

55th Annual Meeting of the Japanese Society of Developmental Biologists in Kanazawa

Program Book

May 31 - June 3, 2022
Kanazawa Bunka Hall,
Kanazawa, Japan

Plenary Lectures:

Claude Desplan (New York University)

Yoh Iwasa (Kyushu University)

Ryoichiro Kageyama (RIKEN)

Online Registration: 3/7- 4/22, 2022

Abstract Submission: 3/7-3/28, 2022

Chair: Makoto Sato (Kanazawa Univ.)

URL <https://www2.jsdb.jp/kaisai/jsdb2022/>



Poster Image: Taisuke Shiozaki

Welcome to the 55th Annual Meeting of the JSDB in Kanazawa !

We are pleased to announce that the 55th Annual Meeting of the Japanese Society for Developmental Biologists will be held from May 31 to June 3, 2022 in Kanazawa city, Ishikawa prefecture. Since the beginning of 2020, Japan has been at the mercy of the corona disaster, and the 53rd Annual Meeting, which was to be held in Kumamoto, was switched to an online trial meeting. The 54th annual meeting, which was scheduled to be held in Sapporo in 2021, was eventually switched to an online meeting, but it was a unique meeting that incorporated various innovations that only online can provide. As you can see, the opportunity to participate in on-site conferences has almost disappeared, but on the other hand, we were able to experience various advantages that only online can offer.

On the other hand, I often hear people say that they are eager for on-site conferences. Online is certainly convenient, but it is difficult to expect unexpected encounters and irregular information exchange. In addition, the quality of communication is very different between face-to-face and online. I myself am feeling tired of online, so I would really like to enjoy on-site conferences soon.

Until July of 2021, vaccination against the new coronavirus was becoming common, and I was optimistic that the Kanazawa conference in June of the following year would be able to be held on-site without any problems. However, after seeing the limited effect of the vaccine and the spread of the delta strain, I am finding it very difficult to predict what the situation will be like one year from now.

However, we need to prepare a place in advance to hold an on-site meeting. In order to achieve our goal of holding on-site meetings as much as possible, we have reserved the Kanazawa Bunka Hall, but if at the last minute it becomes impossible to hold an on-site meeting, we will switch to an online meeting as soon as possible. There is also the option of a hybrid meeting, but it would be too complicated and costly to manage, so we will have to choose between onsite and online.

I am sure that everyone is devising ways to continue their research activities even in the midst of the corona disaster. I hope that we can provide you with a place where you can present the results of your research and enjoy free discussions, preferably onsite. I know that this is a stressful situation due to various restrictions, but I hope that we can overcome this and share an enjoyable meeting with everyone.

Makoto Sato

Chair of the 55th JSDB meeting organizing committee

このたび、2022年5月31日から6月3日まで、日本発生生物学会第55回大会を石川県金沢市の金沢市文化ホールにて開催することになりました。2020年初頭から日本もコロナ禍に翻弄され、熊本で開催される予定だった第53回年会は残念ながらオンサイト開催は中止となりましたが、代わりにオンライントライアルミーティングが開催されました。2021年に札幌で開催される予定だった第54回年会も、結局オンライン開催に切り替えられましたが、オンラインならではの様々な工夫が取り入れられたユニークな会になりました。この様に、オンサイト学会に参加する機会はほとんど無くなってしまいましたが、一方で、オンラインならではの様々な利点を経験することができました。

一方で、オンサイト学会を渴望する声も良く聞かれます。オンラインは確かに便利なのですが、突発的な出会いとかイレギュラーな情報交換の様なことはなかなか期待出来ませんし、それにやはり対面とオンラインではコミュニケーションの質が大きく異なります。私自身もオンライン疲れを感じているので、そろそろ是非オンサイト学会を楽しみたいところです。

2021年の7月くらいまでは、新型コロナウイルスのワクチン接種が普及しつつあり、さすがに翌年6月の金沢大会はオンサイトで問題無く開催できるだろうと楽観的に考えていましたが、ワクチンの効果が思ったよりも限定的だったことやデルタ株の蔓延を見ると、1年後にどのような状況になっているのか、予想することは非常に困難であると感じつつあります。

ただ、そうは言っても、オンサイトの会を開催するためにはあらかじめ場所を確保しておく必要があります。可能な限りオンサイト学会を開催するという目標のため、金沢市文化ホールを確保していますが、直前になってオンサイトが無理だということになった場合は、すみやかにオンラインの会に切り替える予定です。ハイブリッドという手もありますが、運営が煩雑になり経費もかさむため、オンサイトかオンラインの二者択一となります。

コロナ禍の中でも、皆さん工夫して研究活動が続けておられることと思います。その成果を発表し、自由な議論を楽しむことができる場を、できればオンサイトで提供できることを願っております。いろいろな制限によってストレスの多い状況だとは思いますが、これを乗り越え、皆さんと楽しい会を共有できることを期待しています。

佐藤 純

第55回年会準備委員長

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Acknowledgements of Sponsorship

The organizing committee of 55th Annual Meeting of JSDB gratefully acknowledges the generous financial support of the following :

Sponsors



TOMIKI MEDICAL INSTRUMENTS co.ltd.



