**), "In Vitro Reconstitution of Epigenetic Reprogramming in the Human Germ Line" *Nature* (Saitou, T. Yamamoto, SignAC; **Focus Areas 1, 2, and 4**), "Massively parallel characterization of transcriptional regulatory elements" *Nature* (Bourque/Inoue; **Focus Area 1**), "Stage-dependent role of interhemispheric pathway for motor recovery in primates" *Nat. Commun.* (Isa; **Focus Areas 2 and 3**), "An atlas of transcribed enhancers across helper T cell diversity for decoding human diseases" *Science* (Murakawa, Yanagita, Ueno, SignAC; **Focus Areas 1 and 2**), "Cingulate microstimulation induces negative decision-making via reduced top-down influence on primate fronto-cingulo-striatal network" *Nat. Commun.* (Amemori; **Focus Areas 2 and 3**), "CD21<sup>lo</sup> B cell subsets are recruited to the central nervous system in acute neuromyelitis optica" *Brain* (Ueno; **Focus Areas 1**), "scEGOT: single-cell trajectory inference framework based on entropic Gaussian mixture optimal transport" *BMC Bioinformatics* (Hiraoka, Saitou; **Focus Areas 1 and 2**), "Pathophysiological Mechanisms of the Onset, Development, and Disappearance Phases of Skin Eruptions in Chronic Spontaneous Urticaria" *Bull. Math. Biol.* (Seirin-Lee; **Focus Areas 2**), "The urgent need for clear and concise regulations on exosome-based interventions" *Stem Cell Rep.* (Fujita; **Focus Areas 5**), and "Amendments to ASRM: Can we move away from

a "Therapeutic Haven"?" *Stem Cell Rep.* (Fujita; **Focus Areas 5**) (see **1. Advancing Research of the Highest Global Level**). In recognition of their prominent research achievements, Yanagita received the **Bywaters Award 2024**, Saitou received the **29<sup>th</sup> Keio Medical Science Prize**, and **S. Ogawa** received the **Toyoichi Otawara Prize**.

Apart from the research activities of individual PIs, ASHBi has continued with the 5 Flagship Projects, including fusion studies with mathematics and with bioethics, which represent key research directions of ASHBi. These 5 Flagship Projects are: "Deconstruction and reconstruction of early primate development" (**Focus Areas 1, 2 and 4**), "Primate-genomics interdisciplinary research for developing new primate models" (**Focus Areas 1, 2, and 3**), "Age-associated genomic alterations of organ cells and their interplay with the local immune system" (**Focus Area 1**), "Establishment of 'data representation theory'" (**Focus Area 2**), and "Bioethics at the periphery of birth and death" (**Focus Area 5**). Although FY2024 marked the end of the current series of Flagship Projects, due to their overall success and based on the evaluation made by the external reviewer committee at the 3<sup>rd</sup> Flagship progress meeting, all Projects received approval for an extension of 3 additional years (see **2. Generating Fused Disciplines**).

In FY2024, ASHBi held 8 ASHBi colloquia with the 16 PI groups presenting their latest research results, and had about 120 ASHBi members participate in the ASHBi Retreat, with over 50 presentations in total including the poster session and active interactions between researchers and graduate students. Furthermore, ASHBi PIs held the 3<sup>rd</sup> and 4<sup>th</sup> biannual PI retreat, in which critical, constructive, and intensive discussions were made on the research themes and future directions of 3 ASHBi PIs and 1 guest PI from the Pasteur Institute (see **2. Generating Fused Disciplines**).

To create opportunities for the exchange of scientific ideas with international communities, ASHBi actively held international conferences and seminars. In FY2024, ASHBi organized 4 large-scale international meetings: "**The 3rd ASHBi SignAC Workshop - High-content epigenome analysis in the next phase**" in May 2024, "**The 1st ASHBi-KAIST Joint Workshop**" in October 2024, "**The 3rd ASHBi workshop for Mathematical Human Biology: Human Immunology**" in November 2024 and "**The Kyoto Immunology Symposium**" in February 2025. Additionally, 36 ASHBi seminars (each PI is required to organize at least one seminar per year inviting an overseas researcher) were held in total (see **3. Realizing an International Research Environment**).

With strong commitment to achieve gender-balance, at the executive/leadership level, ASHBi has added two female PIs (**Yanagita** and **Fujita**) as **Vice Directors** in FY2024. With the insights from the new board members, ASHBi anticipates further improving its research environment, especially with regard to gender balance. Additionally, with the "ASHBi Foreign and Female Researcher Recruitment Support Program", the number of female researchers has increased to ~30% (**4. Making Organizational Reforms**).

The ASHBi Administrative Office and Research Acceleration Unit have continued to provide effective support for all ASHBi research activities. Notably, the **13th WPI Science Symposium** was organized by the Research Acceleration Unit on November 16th at the Kyoto University Clock Tower. This was a bottom-up outreach event targeted towards high school students in order to foster more young aspiring scientists in Japan, attracting a total of approximately 300 participants, a third of which were high school students and their teachers (see **4. Making Organizational Reforms** and **6. Others**).

Due to these achievements of ASHBi, Kyoto University (KU) has remained committed to providing generous support for its long-term development and eventual autonomy even after the WPI term ends (see **5. Efforts to Secure the Center's Future Development over the Mid- to Long-term** and **7. Center's Response to Results of Last Year's Follow-up**).

- \* Describe clearly and concisely the progress being made by the WPI center project from the viewpoints below.  
 - In addressing the below-listed 1-6 viewpoints, place emphasis on the following:
- (1) Whether research is being carried out at a top world-level (including whether research advances are being made by fusing disciplines).
  - (2) Whether a proactive effort continues to be made to establish itself as a “truly” world premier international research center.
  - (3) Whether a steadfast effort is being made to secure the center’s future development over the mid- to long-term.

## 1. Advancing Research of the Highest Global Level

- \* Among the research results achieved by the center, concretely describe those that are at the world’s highest level. In Appendix 1, list the center’s research papers published in 2024.  
 \* Regarding the criteria used when evaluating the world level of center, note any updated results using your previous evaluation criteria and methods or any improvements you have made to those criteria and methods.

ASHBi continues to investigate the key traits that make us ‘human’ by emphasizing key concepts of human biology, with a strong emphasis on genome regulation and disease modeling. By understanding these key traits, it will allow for the potential future development of innovative therapeutic strategies for the treatment of human diseases. To this end, research at ASHBi specifically aims to:

1. Promote the study of human biology, with a focus on genome regulation
2. Clarify the principles defining the species differences and human traits
3. Generate primate models for intractable human diseases
4. Reconstitute key human cell lineages or tissues *in vitro*
5. Contribute to formalizing an international ethics standard for human biology research



The following papers represent the key publication achievements of ASHBi in FY2024:

The **Hiiragi group** published a manuscript entitled “Temporal variability and cell mechanics control robustness in mammalian embryogenesis” (*Science* 386, eadh1145, 2024) (**Focus Areas 2**).

Despite inherent variability and stochasticity during early stages of embryogenesis, mammalian embryos are still capable of undergoing robust development. In this study, the group use experimental and theoretical approaches to quantify morphogenetic reproducibility in early mammalian embryogenesis. By examining with live-imaging the 3D geometrical and topological structures of cell packing in preimplantation embryos of mouse, rabbit, and monkey, they show that embryos progressively transition towards low spatial variability using distinct mechanisms. Although they observed that temporal variability increased at a constant, species-specific rate during the first cleavage divisions, embryos achieved spatial convergence by the end of the 8-cell stage. By computationally quantifying spatial dynamics of embryos, they reveal that their shapes become increasingly similar over time, with cell packing progressively transitioning towards a few stable topologies. This convergence was driven by surface energy minimization during compaction that favor specific low-energy configurations, reducing spatial variability. The zona pellucida, while not essential for convergence, restricts the initial range of possible topologies, thereby allowing embryos to reach optimal configurations more efficiently. Experimental synchronization of cleavage timing at the 8- to 16-cell stage disrupted normal blastocyst patterning, underscoring the necessity of temporal variability for proper development. Hence, these findings reveal distinct mechanisms that lead progressively to low spatial variability between different embryos to ensure robustness in mammalian embryogenesis and demonstrate the potential adaptive benefits of stochastic processes in biological systems.

This work was the result of collaborations with **PRiME**.

The **Saitou group** published a manuscript entitled “In Vitro Reconstitution of Epigenetic Reprogramming in the Human Germ Line” (*Nature* 631, 170–178, 2024) (**Focus Areas 1, 2, and 4**).

Parental epigenetic memory needs to be reset —through a process known as epigenetic reprogramming— to allow the proper differentiation of primordial germ cells (PGCs) into mitotic pro-spermatogonia/oogonia and to ensure sexually dimorphic germ-cell development for totipotency. However, the precise mechanism of epigenetic reprogramming in humans remains unknown. In this study, the group established a robust strategy, using minimum defined conditions, for inducing epigenetic reprogramming and differentiation of pluripotent stem cell (PSC)-derived human PGC-like cells (hPGCLCs) into mitotic pro-spermatogonia or oogonia, coupled with their extensive amplification ( $>10^{10}$ -fold). They showed that bone morphogenetic protein (BMP) signaling is the key driver of this process; attenuating the mitogen-activated protein kinase/extracellular-regulated kinase (MAPK/ERK) pathway and both de novo and maintenance DNA methyltransferase (DNMT) activities to promote replication-coupled, passive DNA demethylation and coordinated activation of genes vital for spermatogenesis and oogenesis. They demonstrate that tens-eleven translocation (TET) 1, an active DNA demethylase abundant in human germ cells, not only safeguards hPGCLCs against differentiation into extraembryonic cells, including amnion, but is also required for the full activation of genes vital for spermatogenesis and oogenesis. Hence, these findings reveal the framework of epigenetic reprogramming in humans, and through the generation of abundant mitotic pro-spermatogonia and oogonia-like cells, thereby representing not only a fundamental advance in human biology, but a milestone for human *in vitro* gametogenesis research and its potential translation into reproductive medicine.

This work was the result of close collaborations with the T. **Yamamoto group** and **SignAC**.

The co-PI of the **Bourque group, Fumitaka Inoue**, published a manuscript entitled “Massively parallel characterization of transcriptional regulatory elements” (*Nature* 639, 411-420, 2025) (**Focus Area 1**).

Although sequence variations in transcriptional regulatory elements are a major cause of disease, determining the functional effects of millions of candidate cis-regulatory elements (cCREs) in the human genome remains challenging. In this study, Inoue and colleagues developed an optimized lentivirus-based massively parallel reporter assay (lentiMPRA) method capable of testing  $>200,000$  sequences per experiment, in a reliable and reproducible manner. They applied this method to functionally characterize the regulatory activity of more than 680,000 sequences, constituting a substantial fraction of annotated cCREs among three cell types (HepG2, K562 and WTC11). Of these sequences, 41.7% were found to be active and by testing them in both orientations, they found promoters to have strand-orientation biases with their 200-nucleotide cores functioning as non-cell-type-specific ‘on switches’ that provide similar expression levels to their associated gene. Whereas, enhancers had weaker orientation biases, but increased tissue-specific characteristics. Utilizing their lentiMPRA data, they established sequence-based models to predict cCRE function and variant effects with high accuracy, delineated regulatory motifs and modeled their combinatorial effects. Testing a lentiMPRA library covering 60,000 cCREs in all three cell types, further identified factors that determine cell-type specificity. Collectively, these datasets not only provide an extensive catalogue of functional CREs in three widely used cell lines but also extend our understanding of the regulatory code, variant effects, and regulatory element design for therapeutic delivery.

The **Isa group** published a manuscript entitled “Stage-dependent role of interhemispheric pathway for motor recovery in primates” (*Nat. Commun.* 15, 6762, 2024) (**Focus Areas 2 and 3**).

Despite damaged neurons rarely regenerating in adults, rehabilitation training has been shown to

recover impaired motor activity, indicating that a training-induced plasticity exists in the remaining neural circuitry. Although previous work from the group revealed a role for the ipsilesional sensorimotor cortex for recovery after lateral corticospinal tract (I-CST) lesioning (*Science* 318, 1150-1155, 2007), the precise pathway that activates ipsilesional sensorimotor cortex remains unclear. In this study, by chemogenetic pathway-specific blocking of macaque monkeys, the group identify that the interhemispheric pathway from the contralesional to ipsilesional premotor cortex is responsible for activating the ipsilesional sensorimotor cortex to promote recovery of dexterous hand movements. This was shown to be stage-dependent, as recovery was specific to the early recovery stage, but not to either the intact state or the late recovery stage. Electrocorticographical recordings demonstrated that action of the interhemispheric pathway changed from inhibition to facilitation, to involve the ipsilesional sensorimotor cortex in hand movements during the early recovery stage. These findings indicate a stage-dependent role of the interhemispheric pathway and therapeutic targeting of the early recovery stage after lesioning of the corticospinal tract.

The **Murakawa group** published a manuscript entitled, "An atlas of transcribed enhancers across helper T cell diversity for decoding human diseases" (*Science* 385, eadd8394, 2024) (**Focus Areas 1 and 2**).

Assay for transposase-accessible chromatin using sequencing (ATAC-seq) maps genome-wide chromatin accessibility, which is often used as a proxy for potential active chromatin regions. However, as active enhancers are bidirectionally transcribed, establishing a map of transcribed enhancers in single human cells would not only provide direct insights into cell-type specific gene regulation but also the genetic causes of disease. In this study, leveraging the unique cap signature of the RNA 5'-end, the group developed read-level prefiltering and transcribed enhancer call (ReapTEC), a new technique that enables simultaneous profiling of gene expression and enhancer activity by 5' single-cell RNA sequencing. Using ReapTEC, they accurately mapped the transcription start sites of mRNAs, long noncoding RNAs, and eRNAs in single cells in human CD4+ T cells, revealing their diverse cellular heterogeneity and differentiation trajectories. Integrating these data with single-cell chromatin profiles showed that active enhancers with bidirectional RNA transcription are highly cell type-specific, and disease heritability is highly enriched in these transcribed enhancers. The resulting cell type-resolved multimodal atlas of bidirectionally transcribed enhancers, was further linked to promoters using fine-scale chromatin contact maps, which enabled the systematic interpretation of genetic variants associated with a range of immune-mediated diseases. Disease-relevant enhancers were often active in specific subsets of CD4+ T cells, which was generally conserved across mammals but in some cases were primate-specific. The group also identified rare, uncharacterized CD4+ T cell types that contribute to the pathology of immune-mediated diseases. Hence, these findings provide a conceptual framework to pinpoint the genetic and cellular causes of human diseases.

This work was the result of close collaborations with the **Yanagita group**, **Ueno group**, and **SignAC**.

The **Amemori group** published a manuscript entitled, "Cingulate microstimulation induces negative decision-making via reduced top-down influence on primate fronto-cingulo-striatal network" (*Nat. Commun.* 15, 4201, 2024) (**Focus Areas 2 and 3**).

Despite major depressive disorder (MDD) affecting approximately 280 million people worldwide, the precise mechanisms underlying MDD remain incompletely understood. In this study, the group investigated the neural circuits underlying negative decision-making bias — a characteristic of MDD. Focusing on the fronto-cingulo-striatal (FCS) network, consisting of the dorsolateral prefrontal cortex (dlPFC), subgenual anterior cingulate cortex (sgACC) and striatum, they induced

negative bias in decision-making via microstimulation of the sgACC while macaque monkeys performed approach-avoidance conflict task. Simultaneously, they recorded local field potentials (LFPs) from multiple sites within the FCS network that revealed a significant reduction in beta-frequency oscillatory activity from the dlPFC to the ACC and striatum during stimulation-induced negative decision-making. As beta oscillations are associated with top-down control processes, this suggests that disruption in the top-down control of the dlPFC over the cingulo-striatal network can induce negative biases in decision-making, similar to that in MDD. Hence, this study provides important insights into the pathophysiology of depression and identifies potential avenues for developing targeted therapeutic intervention.

The **Ueno group** published a manuscript entitled "CD21lo B cell subsets are recruited to the central nervous system in acute neuromyelitis optica" (*Brain*, awaf086, 2025; doi: 10.1093/brain/awaf086) (**Focus Areas 1**).

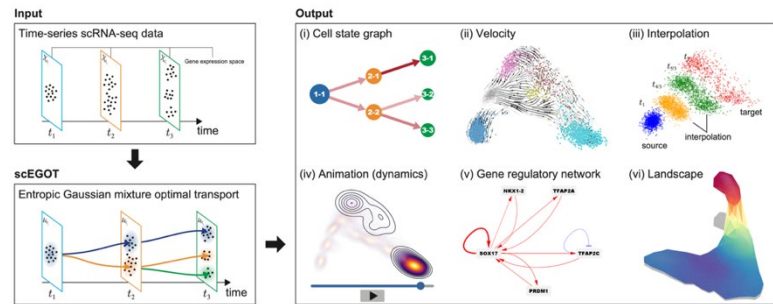
Neuromyelitis optica (NMO) is an acute inflammatory demyelinating disease of the central nervous system (CNS) that predominantly affects the eyes and spinal cord and is caused by the generation of astrocyte-targeted AQP4-immunoglobulin G (IgG). Although B lymphocytes play a central role in NMO pathogenesis, the precise location and mechanism of their altered response remains unclear. In this study, the group analyzed the immune cell populations in the cerebrospinal fluid (CSF) samples obtained from first-episode acute-phase NMO patients and compared them to patients with acute phase multiple sclerosis and other neurological diseases. They found that CD21lo B cell subsets were dominant in NMO patients' CSF, representing the major antibody-secreting cell (ASC) precursors in NMO, and were expressing markers associated with their CNS residency. They also identify two B helper T cell subsets were enriched in NMO patients' CSF, that are potentially interacting with ASC precursors in the CNS to induce the autoimmune response. These CD21lo B cell subsets were also found to be linked to disease relapse and AQP4-IgG production. Hence, these findings suggest that targeting CD21lo B cell subsets could lead to novel therapeutic strategies against NMO.

The **Yanagita group** published a manuscript entitled, "ATP dynamics as a predictor of future podocyte structure and function after acute ischemic kidney injury" (*Nat Commun.* 15, 9977, 2024).

Acute kidney injury (AKI), characterized by excessive proteins in urine or proteinuria, is commonly caused by ischemia. Podocytes are known to play a critical role in glomerular barrier function and require significant energy to maintain their structural and functional integrity *in vitro*. In this study, the group show, using intravital imaging and a FRET-based ATP biosensor expressed systemically in mice, that ATP levels decrease during short-term ischemia, but recover after reperfusion in podocytes. However, prolonged ischemia resulted in insufficient ATP recovery in podocytes, which led to mitochondrial fragmentation and foot process effacement in the chronic phase. Furthermore, by pharmacological inhibition of mitochondrial fission, they ameliorated podocyte injury *in vitro*, *ex vivo*, and *in vivo*. These findings indicate that ATP depletion and mitochondrial fragmentation contribute to podocyte injury after ischemic AKI, which may also serve as potential future therapeutic targets.

The **Hiraoka group** published a manuscript entitled "scEGOT: single-cell trajectory inference framework based on entropic Gaussian mixture optimal transport" (*BMC Bioinformatics* 25, 388-409, 2024) (**Focus Areas 1 and 2**).

