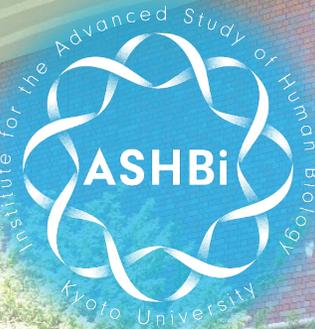


最先端研究拠点における研究力向上支援

～WPI-ASHBiにおける外国人・若手研究者支援の取り組み紹介～



Makoto Shida

URA, ASHBi Research Acceleration Unit

WPI-ASHBi, Kyoto University



KYOTO UNIVERSITY



1. Overview of WPI-ASHBi
2. Support for newly joined researchers/PIs
3. Support for early-career researchers
(Research Acceleration Program)
4. Discussions

World Premier International Research Center Initiative (WPI) aims to attract top-notch researchers from all over the world and further improve the quality of Science and Technology.

New WPI Mission

World-Leading Scientific Excellence and Recognition

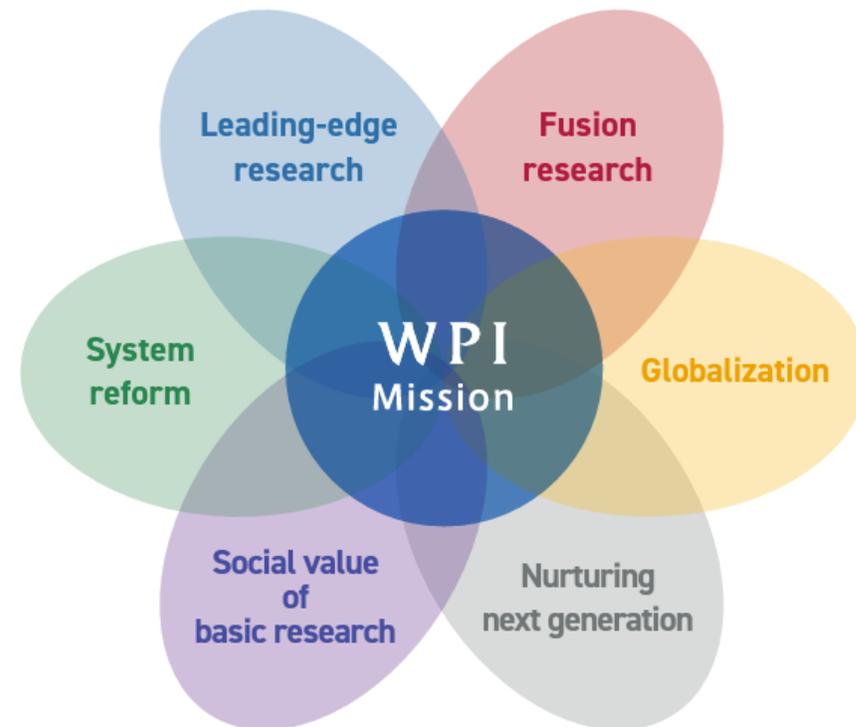
- The Highest Level of Research Impact
- Expanding Knowledge Frontiers through Interdisciplinarity and Diversity

Global Research Environment and System Reform

- Harnessing Talent and Potential through Global Brain Circulation
- Interdisciplinary and Inter-organizational Capacity Building
- Effective, Proactive and Agile Management

Values for the Future

- Societal Value of Basic Research
- Human Resource Building:
Higher Education and Career Development
- Self-sufficient and Sustainable Center Development



https://www.jsps.go.jp/j-toplevel/data/19_pamphlet/wpi_v18_for_web.pdf

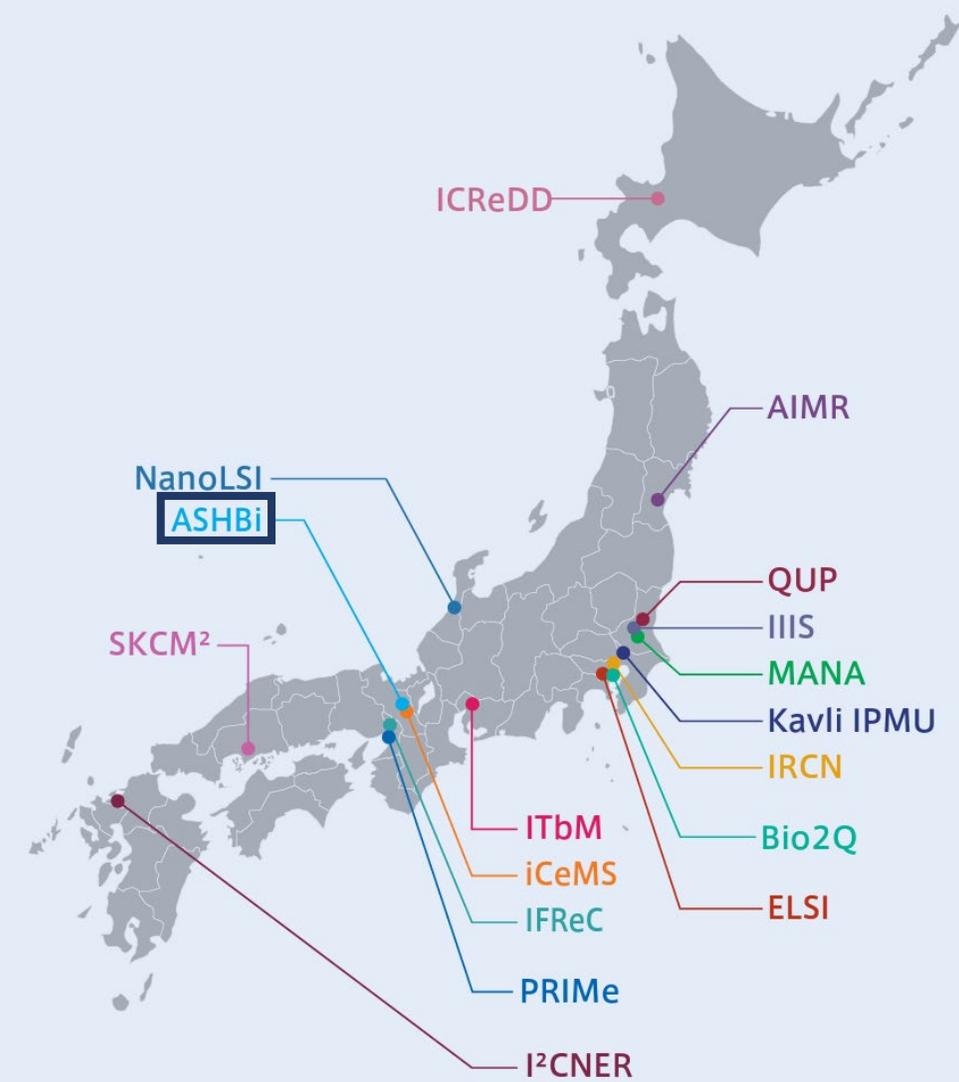
9 WPI Academies (Centers adopted before 2013)