RING

Replication of Non Genome

Organizing Committee

Chairperson:	Makoto Sato (Kanazawa University)
Members:	Hiroshi Kawasaki (Kanazawa University)
	Yohei Shinmyo (Kanazawa University)
	Tetsuo Yasugi (Kanazawa University)
	Satoru Okuda (Kanazawa University)
	Koichiro Uriu (Kanazawa University)
	Satoshi Toda (Kanazawa University)
	Isao Kobayashi (Kanazawa University)
	Hirofumi Nishizono (Kanazawa Medical University)

Access guide to Kanazawa Bunka Hall

Kanazawa Bunka Hall

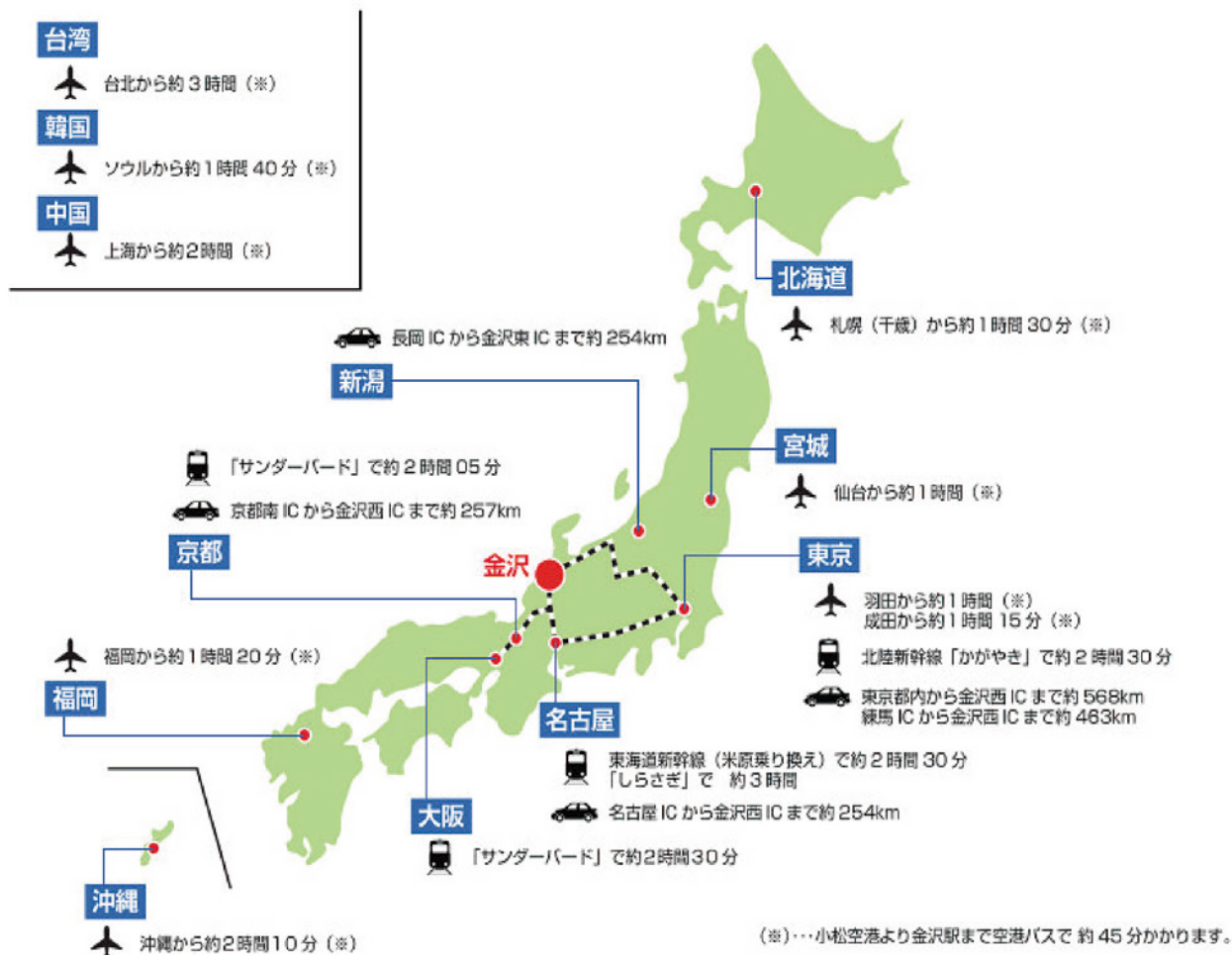
15-1 Takaoka-machi, Kanazawa, Ishikawa, 920-0864, Japan

Phone : +81-76-223-1221 Fax : +81-76-223-1299

Kanazawa Bunka Hall (in Japanese) 	Kanazawa Bunka Hall Google map 
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■ 東京 → 金沢

【新幹線で】

- ・東京 — 金沢「かがやき」利用 約 2 時間 30 分

【飛行機で】

- ・羽田 — 小松 約 1 時間
- ・小松空港より
空港バスで …… 金沢駅行 約 45 分
金沢駅金沢港口 (西口) 到着
車で …………… 高速道路利用 約 40 分