Time-series single-cell RNA sequencing (scRNA-seq) has revealed significant insights into the processes of cell differentiation of various tissues/organs. Irrespectively, these datasets are still highly dependent on the frequency of reference time points taken (ie. a problem for rare human



samples) and it remains difficult to accurately infer dynamic lineage trajectories and distinguish intermediate states during cell differentiation, especially while maintaining a low computational cost. In this study, the group presents a novel comprehensive trajectory inference framework for single-cell data based on entropic Gaussian mixture optimal transport (EGOT) which they called scEGOT. They show that scEGOT can be used at low computational cost to generate various biological data outputs including cell state graphs, velocity fields of cell differentiation, time interpolations of single-cell data, space-time continuous videos of cell differentiation with gene expressions, gene regulatory networks, and reconstructions of Waddington's epigenetic landscape. As a proof-of-principle, they used time-series scRNA-seq data from the human primordial germ cell-like cell (human PGCLC) induction system and were able to identify precisely the PGCLC progenitor population and the bifurcation time point that segregates PGCLCs from somatic cell lineages. Their analysis also revealed potential roles of *NKX1-2*, *MESP1*, and *GATA6* during PGCLC differentiation. Hence, these findings demonstrate that scEGOT is a powerful framework for analyzing time-series single-cell data that can be utilized for diverse biological applications.

This work was the result of close collaborations with the **Saitou group**.

The **S. Seirin-Lee group** published a manuscript entitled, "Pathophysiological Mechanisms of the Onset, Development, and Disappearance Phases of Skin Eruptions in Chronic Spontaneous Urticaria" (*Bull. Math. Biol.* 87, 2025) (**Focus Areas 2**).

Urticaria is a common human-specific skin disease, characterized by the appearance of skin eruptions known as 'wheals' of various morphologies that are often distressingly itchy and can severely affect the quality of a patient's life. Chronic spontaneous urticaria (CSU) is a major subtype of urticaria that manifests as spontaneous appearance and disappearance of wheals on a potentially daily basis, yet currently has no clear ascribed cause. Building on their earlier work (*PloS Comput. Biol.* 16, e1007590, 2020; *Commun. Med.* 3, 171, 2023), in this study, the group show using mathematical modelling, that wheal formation dynamics and pathophysiological networks appear to have a hierarchical relationship which can be divided into three phases, namely onset, development, and disappearance. They suggest that CSU onset is associated with endovascular dynamics triggered by the positive feedback of basophils, whereas the developmental phase is under the regulation of mast cells through vascular gap formation. Hence, these findings provide insights into the potential mechanistic basis of CSU, which will facilitate improvements in the diagnosis and customized treatment of CSU patients.

The **Fujita group** published manuscripts entitled, "The urgent need for clear and concise regulations on exosome-based interventions" (*Stem Cell Rep.* 19, 1517-1519, 2024) and "Amendments to ASRM: Can we move away from a "Therapeutic Haven"?" (*Stem Cell Rep.* 19, 1648-1650, 2024) (**Focus Areas 5**).

Exosomes are membrane-bound extracellular vesicles that contain DNA, RNA, and/or proteins and have been implicated in various biological processes including intercellular communication. Due to such properties, exosomes have attracted interest for its therapeutic potential as diagnostic tools

and for clinical applications as a delivery system to target specific cells/tissues. Nevertheless, there are currently no exosome-based therapies that have been approved. In the former study, the group describe the current status of exosome-based interventions worldwide, with a specific focus on Japan, where the lack of a clear regulatory structure has resulted in malpractices at medical institutions and private clinics. These findings highlight the insufficient safety assurance and significant ethical concerns regarding patient protection in Japan. They also called for the International Society for Stem Cell Research (ISSCR) to take stronger leadership in establishing clearer regulations globally in order to improve patient protection, without impeding scientific advancement.

The Act on the Safety of Regenerative Medicine (ASRM), was established in November 2013 to provide oversight over research and therapies that involve cell-based medical procedures. Building on their previous work that reported the inadequacies of the ASRM (*Stem Cell Rep.* 18, 613-617, 2023a; *Stem Cell Rep.* 18, 2297-2299, 2023b), in the latter study, the group discusses the recent amendments made to the ASRM that expand its regulatory oversight to include certain types of gene therapy and strengthening the supervision of Certified Committees for Regenerative Medicine by the Ministry of Health, Labour, and Welfare. They also propose the importance of establishing an independent and specialized review system in Japan, as well as to collect and validate treatment outcomes to ensure safe, effective, and ethically sound regenerative medicine.

## 2. Generating Fused Disciplines

\* Describe the content of measures taken by the center to advance research by fusing disciplines. For example, measures that facilitate doing joint research by researchers in differing fields. If any, describe the interdisciplinary research/fused discipline that have resulted from your efforts to generate fused disciplines. You may refer to the research results described concretely in "1. Advancing Research of the Highest Global Level."

### ASHBi Flagship Projects (Top-down approach to generating fused disciplines)

ASHBi has continued to conduct its interdisciplinary fusion research between life sciences and mathematics (the **Hiraoka** and **Seirin groups**), and humanities/social sciences (the **Fujita group**). Furthermore, since FY2022, ASHBi established the so-called "**Flagship Projects**", which represent the key research directions of ASHBi and involve close collaborations among ASHBi PI groups. Accordingly, the key fusion research projects between life sciences and mathematics, and humanities/social sciences have been organized under this Flagship Project Framework. Although FY2024 marked the end of the current series of Flagship Projects, due to the overall success achieved and based on the evaluation report made by the external evaluation committee at the 3<sup>rd</sup> Flagship progress meeting, all Flagship projects have been approved for an extension of an additional 3 years (FY2025-FY2028). The progress and results of the five Flagship Projects in FY2024 are described below.

#### 1. Deconstruction and reconstruction of early primate development

Although various model organisms have served as excellent systems to understand how early embryonic development proceeds, precisely how this occurs in human and non-human primates still remains unclear. To this end, this Flagship, led by the Developmental Biology subdivision consisting of the **Alev**, **Em**, **Hiragi**, and **Saitou groups**, using a combination of *in vivo*, *ex vivo* and *in vitro* approaches, aim to understand the processes of early human and primate development (**Focus Areas 1, 2, and 4**). Specifically, this Flagship aims to achieve the following: 1) to explore the mechanism of post-implantation primate development at a single-cell resolution; 2) to develop *ex vivo* culture systems for analyzing the pre-/post-implantation development of mouse and monkey embryos; and 3) to perform *in vitro* reconstitution and analysis of pre-/post-implantation development of human and non-human primates.

In FY2024, the **Saitou group** has been finalizing their studies of *in vivo* models of primate development and provided valuable benchmarking datasets [scRNA-seq data for cynomolgus monkey embryos at embryonic days (E)15, 17, 19, 20, 21, and 23 (manuscript currently under preparation)] for comparison to *in vitro* models generated by other groups in the Developmental Biology subdivision. The **Ema group**, in collaboration with the **Hiiragi group**, have been investigating early peri-implantation development of non-human primates (NHPs), using advanced light-sheet microscopy and scRNA-seq analysis and have characterized the origins and development of the trophoectoderm and placenta in primates (manuscript currently under preparation). The **Alev group** has continued to construct *in vitro* models of human and non-human primate embryonic development, both integrated and non-integrated models, including next-generation axioids that have successfully reconstructed various aspects of human/primate axial development. In pursuit of modeling NHP implantation and peri-implantation development, the **Ema group** in collaboration with the **Alev group**, has established endometrial organoids, which are currently being further characterized.

The Developmental Biology subdivision has also been in close discussion with the **Bioethics group (Fujita group)** to establish guidelines for *in vitro* human embryo model research.

## 2. Primate-genomics interdisciplinary research for developing new primate models

Non-human primates (NHPs) share considerable genetic, structural, and functional similarities with humans, making them invaluable models for neuroscience and pathological studies. This Flagship Project, led by the Primate Models/Macaque Genome Engineering and the Genome Informatics subdivisions consisting of the **Amemori, Isa, Yanagita, Tsukiyama, T. Yamamoto, and Murakawa groups**, integrates advanced genome informatics and genetic engineering to create novel NHP models targeting key human diseases, specifically focusing on 1) anxiety disorders, 2) spinal cord injuries, and 3) kidney diseases (**Focus Areas 1, 2, and 3**).

In FY2024, the **Amemori and Murakawa groups** systematically analyzed the genetic foundations of anxiety disorders (AD) and major depressive disorder (MDD). By integrating genetic databases, such as Genome-Wide Association Studies (GWAS), with brain atlas databases, genes associated with AD were identified to be enriched in the ventral striatum (VS), whereas those linked with MDD were enriched in the ventral pallidum (VP). Chemogenetic manipulation of NHPs demonstrated that excessive inhibition of the VP by the VS can induce depression-like behaviors. Furthermore, single-nucleus RNA sequencing (snRNA-seq) of the globus pallidus and VP in NHPs identified cell types enriched with MDD-related genes.

The **Isa and Murakawa groups** investigated the genetic basis underlying the prominent neural plasticity observed in adult NHPs. Intensive training and electrical cortical stimulation led to rapid recovery and substantial plasticity of the corticospinal fibers after severe spinal cord injury (SCI). In FY2024, an SCI rat model was established, snRNA-seq analysis of corticospinal tract neurons has begun, and techniques to isolate cortical tissue for snRNA-seq analysis in NHPs were optimized. Proceeding forward, NHPs will be subjected to intensive training and transcranial magnetic stimulation (TMS) following SCI, in order to identify molecular targets that drive enhanced neural plasticity and recovery.

The **Yanagita, Murakawa, T. Yamamoto groups**, and **PRiME**, used the NPHP1 knockout model to investigate the pathophysiology of familial nephronophthisis (NPH). Characterization of the NPHP1 knockout model showed histological features resembling NPH in humans and the abnormal upregulation of signaling pathways. In FY2024, further analysis of potential upstream and downstream components within the candidate signaling pathways were conducted using *in vitro*

culture systems (manuscript currently under preparation).

### **3. Age-associated genomic alterations of organ cells and their interplay with the local immune system**

Cancer development can be considered as a consequence of the deterioration of the immune system, in part due to aging, and an increase in genomic alterations of pre-cancerous cells. However, how the dynamic interplay between pre-cancerous cells and the immune system operates in the local microenvironment remains unknown. To this end, this Flagship project, led by the Basic/Clinical Medicine subdivision consisting of the **Ueno, Murakawa, and S. Ogawa groups**, aims to achieve the following: 1) to establish the effect of aging on alterations in human-liver resident immune cells; 2) to establish the effect of aging on the genomic alterations in the human liver; 3) to determine the interplay between cancerous tissues and the local immune system in the autoimmune chronic cholestatic liver disease, primary sclerosing cholangitis (PSC) (**Focus Area 1**).

In FY2024, the **Ueno group** performed a comprehensive analysis of human liver immune cells, including CD4<sup>+</sup> T cells, by using high-parameter FCM, scRNAseq, scTCRseq, and spatial transcriptomics. To determine the best spatial transcriptomics platforms for the analysis of human liver tissue samples, the three platforms, CosMx, Xenium, and Merscope were compared. This revealed that 10X Genomics Xenium detected the highest number of transcript counts per cell and various immune-related genes per cell. Using Xenium, livers with biliary atresia were found to display tertiary lymphoid structures in the inflammatory sites. The **Ueno group** also showed that cytomegalovirus (CMV) infections significantly altered the composition of immune cell subsets in the human liver, whereby CD4<sup>+</sup> T cell subsets with cytotoxic profiles were actively suppressing the spread of CMV *in situ*. Furthermore, in collaboration with the **Murakawa group**, ~3.9 million cell scRNAseq data of human liver immune cells across gender and age will be generated, which utilizes an optimized method capable of identifying the donor of each cell based on donor common SNPs. The **Murakawa group** has developed a method to identify active enhancers using 5' scRNAseq data (ReapTEC), which will allow the identification of many enhancers unique to liver immune cell subsets. The **S. Ogawa group** obtained bile and tissue samples from PSC patients. Mutation rate analysis of single-cell cholangiocyte organoids suggested that mutation rates were not substantially increased in PSC cholangiocytes. Nevertheless, a PSC sample carrying extremely large clonal expansion in PSC-affected bile ducts with cancer driver gene mutations was found. Whole exome sequencing analysis of 405 LMD samples obtained from 9 PSC patients, identified 90 clones, of which 14 (15.6%) had acquired mutations in the IL-17 signaling pathway. Furthermore, 17 (19%) had acquired cancer driver mutations, yet 63 clones (70%) did not possess any known driver mutations.

### **4. Establishment of “data representation theory”**

The mathematics subdivision, consisting of the **Hiraoka and Seirin-Lee groups**, have worked in collaboration with the life sciences groups towards the goal of understanding mathematical structures (static and dynamic) underlying large and complex datasets and to develop informative descriptors tailored to the respective specific analyses (**Focus Area 2**). Toward this goal, in FY2024, this Flagship project has achieved the results described below.

The axioid system, established by the **Alev group**, develops through a distinct spatiotemporal expression pattern of genes. The **Hiraoka group** in collaboration with the **Alev group**, aims to identify novel genes with spatiotemporal expression patterns in axioids through scRNA-seq data analysis. Given that standard scRNA-seq data inherently lacks spatiotemporal information, an innovative methodology to reconstruct these structures from scRNA-seq data utilizing optimal

transport theory has been developed. Furthermore, a sophisticated clustering method has been established that is specifically designed for spatiotemporally reconstructed gene expression profiles. Application of this methodology to axioid data has successfully captured the temporal evolution of gene expression patterns corresponding to the dynamic morphological development of axioids. Further analysis also enabled the identification of previously uncharacterized genes displaying distinctive bordering and striping patterns through this gene clustering methodology.

While mammalian genomes are highly conserved, species differences exist in gene expression patterns and functions across cells. To better understand these species differences, the **Hiraoka group** in close collaboration with the **Saitou group**, developed a cross-species transcriptome analysis method based on Gromov-Wasserstein optimal transport. This method is designed to find genes with similar expression patterns across species by calculating gene-to-gene correspondences between RNA-seq data across species and also quantifying their differences. This approach was validated using bulk and single-cell RNA-seq data, which generated accurate gene-to-gene correspondences between humans and mice primordial germ cell-like cells (PGCLCs) induction processes and a phylogenetic tree-like dendrogram of six mammalian pluripotent stem cells.

The **Seirin-Lee group** has established a Skin Eruption Shape-based Parameter Inference System, that is capable of inferring a patient's pathophysiological state based on skin eruption morphology. This multimodal framework integrates mathematical modeling, machine learning, topological data analysis (persistent homology), *in vitro* experiments, and clinical data. A tool was first developed to infer model parameters from skin eruption morphology, which enabled the identification of patient-specific parameter sets that reflect individual pathophysiological states. By combining this tool with mathematical modelling, which incorporates drug interactions within the pathophysiological network, it is able to predict drug efficacy and optimize treatment frequency and dosage potentially even in clinical settings. Although this tool was developed for chronic urticaria; the mathematical approach and tool provides a general framework applicable to various skin diseases.

## 5. Bioethics at the periphery of birth and death

The bioethics group (**Fujita group**) works in collaboration with life sciences groups to explore philosophical and empirical approaches for making guidelines for the procurement and use of human tissues to further promote human biology (**Focus Area 5**). To this end, this Flagship focuses specifically on 1) aborted fetal tissues, 2) early postmortem tissues, and 3) the establishment of a research ethics consultation system within ASHBI.

Led by the **Fujita group**, an academic group comprising of philosophers, ethicists, and legal scholars, in collaboration with the **Saitou group** (ASHBI) and **Takashima group** (CiRA), have been diligently working to address ethical issues associated with fetal tissue research in Japan. As part of this effort, in FY2024, a report discussing ethical guidelines for the use of fetal tissues was drafted and submitted as a research paper for publication. The paper highlights that while the ISSCR's Informed Consent Standards for Human Fetal Tissue Donation for Research provide valuable guidance for countries like Japan, where regulatory frameworks still remain unclear, they do not necessarily take into account discrepancies in laws among different countries and therefore require further revision. Three key issues specific to Japan were identified, namely: 1) Minimizing donor burden through careful medical institution selection, 2) Assessing the need for male partner consent, and 3) Clarifying regulations on the use and disposal of deceased fetuses under the Ena (placenta) ordinance. This paper is currently under peer review.

To better understand the process of human aging, acquiring RNA and DNA from tissue samples of healthy older individuals shortly after death—before its degradation—is crucial. However, Japan

currently lacks clear regulations to conduct such studies, making it challenging to obtain suitable postmortem tissues. To address this matter, an interdisciplinary research project led by young researchers in bioethics and biology, aims to develop institutional guidelines for rapid autopsy research and to build a supporting research framework. In FY2024, efforts were focused on understanding public perceptions by analyzing social media discourse on medical death, which revealed a mix of reliable information and misinformation. These findings underscore the need to collaborate with trusted sources and improve the public's ability to identify misinformation. Furthermore, a public survey indicated that rapid autopsy may be as acceptable as other postmortem tissue studies. As efforts for public engagement, literature on deliberative democracy has also been reviewed in order to prepare for potential public dialogue.

Although research ethics consultation on advanced human biology research has been adopted by many universities and research institutes worldwide, it remains less established in Japan. Considering that ASHBi is at the forefront of human biology research in Japan, the **Fujita group** established a **Research Ethics Consultation System** to prevent ethical issues from arising and to ensure uninterrupted research progress at ASHBi. The Research Ethics Consultation System provides guidance on research ethics and legal compliance, with support from ASHBi PIs **Motoko Yanagita, Masatsugu Ema, Cantas Alev, and Spyros Goulas** (Scientific Advisor) for specialized cases. In FY2024, a dedicated consultation website was launched. Although the number of consultations remains low, increased awareness internally within ASHBi is evident from the gradually increasing inquiries.

### **ASHBi Fusion Research Grant Program (Bottom-up approach to generating fused disciplines)**

To better promote interdisciplinary research also between young researchers, the "ASHBi Fusion Research Grant Program" was established in 2019. To ensure interdisciplinary research, this program requires applicants to form a team consisting of different disciplines (math-biology, ethics-biology, or biology-biology). Applicants are also required to attend meetings held twice a year to evaluate the progress of their research projects. The duration of the program is between 1–3 years and the funding can be up to 3 million yen per year for each project. In FY2024, the 7th Workshop on ASHBi Fusion Research Grant was held on February 27, 2025, where three selected groups introduced their research achievements. The Tsujimura group and the Tsutsumi group finished their projects and introduced their achievements individually. The Okamoto group introduced their annual report and received approval for continuous funding support for FY2025. Following the workshop, participants enjoyed teatime and continued their meaningful discussion.

### **Institution-wide gatherings for generating interdisciplinary research**

The **ASHBi Retreat** FY2024 was held in-person at a hotel on the shores of Lake Biwa on January 31 - February 1 and was participated by approximately 120 ASHBi members and 2 invited external speakers. The 2-day program consisted of 10 oral and 43 poster presentations. Active interactions took place between researchers



and graduate students from different PI groups to enhance curiosity-driven interdisciplinary collaboration opportunities. This year's "Excellence in Research Award" was given to five winners

from best oral presentation and best poster. The five awardees received research grants of JPY300,000 in FY2025 to further their research.

The **ASHBi PI Retreat**, a discussion-oriented event to achieve a deeper mutual understanding among PIs, was held for the third and fourth time on June 19, 2024 and March 31, 2025. **Motoko Yanagita, Fumitaka Inoue, Ryo Yamamoto**, and one guest PI from Pasteur Institute gave a two-hour presentation on their scientific vision and ongoing projects in front of other ASHBi PIs.