8 WPI Centers (Centers currently funded)

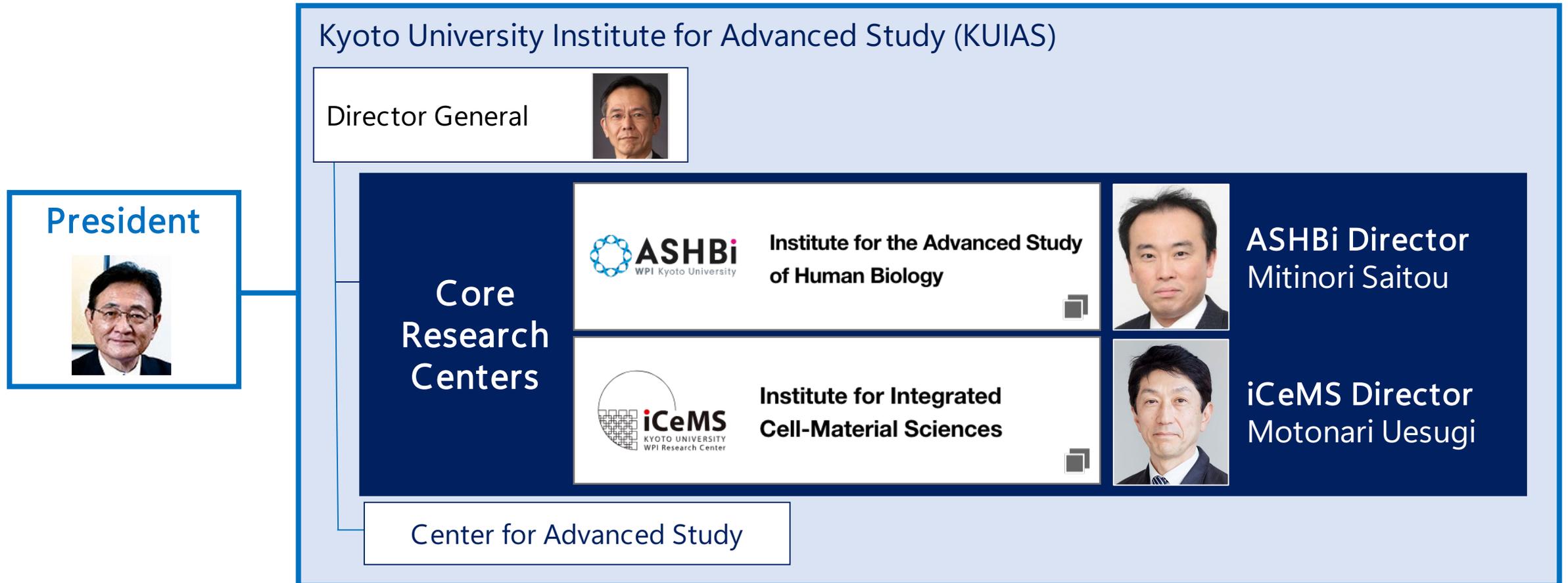


<https://wpi-forum.jps.go.jp/>



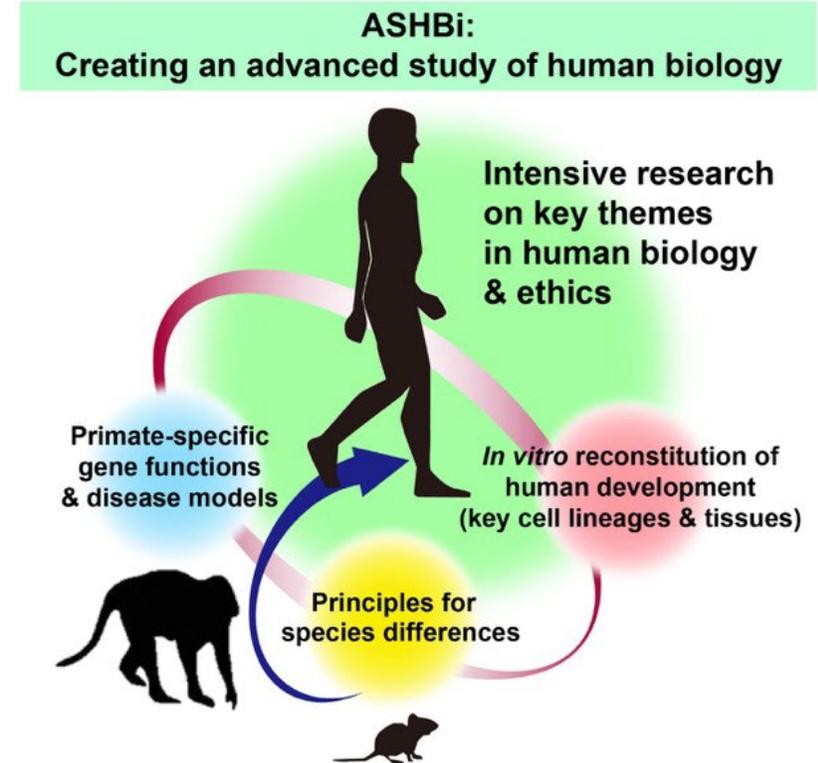
https://www.jps.go.jp/file/storage/j-toplevel_2022/19_pamphlet/wpi_v18appendix_for_web.pdf

Kyoto University established 2 WPI Centers (WPI-ASHBi and WPI-iCeMS) to initiate world-leading research and to implement new reforms under the strong leadership of its Directors.



What key biological traits make us ‘human’, and how can knowing these lead us to better cures for disease?

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



ASHBI's 16 Research Groups

● PIs with foreign nationality

Bioethics



M Fujita



Y Hiraoka



S Seirin-Lee

Mathematics

Developmental biology

Genome informatics



C Alev



M Ema



T Hiiragi



M Saitou



G Bourque



T Yamamoto



Y Murakawa



T Isa



K Amemori



M Yanagita



S Ogawa



H Ueno



R Yamamoto

Primate models

Basic/Clinical medicine

Research Groups

Core Facilities



T Yamamoto

Single-Cell Genome Information Analysis Core (SignAC)



T Tsukiyama

Primate Genome Engineering Core (PRiME)



T Isa

Non-human Primate Phenotype Analysis Core (NPAF)

Alev group

“Reconstituting human somitogenesis in vitro”,
Nature, 614 (7948), 2022

Saitou group

“Ex vivo reconstitution of fetal oocyte development in humans and cynomolgus monkeys”,
The EMBO Journal, 41 (18), 2022

Hiiragi group

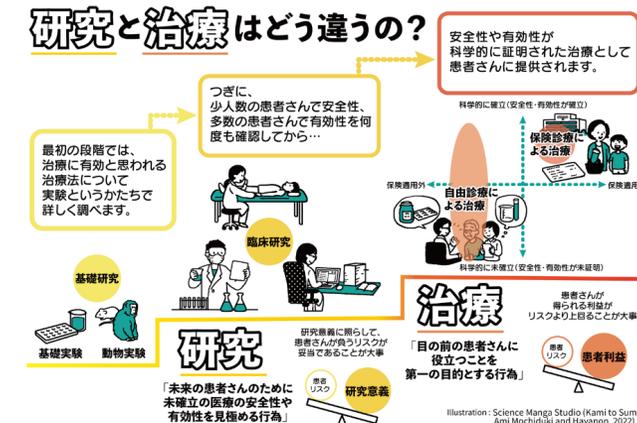
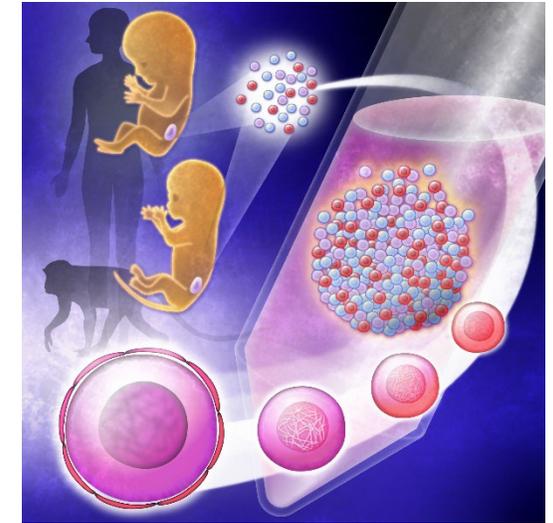
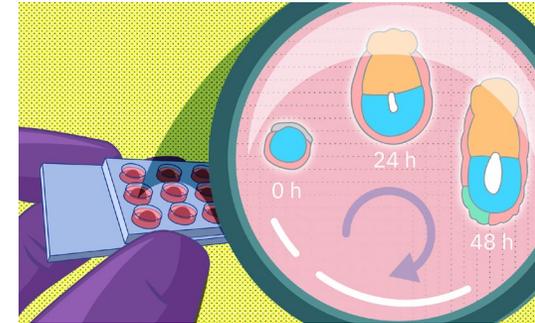
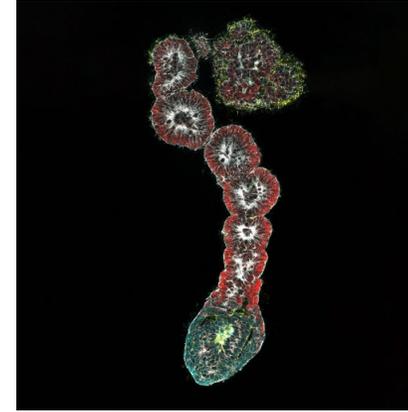
“An ex vivo system to study cellular dynamics underlying mouse peri-implantation development”,
Dev. Cell, 57 (3), 2022

Ogawa group

“DOCK2 is involved in the host genetics and biology of severe COVID-19”,
Nature, 609 (7928), 2022

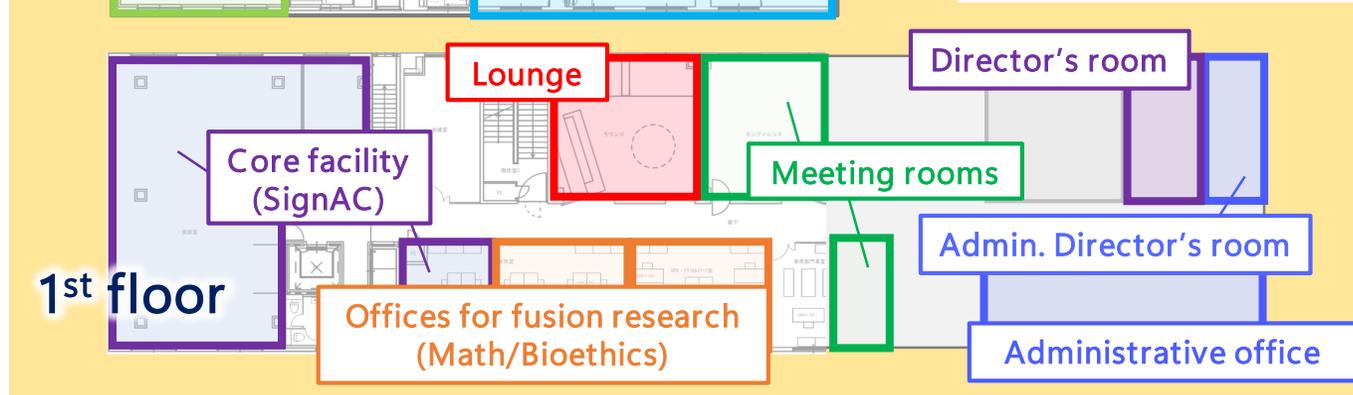
Fujita group

“Current Status of Cell-based Interventions in Japan”,
Cell Stem Cell, 29 (9), 2022