■ 大阪 → 金沢

【JR で】

- ・サンダーバード利用 約 2 時間 30 分

■ 名古屋 → 金沢

【JR で】

- ・東海道新幹線 (米原乗り換え) 利用 約 2 時間 30 分
- ・「しらさぎ」利用 約 3 時間

■ 小松 → 金沢

【JR で】・サンダーバード利用 約 17 分

【空港バスで】・金沢駅行 約 45 分

■ 富山 → 金沢

【新幹線で】

- ・「かがやき」「はくたか」「つるぎ」利用 約 20 分

■ From Tokyo to Kanazawa

【Shinkansen - JR East】

- ・JR Hokuriku Shinkansen Kagayaki :
approx. 2 hours and 30 minutes

【Airplane】

- ・From Haneda Airport to Komatsu Airport :
approx. 60 minutes
- ・From Komatsu Airport to Kanazawa :
*<Bus (Super Express Non-stop)> :
approx. 45 minutes
*<Automobile>: approx. 40 minutes

■ From Osaka to Kanazawa

【JR West】

- ・JR Special Express Thunderbird:
approx. 2 hours and 30 minutes

■ From Nagoya to Kanazawa

【JR Central and JR West】

- *Shinkansen: approx. 2 hours and 30 minutes
- *JR Special Express Shirasagi: approx. 3 hours

■ From Komatsu to Kanazawa

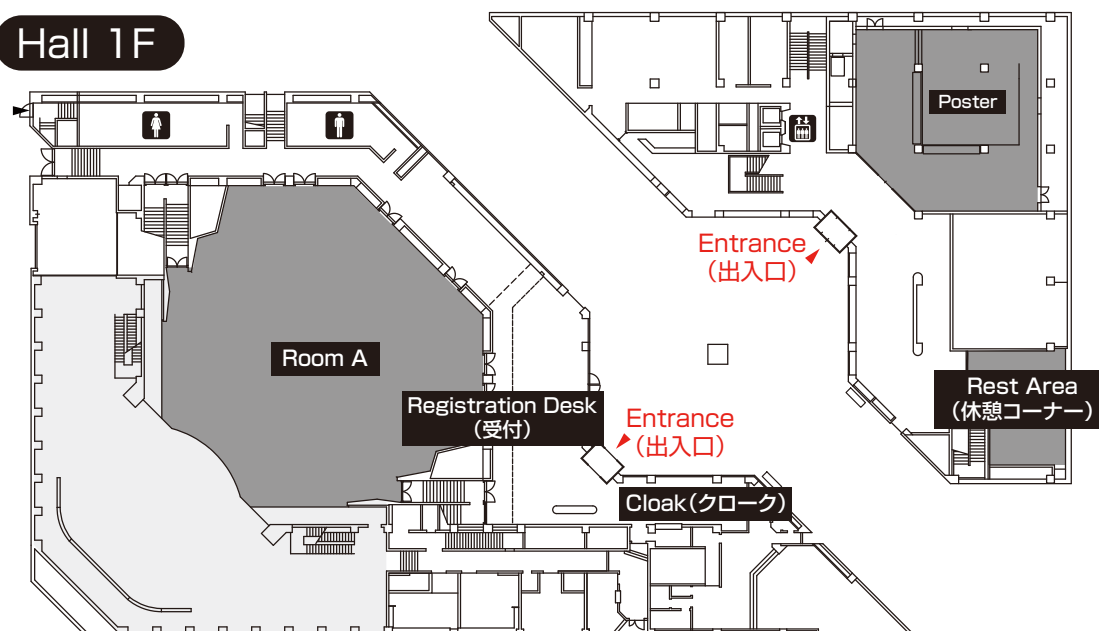
【JR West】

- ・JR Special Express Thunderbird:
approx. 17 minutes

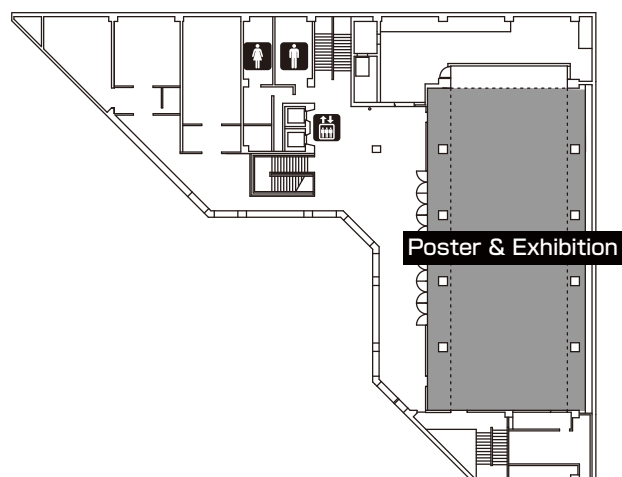
Floor Map (Kanazawa Bunka Hall)