The **ASHBi Colloquium** is held monthly to promote collaborative research within the Institute, with two members from PI groups presenting their ongoing research each time. This format allows speakers and participants with different research backgrounds to come together for discussion. In FY2024, 8 colloquia were held by 16 PI groups, leading to a total of 50 colloquia since 2019.

### 3. Realizing an International Research Environment

\* Describe what's been accomplished in the efforts to raise the center's recognition as a genuine globally visible research institute, along with innovative efforts proactively being taken in accordance with the development stage of the center, including the following points, for example:

- Efforts being developed based on the analysis of number and state of world-leading, frontline researchers (in Appendix 2); exchanges with overseas entities (in Appendix 4); number and state of visiting researchers (in Appendix 5)
- Proactive efforts to raise the level of the center's international recognition
- Efforts to make the center into one that attracts excellent young researchers from around the world (such as efforts fostering young researchers and contributing to advancing their career paths)

#### Core facilities to promote world-class research

ASHBi operates three core facilities as its fundamental infrastructure for human biology research.

**SignAC (Single-Cell Genome Information Analysis Core)** remains a leading core facility, that is actively engaged in pioneering research while providing state-of-the-art genomic and epigenomic analysis services. In FY2024, the core achieved significant technological advancements and expanded its range of services. Under the leadership of Core Head **Takuya Yamamoto** and Core Manager **Taro Tsujimura**, SignAC has further solidified its position as a key resource for researchers both inside and outside ASHBi. A pivotal achievement this year was the successful integration of the Revio long-read sequencer, which increased throughput by 12-fold and reduced data costs to one-third, enhancing our genome and epigenome analysis capabilities. In response to both the expanded capabilities of their sequencers and the increasing demand for high-resolution epigenomic analysis, SignAC has broadened its services offered, particularly long-read sequences. To improve accessibility and visibility, their website was revamped to streamline information and introduce a more user-friendly interface. These upgrades in technology and services led to continued revenue growth, with annual income rising to over ¥130,000,000, exceeding the previous year and highlighting the increasing impact and value of SignAC as a research core facility. In addition, SignAC has actively engaged in research to develop new methods for single-cell epigenome analysis including the development of techniques for analyzing 3D genome architecture and DNA methylation. Furthermore, SignAC has promoted collaborative research through its involvement in the AMED BINDS project, as well as its outreach and knowledge-sharing initiatives such as the international "3rd ASHBi SignAC Workshop," attracting over 100 researchers to foster active exchange and collaboration among leading experts in the field.



**PRiME (Primate Genome Engineering Core)** is a domestic satellite of ASHBi located in RCALS (Research Center for Animal Life Science), at Shiga University of Medical Science. RCALS

possesses a large primate colony (~700 cages) and state-of-the-art technologies for animal reproduction. **Tomoyuki Tsukiyama** is the Core Head and has two skilled staff specializing in animal reproduction and breeding management. To address the recent increase in the purchase cost of cynomolgus monkeys, PRiME plans to establish its own breeding program to ensure a stable supply at a reasonable cost. PRiME plans to commence in-house breeding at a rate of approximately once a month and aims to produce 10 new macaques annually from FY2025. During FY2024, in parallel with the development of genetically modified macaques, they conducted four oocyte retrieval procedures as a pilot program for in-house breeding. This resulted in 14 embryo transfers, leading to one successful birth and one ongoing pregnancy. This program will enable ASHBi researchers to obtain monkeys for their experiments at reasonable prices even after the WPI program funding ends.

**NPAF (Non-human Primate Phenotype Analysis Facility)** is a facility dedicated to analyze phenotypes of genome-edited monkeys, that is located within the KU medical school campus and is a five-minute walk from the ASHBi. **Tadashi Isa** supervises the overall operation of the facility, and **Hiroataka Onoe** manages the genome-edited monkey research, along with two researchers, one PhD student and two technical staff who conduct behavioral analysis through video recording and eye movement measurements, physiological measurements through EEG and MRI etc., and two support staff who are responsible for animal health, feeding, and cage cleaning.

### Internationalization of PIs, researchers, and students

ASHBi has actively been engaged in recruiting and promoting outstanding non-Japanese PIs. Currently, 4 out of 16 PIs (25%) are of foreign nationality (Alev, Bourque, Seirin-Lee, and Ueno). Furthermore, to increase the number of non-Japanese PIs, ASHBi is working together with KU headquarters to request MEXT to allocate five tenure positions. If this request is approved, plans will commence to expand ASHBi as a research organization in FY2026. In addition, to recruiting promising Junior PIs, ASHBi plans to work closely with KU's "HAKUBI Project," which recruits 20 talented young researchers from around the world annually.



To further increase the number of female/non-Japanese researchers, ASHBi will continue to utilize the "ASHBi Foreign and Female Researcher Recruitment Support Program" established in 2019. Through this program, PIs can receive a personnel cost of up to 5.5 million yen to hire new non-Japanese or female researchers. This support has contributed to increasing the ratio of non-Japanese researchers to 44% and the ratio of female researchers to 29% as of April 2025.

Additionally, to increase the number of international students, ASHBi has continued to utilize the "ASHBi Financial Support Program for International Graduate Students" established in 2020. This program provides a monthly stipend of 150,000 yen to support the living expenses of international students enrolled in a master's or doctoral course. Furthermore, ASHBi also has the "McGill-Kyoto International Joint PhD Program in Genomic Medicine". By combining these two programs, the ratio of international students has reached 32% and the ratio of female students to 36% as of April 2025.

### Collaboration with world-leading research institutions/organizations

ASHBi has established institutional collaboration agreements with world-renowned research institutions/organizations, including **EMBO** (the European Molecular Biology Organization), **ISSCR**

(the International Society for Stem Cell Research), the **Max Delbrück Center for Molecular Medicine** (Berlin, Germany), the **Jackson Laboratory** (Bar Harbor, US), and the **Institut Pasteur** (Paris, France). Notably, the **Pasteur International Unit**, headed by **Cantas Alev**, was established within ASHBi and commenced collaborations in the fields of stem cell, developmental, and integrative biology in FY2024.

### Research exchanges via international conferences/seminars

In FY2024, ASHBi hosted 4 large-scale international meetings: **"The 3rd ASHBi SignAC Workshop - High-content epigenome analysis in the next phase"** in May 2024, **"The 1st ASHBi-KAIST Joint Workshop"** in October 2024, **"The 3rd ASHBi workshop for Mathematical Human Biology: Human Immunology"** in November 2024 and **"The Kyoto Immunology Symposium"** in February 2025. Furthermore, 36 ASHBi seminars (each PI is required to organize at least one seminar per year inviting an overseas researcher), 8 ASHBi colloquia, and 6 **Research Acceleration Program Seminars** were also held. Since its launch in October 2018, ASHBi has hosted over 310 events.

Additionally, in October 2024 and February 2025, **Mitunori Saitou** co-organized the Cold Spring Harbor Laboratory Meeting on "Germ Cells" and **Hideki Ueno** co-organized the 22<sup>nd</sup> Science Foundation Symposium on Bioscience on "Unraveling the Human Immune System: Exploring Norms in Health and Alterations in Diseases", respectively.

### Dissemination of international scientific news releases

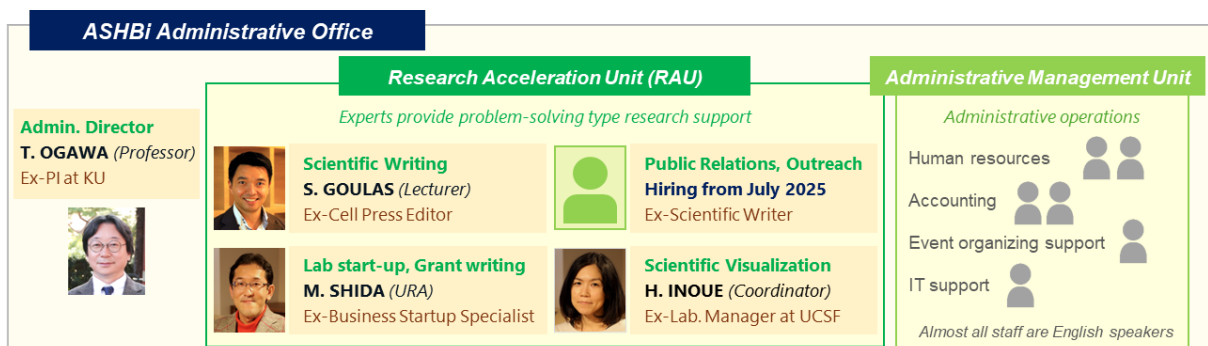
To enhance the international visibility of ASHBi, ASHBi has actively disseminated science news releases through "EurekAlert!". We strive to produce press releases with easy-to-understand titles, illustrations and images that capture public interest, along with clear, jargon-free, research stories. In FY2024, press releases for 14 research papers have been posted to EurekAlert! and to the ASHBi website. To further strengthen the international dissemination of science news from ASHBi, one non-Japanese professional science writer with a PhD will be joining the Research Acceleration Unit as an assistant professor in July 2025.

## 4. Making Organizational Reforms

- \* Describe the system reforms made to the center's research operation and administrative organization, along with their background and results.
- \* Describe the measures you've taken and results achieved in implementing the center's gender-balance plan. Describe also your measures/results for fostering researchers with a view to achieving your gender plans and for conducting domestic and international promotion activities to attract female researchers to the center.
- \* If innovated system reforms generated by the center have had a ripple effect on other departments of the host institutions or on other research institutions, clearly describe in what ways.
- \* Describe the center's operation and the host institution's commitment to the system reforms. (Include measures taken by the host institution to provide a support system and to work toward improving the environment for achieving gender balance.)

### Flexible and problem-solving support to accelerate ASHBi's research

The ASHBi Administrative Office provides effective support for ASHBi researchers. The office comprises two units managed by **Tadashi Ogawa**. The Administrative Management Unit handles regular administrative operations, such as human resources and accounting. In contrast, the **"Research Acceleration Unit (RAU)"**, comprising of 3 specialists, offers a unique flexible and



problem-solving type support. **Spyros Goulas** is a former editor at Cell Press, **Makoto Shida** is a business startup specialist, and **Hiroshi Inoue** has extensive experience and skills as a lab manager at UCSF. Additionally, one more expert will join in July 2025 to focus on writing scientific news articles. These specialists have significantly enhanced ASHBI's research environment through their experience and highly specialized skills.

Utilizing their expertise, RAU specialists organize seminars as part of the Research Acceleration Program to strengthen the research capabilities of young researchers and students. Most of these seminars are held online making it accessible to young researchers not only in KU but also in other universities. In FY2024, RAU organized seminars on topics such as "**How to become a Professional Editor at a Scientific Journal – from an Ex-Cell Press Editor**" by Goulas on September 27, 2024, "**KAKENHI Writing Seminar for Early-stage Researchers**" by Shida on August 2, 2024 and "**Secrets of Effective News Releases for Global Reach – Insights from "EurekaAlert!" and WPI Institutes –**" by Inoue on June 20, 2024. These seminars have typically attracted participants from more than 100 academic institutions nationwide, thereby contributing to the development of young researchers throughout Japan.

### **ASHBI's gender balance initiatives**

ASHBI is committed to achieving the gender-balance within the institute. At the executive level, two female PIs (**Yanagita** and **Fujita**) have been promoted to **Vice Directors** in FY2024, thereby improving the gender balance of ASHBI's leadership. Leveraging the new board member's insights, ASHBI aims to further enhance its environment and operations to further improve gender balance. In addition, the "**ASHBI Foreign and Female Researcher Recruitment Support Program**" has also led to an increase in the ratio of female researchers within ASHBI to 30%. Furthermore, a childcare service was introduced at the ASHBI Retreat to accommodate researchers with young children to enable both parents, if researchers, to have opportunities to actively participate in presentations and discussions.

## **5. Efforts to Secure the Center's Future Development over the Mid- to Long-term**

- \* Address the following items, which are essential to mid- to long-term center development:
  - Future prospects with regard to the research plan, research organization and PI composition; prospects for achieving gender balance; prospects for fostering and securing of next-generation researchers.
  - Prospects for securing resources such as permanent positions and revenues; plan and/or implementation for defining the center's role and/or positioning the center within the host institution's institutional structure
  - Measures to sustain the center as a world premier international research center after program funding ends
  - Host institution's organizational reforms carried out for the center's autonomous administration simultaneously with the creation of the center.

To ensure the continuity of ASHBI's research activities after the WPI program funding, KU will provide various support as described below.

### **KU's personnel support to maintain the Institute PIs**

- KU has provided 7 tenure professorship positions to ASHBI by April 2024, two at the establishment of ASHBI to **Mitunori Saitou** and **Yasuaki Hiraoka** and five after its establishment. Three of the five positions were assigned to **Cantas Alev**, **Yasuhiro Murakawa**, and **Seirin-Lee**. With the remaining two positions potentially being allocated to **Ken-ichi Amemori** and **Ryo Yamamoto**, who are currently undergoing tenure evaluation.

### **KU's financial support**

- While half of the indirect funds obtained by KU researchers are allocated to the University headquarters, KU allows ASHBI to retain this portion as a special measure of financial support.
- KU will provide financial support to enable ASHBI PI to hire at least one post-doctoral fellow after the WPI program funding ends.
- To ensure sustainability and continued development of SignAC beyond the WPI program funding,

KU will turn SignAC as a university-wide shared facility and take responsibility for its personnel and operating expenses.

- To maintain ASHBi's administrative functions (including Research Acceleration Unit) after the WPI program funding ends, KU will provide a special budget to cover the personnel and operating costs of the ASHBi Administrative Office.

### **KU's system reforms for the ASHBi's autonomous administration**

- KU recognizes the importance of granting a high degree of autonomy to ASHBi and its Director by placing the institute within the special framework of the Kyoto University Institute for Advanced Study (KUIAS).
- To secure the employment of outstanding researchers regardless of age, ASHBi/KUIAS has been permitted to hire researchers who have passed the university's mandatory retirement age (65 years old) as faculty members. This systemic reform was extended to some other departments within KU since FY2022.
- To provide flexibility in the salary of tenured faculty members, which are currently determined by standard university regulations, a special allowance that can be added at the discretion of the institute has been introduced and effective at ASHBi. This allowance system was also extended to the entire university in FY2023 as part of the university-wide reforms.
- KU allows ASHBi to carry over a portion of its budget to the following fiscal year, enabling for more flexible multi-year budget management.

## **6. Others**

\* Describe what was accomplished in the center's outreach activities last year and how the activities have contributed to enhancing the center's "globally visibility." In Appendix 6, describe concretely the contents of these outreach activities. In Appendix 7, describe media reports or coverage, if any, of the activities.

\* In addition to the above 1-5 viewpoints, if there is anything else that deserves mention regarding the center project's progress, note it.

## **The 13th WPI Science Symposium**

ASHBi organized the **13th WPI Science Symposium** as an outreach event for high school students on November 16th at the Kyoto University Clock Tower. The symposium attracted **301 participants**, including speakers and presenters, with one-third being high school students and their teachers. The symposium comprised two parts: science talks and a poster session. During the science talks, three WPI researchers from WPI-Bio2Q, WPI-PRIME, and WPI-ASHBi presented their research. In the poster session, **77 high school students from 19 high schools**, together with the graduate students and researchers from each WPI institute, presented their work. A networking lunch provided an opportunity for many students to interact with WPI researchers to seek advice and comments.

## **7. Center's Response to Results of Last Year's Follow-up**

\* Transcribe the item from the "Actions required and recommendations" section in the site visit report and the Follow-up report, then note how the center has responded to them.

\* If you have already provided this information, indicate where in the report.

### ***Actions required and recommendations in the Follow-up report***

***1) Reevaluating the NHP Project: ASHBi has made remarkable progress in human developmental biology and the establishment of primate-based models, alongside groundbreaking research into hereditary diseases caused by single-gene mutations. However, as many human diseases are polygenic, there is a pressing need to advance research into genetic regulation in polygenic diseases to address their complex nature.***

**Response 1.** We agree that understanding the genetic basis of polygenic diseases is important and are currently actively addressing this matter. The **Murakawa** group has recently developed ReapTEC (Oguchi et al. *Science* 2024), a new method that identifies active enhancers and gene expression at single-cell resolution, which was applied to >one million human helper T cells to build a high-resolution enhancer atlas. This not only uncovered novel T cell subtypes and ~600 disease-associated enhancers linked to immune diseases through GWAS integration, but also resolved enhancer–gene interactions, identifying the genetic regulation of polygenic diseases, thereby revealing their complex biological underpinnings. As part of the **ASHBi Flagship Projects**, this approach has now been extended to neuropsychiatric disorders, where >one million brain cells from cynomolgus monkeys are being profiled in collaboration with the **Amemori** and **Isa groups**. These enhancer maps, conserved between monkeys and humans, are being integrated with psychiatric GWAS to pinpoint candidate regulatory elements, with *in vivo* validation planned using non-human primate models.



*2) Focusing on Human-Specific Biological Features: A deeper focus on identifying human-specific biological traits through non-human primate studies is crucial. Enhancing multi-omics analysis—particularly for proteins and metabolites will enable a more comprehensive understanding of cellular function. Additionally, to ultimately understand what makes us human, the group should recognize the importance of integrating investigations of social and psychological dimensions to gain a more holistic understanding of human biology in its future direction.*

**Response 2.** The **Saitou group** has been in close collaboration for several projects (e.g., Murase et al., *Nature* 2024) with **Prof. Yasushi Ishihama** in the Graduate School of Pharmaceutical Sciences at Kyoto University, who has strong expertise in proteomics. Moving forward, **SignAC** will establish a collaboration framework with Prof. Ishihama to implement his expertise in proteomics for ASHBi.

The **Yanagita group**, using non-human primates, currently aims to integrate transcriptome with metabolomics analyses to achieve a more comprehensive understanding of changes in disease states. Furthermore, they are planning to employ non-targeted metabolomics analysis of human plasma and urine to confirm metabolic changes that are indicative of human diseases.

The **Amemori group**, in collaboration with **Murakawa group**, has initiated a multidisciplinary study focusing on the socio-emotional aspects of anxiety and depression. This study aims to elucidate primate-specific neural processes underlying social evaluation and affective regulation by investigating how the limbic circuitry responds in macaques upon exposure to socially dominant human individuals. The **Isa group** is currently investigating the responses of DISC1 KO monkeys to the human intruders. They found deficits in social behavior, specifically with KO monkeys showing less attention to the intruder, whereas the WT monkeys tended to be more frequently responding to the intruder. These behaviors are now being linked with fMRI-based analysis to brain network connectivity and they will collaborate with psychiatrists to examine the medical relevance of these phenotypes.

*3) Building a Sustainable Research Foundation: Sustaining ASHBi's innovative research requires long-term support for its Research Acceleration Unit and core facilities. Financial support from Kyoto University will be pivotal in ensuring the institute's future, particularly for completing the new building, which will serve as a cornerstone of ASHBi's research infrastructure.*

**Response 3.** To provide long-term support for the Core Facility (SignAC) and the Administrative Office (including the Research Acceleration Unit), KU will turn SignAC into a university-wide shared facility to cover its personnel and operational costs and provide a special budget to maintain the functions of the Administrative Office. In addition, for the further development of ASHBi as an

international research hub, KU is currently requesting tenure posts and budget to MEXT for the expansion of new foreign PI labs and organizational support of foreign researchers. In addition, to construct a new building to house these labs, KU has also requested a construction budget to MEXT with a high priority. If these budget requests are approved, the process of expanding ASHBI and construction of the new building is expected to commence in FY2026.