ASHBi Main Building is the "Interaction Hub"

B1F/1F → Interaction in/out of ASHBi (Core Facility, Meeting Rooms, Lounge)
 2F/3F → Interactions between PI groups (Shared lab/office)



Development of SignAC (from 2018)

2019

2020

2021

2022



Automation systems



Single-cell platforms



10X Chromium Controller



10X Chromium X



GPU node

Next-generation sequencers



ddPCR



TapeStation

Long-read sequencers



ONT PromethION24



PacBio Sequel IIe

DNA/RNA Analysis



FemtoPulse



Dragonfly Discovery (coming soon)

Computing clusters



LSM980



BD FACSAria Fusion

Activities to increase availability & income

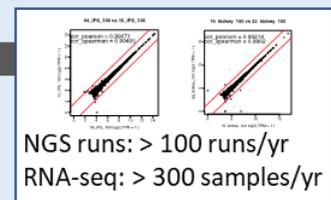


iSAL
Innovative Support Alliance for Life Science

iSAL: > 1000 users

Affiliated with iSAL

Illumina, RNA-seq



Fee charging

Revenue: 63M JPY/yr
(for Maintenance costs: 16M JPY)

Analysis service

ONT, PacBio, DNA/RNA QC

AMED BINDS

創薬等先端技術支援基盤プラットフォーム
BIBDS
Basis for Supporting Innovative Drug Discovery and Life Science Research

“Long-read epigenome profiling” (R4 - R9)
15M JPY/yr for R&D; 15M JPY/yr for supporting platform

Increasing International Visibility via Exchange/Collaboration

Institute seminars by overseas researchers

ASHBi Seminar as a forum for exchange with overseas researchers



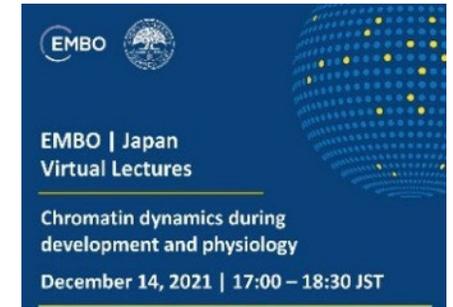
To increase interactions with overseas researchers, even during the COVID-19 pandemic, 12 online seminars were held in FY2021

Inter-organizational collaboration

ASHBi has been invited by world's leading research communities



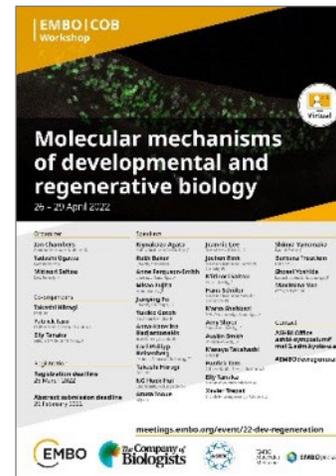
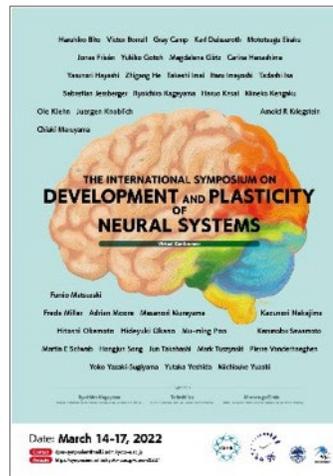
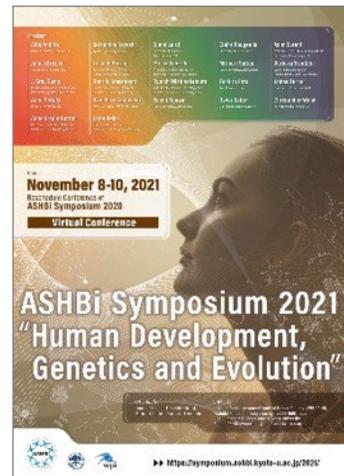
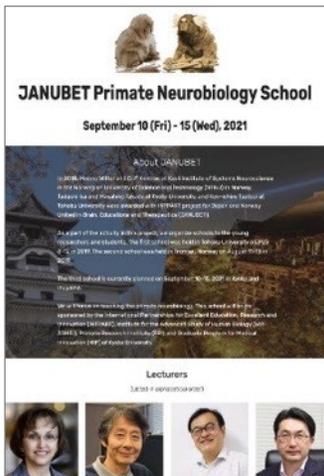
ASHBi joined the "International Circle of Stem Cell Research Institutes and Centers" organized by the International Society for Stem Cell Research (ISSCR).



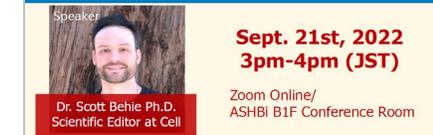
ASHBi was invited by EMBO to co-organize "EMBO-Japan Virtual Lectures"

International symposiums and workshops

We have actively organized international symposiums and summer schools



Meetings with scientific journal editors



In this seminar, I will be discussing the editorial process at Cell and also:

- How Cell editors make decisions and when to appear
- How Cell editors make decisions and when to appear

ASHBi has organized a "Meet the Editor"-like meeting to provide opportunities to interact with Editors from top-tier journals and understand the editorial process



FY2022 WPI Program Committee, Nov 2022

Status of Internationalization and Recruitment Programs

Non-Japanese/Female Researchers

as of April 2023

Non-Japanese

25/67 = **37%**

Female

18/67 = **27%**

PI



C Alev

G Bourque

H Ueno

S Seirin-Lee



CY Chen



X Chen



J Lee



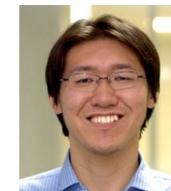
S Ma



S Hamidi



K Meehan



Z Zhang



RT Eriksson



W Amlly



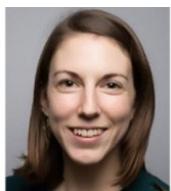
S Bhagat



Y Fang



D Cyranoski



M Lawrence



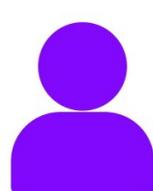
B de Massy



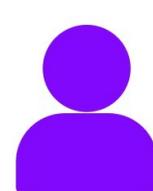
A Diez



KT Kim



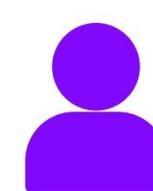
S Aktar



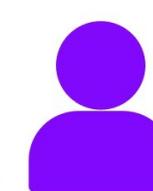
S Plunder



XV Meza



Y Kang



RA Najnin

Institutional Support Program

ASHBi Foreign/Female Researcher Employment Support Program

International Graduate Students

Through our effort to recruit international students to ASHBi, we have successfully recruited **17** students from the **Financial Support Program** and **3** students from the **McGill-Kyoto Joint PhD Program**

Institutional Support Program

ASHBi Financial Support Program for International Graduate Students
McGill-Kyoto International Joint Ph.D. Program in Genomic Medicine

Research Acceleration Unit provides “Problem Solving” Support

ASHBi Administrative Office

Administrative Director (T. Ogawa)

English speakers

Research Acceleration Unit

Specialist group for flexible research support (4 staff)



S. GOULAS (Lecturer)
Ex-Cell Press Editor
Scientific Writing



T. SHIMIZU (Lecturer)
Ex-University PR Section Staff
Press Release, Outreach



M. SHIDA (URA)
Ex-Business Startup Specialist
Lab start-up, Grant Writing



H. INOUE (Research coordinator)
Ex-Lab Manager at UCSF
Scientific Visualization

Administrative Management Unit

Ordinary administrative operations (7 staff)

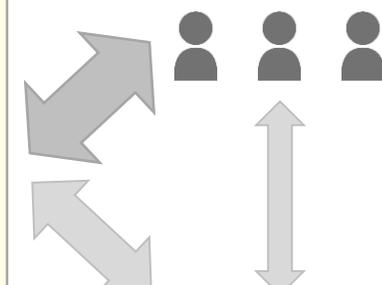
Human resources
International recruiting, employment support

Accounting
Institutional budget planning & management

Event organizing support
International conference preparation, logistics

IT support
Website management, zoom set up/operation

ASHBi PIs & Secretaries



University Admin.