Conference tower 1F

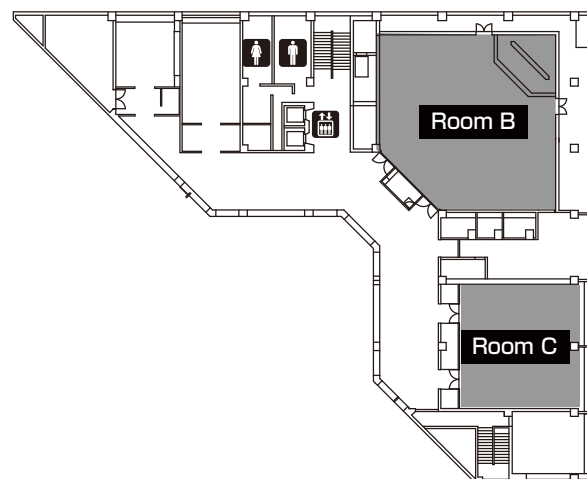
Hall 1F



Conference tower 2F



Conference tower 3F



Poster Room 1 (Conference tower 2F)

Poster Room 1 (Conference tower 2F)

001A~020B Early Embryogenesis

021C~027C Evolution

028A~036C Growth and Metabolism

037A~075C Morphogenesis and Organogenesis

076A~086B Neural Development

087C~096C Patterning

097A~113B Regeneration

091-A 102-C
092-B 101-B
093-C 100-A
094-A 099-C
095-B 098-B
096-C 097-A

103-A 114-C
104-B 113-B
105-C 112-A
106-A 111-C
107-B 110-B
108-C 109-A

001-A 002-B 003-C 004-A 005-B 006-C 007-A 008-B

019-A 027-C
020-B 028-A
021-C 029-B
022-A 030-C
023-B 031-A
024-C 032-B
025-A 033-C
026-B 034-A

041-B 049-A
042-C 050-B
043-A 051-C
044-B 052-A
045-C 053-B
046-A 054-C
047-B 055-A
048-C 056-B

067-A 075-C
068-B 076-A
069-C 077-B
070-A 078-C
071-B 079-A
072-C 080-B
073-A 081-C
074-B 082-A

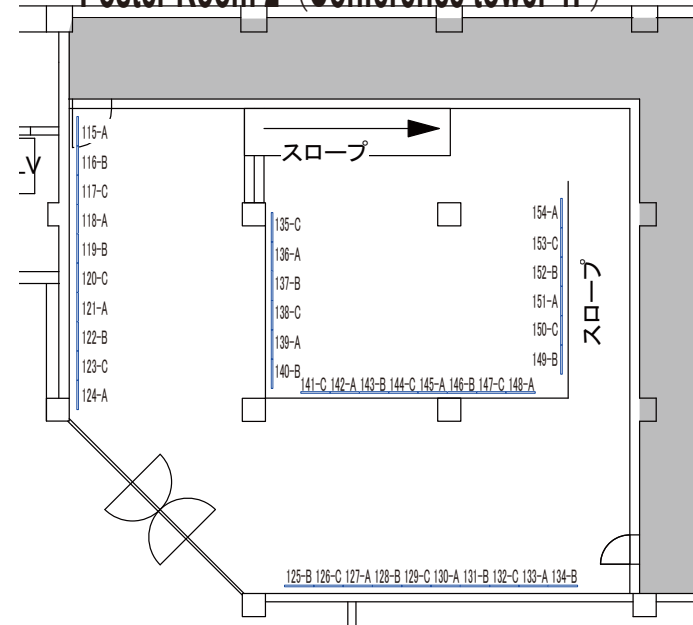
090-C 089-B 088-A 087-C 086-B 085-A 084-C 083-B

009-C
010-A
011-B
012-C
013-A
014-B
015-C
016-A
017-B
018-C

035-B
036-C
037-A
038-B
039-C
040-A

057-C
058-A
059-B
060-C
061-A
062-B
063-C
064-A
065-B
066-C

Poster Room 2 (Conference tower 1F)



Poster Room 2 (Conference tower 1F)

114C~115A New Experimental Systems
116B~126C Reproduction and Germ Cells
127A~134B Stem Cells
135C~136A Technologies and Resources
137B~142A Theory and Modeling

Mounting: 9:00~13:00 on Day2 (May 20 (Wed))

June 1 (Wed) Discussion 1:

13:15~13:45 for A number posters

13:45~14:15 for B number posters

14:15~14:45 for C number posters

June 2 (Thu) Discussion 2:

14:30~15:00 for A number posters

15:00~15:30 for B number posters

15:30~16:00 for C number posters

Removal: 9:00~12:00 on Day4 (June 3 (Fri))

Program at a Glance

Day 0 (May 30)

Satellite event	JAPAN-SINGAPORE JOINT DEVELOPMENTAL BIOLOGY MEETING (ONLINE) 2022 " MULTI-SCALE PATTERNING IN DEVELOPMENT " https://jsdbadmin.wixsite.com/sdbs-jsdb-2022
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Day 1 (May 31)

	11:00-15:00	15:00-16:30 (1.5h)	17:00-19:00 (2h)
Room B		World Café (in Japanese or English)	Free Style Workshop 1 (in Japanese) Developmental biology spin-off: Exploring principles that govern the emerging intelligence of cells
Room C		World Café (in Japanese or English)	Free Style Workshop 2 (in Japanese) Lessons from non-model organisms: For developmental biologists who only use model organisms
Meeting room	DGD Editorial Meeting & JSDB Board Meeting		

Day 2 (June 1)