#### ***Actions required and recommendations in the Site Visit report***

**4) Multi-omics Analysis:** *Significant advancements have been made in single-cell level gene expression profiling. However, progress in profiling proteins and metabolites has lagged. This imbalance may result in overlooking crucial information that could provide a more comprehensive understanding of cellular functions and interactions.*

See **Response 2**

**5) Monkey Projects:** *The macaque model of kidney disease requires a thorough analysis to identify its similarities and differences with human kidney disease. Adjustments in the neurobiological research questions are necessary, despite the high quality of the technology used. Strong genetic evidence has shown that DISC1 is not associated with schizophrenia, psychosis, or other psychiatric disorders. Therefore, it is recommended to reframe the DISC1 project as a basic science initiative. Similarly, the project on anxiety disorders, which are polygenic and heterogeneous, is weaker compared to the impressive studies on motor system regeneration and decision-making. The latter projects justify the investment in macaques due to their exploration of primate-specific features.*

**Response 5.** As has been suggested, the **Isa group** has shifted to studying the DISC1 KO projects as basic neuroscience research to clarify the biological function of DISC1, particularly in the context of regulating frontal lobe functions, and how to improve their neuropsychiatric deficits through neuromodulatory treatments. They are also planning to establish another line of genome-edited macaque monkeys based on the data derived from large-scaled genetic analysis. The **Amemori group** is aware of the polygenic and heterogeneous nature of anxiety disorders (AD). To this end, they have identified AD-related circuits showing correlations with multiple AD-associated genes by integrating GWAS data with spatial gene expression profiles (Karunakaran et al., *Transl. Psychiatry*, 2023). Using chemogenetics (DREADDs), they have also established causal links in non-human primates (Oh et al., *under review*). Furthermore, they recognize the importance of primate-specific features in AD and have examined limbic–prefrontal interactions, revealing mechanisms by which the primate-specific prefrontal cortex (PFC) modulates AD-like symptoms (S. Amemori et al., *Nature Communications*, 2024).

**6) Human Biology:** *While research on non-human primates has advanced significantly, studies on the key biological traits that distinguish humans have not progressed as expected. ASHBI should enhance its focus on this area. Proposing systematic combinations of joint research could efficiently study diverse aspects of human biology.*

**Response 6.** To identify the genetic factors responsible for human-specific biological traits, the **Bourque-Inoue group** has currently in progress the following research projects. 1) The analysis of thousands of human-specific mutations for their regulatory function using lentiMPRA technology, a high-throughput technology developed in their lab. This project will provide a comprehensive catalog of genetic changes that make us human. 2) The establishment of comparative epigenomic method using the human pangenome. This will allow more precise identification of functional elements that are polymorphic in the human population. 3) The identification and functional analysis of transposable elements (TEs) that are associated with primate genome evolution. This project aims to uncover the critical roles of TEs in human genome evolution by leveraging bioinformatics approaches, to precisely analyze their divergence and epigenetic states, as well as CRISPR editing.

Apart from the **Bourque-Inoue group**, ASHBi also has the **Flagship Projects** and **Fusion Research Grant Program** as mentioned above, to promote the study of diverse aspects of human biology. For example, Developmental Biology subdivision is investigating human embryonic and germ cell development, and Primate-Genomics subdivision and Basic/Clinical Medicine subdivision are studying human tissue samples such as brain, kidney, and immune cells which will ultimately reveal human-specific biological traits in the future.

*7) International Research Activities: The exceptional personnel and interdisciplinary research outcomes at ASHBi are invaluable assets. Long-term maintenance of support systems such as core facilities and the Research Acceleration Unit is crucial for conducting advanced research in an international environment. Discussions should commence to establish a sustainable ecosystem for ASHBi.*

See **Response 3**

*8) Publicity Information Activities: The high level of scientific achievements by this WPI demonstrates successful design, recruitment, and management. It is important to communicate not only the research results but also the effective management strategies to the Japanese scientific community in an accessible manner.*

**Response 8.** We made efforts to spread the new initiatives developed at ASHBi both internally and externally outside of the University. For example, the Research Acceleration Unit presents ASHBi's initiatives annually at a nationwide conference of the **Research Management and Administrator Network Japan** (<https://www.rman.jp/english/>). In addition, online workshops and seminars to improve the research activity skills of early-career researchers have been created and distributed to universities across Japan (<https://ashbi.kyoto-u.ac.jp/office/research-acceleration-program/>). Some of ASHBi's initiatives have already been adopted by other departments at KU. The key design of the **ASHBi Fusion Research Grant Program**, in which researchers from different disciplines apply in pairs, has been incorporated into a new collaborative research program launched by the Graduate School of Biostudies.

*9) Support from KU: Currently, ASHBi's running costs are covered by the indirect costs of obtained research funds, but this is not sustainable long-term. While reliance on research funds is acceptable for large projects, there will be periods when external funding is scarce. Consistent financial support from the host institution is necessary. The plan to construct a new building and allocate 2500 square meters to ASHBi is commendable, but it should be realized by the next fiscal year.*

**Response 9:** KU has committed to providing consistent financial support to sustain ASHBi's research activities, including the operating costs of the core facility (SignAC) and the administrative office (including Research Acceleration Unit) and post-doctoral employment expenses (see **5. Efforts to Secure the Center's Future Development over the Mid- to Long-term**). Furthermore, KU is actively requesting more tenure posts and budget to MEXT for expanding new foreign PI labs and constructing a new building (see **Response 3**).

# Appendix 1 FY 2024 List of Center's Research Results and Main Awards

## 1. Refereed Papers

- List only the Center's papers published in 2024. (Note: The list should be for the calendar year, not the fiscal year.)

(1) Divide the papers into two categories, A and B.

A. WPI papers

List papers whose author(s) can be identified as affiliated with the WPI program (e.g., that state "WPI" and the name of the WPI center (WPI-center name)). (Not including papers in which the names of persons affiliated with the WPI program are contained only in acknowledgements.)

B. WPI-related papers

List papers related to the WPI program but whose authors are not noted in the institutional affiliations as WPI affiliated. (Including papers whose acknowledgements contain the names of researchers affiliated with the WPI program.)

Note: On 14 December 2011, the Basic Research Promotion Division (the Basic and Generic Research Division at present) in MEXT's Research Promotion Bureau circulated an instruction requiring paper authors to include the name or abbreviation of their WPI center among their institutional affiliations. From 2012, the authors' affiliations must be clearly noted.

(2) Method of listing paper

- List only refereed papers. Divide them into categories (e.g., original articles, reviews, proceedings).

- For each, write the author name(s); year of publication; journal name, volume, page(s) (or DOI number), and article title. Any listing order may be used as long as format is consistent. (The names of the center researchers do not need to be underlined.)

- If a paper has many authors (say, more than 10), all of their names do not need to be listed.

- Assign a serial number to each paper to be used to identify it throughout the report.

- If the papers are written in languages other than English, underline their serial numbers.

- Order of Listing

A. WPI papers

1. Original articles

2. Review articles

3. Proceedings

4. Other English articles

B. WPI-related papers

1. Original articles

2. Review articles

3. Proceedings

4. Other English articles

(3) Submission of electronic data

- In addition to the above, provide a .csv file output from the Web of Science (e.g.) or other database giving the paper's raw data including Document ID. (Note: the Document ID is assigned by paper database.)

- The papers should be divided into A or B categories on separate sheets, not divided by paper categories.

(4) Use in assessments

- The lists of papers will be used in assessing the state of WPI project's progress.

- They will be used as reference in analyzing the trends and whole states of research in the said WPI center, not to evaluate individual researcher performance.

- The special characteristics of each research domain will be considered when conducting assessments.

(5) Additional documents

- After all documents, including these paper listings, showing the state of research progress have been submitted, additional documents may be requested.

**NOTE: The articles published after Jan 2025 in blue for reference.**

### A WPI Papers

#### 1. Original Articles

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- 3) Chiba, A., **Yamamoto, T.**, Fukui, H., Fukumoto, M., Shirai, M., Nakajima, H., & Mochizuki, N. (2025). Zonated Wnt/b-catenin signal-activated cardiomyocytes at the atrioventricular canal promote coronary vessel formation in zebrafish. **Developmental Cell**, 60(1), 18.

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- 4) Fujioka, S., Fujioka, M., Imoto, Y., Harada, Y., Yoshitomi, H., Kubo, M., **Hiraoka, Y.**, & **Ueno, H.** (2025). Single-cell multiomic analysis revealed the differentiation, localization, and heterogeneity of IL10+ Foxp3<sup>+</sup> follicular T cells in humans. *International Immunology*. doi:10.1093/intimm/dxaf014
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- 8) Kitai, Y., Toriu, N., Yoshikawa, T., Sahara, Y., Kinjo, S., Shimizu, Y., Sato, Y., Oguchi, A., Yamada, R., Kondo, M., Uchino, E., Taniguchi, K., Arai, H., Sasako, T., Haga, H., Fukuma, S., Kubota, N., Kadowaki, T., Takasato, M., **Murakawa, Y.**, & **Yanagita, M.** (2025). Female sex hormones inversely regulate acute kidney disease susceptibility throughout life see. *KIDNEY INTERNATIONAL*, 107(1), 68-83. doi:10.1016/j.kint.2024.08.034
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- 15) **Seirin-Lee, S.**, Takahagi, S., & Hide, M. (2025). Pathophysiological Mechanisms of the Onset, Development, and Disappearance Phases of Skin Eruptions in Chronic Spontaneous Urticaria. *Bull. Math. Biol.*, 87(1). doi:10.1007/s11538-024-01380-3
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## 2. Invited Lectures, Plenary Addresses (etc.) at International Conferences and International Research Meetings

- List up to 10 main presentations during FY 2024 in order from most recent.
- For each, write the date(s), lecturer/presenter's name, presentation title, and conference name.

Date(s)	Lecturer/Presenter's name	Presentation title	Conference name
2025/2/7	Hideki Ueno	Human Liver Immunology	22 <sup>nd</sup> Takeda Science Foundation Symposium on Bioscience, Osaka, Japan
2025/2/5	Sungrim Seirin-Lee	Mathematical dermatology based on skin eruption morphology connected to <i>in vivo</i> pathophysiological states.	ANZIAM2025, Coffs Harbour, Australia
2024/11/7	Yasuhiro Murakawa	An atlas of transcribed enhancers across helper T cell diversity for decoding immune-mediated diseases	Cold Spring Harbor Conferences Asia Frontiers in Single Cell Genomics, Awaji, Japan
2024/10/27	Tadashi Isa	Roles of mesolimbic and mesofrontal dopaminergic pathway for motor recovery and decision making	2024 CHANG Hsiang-Tung Symposium, Shanghai, China
2024/10/24	Motoko Yanagita	Tertiary Lymphoid Tissues and AKI Progression	American Society of Nephrology Kidney Week 2024, San Diego, USA
2024/10/13	Ken-ichi Amemori	Why Is It Hard to Feel Motivated for Unpleasant Tasks? Regulating Anxiety and Depression through Physiological and Genetic Approaches in Primates	Reward, Motivation, and Beyond: Neural Basis of Communication, Part 2, Sendai, Japan
2024/9/25	Cantas Alev	Towards reconstituting human and non-human primate axial development <i>in vitro</i>	12 <sup>th</sup> GSCN Conference, Friedrich Schiller University, Jena, Germany
2024/9/24	Misao Fujita	Ethical considerations and public perception of <i>in vitro</i> gametogenesis: Insights from a Japanese survey	The Uehiro-MCRI-Oxford Conference, Kyoto, Japan
2024/9/19	Mitinori Saitou	<i>In Vitro</i> Reconstitution of epigenetic reprogramming in the human germ line	Cold Spring Harbor Laboratory, Cold Spring Harbor, USA
2024/9/6	Takashi Hiiragi	Optimality for developmental robustness	PRBB/CRG Conference at Barcelona Biomedical Research Park, Barcelona, Spain
2024/7/14	Guillaume Bourque	Human genome 2.0: why a pangenome graph is better for genetic and epigenetic analyses.	32 <sup>nd</sup> International Conference on Intelligent Systems for Molecular Biology (ISMB), Montréal, Canada.
2024/6/18	Yasuaki Hiraoka	scEGOT: Single-cell trajectory inference framework based on entropic Gaussian mixture optimal transport	The 9 <sup>th</sup> Pacific Rim Conference in Mathematics, Darwin, Australia
2024/6/6	Seishi Ogawa	Somatic mosaicism and cancer	The 42 <sup>nd</sup> Sapporo International Cancer Symposium, Sapporo, Japan

### 3. Major Awards

- List up to 10 main awards received during FY 2024 in order from the most recent.
- For each, write the date issued, the recipient's name, and the name of award.
- In case of multiple recipients, underline those affiliated with the center.

Date	Recipient's name	Name of award
2025/3/13	Seishi Ogawa	Toyoichi Otawara Prize
2024/11/20	Mitinori Saitou	The 29th Keio Medical Science Prize
2024/4/16	Motoko Yanagita	International Society of Nephrology (ISN) Bywaters Award 2024
	Guillaume Bourque	2020 – 2027 Canada Research Chair (Tier 1)

## Appendix 2 FY 2024 List of Principal Investigators

NOTE:

\*Underline names of principal investigators who belong to an overseas research institution.

\*In the case of researcher(s) not listed in the latest report, attach a "Biographical Sketch of a New Principal Investigator"(Appendix 2a).

\*Enter the host institution name and the center name in the footer.

		<Results at the end of FY2024>				Principal Investigators Total: 16	
Name	Age	Affiliation (Position title, department, organization)	Academic degree, specialty	Effort (%)*	Starting date of project participation	Status of project participation (Describe in concrete terms)	Contributions by PIs from overseas research institutions
Center director SAITOU Mitinori	54	Professor, Kyoto University Institute for Advanced Study, Kyoto University	Cell Biology, Developmental Biology	90%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Center Director and Executive Board member	
Cantas ALEV	50	Professor Institute for the Advanced Study of Human Biology (WPI-ASHBi) Kyoto University	Developmental Biology	100%	Jul.1, 2019	Usually stays at the center and participates in the center's activities	
AMEMORI Ken-ichi	51	Associate Professor Institute for the Advanced Study of Human Biology (WPI-ASHBi) Kyoto University	Neuroscience	100%	Sep. 1, 2020	Usually stays at the center and participates in the center's activities	
<u>Guillaume BOURQUE</u>	48	Professor, Human Genetics, McGill University	Bioinformatics, Genomics, Epigenomics	25%	Oct.30, 2018	Stays at Kyoto University 3 times per year for 3-4 weeks	Student Exchange utilizing McGill-Kyoto International Joint Program in Genomic Medicine
EMA Masatsugu	56	Professor, Department of Stem Cells and Human Disease Models, Research Center for Animal Life Science, Shiga University of Medical Science	Developmental Biology, Developmental Engineering	70%	Oct.30, 2018	Usually stays at the center and participates in the center's activities	
Vice director FUJITA Misao	55	Professor, Center for iPS Cell Research and Application, Kyoto University	Bioethics	70%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Vice Director and Executive Board member	
<u>HIRAGI Takashi</u>	57	Group Leader/ Professor Hubrecht Institute, Professor, Graduate School of Medicine, Kyoto University	Developmental Biology	23%	Oct.30, 2018	Stays at the center every 2-3 months and participates in the center's activities	

Vice director HIRAOKA Yasuaki	47	Professor, Kyoto University Institute for Advanced Study, Kyoto University	Applied Mathematics	70%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Vice Director and Executive Board member	
ISA Tadashi	64	Professor/Dean, Graduate School of Medicine, Kyoto University	Neuroscience	80%	Oct.30, 2018	Usually stays at the center and participates in the center's activities	
MURAKAWA Yasuhiro	42	Professor Kyoto University Institute for Advanced Study, Kyoto University	HumanGenomics, Medical Science, Systems Biology	100%	Sep. 1, 2020	Usually stays at the center and participates in the center's activities	
OGAWA Seishi	63	Professor, Department of Pathology and Tumor Biology, Graduate School of Medicine, Kyoto University	Molecular Oncology	90%	Oct.30, 2018	Usually stays at the center and participates in the center's activities	
Sungrim SEIRIN-LEE	47	Professor Institute for the Advanced Study of Human Biology (WPI-ASHBi) Kyoto University	Mathematical Biology&Medicine, Mathematical modeling, Applied Mathematics	100%	Oct.1, 2021	Usually stays at the center and participates in the center's activities	
Vice director Hideki UENO	57	Professor, Graduate School of Medicine, Kyoto University	Immunology	95%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Vice Director and Executive Board member	
YAMAMOTO Ryo	49	Associate Professor Institute for the Advanced Study of Human Biology (WPI-ASHBi) Kyoto University	Hematology	100%	Apr. 1, 2020	Usually stays at the center and participates in the center's activities	
Core Head (SignAC) YAMAMOTO Takuya	47	Professor, Department of Life Science Frontiers, Center for iPS Cell Research and Application, Kyoto University	Molecular Biology, Bioinformatics	80%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Executive Board member	
Vice director YANAGITA Motoko	55	Professor, Graduate School of Medicine, Kyoto University	Nephrology	70%	Oct.30, 2018	Usually stays at the center and participates in the center's activities as Vice Director and Executive Board member	

\*Percentage of time that the principal investigator devotes to working for the center vis-à-vis his/her total working hours.

**Principal investigators unable to participate in project in FY 2024**

Name	Affiliation (Position title, department, organization)	Starting date of project participation	Reasons	Measures taken

## **Appendix 2a Biographical Sketch of a New Principal Investigator**

(within 3 pages per person)

**Name (Age)**

**Affiliation and position** (Position title, department, organization, etc.)

**Academic degree and specialty**

**Effort** %

\* Percentage of time that the principal investigator devote to working for the center vis-à-vis his/her total working hours.

**Research and education history**

**Achievements and highlights of past research activities**

**Achievements**

**(1) International influence** \* Describe the kind of attributes listed below.

- a) Recipient of international awards
- b) Member of a scholarly academy in a major country
- c) Guest speaker or chair of related international conference and/or director or honorary member of a major international academic society in the subject field
- d) Editor of an international academic journal
- e) Peer reviewer for an overseas competitive research program (etc.)

**(2) Receipt of major large-scale competitive funds (over the past 5 years)**

**(3) Major publications (Titles of major publications, year of publication, journal name, number of citations)**

**(4) Others (Other achievements indicative of the PI's qualification as a top-world researcher, if any.)**

## Appendix 3-1 FY 2024 Records of Center Activities

### 1. Researchers and center staff, satellites, partner institutions

#### 1-1. Number of researchers in the "core" established within the host institution

- Regarding the number of researchers at the Center, fill in the table in Appendix 3-1a.