Resolving problems associated with conducting research



e.g. Purchasing human samples from abroad

Designing/managing institutional programs to address institute-wide issues



e.g. System design of “ASHBi Fusion Research Grant Program”

Planning/organizing institutional key

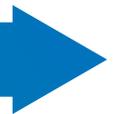


e.g. Organizing ASHBi Retreats

Assistance in preparing news releases



e.g. Drafting news release text and graphics



Institutional

PI group

Individual

English Website

Life at ASHBI
ASHBI is located in Kyoto, a city with a history of more than 1,200 years and widely considered the center of traditional Japanese culture.

Webpage design, planning the contents

Website for Young PI groups

Inoue lab (Bourque group)
Research: In our genome, only 1.5% of DNA encodes for proteins and 98% is **non-coding**, of which function is unknown. Inoue laboratory aims to understand **human regulome** that underlies complex biological phenomena, evolution, and disease.

Hiiragi group
Research: The Hiiragi group studies robustness in development and aims to understand the design principle of self-organising multi-cellular systems.

Common template, content coordination with PIs

International News

NEWS RELEASE 21-DEC-2022
Sculpting the human body plan in a dish
ASHBI researchers have contributed to unravelling the mysteries behind the human body plan.

Press release text/illustration, dissemination

Promoting Fusion& Internationalization

Call for Applications: ASHBI Fusion Research Grant
ASHBI aims to uncover the design principles of human beings and disease states, through a multi-disciplinary science approach.

Support period	Support funding
1-2 years**	< 8 million JPY in total (c. 3 million for each year)

Planning the program, document preparation, program management
ASHBI Fusion Research Grant Program
ASHBI Foreign/Female Researcher Employment Support
ASHBI Financial Support for International Graduate Students

Institutional

3rd Workshop on ASHBI Fusion Research Grant
3rd August, 2021 9:00am-12:00pm via Zoom

Event Organization

Event Flyer/Logo

ASHBI DISTINGUISHED SEMINAR
Modelling early human development using stem cells: Exploring regulatory considerations and anticipating societal response.
Lecturer: Megan Munsie PhD, Professor, University of Melbourne.

Brushing up manuscript & grant proposals

e.g. Cover letter improvement

1. Overview of WPI-ASHBi
2. Support for newly joined researchers/PIs
3. Support for early-career researchers
(Research Acceleration Program)
4. Discussions

Newly joined researchers/PIs face many problems

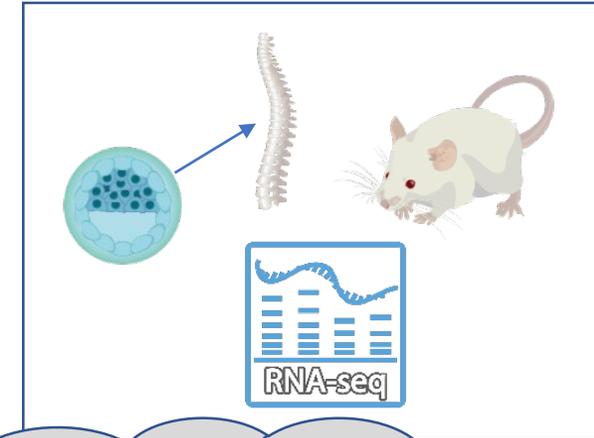
e.g. Employment



Why Japanese text only?
Why so difficult...

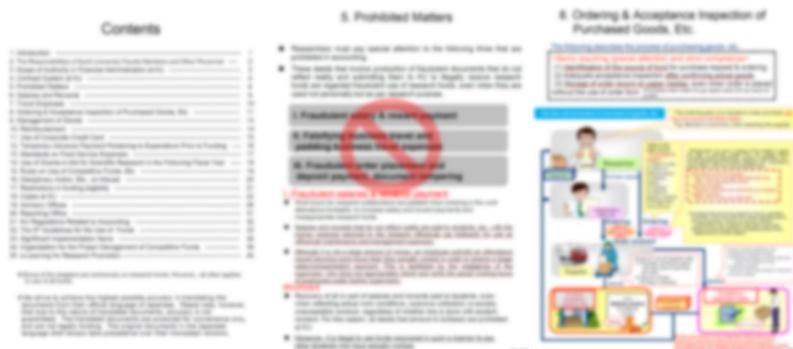
Why so complex?
Too many pages...

e.g. Experimental regulations



What do I need to prepare for my research?
Who should I ask?

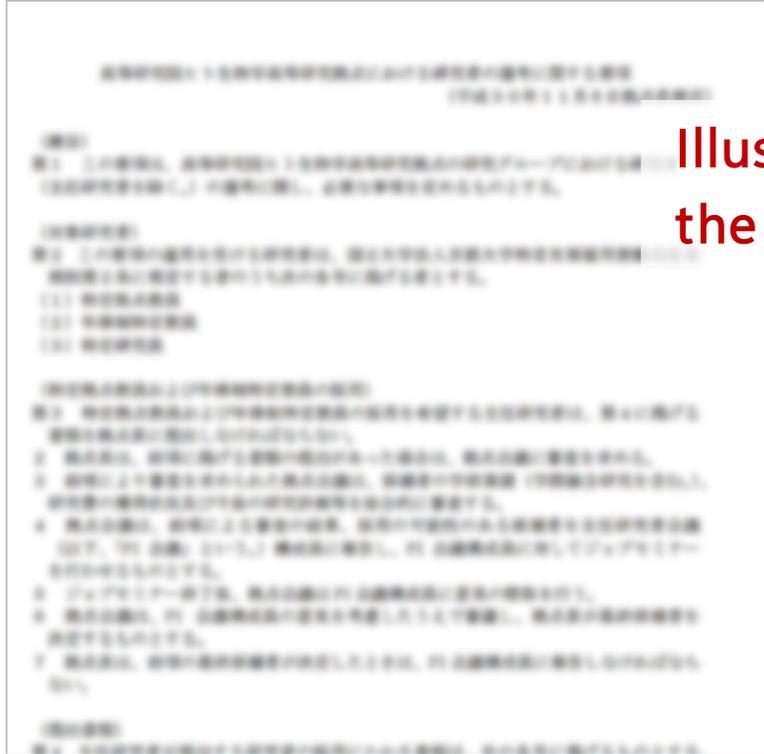
e.g. Purchase rules



Visualizing the Process & Flow (for easy understanding)

“A picture is worth thousand words”

e.g. Researcher Recruitment



Illustrating the process

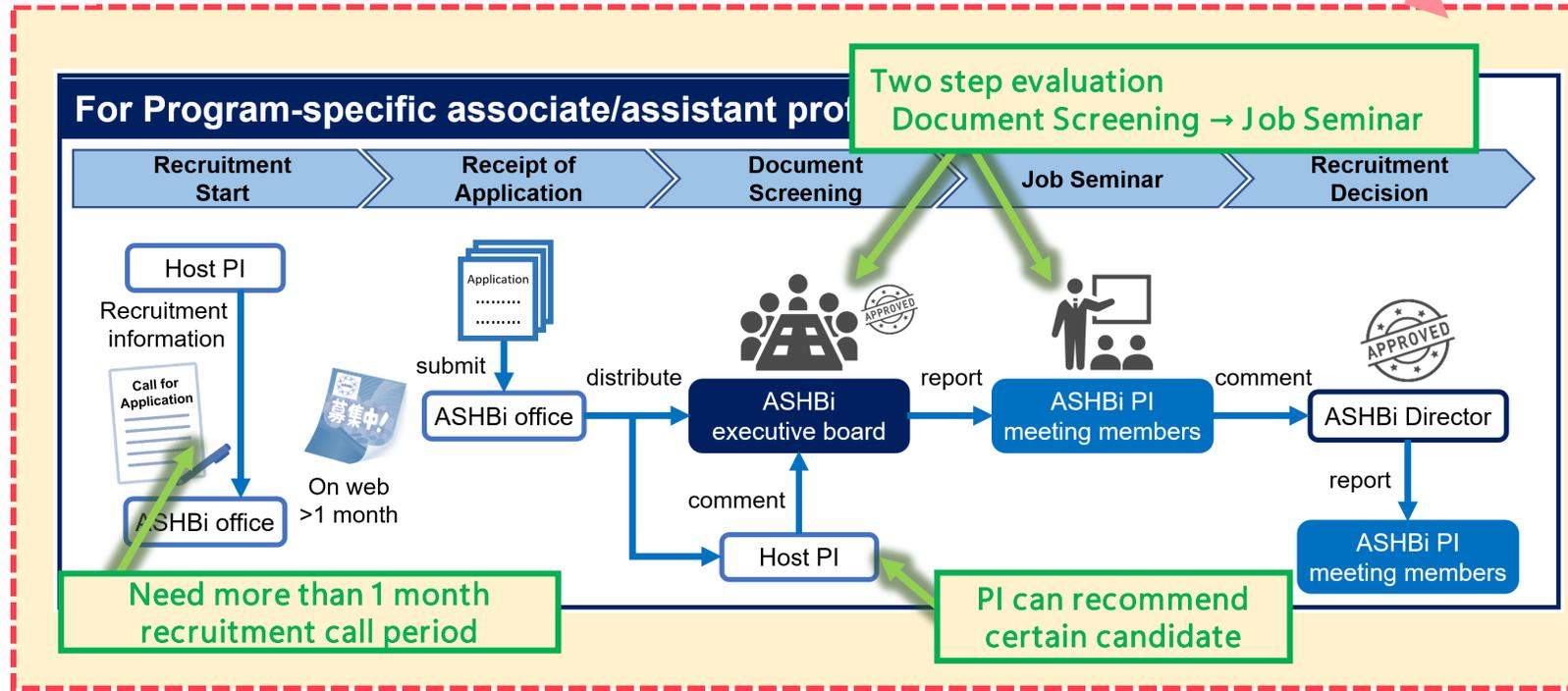
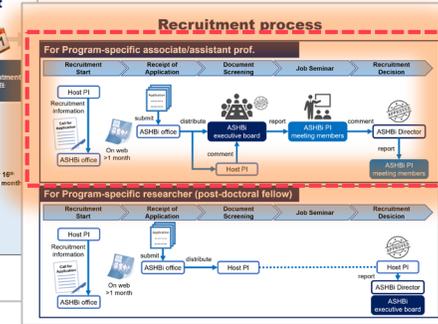
- Text only with difficult terms
- No English provided
- No graphical aids