	9:00-11:00(2h)	11:15-12:15	12:15-13:15	13:15-14:45(1.5h)	15:00-17:30(2.5h)	17:45-19:15(1.5h)
Room A	Plenary Lecture 9:00-10:00 Prof. Ryoichiro Kageyama (RIKEN) 10:00-11:00 Prof. Claude Desplan (NYU, USA) (Room A)	Luncheon Carl Zeiss	Lunch Time		Symposium 1 Stem Cells in Developmental Biology	Oral Presentation 1 Morphogenesis and Organogenesis 1
Room B					Symposium 2 Analysis, reconstruction and synthesis of multicellular systems	Oral Presentation 2 Stem Cells 1
Room C					Symposium 3 Developmental mechanisms underlying sexual reproduction	Oral Presentation 3 Neural Development 1
Poster	Poster Mounting			Poster Discussion 1		
Exhibition	Equipment & Book					

Day 3 (June 2)

	9:00-10:00(1h)	10:15-12:15(2h)	12:30-13:30	13:30-14:30	14:30-16:00(1.5h)	16:15-18:45(2.5h)	19:00-19:30
Room A	Plenary Lecture Prof. Yoh Iwasa (Kyushu University) (Room A)	Oral Presentation 4 Morphogenesis and Organogenesis 2	General Assembly	Lunch Time		Oral Presentation 7 Morphogenesis and Organogenesis 3	Poster Awards Ceremony
Room B		Oral Presentation 5 Regeneration				Oral Presentation 8 Early Embryogenesis	
Room C		Oral Presentation 6 Reproduction and Germ Cells & Technologies and Resources				Oral Presentation 9 Growth and Metabolism & Theory and Modeling	
Poster					Poster Discussion 2		
Exhibition	Equipment & Book						

Day 4 (June 3)

	9:00-11:30(2.5h)	11:45-12:45	12:45-13:45	13:45-16:15(2.5h)
Room A	Symposium 4 Novel insights into cellular plasticity in development, regeneration, and aging		Lunch Time	Oral Presentation 10 Stem Cells 2 & New Experimental Systems
Room B	Symposium 5 Unveiling morphogenesis through theory and engineering	Luncheon キャリアパス ワークショップ (in Japanese)		Oral Presentation 11 Patterning
Room C	Symposium 6 New perspectives of brain development and evolution			Oral Presentation 12 Neural Development & Evolution
Poster	Poster Removal			
Exhibition	Equipment & Book			

General Information for Attendance

Venue

Kanazawa Bunka Hall

15-1 Takaoka-machi, Kanazawa, Ishikawa, 920-0864, Japan

Phone : +81-76-223-1221 Fax : +81-76-223-1299

URL : <https://www.bunka-h.gr.jp/> (in Japanese)

Google map : <https://goo.gl/maps/ddBD2j8ZfbSRPZ2u7>

Kanazawa Bunka Hall	Kanazawa Bunka Hall Google map
	

Official Language

English will be the official conference language, and no simultaneous translation will be provided.

The World Café and Free Style Workshop (May 31) will be held in Japanese.

Registrations

Advanced Registration is no longer available. Please register at the conference venue. (On-site registration is available throughout the conference period.)

Registration Fee (On-site) (JPY)

General JSDB/ISDB/APDBN members : ¥12,000 (early ¥10,000)

Student JSDB/ISDB/APDBN members : ¥4,000 (early ¥0)

General Non-members : ¥15,000 (early ¥12,000)

Student Non-members : ¥5,000 (early ¥0)

*Registration includes access to all scientific sessions and exhibits.

*Students should provide the name and affiliation of their supervisor.

JSDB General Assembly

June 2 (Thursday), 12 : 30-13 : 30, Room A

Payment

All payment must be made in Japanese yen, by credit card or by bank draft, payable to “JSDB”. Please send payment with the completed registration form to the secretariat. **No** checks or money orders will be accepted. All bank charges are to be borne by the remitter.

Name Tags

Name tags will be sent to advance registrants, or will be provided at the time of registration.

Participants are requested to wear their name tags at all times during the conference.

Exhibition

Exhibits by various companies and organizations are provided in Exhibition (Poster Room).

Kanazawa's Present

June 1 (Wed) : At the luncheon seminar, a limited number of kanazawa's present will be provided by sponsors.

Refreshments and Internet Access

Break corners are associated with Rest Area.

WiFi is available in all floors. Login information will be posted at the **registration desk**.

DGD Editorial Meeting & JSDB Board Meeting

May 31 (Tue) 11 : 00-15 : 00

Meeting room.

Poster Awards Ceremony

June 2 (Thu) 19 : 00-19 : 30, Room A

Registration Desk

Open Hour :

May 31 (Tue)	June 1 (Wed)	June 2 (Thu)	June 3 (Fri)
14 : 00-18 : 00	8 : 30-18 : 00	8 : 30-18 : 00	8 : 30-15 : 00

Location : **Kanazawa Bunka Hall Hall 1F Foyer**

Cloakroom

Cloakroom is available for your luggages. Please note that valuables and computers cannot be accepted.

We are not responsible for any damage or loss at the cloakroom.