##### Special mention

- Enter matters warranting special mention, such as concrete plans for achieving the Center's goals, established schedules for employing main researchers, particularly principal investigators.
- As background to how the Center is working on the global circulation of world's best brains, give good examples, if any, of how career paths are being established for the Center's researchers; that is, from which top-world research institutions do researchers come to the Center and to which research institutions do the Center's researchers go, and how long are their stays at those institutions.
- KU has provided 7 tenure professorship positions to ASHBi by April 2024, two at the establishment of ASHBi (Saitou and Hiraoka PIs) and five after its establishment. Three of the five positions were assigned to Alev, Murakawa, and Seirin PIs. The remaining two are potentially allocated for Amemori and Ryo-Yamamoto PIs, who are currently undergoing tenure evaluation. Currently, 4 out of 16 PIs (25%) are foreign nationality (Alev, Bourque, Seirin-Lee, and Ueno).
- Furthermore, to increase the number of female/non-Japanese PIs, we are working together with KU headquarters to request MEXT to allocate five tenure positions. If this request is approved, we plan to commence the expansion of our research organization in FY2026. In addition, to recruit promising Junior PIs, the Institute plans to work closely with KU's "HAKUBI Project," which annually recruits 20 talented young researchers from around the world.
- To further increase the number of female/non-Japanese researchers, we continue to utilize the "ASHBi Foreign and Female Researcher Recruitment Support Program" established in 2019. Through this program, PIs can receive a personnel cost of up to 5.5 million yen to hire new non-Japanese or female researchers. This support contributed to increase the ratio of non-Japanese researchers to 44% and the ratio of female researchers to 29% as of April 2025.

#### 1-2. Satellites and partner institutions

- List the satellite and partner institutions in the table below.
- Indicate newly added and deleted institutions in the "Notes" column.
- If satellite institutions have been established overseas, describe by satellite the Center's achievements in coauthored papers and researcher exchanges in Appendix 4.

##### <Satellite institutions>

Institution name	Principal Investigator(s), if any	Notes
Shiga University of Medical Science	Masatsugu Ema	Primate Genome Editing Core (PRiME) is located in the Satellite (Core Head: Tomoyuki Tsukiyama)

##### < Partner institutions >

Institution name	Principal Investigator(s), if any	Notes

### 1-3. Postdoctoral Positions through Open International Solicitations

- In the columns "number of applications" and "number of selections," put the total number (upper) and the number and percentage of overseas researchers in the < > brackets (lower).

Fiscal year	Number of applications	Number of selections
FY 2024	47	8
	<38, 80.8%>	<4, 50%>

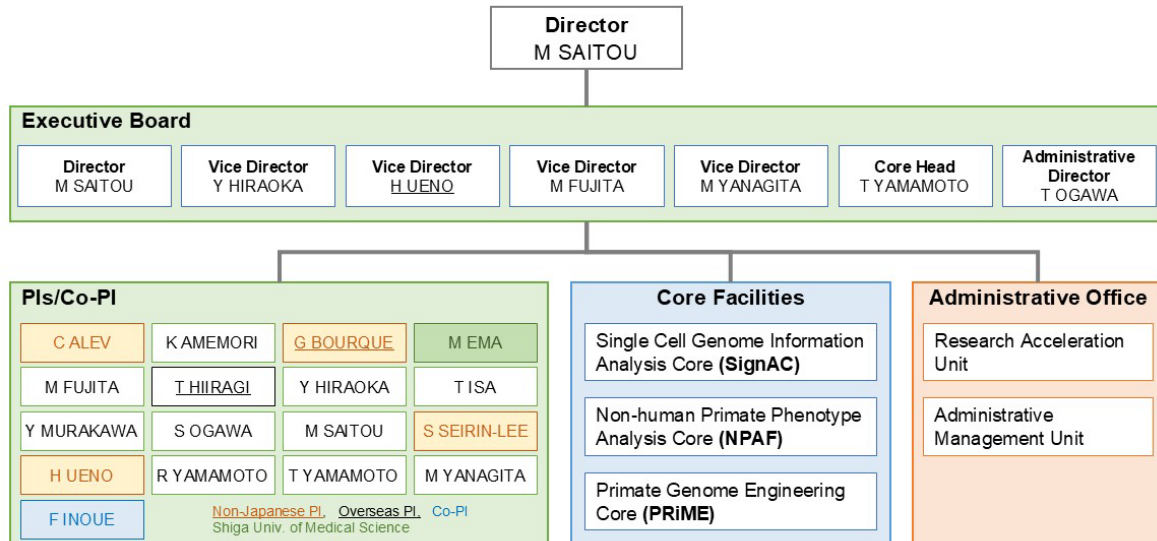
## 2. Holding international research meetings

- Indicate the number of international research conferences or symposiums held in FY2024 and give up to three examples of the most representative ones using the table below.

FY 2024: 3 meetings	
Major examples (meeting titles and places held)	Number of participants
<b>The Kyoto Immunology Symposium</b> February 10 – 12, 2025 Shirankaikan, Kyoto University	<b>Total:</b> From domestic institutions: 135 From overseas institutions: 18 <b>Speakers:</b> From domestic institutions: 4 From overseas institutions: 14
<b>The 1st ASHBi-KAIST Joint Workshop</b> October 3 – 5, 2024 Shirankaikan, Kyoto University	<b>Total:</b> From domestic institutions: 77 From overseas institutions: 15 <b>Speakers:</b> From domestic institutions: 6 From overseas institutions: 11
<b>The 3rd ASHBi SignAC Workshop</b> High-content epigenome analysis in the next phase May 15, 2024 Shirankaikan, Kyoto University	<b>Total:</b> From domestic institutions: 158 From overseas institutions: 5 <b>Speakers:</b> From domestic institutions: 5 From overseas institutions: 2

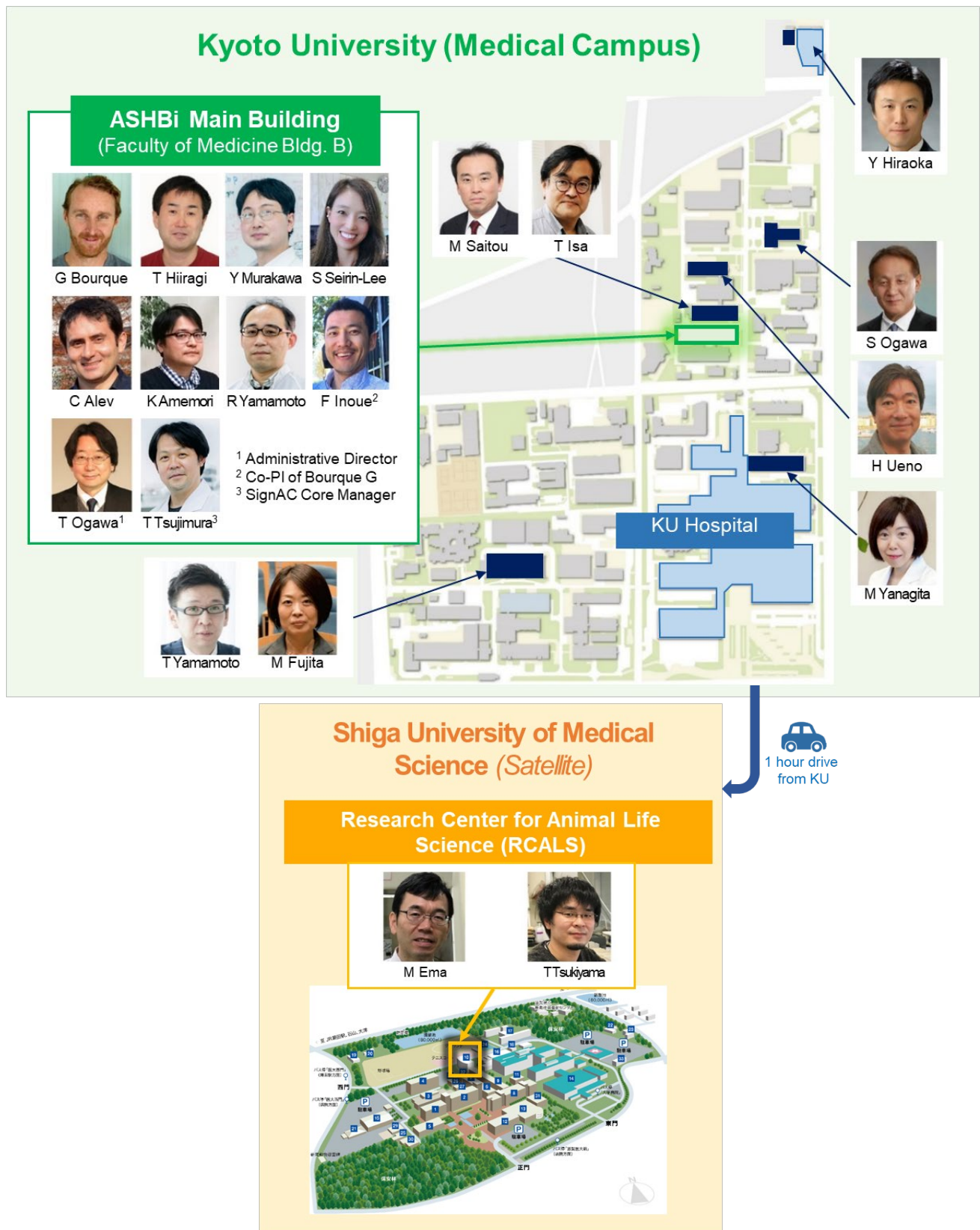
### 3. Diagram of management system

- Diagram the center's management system and its position within the host institution in an easily understood manner.
- If any new changes have been made in the management system from that in the latest "center project" last year, describe them. Especially describe any important changes made in such as the center director, administrative director, head of host institution, and officer(s) in charge at the host institution (e.g., executive vice president for research).



#### 4. Campus Map

- Draw a simple map of the campus showing where the main office and principal investigator(s) are located.



## 5. Securing external research funding\*

External research funding secured in FY2024

Total: 2,038,349,153 yen

- Describe external funding warranting special mention. Include the name and total amount of each grant.

\* External research funding includes "KAKENHI," funding for "commissioned research projects," "joint research projects," and for others (donations, etc.) as listed under "Research projects" in Appendix 3-2, Project Expenditures.

[Breakdown according to type of funding]

Type of Funding	Funding Amount
Grants-in-Aid for Scientific Research (KAKENHI)	397,691,544 yen
Commissioned Research Projects	1,157,515,228 yen
Joint Research Projects	203,639,177 yen
Others (Donation funds, etc)	279,503,204 yen
<b>Total* (total for above mentioned)</b>	<b>2,038,349,153 yen</b>

[Acquired large-scale research grants (30,000,000+ yen)]

Organization	Fund name	PI	Funding amount
AMED	Japan Initiative for World-leading Vaccine Research and Development Centers (Support institutions)	Hideki Ueno	241,526,650
AMED	Moonshot Research and Development Program	Seishi Ogawa	115,000,000
KAKENHI	Grant-in-Aid for Specially Promoted Research	Mitinori Saitou	113,100,000
AMED	Leading Advanced Projects for medical innovation	Motoko Yanagita	105,200,000
KAKENHI	Grant-in-Aid for Specially Promoted Research	Seishi Ogawa	89,000,000
Open Philanthropy	Open Philanthropy Fund	Mitinori Saitou	79,020,475
Company	Collaborative research	Motoko Yanagita	52,948,173
Company	Collaborative research	Seishi Ogawa	51,962,329
Foundation	Research Fund	Misao Fujita	48,842,329
AMED	Practical Research for Innovative Cancer Control	Seishi Ogawa	43,000,000

AMED	Moonshot Research and Development Program	Motoko Yanagita	40,000,000
Company	Collaborative research	Ryo Yamamoto	32,404,958
AMED	Multidisciplinary Frontier Brain and Neuroscience Discoveries	Tadashi Isa	31,000,000
AMED	Research Program on Hepatitis	Hideki Ueno	30,500,000

## Appendix 3-1a FY 2024 Records of Center Activities

### Researchers and other center staff

#### Number of researchers and other center staff

\* Fill in the number of researchers and other center staff in the table below.

\* Describe the final goals for achieving these numbers and dates when they will be achieved described in the last "center project."

#### a) Principal Investigators

(full professors, associate professors or other researchers of comparable standing)

(number of persons)

	At the beginning of project	At the end of FY 2024	Final goal (Date: March, 2025)
Researchers from within the host institution	8	13	13
Researchers invited from overseas	4	2	2
Researchers invited from other Japanese institutions	1	1	1
<b>Total principal investigators</b>	<b>13</b>	<b>16</b>	<b>16</b>

#### b) Total members

	At the beginning of project		At the end of FY 2024		Final goal (Date: March, 2025)	
	Number of persons	%	Number of persons	%	Number of persons	%
Researchers	13	/	67	/	70	/
Overseas researchers	4	31	29	43	26	37
Female researchers	3	23	19	28	21	30
Principal investigators	13	/	16	/	16	/
Overseas PIs	4	31	4	25	4	25
Female PIs	3	23	3	19	3	19
Other researchers	0	/	21	/	27	/
Overseas researchers	0	0	5	24	8	30
Female researchers	0	0	4	19	9	33
Postdocs	0	/	30	/	27	/
Overseas postdocs	0	0	20	67	14	52
Female postdocs	0	0	12	40	9	33
Research support staffs	2	/	26	/	22	/
Administrative staffs	3	/	32	/	30	/
<b>Total number of people who form the "core" of the research center</b>	<b>18</b>	<b>/</b>	<b>125</b>	<b>/</b>	<b>122</b>	<b>/</b>

	At the beginning of project		At the end of FY 2024		Final goal (Date: March, 2025)	
	Number of persons	%	Number of persons	%	Number of persons	%
Doctoral students	-	/	85	/	90	/
Employed	-	0.0	12	14.1	20	22.2

※b) The number of doctoral students in the lower table can be duplicated in the upper table of overall composition.

## Appendix 3-2 Project Expenditures

### 1) Overall project funding

\* In the "Total costs" column, enter the total amount of funding required to implement the project, without dividing it into funding sources.

\* In the "Amount covered by WPI funding" column, enter the amount covered by WPI within the total amount.

\* In the "Personnel," "Project activities," "Travel," and "Equipment" blocks, the items of the "Details" column may be changed to coincide with the project's actual content.

(Million yens)

Costs (Million yens)

Cost items	Details (For Personnel - Equipment please fill in the breakdown of fiscal expenditure, and the income breakdown for Research projects.)	Total costs	Amount covered by WPI funding
Personnel	Center director and administrative director	30	4
	Principal investigators (no. of persons):14	174	39
	Other researchers (no. of persons):43	235	205
	Research support staff (no. of persons):72	134	134
	Administrative staff (no. of persons):43	121	73
	Subtotal	694	455
Project activities	Research startup costs	25	0
	Fusion Research startup cost	65	65
	Cost of satellite organizations, etc.	111	78
	Cost of international symposiums	27	17
	Rental fees for facilities	23	2
	Cost of utilities	15	1
	Cost of maintenance of Core Facility	95	23
	Cost of Young Researcher Foster programs	4	2
	Cost of outreach	7	3
	Cost of maintenance contracts	35	17
	Cost of consumables, etc.	19	7
	Other costs	0	0
	Subtotal	426	215
Travel	Domestic travel costs	1	1
	Overseas travel costs	4	4
	Travel and accommodations cost for invited scientists	3	2
	Travel cost for scientists on transfer	0	0
	Subtotal	8	7
Equipment	Cost of laboratory maintenance (repair work, etc.)	15	12
	Cost of open laboratory equipments maintenance, etc.	13	11
	Subtotal	28	23
Research projects (Detail items must be fixed)	Project supported by other government subsidies, etc. *1	17	0
	KAKENHI	398	0
	Commissioned research projects, etc.	1,158	0
	Joint research projects	204	0
	Others (donations, etc.)	279	0
	Subtotal	2,056	0
	Total	3,212	700

#### WPI grant in FY 2024

700

Costs of establishing and maintaining facilities

10

Repairing facilities

10

(Number of facilities:2 , 2,040 m<sup>2</sup>)

Costs of equipment procured

2

Washing tank

1

(Number of units:1)

Digital SLR camera

1

(Number of units:1)

\*1. Management Expenses Grants (including Management Enhancements Promotion Expenses (機能強化経費)), subsidies etc., indirect funding, and allocations from the university's own resources.

\*2 When personnel, travel, equipment (etc.) expenses are covered by KAKENHI or under commissioned research projects or joint research projects, the amounts should be entered in the "Research projects" block.

\*1 運営費交付金(機能強化経費を含む)、各種補助金、間接経費、その他大学独自の取組による学内リソースの配分等による財源

\*2 科研費、受託研究費、共同研究費等によって人件費、旅費、設備備品等費を支出している場合も、その額は「研究プロジェクト費」として計上すること

Kyoto University -1

Institute for the Advanced Study of Human Biology (WPI-ASHBi)

Appendix 3-2

### 2) Costs of satellites

(Million yens)

Cost items	Details	Total costs	Amount covered by WPI funding
Personnel	Principal investigators (no. of persons):1	/	/
	Other researchers (no. of persons):3		
	Research support staff (no. of persons):1		
	Administrative staff (no. of persons):0		
	Subtotal	30	20
Project activities	Subtotal	35	35
Travel	Subtotal	0	0
Equipment	Subtotal	23	23
Research projects	Subtotal	23	0
	Total	111	78

Kyoto University -2

Institute for the Advanced Study of Human Biology (WPI-ASHBi)

## Appendix 4 FY 2024 Status of Collaboration with Overseas Satellites

### 1. Coauthored Papers

- List the refereed papers published in FY 2024 that were coauthored between the center's researcher(s) in domestic institution(s) (include satellite institutions) and overseas satellite institution(s). List them by overseas satellite institution in the below blocks.
- Transcribe data in same format as in Appendix 1. Italicize the names of authors affiliated with overseas satellite institutions.
- For reference write the Appendix 1 item number in parentheses after the item number in the blocks below. Let it free, if the paper is published in between Jan.-Mar. 2025 and not described in Appendix 1.

#### Overseas Satellite 1 Name (Total: OO papers)

- 1)
- 2)
- 3)
- 4)

#### Overseas Satellite 2 Name (Total: OO papers)

- 1)
- 2)
- 3)
- 4)

## 2. Status of Researcher Exchanges

- Using the below tables, indicate the number and length of researcher exchanges in FY 2024. Enter by institution and length of exchange.
- Write the number of principal investigator visits in the top of each space and the number of other researchers in the bottom.

### Overseas Satellite 1:

<To satellite>

	Under 1 week	From 1 week to 1 month	From 1 month to 3 months	3 months or longer	Total
FY2024					

<From satellite>

	Under 1 week	From 1 week to 1 month	From 1 month to 3 months	3 months or longer	Total
FY2024					

### Overseas Satellite 2:

<To satellite>

	Under 1 week	From 1 week to 1 month	From 1 month to 3 months	3 months or longer	Total
FY2024					

<From satellite>

	Under 1 week	From 1 week to 1 month	From 1 month to 3 months	3 months or longer	Total
FY2024					

## Appendix 5 FY 2024 Visit Records of Researchers from Abroad

\* If researchers have visited/ stayed at the Center, provide information on them in the below table.

\* Enter the host institution name and the center name in the footer.