Required procedures/periods for recruitment

Position Title 職位	Open Recruitment 公開	Document Screening 書類審査	Job Seminar ジョブセミナー	Employment Decision 採用決定	Appointment 着任
Program-specific associate/assistant prof. 特定学術研究員	Required > 1 month period	Screened at ASHBI executive board assembly* Comments Note * Host PI not considered	Interviewed by ASHBI PI meeting members	> 2 months* prior to appointment Salary & employment terms must be determined by this point	1* or 15th* of each month
Program-specific Researcher (post-doctoral fellow) 特定研究員		Screened & Decided by host PI			
Assistant technical/administrative staff 技術補助員/事務補助員	Upon PI's request			> 2 weeks prior to appointment*	

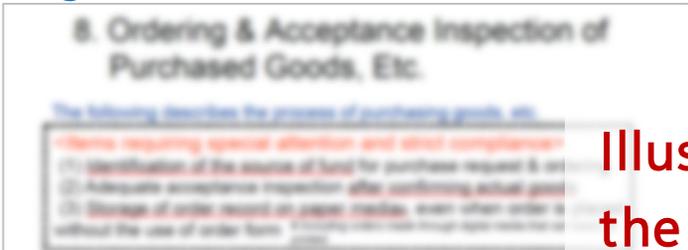
*1 毎月1日
*2 If the new employee is already affiliated with Kyoto University or not employed, the period may be shortened to 1 month.
*3 If merit value is "特別優秀候補者" (特別優秀候補者) or "特別優秀候補者(候補者)", the period may be shortened to 1 month.
*4 If merit value is "特別優秀候補者(候補者)", the period may be shortened to 1 month.



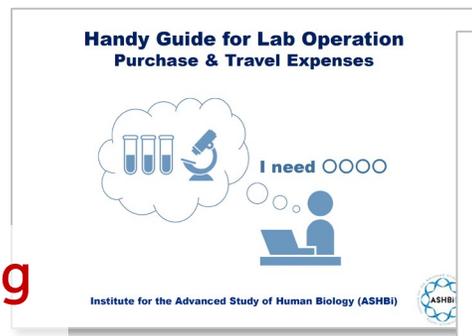
Visualizing the Process & Flow (for easy understanding)

“A picture is worth thousand words”

e.g. Purchase rules



Illustrating the process

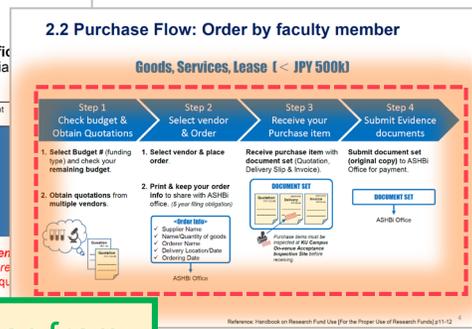


2.1 Purchase: Ordering Methods

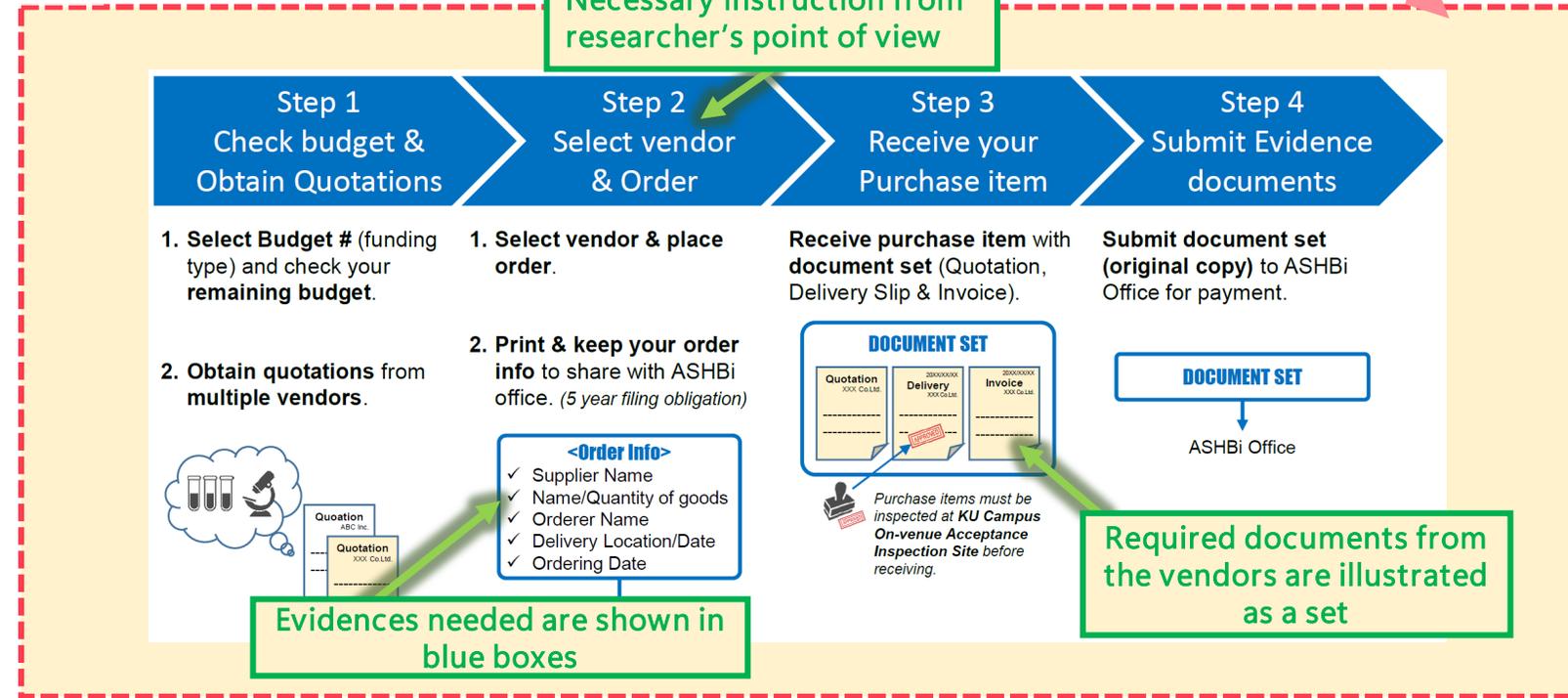
You can order directly under certain conditions. For other conditions, you must order via ASHBi office. For both cases, payment is made through KU Financial Accounting System.

Purchase Type	Payment Amount < JPY 500k	Payment Amount ≥ JPY 500k
-Goods -Services -Lease	[Method 1] Order by faculty member →Section 2.2	[Method 2] Order by admin office →Section 2.3
-Construction -Honorarium	[Method 2] Order by admin office →Section 2.3	

Please contact ASHBi office in advance when direct payment by cash or personal credit cards is necessary (i.e. confere registration). *<100K JPY with reason explanation req.