Open Hour :

May 31 (Tue)	June 1 (Wed)	June 2 (Thu)	June 3 (Fri)
14 : 00-19 : 30	8 : 30-19 : 30	8 : 30-19 : 45	8 : 30-16 : 30

Location : **Kanazawa Bunka Hall Hall 1F Foyer**

Photography / Recording

No photography and recording with camera, video, mobiles or any device is allowed at the lecture, presentation and poster rooms.



Luncheon Seminars Schedule

	Date	Time	Room	Sponsor
1	June 1 (Wed)	11 : 15 ~ 12 : 15	Room A	Carl Zeiss (in Japanese) 

日本発生生物学会第 55 回大会 ランチョンセミナー
カールツァイス株式会社
日時：6 月 1 日（水）11:15-12:15
Room A （大ホール）



55th Annual Meeting of the Japanese Society of Developmental Biologists

ランチョンセミナー 共催：カールツァイス株式会社
6月1日（水） 11:15 ～12:15 会場：ホール

マクロから超解像まで幅広い視覚的解析を可能とする 多用途型共焦点レーザー顕微鏡 LSM 900 Airyscan 2のご紹介

講演者：

深谷 雄志先生

東京大学 定量生命科学研究所
附属生命動態研究センター 准教授

佐藤 康彦

カールツァイス株式会社
プロダクトアンドアプリケーション
セールススペシャリスト



超解像顕微鏡技術は急速に進化しています。発生物学でも欠かせなくなったその技術の進歩は専用機やその利用に長けている研究者のために留まることは求められておらず、全ての研究者が簡便かつ安心して利用できる形へと向かっています。このニーズの高まりに合わせて10年ほど前にZEISSが発表したAiryscan 技術は、現在ハードウェアベースの最も信頼感のある超解像技術として利用されており、共焦点レーザー顕微鏡ベースの超解像技術に革新的な変化をもたらしました。

本セミナーではこのAiryscan技術を更に高速且つ低光毒性撮影を可能にした Airyscan 2 Multiplex 技術に加え、最新のプロセスによって最大分解能を90nmまで向上させた新しいLSM 900 超解像共焦点レーザー顕微鏡をご紹介させていただき、発生物学領域ではニーズの高いマクロレベルのサンプルファインドをAI機能で実施し、得られた試料全体画像からAiryscan 画像の情報をつなぐ自動画像相関技術までマルチモーダルなソフトウェアアプリケーションをご紹介いたします。

また、LSM 900を利用された現在のご研究について東京大学 深谷雄志先生にご講演いただきます。

カールツァイス株式会社
microscopy.ja@zeiss.com
<https://www.zeiss.co.jp/microscopy>



Seeing beyond

日本発生生物学会 岡田節人基金 JSDB Dr. Tokindo Okada Foundation

日本発生生物学会の設立メンバーの一人だった岡田節人博士は、我が国における発生生物学の立ち上げと同時に、グローバル化にもご尽力してこられました。博士は一線を退かれた後も、我が国の発生生物学の国際レベルでのさらなる躍進を期待され、海外交流助成のための「岡田節人基金」を設立されました。

そこで、日本発生生物学会は、発生生物学の将来を担うグローバルな視野に富む研究者の育成を目的とし、海外で開催される発生生物学に関連する国際会議（学会・シンポジウム等）での発表、または海外で開催される発生生物学に関連するコースへの参加に要する経費の一部を助成する。加えて、若手研究者の国際的な討議・意見交換・講演等のスキルおよび国際的評価の向上を目的とし、発生生物学分野において優れた研究業績を有する海外在住の研究者を、国内で開催される発生生物学に関連する会議（学会・シンポジウム等）に招聘する場合に要する経費の一部を助成する。

なお、岡田節人基金 若手研究者海外交流（派遣）助成は学会指定の会議のみを対象とした制度ではありません。学会員から任意の国際会議等を対象に随時申請が可能です。

連絡先：事務局（jsdbadmin@jsdb.jp）

Efforts to Prevent the Spread of the New Coronavirus

Fill out the “Consent for participation” online

Please fill out the consent for participation online prior to your visit.



<https://forms.gle/StFtLmBctYXhGNmT7>

A copy will be sent to you by e-mail. Please present it to the receptionist at the entrance on the first day of participation using a smart phone or other device. A sticker will be attached to your name tag as proof of receipt.

Guests who should refrain from attending

We request that those who fall under any of the following categories refrain from participating in the event. We especially ask that those at high risk of serious illness (the elderly and those with a history of illness) take a cautious approach.

- ✓ Has a fever that is higher than normal.
- ✓ Has symptoms of cough, dyspnea, general malaise, sore throat, nasal discharge/nasal obstruction, taste or smell disorder, eye pain or conjunctival redness, headache, joint or muscle pain, diarrhea, nausea, or vomiting.
- ✓ Has had close contact with a person who has tested positive for novel coronavirus infection within the past 2 weeks.
- ✓ Has visited a country or region where the government has imposed entry restrictions or required a post-entry observation period within the past two weeks, and has had close contact with a person residing in that country or region.