**Total: 88**

	Name	Age	Affiliation		Academic degree, specialty	Record of research activities (Awards record, etc.)	Time, duration	Summary of activities during stay at center (e.g., participation as principal investigator; short-term stay for joint research; participation in symposium)
			Position title, department, organization	Country				
1	Herbert Edelsbrunner	64	Professor, IST Austria	Austria	PhD	Herbert Edelsbrunner is a computer scientist working in the field of computational geometry, the Arts & Science Professor of Computer Science and Mathematics at Duke University, Professor at the Institute of Science and Technology Austria (ISTA), and the co-founder of Geomagic, Inc. He was the first of only three computer scientists to win the National Science Foundation's Alan T. Waterman Award.	2024/4-2024/8	Joint research
2	Katherine S. Pollard		Director, Gladstone Institute of Data Science & Biotechnology Professor, University of California San Francisco Investigator, Chan Zuckerberg Biohub	USA	PhD, System Biology	Research on comparative genomics and the discovery of the Human Accelerated Regions	2024/4/1	Speaker at ASHBI Distinguished Seminar
3	Emmanuel Procyk		Leader, Neurobiology of executive functions, Stem-cell & Brain Research Institute (SBRI), INSERM, University of Lyon	France	Ph.D.	Emmanuel's research is devoted to uncovering the functional specificities, relationships and dynamics within frontal networks. Most approaches in the lab also aim at uncovering the similarities and specificities of primate brain networks, in function, organization, and computational abilities compared to other species.	2024/4/8-4/9	Discuss possible collaborations regarding breeding, transgenic models as well as other areas of research in non-human primates
4	Christophe Arnoult		Research Director (DR-CNRS) and Head of the research team "Genetic, Epigenetic and Therapies of Infertility", Institute for Advanced Biosciences INSERM&CNRS (IAB), University Grenoble Alpes	France	Ph.D.	Christophe's scientific interest focuses on gamete physiology, infertility due to sperm and oocyte deficiencies and drugs discovery to treat infertility. He has a particular interest in acrosome reaction, an exocytotic event mandatory for fertilization.	2024/4/8-4/9	Discuss possible collaborations regarding breeding, transgenic models as well as other areas of research in non-human primates
5	Daniel Boujard		Scientific Deputy Director, Institute of Biological Sciences (INSB), CNRS Professor of Biology, University of Rennes1	France	Ph.D.	Professor at the University of Rennes 1, he is Deputy Scientific Director at INSB in charge of infrastructures and platforms. He has been director of a CNRS unit, head of an Ibis platform and heavily involved in the Biogenouest GIS, where he chaired the Group Council. He was also Director of the Vie Agro Santé doctoral school. (2017)	2024/4/8-4/9	Discuss possible collaborations regarding breeding, transgenic models as well as other areas of research in non-human primates
6	Pierre Savatier		Leader, Pluripotent stem cells in mammals, SBRI, INSERM, University of Lyon	France	Ph.D.	Pierre explores the mechanisms of self-renewal and pluripotency using embryonic stem cells from several mammalian species. In particular, he explores ground state pluripotency in the rabbit and primate pre-implantation embryos.	2024/4/8-4/9	Discuss possible collaborations regarding breeding, transgenic models as well as other areas of research in non-human primates
7	Emmanuel Brouillet		Head, Europe & International Affairs, Institute of Biology (INSB), CNRS	France	Ph.D.	Dr. Brouillet is now research director at the C.N.R.S. and after more than ten years as director of the Neurodegenerative Diseases Laboratory at the C.E.A. near Paris, he recently joined a new research team at Sorbonne University to develop his research on the role of molecular mechanisms of aging in Huntington's disease.	2024/4/8-4/9	Discuss possible collaborations regarding breeding, transgenic models as well as other areas of research in non-human primates

8	Tetsuya Hiraiwa		Associate Research Fellow(PI), Institute of Physics, Academia Sinica	Taiwan	Ph.D.	Prof. Hiraiwa has been working on theoretical modeling and computer simulations, on (i) physical biology and mechanobiology, and (ii) out-of-equilibrium softmatter physics. His interest, in particular, is dynamic self-organization processes in living organisms.	2024/4/10-4/11	joint research
9	Victor Appay		Director, INSERM Research Director/Group leader, ImmunoConcept Laboratory, University of Bordeaux	France	Ph.D. Immunology	Victor is the research director at the INSERM, and co-head of the "Vulnerability and Ageing of the Immune System" team, INSERM U1303 within the ImmunoConcept unit.	2024/4/18	Speaker of the ASHBi Distinguished Seminar
10	Paul François		Professor, Department of Biochemistry, University of Montreal	Canada	Ph.D., Physics	Paul focuses on the development of approaches inspired by statistical and computational physics for the theoretical understanding of the dynamics of biological systems, and of their evolution. I work in close collaboration with experimentalists of a variety of systems, from embryonic development to early immune recognition. 2019 Rutherford Memorial Medal in Physics, Royal Society of Canada 2017 CAP Herzberg Medal, Canadian Association of Physicists 2015 McGill Principal's Prize for Outstanding Emerging Researchers 2014 Simons Investigator in Mathematical Modeling of Living Systems	2024/5/9	ASHBi seminar, discussions regarding potential collaboration
11	Ana Conesa		Research Professor, Institute for Integrative Systems Biology, Spanish National Research Council (SNRC)	Spain	Ph.D. Molecular Microbiology	2023 Fellow of the International Society for Computational Biology 2022 Member, "Cientificas e Innovadoras" platform of the Spanish Ministry of Science and Innovation 2022 Member, Spanish Society for Bioinformatics and Computational Biology 2022 Member, Spanish Royal Academy of Engineering	2024/5/10-16	Speaker at the 3rd ASHBi SignAC Workshop
12	Winston Timp		Associate Professor, Biomedical Engineering, Johns Hopkins University	USA	Ph.D. Electrical Engineering	Dr. Winston Timp lab focuses on the development and application of sequencing technologies to gain a deeper understanding of biology and a more accurate set of clinical tools for human disease. Timp's research integrates the principles of biophysics, molecular biology, and computational biology to create new tools for exploring the epigenomes and genomes of different lifeforms, ranging in size from the flu virus to hummingbirds to California redwoods.	2024/5/13-16	Speaker at the 3rd ASHBi SignAC Workshop
13	Anthony A. Grace	70	Distinguished Professor of Neuroscience, Professor of Psychiatry and Psychology, University of Pittsburgh	USA	Ph.D. Department of Pharmacology	Famous achievements on dopaminergic systems, particularly on the learning and addiction. Dr. Grace has received several awards for his research, including the William K. Warren Award for Excellence in Schizophrenia Research, the Paul Janssen Schizophrenia Research Award and the Lilly Basic Scientist Award from the CINP, the Efron Award and the Axelrod Award from the ACNP, the Gold Medal award from the SOBP, and the Outstanding Basic Research award and Outstanding Translational Research Award from the SIRS.	2024/5/29	Speaker of the ASHBi Distinguished Seminar
14	Ali Ahmed Seleit		Post-doctoral Researcher, Aulehla Lab, EMBL, Heidelberg	Germany	Ph.D., Developmental Biology	Dr. Seleit is interested in the fundamental question of how developmental timing is regulated and how it is linked to the spatial control of embryonic pattern formation. He uses different <i>Oryzias</i> species, quantitative in-vivo imaging coupled with genetic hybridisation and large-scale whole genome sequencing to delve into the genetic control of both traits.	2024/6/4	ASHBi seminar, discussions regarding potential collaboration
15	Anna Erzberger		Group Leader, EMBL	Germany	PhD	PhD 2016, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany. Postdoctoral research at the Rockefeller University, New York City, USA. Group leader at EMBL from December 2020.	2024/6/19-20	Discussion about collaborative research
16	Anna Victoria Molofsky		Associate Professor, UCSF Weill Institute for Neurosciences	USA	PhD, Neuroscience	Dr. Anna Molofsky is a molecular neuroscientist and adult psychiatrist. Her research group studies the functional connections between the immune system and the brain, with a particular focus on homeostatic roles of neuroimmune signaling in brain development, learning, and memory. The Molofsky lab has identified novel mechanisms through which cytokines regulate brain development and synaptic plasticity.	2024/6/28	Speaker of the ASHBi Seminar

17	Mitsuko Watabe-Uchida	54	Research Fellow in the Center for Brain Science, Harvard University	USA	PhD, Molecular Biology,	Famous achievements on dopaminergic systems, particularly on their diversity in functions and anatomy Awards and Grants 1994-1997 Japan Society for the Promotion of Science (Research fellowship for junior scientists)	2024/7/18	Discussion on the possibility of future collaboration, and ASHBi seminar
18	Yuta Senzai	37	Associate Specialist, Department of Physiology, University of California San Francisco	USA	Ph.D.	Performing interesting studies on the brainstem control of eye movements during REM sleep. 2023 NIH Pathway to Independence Award (K99/R00) 2019 NYU Sackler Outstanding Dissertation Award	2024/7/22	Discussion on the possibility of future collaboration, and ASHBi seminar
19	Kunimichi Suzuki	39	Investigator Scientist, Laboratory of Molecular Biology, Medical Research Council, Cambridge	UK	Ph.D. in Department of Neuropathology and Neuroscience	AWARDS AND HONORS: 1. Seal of Excellence, European Commission Horizon, 2021 2. Poster award, 3rd Symposium on Scrap & Build Meeting, Japan, 2018 3. Best poster award, Final Symposium on Glyco-Neuroscience, Japan, 2017 4. 2nd "Young Glia" Travel award (Platinum & Silver), 2nd "Young Glia" meeting in a joint symposium of Glia Assembly (Japan) & Glial Heterogeneity (Germany), German, 2016	2024/7/29	Discussion on the possibility of future collaboration, and ASHBi seminar
20	Ziad Hafed	49	Professor, Werner Reichardt Centre for Integrative Neuroscience (CIN) and Hertie Institute for Clinical Brain Research (HIH) Tübingen University	Germany	Doctor of Philosophy,	Very famous scientist working on microsaccades and control of attention Over the years, Ziad has received many prestigious awards in recognition for his academic achievements, including the British Association Medal for Great Distinction and NSERC (Canada) and Sloan-Swartz (USA) Fellowships for Neuroscience.	2024/7/30	Discussion on the possibility of future collaboration, and ASHBi seminar
21	Nicola Vassena		Scientist & Project leader, Interdisciplinary Centre for Bioinformatics at Leipzig University	Germany	Ph.D.	Nicola Vassena is a postdoc at the Interdisciplinary Center for Bioinformatics of Leipzig University. He is a member of the Walter Benjamin Program of the DFG (German research society), leading a project on Zero-eigenvalue bifurcations in Chemical Reaction Networks. Before, he completed his doctoral studies at the Free University of Berlin, under the supervision of Bernold Fiedler. His research currently focuses on structural network conditions for the occurrence of bifurcations in dynamical systems arising from biochemical, ecological, and epidemiological networks.	2024/8/19	Speaker of the ASHBi Seminar
22	Charlotte Payne		Senior Editor and Team Leader, Nature Human Behaviour	UK	Ph.D.	Charlotte Payne is the Senior Editor and Magazine Team Leader at Nature Human Behaviour, which is a multi-disciplinary journal that covers a diverse range of topics related to human behaviour	2024/8/26	Speaker at the Meet the Editor, discussion with ASHBi PIs
23	Danilo Fliser	63	Professor of Medicine, Saarland University Director, Department of Internal Medicine IV, Renal and Hypertensive Disease & Transplant Centre, Saarland University Medical Centre	Germany	M.D. Ph.D.	Dr Fliser is the Council member of the European Renal Association and is a leading scientist on the mechanisms of kidney disease progression. In this ASHBi Distinguished seminar, he discussed his latest findings on the role of DKK3 in kidney disease and its aspects as a valuable biomarker. 2015 FERA 2005 Franz Volhard Prize 2004 Bernd Tersteegen Prize 1995 Nils Alwall Prize	2024/9/13	Speaker at ASHBi Distinguished Seminar
24	Hyuk-jin Cha		Professor, College of Pharmacy, Seoul National University	South Korea	PhD	Since 2018, he has been at SNU's College of Pharmacy where he focused on applying stem cells technology and gene editing to biomedical sciences.	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
25	Changwon Kang	74	Professor Emeritus, Biological Sciences, KAIST	South Korea	PhD	Currently, he is a Professor Emeritus of Biological Sciences in KAIST and a fellow of the Korean Academy of Science and Technology (KAST), after having contributed to understanding of bacterial gene transcription and characterization of genetic elements for complex diseases. 2017 Service Merit Medal from Korean Government 2016 Minister Commendation from Ministry of Science 2015 Park Inwon Science Award from Korean Chemical Society 2012 DI Science Award from Korean Society for Biochemistry and Molecular Biology 2011 Hanbit Grand Award	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop

26	Kin Woo Kim		Director, Laboratory Animal Resource Center (LARC), KAIST Professor, Dept. Biological Sciences, KAIST	South Korea	PhD, Biological Sciences	2021: Mystery of Life Award 2017: Macrogen Scientist Award 2011: KSMCB Blue Ribbon Lectureship Award 2007: HFSP Career Development Award 2003: HFSP Long-term Research Fellowship Award	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
27	Bon-Kyoung Koo		Associate Director, Center for Genome Engineering, IBS, Daejeon, South Korea	South Korea	PhD	2022 Highly Cited Researcher in the field of Cross-Field 2018 12th Mystery of Life Awards, Korean Catholic Church 2016 CRUK - Multidisciplinary Project Award 2013 Sir Henry Dale Fellowship	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
28	Gwangrog Lee		Professor, Protein Engineering & Mechano-ImmunoTherapy, KAIST	South Korea	PhD	Gwangrog heads the Lab of Protein AI-Engineering & Mechano-ImmunoTherapy at KAIST 2014 TJ Park Science Fellowship 2007-2010 Jane Coffin Childs Memorial Fund Fellowship	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
29	Seung-Jae Lee		Professor, Department of Biological Sciences, KAIST	South Korea	PhD	Seung-Jae heads the Center for RNA-Mediated Healthy Longevity at KAIST.	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
30	Chunghun Lim		Associate Professor, Department of Biological Sciences, KAIST	South Korea	PhD	Chunghun is Associate Professor in Biological Sciences and Adjunct Professor in the Graduate School of Stem Cell and Regenerative Biology at KAIST 2021 Outstanding Faculty Award (Research), UNIST 2017 Young Investigator, Suh Kyungbae Foundation 2014 TJ Park Science Fellowship, POSCO TJ Park Foundation 2008 FRAXA Award, FRAXA Research Foundation	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
31	Dae-Sik Lim	60	Professor & Director, National Creative Research Initiatives Center For Cell Plasticity, KAIST Stem Cell Center	South Korea	PhD	Since 2022, Dae-Sik is the Director of the KAIST Stem Cell Center at KAIST. 2016 Member, Korean Academy of Science and Technology	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
32	Woojung Shin		Assistant Professor, Dept of Bio & Brain Engineering, KAIST	South Korea	PhD	Woojung is the assistant professor at KAIST and have a particular research interest is in deciphering the host-microbiome interactions in various organs and disease milieu. 2024 KAIST Global Research Collaboration Award 2020 Mogam Science Scholarship Foundation Award	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
33	Hanseul Yang		Assistant Professor, Laboratory of Stem Cell and Tissue Regeneration, Department of Biological Sciences, KAIST	South Korea	PhD	Hanseul is the PI of the Yang Lab at KAIST with a research interest in how adult stem cells regenerate tissues throughout life. - Ewon Endowed Chair Assistant Professor (KAIST) - SUHF Fellow (Suh Kyungbae Foundation) - Young Professor Fellow, POSCO Science Fellowship (POSCO TJ Park Foundation)	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
34	Ki-Jun Yoon		KAIST	South Korea	PhD	Ki-Jun is the PI of the Yoon Lab at KAIST with a research in interest in how neural stem cells are regulated to achieve precise cell division, cell migration, cell fate specification, and differentiation by focus on understanding the regulation of neural stem cells during neuronal development and in the adult brain using both mouse and human induced pluripotent stem cell (iPSC) models.	2024/10/3-10/5	Speaker at the 1st ASHBi-KAIST Joint Workshop
35	Koichi Takahashi	42	Associate Professor, Department of Leukemia, The University of Texas MD Anderson Cancer Center	Japan	MD, PhD, Leukemia	His recent research achievements include: Elucidation of selective proliferation of clonal hematopoiesis under anticancer drug treatment causing therapy-related leukemia( Lancet Oncology 2017, Cell Stem Cell 2018, Nature Genetics 2020 [co-author]), Elucidation of clonal diversity at the single cell level of acute myeloid leukemia and its clinical significance:(Genome Research 2018, Nature Communications 2020, Nature Communications 2021), Analysis of minimal residual disease in acute myeloid leukemia using next-generation sequencers:(Journal of Clinical Oncology 2018, Blood 2021), Comprehensive genetic analysis of chronic lymphocytic leukemia and mixed phenotype leukemia:(Blood 2018, Nature Communications 2018)	2024/10/9	short-term stay for giving a seminar "Clonal origin and pathogenesis of therapy-related leukemia"

36	Oğuzkan İLMAZ		Giresun University	Turkey	Faculty of Medicine 4th year student	MR.İLMAZ is a student in Giresun University, a Faculty of Medicine. He has completed Anatomy, Biophysics, Physiology, Histology and Embryology in his 2nd year, his 3rd year includes Biochemistry Obstetrics&Gynaecology, Internal Medicine, General Surgery, Paediatrics, Urology and Orthopaedics lectures.	2024/10/22-11/28	short-term stay for internship
37	Rich Remington		Senior Vice President, Cell Press	USA	BA	As a Senior vice president of Cell Press, he leads one of the largest peer reviewed scientific publishing group as part of a global FTSE 50 organization.	2024/10/24	Discussion with ASHBi PIs
38	Prachiti Moghe	29	Postdoctoral Researcher, Hubrecht Institute	Netherlands	PhD Developmental Biology	postdoctoral researcher in the Hiiragi Group at the Hubrecht Institute for Developmental Biology and Stem Cell Research	2024/11/2-30	Presentation in ASHBi Seminar (19th Nov.) and discussion about collaborative research
39	Corine Bertolotto		Research Director, INSERM	France	Ph.D.	Corine Bertolotto is a research director in the Melanocyte Biology and Pathology team, which she co-directs with Robert Ballotti at the Mediterranean Center for Molecular Medicine (Inserm/Université Côte d'Azur). Her team identified a mutation in MITF, the master gene of the melanocyte lineage, as a risk factor for cutaneous melanoma. This discovery led to new dermatological guidelines in France.	2024/11/5	ASHBi seminar
40	Robert Ballotti		Research Director, INSERM	France	Ph.D. molecular biology	Dr. Ballotti currently heads a laboratory in the new "Mediterranean research center for molecular medicine". His laboratory focuses on MITF, a key transcription factor in melanoma biology. Recently, Dr. Ballotti's laboratory has identified a germinal mutation in MITF that predisposes carriers to develop melanoma.	2024/11/5	ASHBi seminar
41	Tyler Lamb		Director of Policy, International Society for Stem Cell Research [ISSCR]	USA		Tyler is the director of Policy for the ISSCR, in charge of setting widely adopted international guidelines addressing the diversity of cultural, political, legal, and ethical issues associated with stem cell research and its translation to medicine.	2024/11/6	Discussion with ASHBi PIs on ISSCR Guidelines on Stem Cell-Based Embryo Models & IVG Research
42	Denise de Villa		Policy Manager, ISSCR	USA	JD	Denise, together with Tyler, is in charge of setting widely adopted international guidelines addressing the diversity of cultural, political, legal, and ethical issues associated with stem cell research and its translation to medicine.	2024/11/6	Discussion with ASHBi PIs on ISSCR Guidelines on Stem Cell-Based Embryo Models & IVG Research
43	Danny Leung		Associate Professor, Division of Life Science, Hong Kong University of Science and Technology	Hong Kong	Ph.D.	Professor Leung is an Associate Professor in the Division of Life Science at the Hong Kong University of Science and Technology (HKUST). His research focuses on understanding how non-coding DNA sequences are regulated by epigenetic mechanisms and how these processes contribute to development and disease. Professor Leung serves as the director of the HKUST Center for Epigenomics Research and leads the Hong Kong Epigenomics Project.	2024/11/8	Speaker of the ASHBi Seminar
44	Boxiang Liu		Presidential Young Professor, Department of Pharmacy and Biomedical Informatics, National University of Singapore	Singapore	PhD, Computational Biology	A genome researcher and Presidential Young Professor at the National University of Singapore. After obtaining a PhD from Stanford University, significant contributions were made to the GTEx Consortium in the United States. Pioneering research focuses on advancing the understanding of complex diseases through the integration of GWAS and eQTL analyses. 2024 NUHS Young Investigator Award 2023 Presidential Young Professorship President's Award in Natural Sciences and Mathematics, Stanford University Charles B. Carrington Memorial Award 2020 Baidu TPG Incentive Award - Innovative Team	2024/11/11	Speaker at ASHBi Seminar
45	Adeline Lassaux		Attachée for Science and Technology, Embassy of France	France		As the Attachée for Science and Technology, Adeline is in charge of steering the scientific and technological cooperation policy in the fields of Life Sciences, Health and the Environment between France and Japan.	2024/11/13	Exchange opinions on future collaboration possibilities
46	Antoine Buss		Deputy Attaché for Science and Technology, Embassy of France	France	MSc	Since 2024, he works at the Embassy of France to Japan, as a deputy Attaché for Science and Technology, in the Office for Science and Technology	2024/11/13	Exchange opinions on future collaboration possibilities