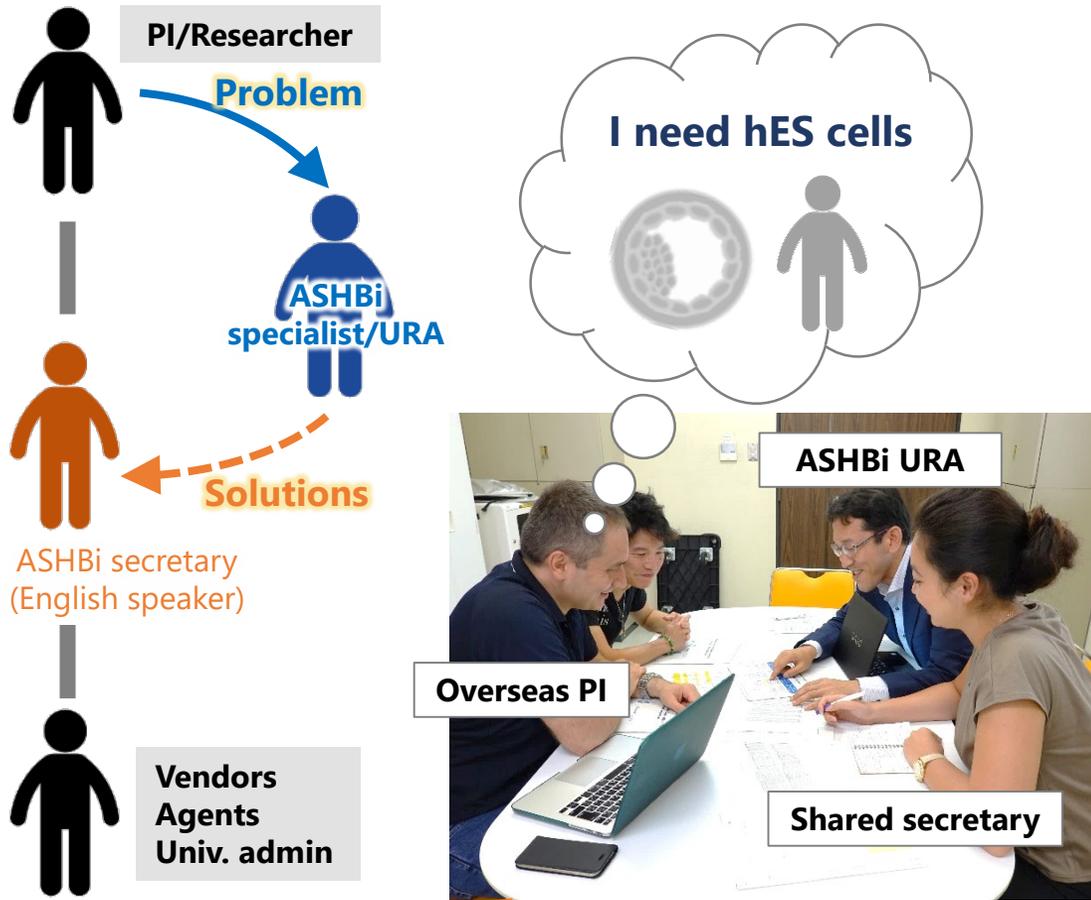


- Complicated Flow
- Mix of different viewpoints
- Too much information



Normalizing the Customized Solution (for common practice)

URA finds solution for the initial problem upon PI's request, then normalize the knowledge & learnings to be shared via the secretaries



Problem occurs
 e.g. · Importing new human cell lines from collaborators overseas
 · Determining the need for ethical reviews for starting research

Solution search by the Acceleration Unit
 e.g. · consulting with related authorities/departments

Systemizing the solution, sharing with secretaries

Basic flow for preparing and conducting biological research at Kyoto University

Research Approval	Basic	<input checked="" type="checkbox"/>	1.1 Recombinant DNA Research
	Additional	<input checked="" type="checkbox"/>	1.2 Animals 1.3 Human cells, data
Contract/MTA	Negotiated	<input checked="" type="checkbox"/>	Intellectual Property <input checked="" type="checkbox"/> Genetic Resources
	Shipment (Import)	All Imports	3.1 Customs Declaration
Experiment	Additional	<input checked="" type="checkbox"/>	3.2 Animal Quarantine (Domestic Animals/Materials) 3.3 CITES Approval (Endangered Animals)
	Disinfection & Discarding	1 Protection	<input checked="" type="checkbox"/> Lab coats, eyeshield etc.
2 Containment		<input checked="" type="checkbox"/> P1/P2, P1/AP2A	
Disinfection & Discarding	3 Management	<input checked="" type="checkbox"/> Chemicals, gases etc.	
	Waste separation + deactivation		
Disinfection & Discarding	Biohazard Wastes		Chemical Wastes
	Waste Liquids		

Institute for the Advanced Study of Human Biology (WPI-ASHBI) 3

Secretaries can handle similar problems by themselves

When problem occurs in conducting research, the URA search & provide ideal solution. The solution & process is then shared with the secretaries so that the secretaries can solve similar problems by themselves.

Coordinating the Individual Wishes into Common Consensus

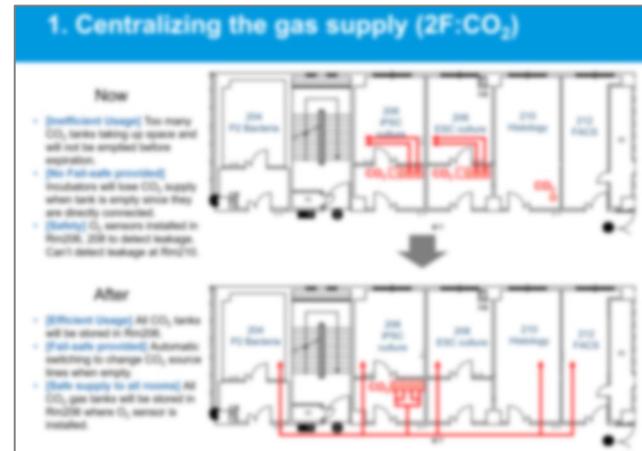
Coordination by URA enables an **optimized use of limited research budget** in shared equipment purchase, building development etc.



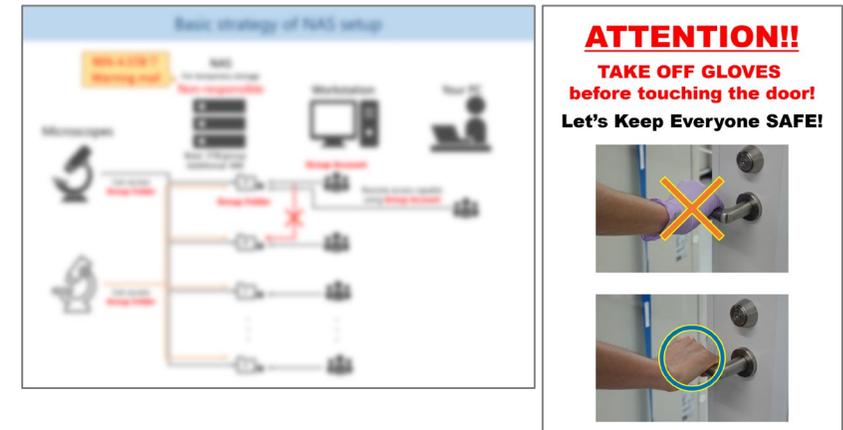
Building Development



Safety Infrastructure Development



Basic Operating Rules



1. Overview of WPI-ASHBi
2. Support for newly joined researchers/PIs
3. Support for early-career researchers
(Research Acceleration Program)
4. Discussions

What skills do Early-career Researchers need to develop?

Research Flow

Planning



Apply for Grants



Experiment & Data Analysis



Paper Writing



Outreach



Ability to appeal your research to

“Grant Reviewers”

consisting of

Researchers from Other fields

Ability to appeal your research to

“Editors & Reviewers”

consisting of

Researchers from Similar fields

Ability to appeal your research to

“Media & Public”

consisting of

Non-experts

**→ Ability to tell your Research to others
(Structuring your Research Story)**

"Telling Your Research Story" to Different Audiences

Different audiences have different interests
 You need to modify your story to reach out effectively