Infection control in the venue

- ✓ Body temperature has to be checked prior to the visit; those with a temperature of 37.5 degrees Celsius or higher will not be allowed to enter the venue.
- ✓ Please disinfect your hands upon entering the venue.
- ✓ Please keep a distance of 1 meter between visitors when entering/exiting the venue and in the lobby.
- ✓ **Eating and drinking are prohibited in the venue.**
- ✓ Please wear a mask and practice good cough etiquette in the venue. Please do not enter the venue if you are not wearing a mask. If you do not have a mask, please inform the staff. We ask that you wear a non-woven or other mask of reliable effectiveness.
- ✓ Admission may be restricted or reception hours may be changed without prior notice.
- ✓ In the event of an outbreak of infection, we may provide your name and contact information to government agencies and public health centers as necessary.

Infection control outside the venue

Although there will be no reception, please be cautious to prevent infection when eating or drinking outside the venue by checking body temperature, disinfecting, wearing a mask, and avoiding eating in a large group.

JSDb2022 Organizing Committee

Consent for participation

This consent form is to be filled out in order to prevent the spread of new coronavirus infection at this convention. Personal information will be kept under strict control and used only for the purpose of admission and necessary notification. Personal information will not be provided to third parties without the consent of the person concerned, except in cases permitted under the Personal Information Protection Law or other laws and regulations. However, the information may be provided to administrative agencies or public health centers to the extent necessary in the event that a person with or suspected of having an infectious disease is found at the convention venue.

Name			
Address Phone	—	—	
Affiliation			
Prefecture	)		
Date / ()		Today's body temperature °C	
Checklist			
(1) <u>Body temperature was checked today prior to the visit.</u>			
(2) Body temperature will be checked daily before or during the visit.			
(3) I am in good health and will pay close attention to any changes in my physical condition during participation.			
(4) I have no close contact with persons who have tested positive for novel coronavirus infection within the past two weeks.			
(5) I have no close contact with travelers or residents from countries/regions with entry restrictions within past two weeks.			
(6) Please wear a mask, wash your hands frequently, and practice good coughing etiquette at the venue.			
(7) I accept that if I become a close contact person, I may be asked to remain at home for up to one week after the contact.			
(8) In the event that a cluster occurs among the participants, I will consent to the disclosure of the contact information listed in this consent form to government agencies and health centers, and I will cooperate in follow-up investigations.			
(9) <u>I accept that there is a possibility that admission to the venue may be restricted, or changes may be made to the program, participation, etc., in the event of congestion. In such cases, I will follow the instructions and guidance of the organizer, venue manager and venue staff.</u>			
(10) Other (Please indicate any concerns you may have)			

Thank you for your cooperation

新型コロナウイルス感染拡大防止への取り組みについて

【オンラインで参加同意書に記入頂きます】

来場前にオンラインで参加同意書にご記入下さい。



<https://forms.gle/StFtLmBctYXhGNmT7>

回答のコピーがメールで送信されますので、参加初日に会場の入口でスマートフォンなどを用いて受付にご提示下さい。受取証として名札にシールを貼らせていただきます。

【ご参加をお控えいただくお客様】

以下に該当する方につきましては、ご参加をお控えいただきますようお願いいたします。特に重症化リスクの高い方（高齢者や既往歴のある方）については慎重な対応をお願いいたします。

- 平熱と比べて高い発熱がある。
- 咳、呼吸困難、全身倦怠感、咽頭痛、鼻汁・鼻閉、味覚・嗅覚障害、目の痛みや結膜の充血、頭痛、関節・筋肉痛、下痢、嘔気、嘔吐の症状がある。
- 過去2週間以内に新型コロナウイルス感染症陽性とされた方との濃厚接触がある。
- 過去2週間以内に政府から入国制限、入国後の観察期間を必要とされている国・地域への訪問歴、及び当該在住者との濃厚接触がある。

【会場内での感染症対策】

- 入場前の検温が必要です。37.5度以上の方のご入場はお断りさせていただきます。
- 入場時の手指消毒にご協力ください。
- 入退場時およびロビーでは必ずお客様同士1mの間隔を確保してください。
- 会場内は飲食禁止とさせていただきます。
- 会場内では必ずマスクを着用し、咳エチケットにご協力ください。マスクを着用していない方のご入場はご遠慮いただきます。マスクをお持ちでない場合はスタッフまでお知らせください。不織布等効果の確かなマスクを着用くださるようお願い申し上げます。
- 3密を避ける観点から、当日の混雑状況によっては予告なく入場制限や受付時間の変更などを行う可能性がございます。
- 万が一感染者が発生した場合など、必要に応じて行政機関や保健所等へお名前と連絡先を提供する可能性がございます。

【会場外での感染症対策】

全体での懇親会は行いませんが、会場外での飲食の際には検温、消毒、マスク着用、大人数での会食の回避など、感染防止に努めて下さい。

第55回大会準備委員会

参加同意書（当日）提出用

本同意書は、本大会において新型コロナウイルス感染症拡大防止のためにご記入いただきます。個人情報については、厳正なる管理のもとに保管し、入場の可否及び必要な連絡のためのみに利用します。また、個人情報保護法等の法令において認められる場合を除きご本人の同意を得ずに第三者に提供いたしません。