47	Ilaria Carnevale		Lead Editor, Trends in Cell Biology, Cell Press	USA	Ph.D.	Ilaria Carnevale, is the Editor-in-Chief of Trends in Cell Biology, one of the leading interdisciplinary review journals that publishes monthly review articles in molecular and cell biology.	2024/11/14	Speaker at the Meet the Editor, discussion with ASHBI PIs
48	Adam Frankish		Manual Genome Annotation Co-ordinator, European Molecular Biology Laboratory, European Bioinformatics Institute	England	PhD, Genome Biology	Providing accurate gene annotations for the human and mouse genomes for over 20 years, incorporating new data and knowledge. Recent work includes collaborations with LRGASP and the Ribo-seq community to improve transcriptome analysis. Current efforts focus on annotating the human reference pangenome, addressing challenges for automated methods. Exploring AI/ML applications to optimize datasets for future machine learning use.	2024/11/25	Speaker at ASHBI Seminar
49	Patrick Wong		Consortium Manager Population Mental Health, UKRI Population Health Improvement UK King's College London	UK	MSc	He is currently the Consortium Manager for Population Mental Health, one of the Population Health Improvement UK consortia funded by UK Research & Innovation. He provides key support in facilitating the efficient monitoring of the consortium activities and day-to-day operations, including oversight of budgets, human resources administration, organisation of events and delivery of internal and external reports.	2024/11/27	Speaker of the seminar, discussion on the administrative office system in UK and Japan
50	Ignacio Sanz		Professor of Medicine, Emory University	USA	MD, PhD, Human immunology	History as Chief of Rheumatology at the University of Rochester School of Medicine and currently the Chief of Rheumatology and the Director of the Lowance Center of Human immunology at Emory University.	2024/12/5-12/6	Speaker of the ASHBI Distinguished Seminar Discussion with faculty members
51	Frances Eun-Hyung Lee		Professor of Medicine, Emory University	USA	MD, PhD, Human immunology	History as faculty at the University of Rochester School of Medicine and currently the faculty at Emory University.	2024/12/5-12/7	Speaker of the ASHBI Distinguished Seminar Discussion with faculty members
52	Cheri Sirois		Senior Scientific Editor, Cell, Cell Press	USA	PhD	Cheri came to scientific editing after several years as a professor of immunology and microbiology, and she still considers herself a teacher at heart. She has longstanding interest in host-microbe interactions and innate immunity, and enjoys how editorial work ignites other interests.	2024/12/10	Discussion with ASHBI PIs
53	Le Tran Phuc Khoa		Postdoctoral Fellow, University of Michigan Medical School	USA	PhD Stem Cell	Dr. Khoa Le earned his Ph.D. in Stem Cell and Developmental Biology from the University of Tsukuba, Japan. Khoa is currently a Postdoctoral Fellow under the co-mentorship of Dr. Costas Lyssiotis at the University of Michigan and Dr. Yali Dou at the University of Southern California, where he has trained in cellular metabolism, epigenetics, and chromatin biology with a focus on developmental and cancer biology.	2024/12/18	Speaker at ASHBI Seminar
54	Ryuichi Shigemoto	64	Professor, IST Austria	Austria	Ph.D.	Very famous scientist working on anatomical studies on membran proteins in the neuronal cells	2025/1/10	Discussion on the recent advances in the field
55	Sarah Stucchi	28	PhD Candidate, SEMM (European School of Molecular Medicine), Human Technopole	Italy	PhD Candidate	<Master thesis>Study of transcription factors involved in the regulation of the hemoglobin switching <Doctor thesis>Neurodevelopmental and intergenerational impact of endocrine disruptors	2025/1/14-4/23	short-term stay as an invited researcher for joint research
56	Karunakaran Kalyani Bindu		Postdoctoral fellow, the National Institute of Mental Health and Neurosciences (NIMHANS)	India	PhD, Bioinformatics	Kalyani Bindu is a postdoctoral fellow at the National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, India. In her current role, she has expanded this focus to include the spatiotemporal aspects of psychiatric genetics and cross-disorder relationships.	2025/1/27-1/29	joint research, speaker at ASHBI Seminar

57	Paul Freemont		Professor and Head of Section of Structural and Synthetic Biology, Imperial College London	UK	Ph.D.	Professor Paul Freemont is Head of the Section of Structural and Synthetic Biology in the Department of Infectious Disease at Imperial College. The Section is based in South Kensington Sir Alexander Fleming Building and focuses on the molecular mechanisms of human disease and infection using the tools of integrated structural biology. He is author of over 300 scientific publications and is an elected member of European Molecular Biology Organisation and Fellow of the Royal Society of Biology, Royal Society of Chemistry and Royal Society of Medicine and is an Honorary Fellow of the Royal College of Art. He is also co-chairs the newly formed UK governments Engineering Biology Steering Group and is also a member of the Biosecurity Leadership Council.	2025/2/5	Speaker of the ASHBi Distinguished Seminar
58	Virginia Pascual		Professor, Cornell University	USA	MD, Human immunology	In 2017 she became the inaugural Director of the Drukier Institute for Children's Health Research at Weill Cornell Medicine. In 2018, Pascual was inducted into the Association of American Physicians as a "physician-scientist who has demonstrated excellence in the pursuit of medical knowledge and in the advancement of basic and clinical science discoveries and their application to clinical medicine." 2017 Lupus Insight Prize from the Lupus Research Alliance	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
59	Jacques Banchereau		Founder, Immunoledge LLC Adjunct Professor, Department of Immunobiology, Yale University School of Medicine	USA	PhD, Biochemistry	Jacques Banchereau is an internationally prominent French American immunologist and molecular biologist. As of 2024, he is Chief Scientific Officer at Javelin Biotech. He was formerly professor and director of immunological sciences at the Jackson Laboratory for Genomic Medicine and also the former chief science officer, senior vice president, and DTA (Discovery and Translational Area) head of inflammation & virology at Hoffman-La Roche. He is best known for his extensive research on dendritic cells with Nobel Laureate Ralph M. Steinman. He is the fifth most cited immunologist ranked by Times Higher Education's report.	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
60	John S Tsang		Professor of Immunobiology and Biomedical Engineering, Yale University	USA	PhD, biophysics and systems biology	Dr. Tsang's group investigates the molecular and cellular underpinnings of human immune variations in health and disease: why immune system states and responses to perturbations (e.g., to vaccines, viral infections, and diseases) are highly variable across individuals in the human population.	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
61	Stuart Tangye		Professor, Garvan Institute of Medical Research	Australia	MD, Human immunology	Prof Stuart Tangye is the Leader of the Immunity & Inflammation Theme, Garvan Institute of Medical Research, Sydney, Australia. He is one of the world leaders at the field of primary immunodeficiencies (PIDs), and also the Chair of the Clinical Immunogenomics Research Consortium Australasia (CIRCA). 2020 Research Excellence Award, NHMRC 2019 Presidential Award, Clinical Immunology Society 2011 Gottschalk Medal, Australian Academy of Sciences	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
62	Antonio Lanzavecchia	73	Invernizzi Fellow, Istituto Nazionale di Genetica Molecolare (INGM)	Italy	MD, Human immunology	2021 Ernst Jung Gold Medal for Medicine 2018 Louis-Jeantet Prize for Medicine, 2017 Sanofi-Institut Pasteur Award, 2017 Robert Koch Medal and Award, Medal, 2016 U.S. National Academy of Sciences, 2001 Order of Merit of the Italian Republic, Cavaliere della Repubblica, 1999 Cloëtta Prize, 1988 EMBO Gold Medal	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
63	Donna Farber		Professor of Surgical Sciences (in Surgery), Chief, Division of Surgical Sciences and Professor of Microbiology & Immunology, Columbia University	USA	PhD, Biochemistry and Molecular Biology	Donna L. Farber is the Chief of Surgical Sciences, George H. Humphreys, II Professor of Surgical Sciences, and Professor of Microbiology and Immunology at Columbia University. Her research focuses on transplant immunology and memory T-cells. 2019 Fellow, American Association for the Advancement of Science	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium

64	Federica Sallusto		Professor, Department of Biology, ETH Zurich	Switzerland	MD, Human immunology	Since 2017, she is Full Professor in Medical Immunology at the ETH Zurich and at the Università della Svizzera italiana (USI). 2022 Doctor honoris causa, University of Fribourg 2019 Honorary member, Swiss Society for Allergology and Immunology (SSAI) 2019 Prize "I Numeri Uno" Camera di Commercio Italiana in Svizzera (CCIS) 2010 Science Award, Foundation for Study of Neurodegenerative Diseases 2009 Behring Lecture Prize 1999 Pharmacia Research Foundation Award	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
65	Mark M. Davis	72	Professor, Microbiology and Immunology, Stanford University	USA	MD, PhD, Molecular Biology	He is the director of and Avery Family Professor of Immunology at the Institute for Immunity, Transplantation and Infection at Stanford University. He is well known for identifying the first T-cell receptor genes, which are responsible for T lymphocytes ability to "see" foreign entities, solving a major mystery in immunology at that time. 2021 Szent-Györgyi Prize for Progress in Cancer Research 2016 Foreign Member of the Royal Society (ForMemRS) 2004 Paul Ehrlich and Ludwig Darmstaedter Prize 2000 William B. Coley Award 1996 Alfred P. Sloan, Jr. Prize 1995 King Faisal International Prize 1993 Member, National Academy of Sciences 1989 Gairdner Foundation International Award	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
66	Eui-Cheol Shin	53	Professor, Graduate School of Medical Science and Engineering, KAIST	South Korea	MD, PhD, Microbiology & Immunology	Shin is a professor at the Graduate School of Medical Science and Engineering at the Korea Advanced Institute of Science and Technology (KAIST), and director of The Center for Viral Immunology at the Institute for Basic Science (IBS), a Korean government-funded research institute. 2018 KAI-Genexine Award, The Korean Association of Immunologists 2017 Hantan Award, Korea Society of Virology 2016 GSK Academic Award	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
67	Paul Thomas		Principle Investigator, St. Jude Graduate School of Biomedical Sciences, St Jude Children's Hospital	USA	PhD, Human immunology	Dr. Paul G. Thomas joined the faculty in the Department of Immunology in 2009. His work has been instrumental in generating new understanding of T cell receptor specificity and defining key elements of innate and adaptive immune responses that determine clinical outcomes to viral infections. Dr. Thomas leads several complex institutional programs including human influenza surveillance efforts and virtual repository development, and currently serves as PI for the 7-year, 12 institution DIVINCI consortium.	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
68	Shane Crotty	51	Professor & Chief Scientific Officer, La Jolla Institute for Immunology	USA	PhD, Human immunology	Dr. Crotty's lab studies the fundamental immunology underlying vaccine functions. Crotty's laboratory is best known for understanding T follicular helper (Tfh) CD4 T cells and their critical role in antibody responses and germinal centers (Science2009, Immunity 2019, Nature 2022). The Crotty lab also has made important contributions to COVID-19 research (Cell 2020, Science 2021, Cell 2022).	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
69	Akiko Iwasaki	55	Professor (Immunobiology & Dermatology), Yale University	USA	PhD, Human immunology	Akiko Iwasaki, Ph.D., is a Sterling Professor of Immunobiology and Molecular, Cellular, and Developmental Biology at Yale University, and an Investigator of the Howard Hughes Medical Institute. 2024 Forbes 50 over 50: Innovation 2024 Tsukahara Memorial Award University of Tokyo 2023 Else Kröner Fresenius Prize for Medical Research 2021 American Academy of Arts and Sciences 2021 European Molecular Biology Organization 2019 National Academy of Medicine 2018 National Academy of Sciences	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium

70	Weiping Zou	60	Professor of Surgery Professor of Pathology, Medical School, Michigan University	USA	PhD, Human immunology	Weiping Zou serves as Director of the Michigan Center of Excellence for Cancer Immunology and Immunotherapy and Co-Director of the Cancer Hematopoiesis and Immunology Program at the University of Michigan School of Medicine and Rogel Cancer Center. He is a scientist noted for his work regarding understanding the nature of human tumor immune responses and developing mechanism-informed combination therapies for cancer.	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
71	Sebastian Amigorena		Team Leader, Institut Curie Research Director, CNRS	France	PhD	Sebastian Amigorena is a research director at CNRS and director of the INSERM 'Immunity and Cancer' Unit at the Institut Curie in Paris. His team focuses on leveraging the immune system response to tumors, identifying novel paradigms, and translating them into immunotherapy for cancer patients. 2005 French Academy of Sciences	2025/2/10-12	Speaker at the 1st Kyoto Immunology Symposium
72	Christiana Fogg		Senior Editor, Science Immunology	USA	Ph.D.	Dr. Christiana Fogg is currently a Senior Editor at the journal Science Immunology handling papers related to immunology and infectious diseases. She has over fifteen years of experience in scientific publishing, that also includes other journals such as Journal of Immunology and Science Translational Medicine. Before becoming an editor, she did her postdoctoral training at the National Institutes of Health (NIH) in the lab of Dr. Carole Long, where she studied the innate immune response to malaria and tested subunit vaccine strategies using mouse models.	2025/2/13	Speaker at the Meet the Editor, discussion with ASHBI PIs
73	Aviad Raz	56	Professor, Department of Sociology and Anthropology, Ben-Gurion University of the Negev	Israel	PhD	Dr. Raz is a Full Professor at the Department of Sociology and Anthropology, a member of the School of Sustainability and Climate Change, and the pProgramme Head of the Rector's Office.	2025/2/19	Speaker at CiRA Seminar (Hybrid)
74	Ziv Reich		Vice President, Professor, Department of Bio molecular Sciences, Weizmann Institute of Science	Israel	Ph.D.	Prof. Reich is the Vice President of the Weizmann Institute of Science and a member of the Department of the Biomolecular Sciences and the incumbent of the Hella and Derrick Kleeman Professional Chair of Biochemistry. Among his numerous awards and honors, Prof. Reich has received the Sir Charles Clore Prize, the Gerhard Schmidt Prize in Chemistry, the Rothschild Foundation Postdoctoral Fellowship, the Yigal Allon Fellowship, the Teva Pharmaceuticals Award, and the Morris L. Levinson Prize in Biology.	2025/2/20	Exchange opinions on future collaboration possibilities
75	Alon Weingarten		Vice President for Administration, Weizmann Institute of Science	Israel	MBA	As the Vice President for Administration, Alon is in charge of coordinating the work of its administrative divisions and units.	2025/2/20	Exchange opinions on future collaboration possibilities
76	Adi Zahavi		Chief of Staff, Office of the Vice President for Administration, Weizmann Institute of Science	Israel		As Chief of Staff for the Vice President for Administration, Adi supports the Institute's administrative operations and oversees cross-organizational processes in areas such as Human Resources, Construction and Engineering, Operations, and Procurement. She leads initiatives to drive efficiency, facilitate collaboration, and align operations with the Institute's strategic goals.	2025/2/20	Exchange opinions on future collaboration possibilities
77	Rachel Bauman		Chief of Staff, Office of the Vice President for Development & Communications	Israel		As Chief of Staff, Rachel plays a key role in advancing the strategic vision of both the Vice President and the Vice President for Development and Communications, connecting philanthropic support and scientific innovation to drive institutional progress. She is also involved in identifying, establishing, and maintaining strategic global partnerships in both the scientific and administrative areas, fostering collaboration worldwide.	2025/2/20	Exchange opinions on future collaboration possibilities
78	Christopher Whitney		Managing Director of International Partnerships, American Committee for the Weizmann Institute of Science	USA		Christopher Whitney works as a Managing Director, International Partnerships at The American Committee for the Weizmann Institute of Science, a community of dedicated people who share a common vision with the Weizmann Institute in support of its common mission: science for the benefit of humanity.	2025/2/20	Exchange opinions on future collaboration possibilities

79	Lyndsey Walsh	31	Artist, Writer, Researcher	Germany	MSc Biological Arts	Lyndsey Walsh is an American artist, writer, and researcher based in Berlin, DE. Currently, Lyndsey is a visiting scholar and researcher with the Department of Experimental Biophysics at Humboldt Universität zu Berlin. 2024 S+T+ARTS Prize "Honorable Mention Award"	2025/2/21	Speaker of the ASHBi Seminar
80	Robert de Massy, Bernard Jean Paul	66	Research Director, Institute of Human Genetics	France	PhD Molecular Biology	Research Director and Head of Meiosis and recombination research team, Institut de Genetique Humaine, CNRS 2016 Coups d'Élan Awards for French Research, Bettencourt Schueller Foundation 2012 médaille d'argent du CNRS	2025/3/3-4/19	short-term stay as an invited researcher for joint research
81	Jianping Fu		Professor, University of Michigan	US	Ph.D., Bioengineering	Public Service Award, International Society for Stem Cell Research (2025) International Society for Stem Cell Research (ISSCR) Merit Award, with J. Bok and Y. Kim (2024) Life Member, World Association of Chinese Biomedical Engineers (WACBE) (2024) Wise-Najafi Prize for Engineering Excellence in the Miniature World, Univ. Michigan (2024) Fellow, Biomedical Engineering Society (BMES), 2023 Fellow, International Academy of Medical and Biological Engineers (IAMBE), 2023 Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt Foundation, 2022 Translational Award, UM Life Sciences - Michigan Translational Research and Commercialization (MTRAC) Program, 2021 Fellow, American Society of Mechanical Engineers (ASME), 2020 Analytical Chemistry Young Innovator Award, American Chemical Society (ACS), 2020 Senior Member, Institute of Electrical and Electronics Engineers (IEEE), 2020 Fellow, Royal Society of Chemistry (RSC), 2020 Robert M. Caddell Memorial Award for Research, University of Michigan, 2020 Fellow, American Institute for Medical and Biological Engineering (AIMBE), 2020 Kickstart Award, Michigan Translational Research and Commercialization (MTRAC) for Life Sciences Innovation Hub, 2016 Rising Star Award, Biomedical Engineering Society - Cellular and Molecular Bioengineering, 2016	2025/3/7	ASHBi distinguished seminar, discussions regarding potential collaboration
82	Shahragim Tajbakhsh		Professor, Institut Pasteur	France	Ph.D., Developmental Biology	2020 René and Andrée Duquesne Prize, La Ligue Contre le Cancer/Institut Pasteur 2017 Chair of Excellence, Louis Pasteur, Institut Pasteur 2016 Member Academia Europaea 2016 Vice-President French Society for Stem Cell Research (FSSCR) 2014 French Academy of Sciences / Fondation Generale de Santé, for Stem Cell research 2013 EMBO Member 2010 Vallery-Radot Prize, Institut Pasteur 2000 Prix Georges Zermati; Fondation de France	2025/3/8-4/16	Discussions as part of ongoing PIU exchange with the Institut Pasteur in Paris, France; participated in PI retreat on March 31st 2025
83	David A. Borton	41	Director (Interim), Institute for Biology, Engineering and Medicine (I-BEAM) Associate Professor of Engineering and Brain Science, Brown University	USA	PhD in Biomedical Engineering	Specialist in neuroengineering, particularly resoration of motor functions by spinal cord stimulation in rodents and primates, and further applying the techniques to human patients. In 2015, Prof. Borton was awarded the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award for his work on spinal cord electrical stimulation restoring sensory perception, which was expanded in 2017 by both DARPA and VA Merit awards to continue that effort.	2025/3/14	Discussion on the possibility of future coillaboration, and ASHBi seminar