"Structuring Your Research Story" Effectively

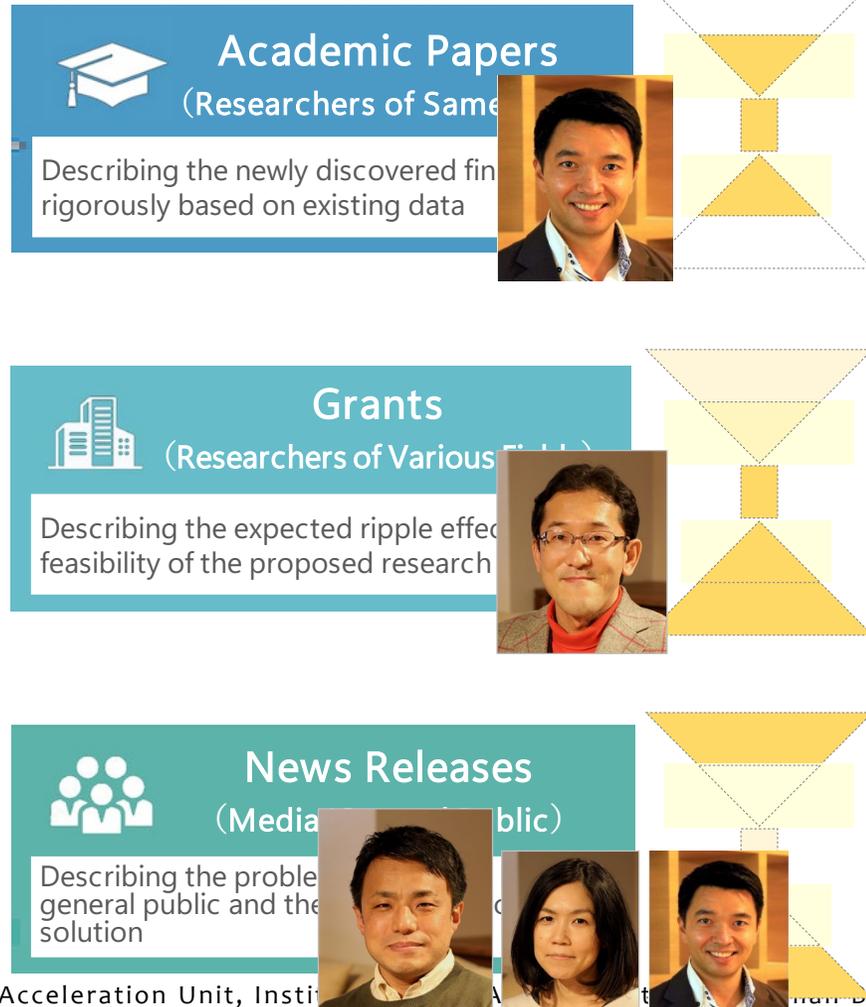
Building Your Story Structure

Double pyramid (Wide-Narrow-Wide viewpoint)



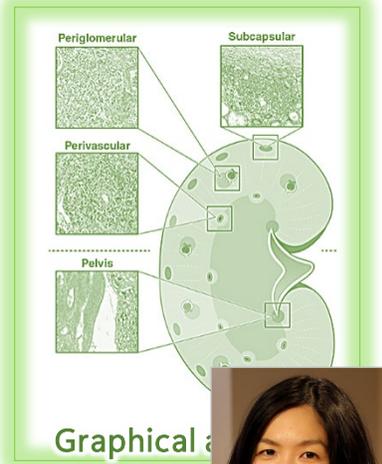
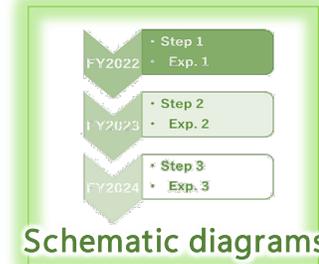
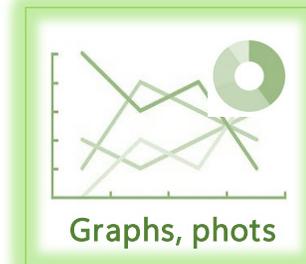
Story Modification for Target Audiences

Storyline based on target's interest



Effective Use of Illustrations

Illustrations suitable for different objectives
Data, Abstract, Eye-catcher, etc



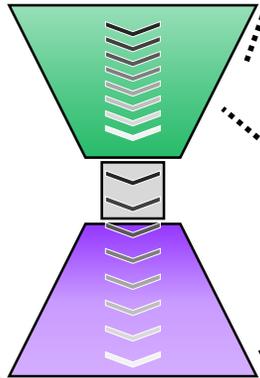
Seminar Examples: Scientific Paper Writing

DOI:<https://doi.org/10.1016/j.devcel.2020.04.008>

Sanaki et al., 2020. Dev Cell



PAPER STRUCTURE



Introducing Context/Problem of Broad Interest

- *Metabolic diseases*
- *Cancers*
- *Links between Metabolism and Cancer*



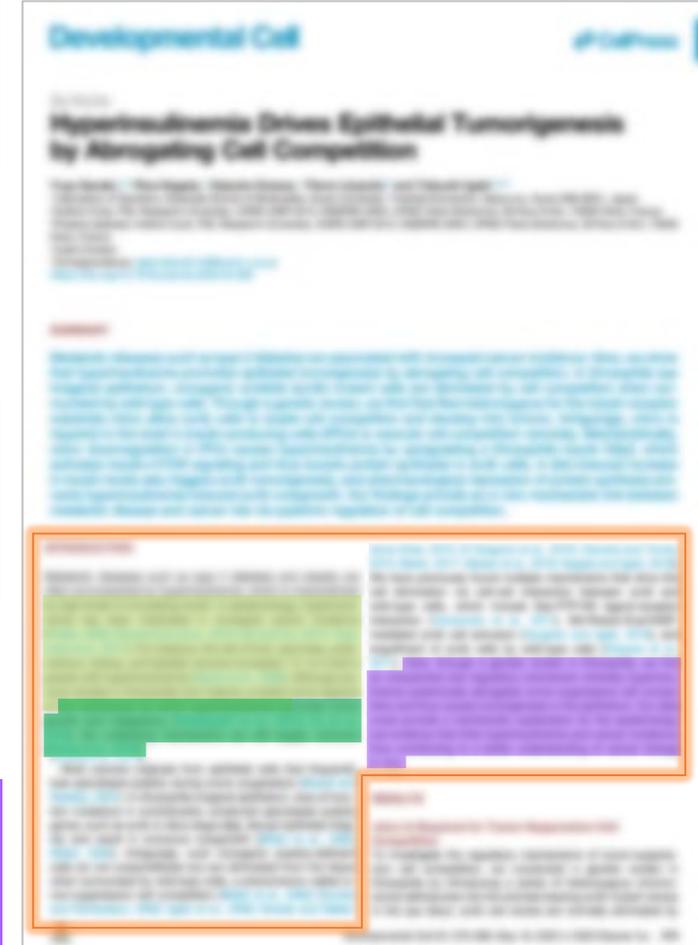
Advantages of System being Used

The Central QUESTION

- *How does hyperinsulinemia promote tumor growth?*

Brief Description of Results and Implications

- *Heightens anticipation and curiosity of results and their broader potential implications*