84	Juha Kere		Professor of Molecular Genetics, Department of Biosciences and Nutrition, Karolinska Institutet	Sweden, Finland	PhD, molecular genetics and specialist physician degree in clinical genetics from University of Helsinki	The Outstanding Young Person of Finland 1995 Award, Junior Chamber of Finland. The Kenneth S. Brown, M.D. Research Award, National Foundation for Ectodermal Dysplasias (USA), 1996. The Ohio State University Human Cancer Genetics Program Commemorative Medal, 2004. Medix Prize 2005 (Finland). Member, EMBO, 2007–. Member, The Finnish Society of Sciences and Letters, 2010–. Matti Äyräpää Prize (Finland) 2011. Member, Finnish Academy of Science and Letters, 2012–. The Royal Society Wolfson Research Merit Award (UK), 2016.	2025/3/21	research discussion
85	Juha Grönholm		Principal Investigator, Translational Immunology Research Program, University of Helsinki	Finland	MD, Ph.D. Translational Immunology	Dr. Juha Grönholm is a pediatrician and immunology researcher. He received his PhD from the University of Tampere, Finland, in 2010, focusing on the regulatory mechanisms of the JAK/STAT signaling cascade. During his postdoctoral fellowship at the National Institutes of Health, USA, he contributed to identifying a novel inborn error of immunity (IEI) caused by BACH2 haploinsufficiency (Nat. Immunol. 2017). Currently, Dr. Grönholm leads a research group at the Translational Immunology Research Program (TRIMM) at the University of Helsinki, Finland, while working as a pediatric hemato-oncology fellow at the New Children's Hospital, HUS Helsinki University Hospital.	2025/3/21	Speaker of the ASHBi Seminar
86	Janet Rossant	74	Chief of Research Emeritus, Senior Scientist, The Hospital for Sick Children President & Director, the Gairdner Foundation	Canada	PhD Mammalian Development	Janet Rossant, CC, FRS, FRSC is a developmental biologist well known for her contributions to the understanding of the role of genes in embryo development. She is currently the President and Science Director at Gairdner, a senior scientist in the Developmental & Stem Cell Biology Program, the chief of research at the Hospital for Sick Children (SickKids) Research Institute in Toronto, a university professor at the University of Toronto in the departments of Molecular Genetics, Obstetrics/Gynecology, Pediatrics, deputy scientific director of the Canadian Stem Cell Network, and the senior editor of the journal eLife. 2018 L'Oréal-UNESCO For Women in Science Award 2015 Gairdner Wightman Award 2013 Ross G. Harrison Prize, International Society of Developmental Biologists	2025/3/24	Discussion with ASHBi PIs
87	Brendan Walsh		Senior Associate Provost for Global Strategy, Yale University	USA	Ph.D. International Education	Brendan, who reports to Vice Provost for Global Strategy Steven Wilkinson, has overall responsibility for providing administrative support for the international activities of the schools, programs, and individual faculty across the university.	2025/3/25	Exchange opinions on future collaboration possibilities
88	Jieun Pyun		Director for Asia and Oceania, Yale University	USA	MPA, MBA	Jieun is responsible for overseeing initiatives and partnerships related to Asia and Oceania. In this role, she develops and manages Yale's relationships with institutions, senior officials in government, businesses, and other educational entities in the region.	2025/3/25	Exchange opinions on future collaboration possibilities

## Appendix 6 FY2024 State of Outreach Activities

\* Fill in the numbers of activities and times held during FY2024 by each activity.

\* Describe the outreach activities in the "6. Others" of Progress Report, including those stated below that warrant special mention.

Activities	FY2024 (number of activities, times held)
PR brochure, pamphlet	3; Brochures for WPI Science Symposium, Illustration booklet "Visualizing your Science 3 <sup>rd</sup> edition", "Life at ASHBi – North"
Teaching, experiments, training for elementary, secondary and high school students	1; Lectures and lab tours for high school science club
Science café	3; First Contact Program
Open houses	1; Asahigaoka high school visited ASHBi
Participating, exhibiting in events	1; WPI Science Symposium
Press releases	18
Others ( seminars )	3; Public relation Seminar, Kakenhi writing Seminar, Career Seminar

\*If there are any rows on activities the center didn't implement, delete that (those) row(s). If you have any activities other than the items stated above, fill in the space between parentheses after "Others" on the bottom with the name of those activities and state the numbers of activities and times held in the space on the right. A row of "Others" can be added, if needed.

## Outreach Activities and Their Results

List up to three of the Center's outreach activities carried out in FY 2024 that have contributed to enhancing the brand or recognition of your Center and/or the brand of the overall WPI program, and describe its concrete contents and effect in narrative style. (Where possible, indicate the results in concrete numbers.)

Examples:

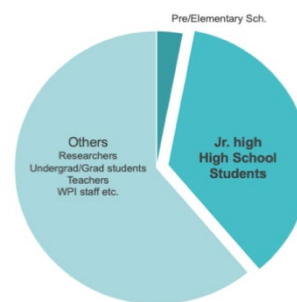
- As a result of using a new OO press-release method, a OO% increase in media coverage was obtained over the previous year.
- By holding seminars for the public that include people from industry, requests for joint research were received from companies.
- We changed our public relations media. As a resulting of using OO to disseminate information, a OO% increase in inquiries from researchers was obtained over the previous year.
- As a result of vigorously carrying out OO outreach activity, ¥OO in external funding was acquired.

### Activities to nurture future researchers: The 13<sup>th</sup> WPI Science Symposium

ASHBi organized the 13th WPI Science Symposium on November 16th at the Kyoto University Clock Tower. In this year, we chose the symposium's theme "Exploring Your World through Science – サイエンスを通じて広がる世界", aiming to provide lively interaction between WPI researchers and participants to cultivate an interest in science. We specially targeted to high school students who are interested in STEM (Science, Technology, Engineering and Mathematics) to nurture future researchers. To achieve this, we worked closely with the Center for Educational Outreach and Admissions in Kyoto University and successfully engaged over 300 participants in the event.



The symposium consisted of two parts: the science talk and the poster session. During the science talk session, three WPI researchers from WPI-Bio2Q, WPI-PRIME, and WPI-ASHBi presented their research. Participants enjoyed a talk and lively Q & A session following the talk. In the poster session, we invited 77 high school students and 23 teachers from 19 high schools, along with WPI researchers and graduate students from 18 WPI institutes. There were 28 posters from high schools and 18 posters from WPI institutes. In the same room, each institute prepared PR booths which offered information about WPI institutes and their host institutes through PR staffs and brochures. Between two sessions, the participants enjoyed a networking lunch, and many high school students asked WPI researchers for advice and comments on their research and future.



*One-third of the participants are high school and Jr. high school students.*

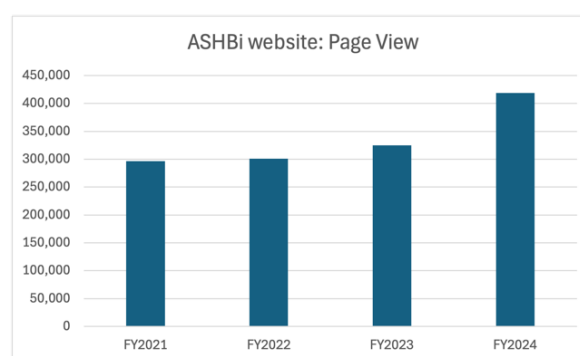
We recorded 371 registrations, resulting in 301 participants, including speakers and presenters. Notably, one-third of the participants were high school students and their teachers, which aligns with our target audience. We received significant positive feedback from participants and other WPI institutes, which will help broaden the visibility of the WPI program and its activities to the public.

In addition to the 13<sup>th</sup> WPI Science Symposium, ASHBi hosted an Open house for the members of the Asahigaoka high school Science Seminar Club (13 students and 3 teachers, Aichi prefecture). The students attended lectures by three ASHBi PI groups and joined the ASHBi tour. In collaboration with their teacher, the high school students had a research and discussion in the club and prepared the questionnaire prior to their visiting, which led to active and lively discussion following the lectures.

Throughout these activities, ASHBi contributes to nurturing future researchers.

### Activities to increase the visibility of ASHBi

To disseminate the institute's research activity to society, we effectively utilize the ASHBi website and a social networking service (SNS). The total page views (PV) on the ASHBi website have significantly increased from 300,000 in FY2021 to 420,000 in FY2024, indicating the successful outreach through these online platforms. In FY2024, we published 46 news and 59 event webpages through the ASHBi website. When each webpage published, related SNS posts are sent several times. Moreover, from FY2024, we employed short movies for SNS to attract wider audience, establishing SNS as a key entry point to the ASHBi website.



*The number of PV is increased year by year.*

To enhance our PR efforts efficiently and share our experience with other PIOs, we organized an on-site PR workshop "Secrets of Effective News Releases for Global Reach – Insights from EurekaAlert! and WPI institutes". This seminar is a part of ASHBi Research Acceleration Program and welcomed over 70 participants nationwide including PIOs, researchers and students. We were honored to have Mr. Brian

Lin, a director at the EurekAlert! (AAAS), as a special lecturer, providing valuable insights into effective science news releases and current trends in scientific communication. Additionally, three PIO staff from WPI institutes, WPI-Kavli-IPMU, WPI-ITbM and WPI-ASHBi, introduced their procedure for news releases. The networking was held followed by the seminar, and participants exchanged their interests and knowledge.



*Special talk by Mr. Brain Lin, Director of EurekAlert! (AAAS), providing his insight into effective news release and current trends in science communication.*

### Activates to foster early-career researchers

The Research Acceleration Unit continues to provide seminars for early-career researchers and graduate students. In FY2024, the unit launched a career development seminar alongside a grant writing and a PR workshop described in the previous paragraph. The career seminar titled “How to Become a Professional Editor at a Scientific Journal” presented a potential career option to be a scientific editor, which is very unusual career option in Japan. Goulas shared the selection process and his experience as a former editor at Cell Press. The KAKENHI writing seminar held annually from FY2019 and has attracted participants from over 100 universities and institutes across Japan.

In addition, the unit members have also been invited to give lectures to share their expertise to researchers at institutes outside of Kyoto University. Goulas invited to two workshops in OIST and RIKEN BDR to share his expertise on scientific writing. Shida shared knowledge for effective grant proposal writing in KEK which is a host institute of WPI-QUP.



Furthermore, ASHBi initiates “First Contact Program” which provide opportunity for early-career



researchers to present their research to the company researchers. This program aims to create interaction opportunities between industry and academia to foster potential future collaborations. In collaboration with the Kyoto Research Park, an industrial hub hosting over 500 companies, 3 seminars were held in FY 2024 to interact with the researchers of the resident companies accumulating to a total of 12 seminars from FY2021.

*First contact program has been held three times a year from FY2021 to enhance interaction between academic researchers and industry researchers in a casual atmosphere.*

## Appendix 7 FY 2024 List of Project's Media Coverage

\* List and describe media coverage (e.g., articles published, programs aired) in FY2024.

\* Enter the host institution name and the center name in the footer.

	Date	Types of Media (e.g., newspaper, magazine, television)	Description
1	2024/4/5	News website (Japanese)	[QlifePro] Introduction about the recent research result by Ogawa group (Ogawa group)
2	2024/4/9	News website (Japanese)	[QlifePro] Introduction about the recent research result by Ogawa group (Ogawa group)
3	2024/5/14	News website (Japanese)	[Medical Tribune] Introduction to the lecture which Prof. Yanagita gave at the meeting of the Japanese Society of Internal Medicine (Yanagita group)
4	2024/5/16	News website, Television (Japanese)	[九州放送][Yahoo! ニュース] Interview to Prof. Ueno about the recent update on COVID-19 research (Ueno group)
5	2024/5/20	News website (Japanese)	[マイナビニュース][Infoseekニュース] Introduction about the recent research result by Amemori group (Amemori group)
6	2024/5/22	Newspaper, Television and News website (English, Chinese, Korean)	[日本経済新聞][朝日新聞][読売新聞][毎日新聞][時事通信社][京都新聞][日刊工業新聞][共同通信][産経新聞][NHK][日本テレビ][関西テレビ][読売テレビ][NHK Online] [日テレオンライン][産経ニュース][Phys.org][Inside Precision Medicine][Technology Networks][Bioengineering.org][Biological Science Network][Medical News Today][UR ALL NEWS][Scitech daily][Biz Chosun] Introduction about the recent research result by Saitou group (Saitou group)
7	2024/6/4	News website (Spanish)	[Forbes][News es EURO][Regenerative Medicine Foundation][El Periódico][Diario de Mallorca][Levante][Faro de vigo][Información][La Nueva][La Provincia][La Opinion de Murcia] Introduction about the recent research result by Saitou Group (Saitou group)
8	2024/6/18	News website (Chinese)	[客観日本] Introduction about the recent research result by Saitou group (Saitou group)
9	2024/7/1	Magazine (Japanese)	[週刊ダイヤモンド] Introduction about the recent research result by Saitou Group (Saitou group)
10	2024/7/3	News website (Japanese)	[Nature Asia] Introduction about the recent research result by Saitou group (Saitou group)

	Date	Types of Media (e.g., newspaper, magazine, television)	Description
11	2024/7/5	Television, News website (Japanese, English, Chinese, Spanish, )	[NHK][日本経済新聞][QLifePro][科学新聞][360doc个人图书馆][客観日本][Medial Express][Mirage News][Bioengineering.org][Technology Networks][Science Daily][Swift telecast][Bionews central][ANI][BusinessMayor][The Medical News][MSN][Devdiscourse][Times of India][Big News Network][Med India] Introduction about the recent research result by Murakawa group (Murakawa group)
12	2024/7/8	News website (Russian, English)	[Scientific Russia][Pharmabiz] Introduction about the recent research result by Murakawa group (Murakawa group)
13	2024/7/10	News website (Japanese, English)	[QlifePro][日刊工業新聞][Mirage News][Health Medicine Network] Introduction about the recent research result by Yanagita group (Yanagita group)
14	2024/7/11	News website (English)	[Drug Target Review][labRoots] Introduction about the recent research result by Murakawa group (Murakawa group)
15	2024/7/15	News website (Chinese)	[360doc个人图书馆] Introduction about the recent research result by Yanagita group (Yanagita group)
16	2024/7/19	News website (Japanese)	[Medical Tribune] Introduction about the recent research result by Seirin group (Seirin group)
17	2024/7/31	News website (English)	[MSN] Introduction about the recent research result by Murakawa group (Murakawa group)
18	2024/8/8	News website (Japanese)	[TBS][FNN][産経ニュース][京都新聞][@niftyビジネス][愛媛新聞][Biglobe] Introduction to the Award, 日本オープンイノベーション大賞, to Chordia which Prof. Ogawa joined
19	2024/8/23	News website (English)	[Sciencemag][Bioengineering.org] Introduction about the recent research result by Associate Investigator Sawai
20	2024/8/24	News website (Japanese, English)	[日本経済新聞][朝日新聞][Medical Xpress][Head Topics][Verified News Explore Network] Introduction about the recent research result by Isa group (Isa group)
21	2024/8/25	Newspaper (Japanese)	[京都新聞] Interview to Prof. Murakawa (Murakawa group)
22	2024/9/18	News website (Japanese)	[日本経済新聞][朝日新聞][時事通信] Introduction about the Award, the Keio Prize, which Prof. Saitou received (Saitou group)
23	2024/10/16	Television (Japanese)	[関西テレビ] Introduction about the breast cancer study by Ogawa group (Ogawa group)
24	2024/10/23	News website (Japanese)	[QlifePro] Introduction about the recent research result by Associate Investigator Sawai
25	2024/11/5	News website (Japanese, English)	[日刊工業新聞][Mdlinx] Introduction about the recent research result by Yanagita group (Yanagita group)
26	2024/12/1	News website (Japanese)	[現代ビジネス][Yahoo!ニュース] Introduction about the recent research result by Fujita group
27	2024/12/10	News website (Japanese, Chinese)	[QlifePro][客観日本] Introduction about the recent research result by Yanagita group (Yanagita group)

	Date	Types of Media (e.g., newspaper, magazine, television)	Description
28	2024/12/16	News website (Japanese, English)	[日本経済新聞][Medical Xpress] Introduction about the recent research result by Yanagita group (Yanagita group)
29	2024/12/16	News website (English)	[The Wire] Introduction about the study by Saitou group (Saitou group)
30	2025/1/10	News website (English)	[Technology networks] Introduction about the study by Murakawa group
31	2025/1/16	News website (Chinese)	[客観日本] Introduction about the recent research result by Yanagita group (Yanagita group)
32	2025/1/16	News website (English)	[Mirage News][ScienMag][MedicalXpress][AZO Life Science][Today Headline][MSN] Introduction about the recent research result by Bourque group (Bourque group)
33	2025/1/29	News website (English)	[The brighter Side of News] Introduction about the study by Saitou group (Saitou group)
34	2025/2/7	News website (English)	[Bioengineer.org] Introduction about the recent research result by Hiraoka group (Hiraoka group)
35	2025/2/10	News website (Japanese)	[BtoBプラットフォーム] Introduction about the study by Associate Investigator Iwami
36	2025/2/13	News website (Japanese)	[毎日新聞][共同通信][日刊工業新聞][MSN] Introduction about the recent research result by T. Yamamoto group (T. Yamamoto group)
37	2025/2/16	Newspaper and News website (Japanese)	[日本経済新聞] Interview to Prof. Murakawa and Associate Prof. Inoue about the recent update on genome research (Murakawa and Bourque groups)
38	2025/2/21	News website (English)	[QlifePro] Introduction about the recent research result by Associate Investigator Iwami
39	2025/3/14	News website (Japanese)	[時事通信][産経オンライン][財經新聞][J-CAST News][アットプレス] Announcement for the selection result of the InaRIS fellowship 2025, which Prof. Hiraoka received (Hiraoka group)
40	2025/3/20	News website (Japanese)	[現代ビジネス] Introduction about the study by Isa group (Isa group)
41	2025/3/26	News website (Japanese, English, Russian)	[NHK][毎日新聞][Phys.org][GEN][Tecnokligy Network][AZO Life Science][Naked Science] Introduction about the recent research result by Associate Prof. Tsukiyama (PRIME)
42	2025/3/26	News website (English)	[News Medical][MSN] Introduction about the recent research result by Associate investigator Sawai