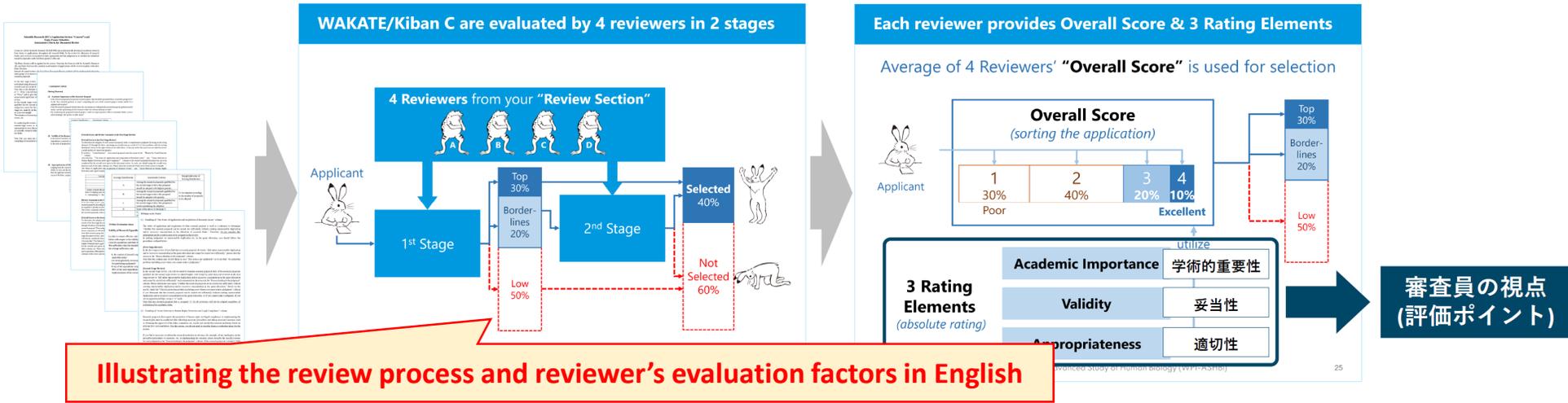


元 Cell Press 誌エディター



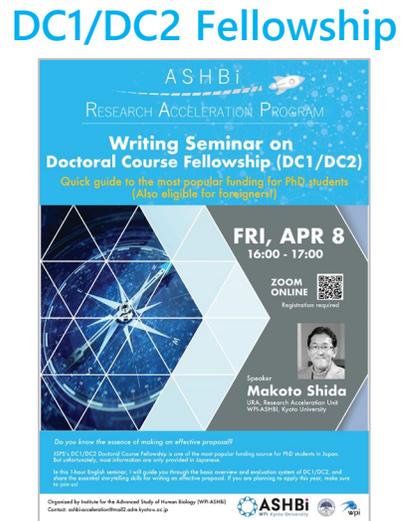
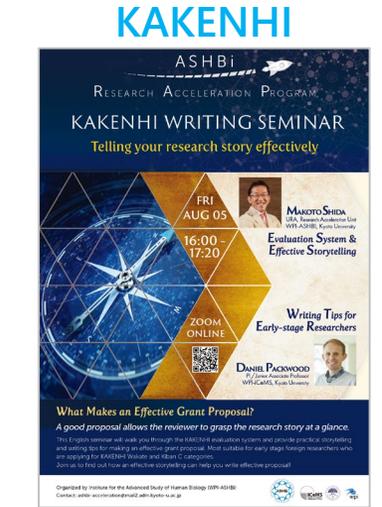
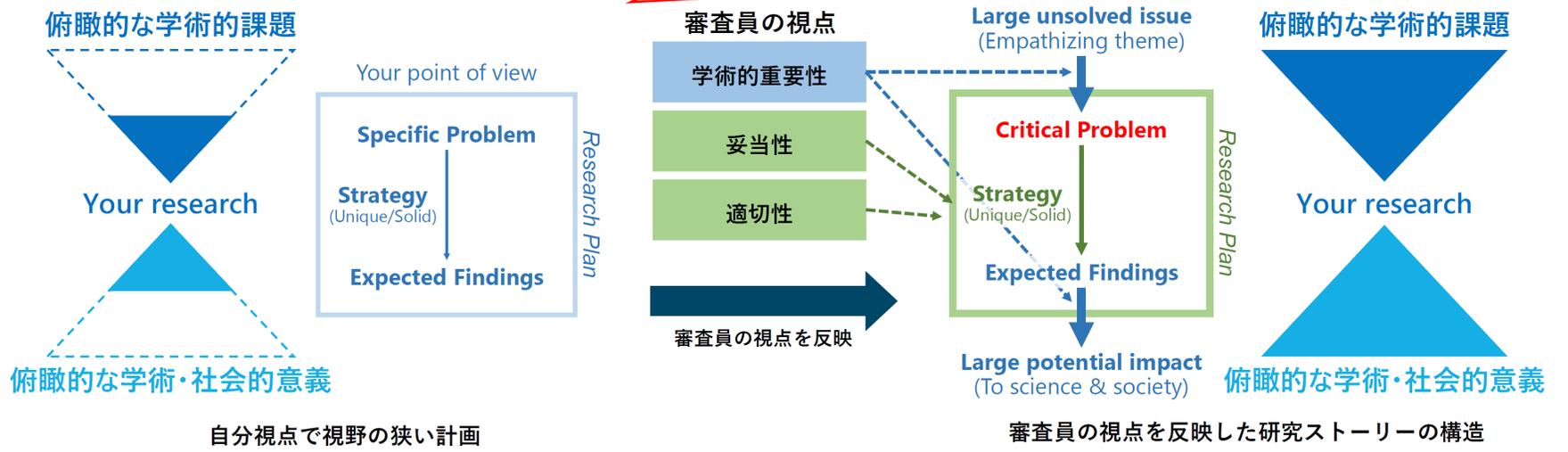
Cell エディター

Seminar Examples: Grant Writing



Illustrating the review process and reviewer's evaluation factors in English

Structuring the storyline to incorporate the evaluation factors properly



Modified from RMAN-J 8 Poster, Aug 2022

https://ashbi.kyoto-u.ac.jp/news/20220926_ogawatadashi_rman-8th-annual-meeting/

Seminar Examples: News Release, Visualization

Public writing

ASHBi Research Acceleration Lecture Series
海外メディアに向けた研究成果の発信セミナー
 —効果的なストーリーとビジュアル作り—

EurekaAlert!

2019年 11月12日 火
 16:00-17:00

京都大学 吉田キャンパス
 医学部附属病棟7階セミナー室

記者の置かれている状況 | 投稿される記事数

膨大なニュース情報 → 記者の目に留まる記事を作ることが重要

約91件/日
 約33件/日
 1-5件/日

記者
 ニュース

EurekaAlert! AAAS

Easy-to-understand title

NEWS RELEASE 7-APR-2021

Society is not ready to make human brains

① 研究ストーリーを叙述する分かりやすい文章

Kyoto scientists discover 'crack team' of kidney cells that are key to disease recovery
 Hormone linked to oxygen delivery produced by dedicated cells of kidney

読者を引きつけ、研究内容をひと目で把握できるタイトル

研究ストーリーの構造に沿った平易な文章

リード文=研究の核心部分

研究ストーリー

背景
 先行研究
 研究の課題
 研究の手法
 研究成果

Analyzing the sentence structure

group of researchers led by ASHBi and CIRA Assistant Professor Tsutomu ... explains the ethical issues regarding brain organoid research

Eye-catching figure

Jargon-free text

research has allowed medicine to go places that were once science ...

Visualization

ASHBi Research Acceleration Program

MAKING FIGURES EASY

BioRender

BioRender is a web-based illustration tool for biologist!!
 Tons of icons and templates to save your time

FRIDAY 12 MARCH 2021 4 PM - 5 PM

INSTRUCTOR: HIROMI INOUE

VENUE: ONLINE (ZOOM)

ASHBi

Tools enabling to create scientific illustrations in a short time

Visualizing the process of the protocol

These two figures show the same experiment!

Without BioRender

We can't imagine what to do from this figure.

With BioRender

We now know the experimental steps.

Immunoprecipitation Protocol

- Cell lysates (total protein)
- Antigen-antibody complex
- Antigen-antibody-bead complex (with other proteins)
- Antigen-antibody-bead complex (no other proteins)
- Downstream applications (Western blot)

Identical icons means a lot!

百聞は一見に如かず

The Good picture can tell more than thousands of words!

Research Acceleration Program covers the whole research process

Series of workshops/seminars for early-career researchers and graduate students to advance their skills in their research activities



ASHBi
RESEARCH ACCELERATION PROGRAM
KAKENHI Writing Seminar
Telling your research story effectively

KAKENHI overview and evaluation system
Writing tips for early-stage researchers

Migaku Shino
University Research Administration, ASHBI
Director, Research Center for Innovative Science and Technology

Die-Hill Tsuchida
Professor, Graduate School of Science, Kyoto University
Vice-Chairman, ASHBI

Zoom Online (Registration Required)
16:00-17:00 Friday, 30 July 2021

研究費申請支援セミナー
伝える調書作り

Writing tips for KAKENHI grant



ASHBi
RESEARCH ACCELERATION PROGRAM
An Ex-Cell Press Editor presents
Telling the Story of a Scientific Paper
Abstract: Abstract

Speaker
SPYROS GOULAS
Scientific Advisor, ASHBI
Ex-Scientific Editor, Developmental Cell

JUNE 24, 2022
Fri 16:00 - 17:00

A GOODDAY TO PUBLISHING PAPERS

This seminar is part of a series, where I will be sharing with you my insights as a former editor at Cell Press on how to publish your work successfully.

In this first seminar, I will be discussing the function and value of the narrative, or so-called "storytelling", of a scientific paper and tips on how to prepare a paper in order to tell your story.

Writing tips for Scientific Paper



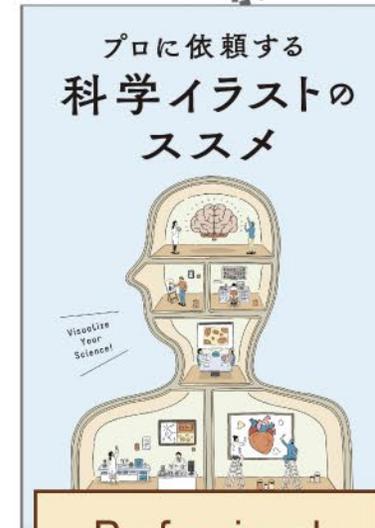
ASHBi
RESEARCH ACCELERATION PROGRAM
Visualizing your research!
伝わる研究計画書・論文の概要図を作るための思考整理

2022年2月10日 | 木
15:00 - 16:30

Zoom Online Seminar (事前申込制)

Speakers
小野 亮広 (Ryohiro Ono)
特任准教授, 京都大学
野村 博彦 (Hiroyuki Nomura)
准教授, 京都大学

Design tips for making figures



プロに依頼する
科学イラストのススメ

Visualize Your Science!

Professional illustrators



ASHBi
RESEARCH ACCELERATION PROGRAM
SciComm 101
Tips for sharing your science news with the world
EurekAlert! The world's largest science news platform

Brian Lin
Professor, Graduate School of Science, Kyoto University
With over 20 years of experience as a science communication expert in the publishing industry, he has written hundreds of press releases and has been featured in a wide range of print and broadcast media.

Moderator: Tomoki Shimizu
Senior Associate Professor of Science Education, Graduate School of Education, Kyoto University

Agenda
1. Introducing EurekAlert!
2. Submitting Writing Requests
3. Storytelling techniques and images/video
4. Basic flow of news release preparation

Zoom Online Seminar
Friday 25 June 2021 10:00-11:20am

Tips for intl news release

Thank you!

Acknowledgements

Research Acceleration Unit

Tadashi Ogawa

Spyros Goulas

Tomoki Shimizu

Hiromi Inoue



ASHBi