但し、大会会場にて感染者患者またはその疑いのある方が発見された場合に必要な範囲で行政機関や保健所等に提供することがあります。

ご氏名			
連絡先 TEL	- -		
ご所属			
所在地	(都 ・ 道 ・ 府 ・ 県)		
来場日 / ()		本日の体温 度 分	
チェック項目			
(11) <u>本日、来場前に検温を行いました。</u> (来場と体温は上枠内に記載してください)			
(12) 現在の健康状態に異常はありません。また参加中の体調変化には十分留意いたします。			
(13) 過去 2 週間以内に、 <u>新型コロナウイルス感染症陽性とされた者との濃厚接触はありません。</u>			
(14) 過去 2 週間以内に入国制限のある国・地域からの渡航者および在住者との濃厚接触はありません。			
(15) 会場内ではマスクを着用し、こまめな手洗いと咳エチケットを徹底いたします。			
(16) 濃厚接触者となった場合は、接触してから 1 週間を目安に自宅待機の要請が行われる可能性があることを承諾いたします。			
(17) 万が一参加者内においてクラスターが発生した場合、行政機関や保健所等に対し本同意書記載の連絡先を開示することについて承諾するとともに、 <u>追跡調査に協力いたします。</u>			
(18) <u>混雑時に会場の入場制限やプログラム変更・参加等に変更が生じる</u> 可能性があることを承諾いたします。その際は主催及び会場責任者・会場係員の指示や誘導に従います。			
(19) その他（気になることがありましたら記入ください。）			

ご協力ありがとうございました。

日本発生物学会第 55 回大会 託児のご案内

開 設 日 時	2022 年 6 月 1 日（水） 8：30～18：30 2022 年 6 月 2 日（木） 8：30～18：00 2022 年 6 月 3 日（金） 8：30～15：30
託 児 人 数	3 名程度／各日
対 象 年 齢	生後 6 ヲ月～就学前まで
場 所	金沢市文化ホール 会議室（詳細は、申込者にお伝えします） 〒 920-0864 石川県金沢市高岡町 15 番 1 号
委 託 先	ゆいま～るベビー金沢 〒 920-0865 石川県金沢市長町 2-7-22
料 金	有料 500 円（税込）／1 時間・お 1 人あたり・1 時間未満は切り上げとします ※オムツなど実費及び、上記時間以外の延長料金は除きます。 ※支払いは、学会受付にて JSDB 事務局にお支払いください。
申 込 方 法	■ WEB 予約 Google form で申込を受け付けです 以下の項目をお伝え下さい。 1. 託児希望日時（例：6 月 1 日 8：30～18：30） 2. 保護者氏名（よみがな） 3. 保護者連絡先（携帯電話番号＋メールアドレス） 4. 保護者所属機関名 5. 保護者会員番号 6. お子様の名前（よみがな）・性別 7. お子様の年齢（〇歳〇か月） 8. お子様のアレルギーの有無 9. その他託児上の注意点 ※お子様が 2 名以上の場合でお預けになる時間が同じ場合は、「お子様の名前（よみがな）・性別」を列記いただいで大丈夫です。ただし、お預けになる時間が異なる場合は、お子様毎に入力いただけますと助かります。
申 込 締 切	2022 年 4 月 22 日（金） ※定員になり次第、締め切らせていただきますのでお早目にお申込みください。
保 険	全国ベビーシッター協会の傷害・賠償保険に加入しており、万が一の場合の傷害保険、賠償保険には万全を期しておりますが、不可抗力による事故等、保険金が支払われない場合がございます。 （一社）日本発生物学会といたしましては、託児ルームのご利用に際して発生する事故等について一切責任を負うことはできませんので、あらかじめご了承ください。

日本発生生物学会第 55 回大会 託児利用規約

ご 利 用 資 格	日本発生生物学会参加者及び 学会員を保護者とする 6 ヶ月～就学前 までのお子さま
料 金	有料 500 円（税込）／1 時間・お 1 人あたり・1 時間未満は切り上げとします ※おむつなどの実費および開設時間外の延長料金は除きます。 ※締切日以降の変更・キャンセルは手数料として全額頂戴します。 ※ご利用料金は、利用当日現金にて、おつり銭の必要の無いようお支払ください。
注 意 事 項	申込みにより保育スタッフを依頼しますので、当日のキャンセルや、実際の利用時間が申込時間よりも短くなった場合は、申込時の保育料のお支払いをお願いします。また、利用時間をやむを得ず延長された場合には、延長分のお支払いをお願いします。
お 持 ち 物	1) 身分証明書（運転免許証、健康保険証または母子手帳） 2) 保育中に必要なもの（要記名）お預かりする荷物は一つにまとめてください。 乳児：粉ミルク・哺乳ビン・お茶用マグ・白湯・その他飲み物・おやつ・お食事（時間帯による）・おむつ 5 枚・お着替え 幼児以上：飲み物・おやつ・お食事（時間帯による）・お着替え 3) 各自：託児申込書（メールに添付しお送りいたします。）
お 食 事	託児室でお食事の用意はございません。昼食時はお子さまをお迎え頂くか、昼食をお持ちください。おやつ、お飲み物はすべてお持ちになったものを差し上げます。 ※特にアレルギー食の方はおやつ、お飲み物、お食事のご持参お願いいたします。
お 願 い	お子さまのお手洗いを済まされたあと、ご入室ください。 当日、発熱（37.5℃ 以上）や感染症など体調不良や、集団保育に適さないと保育スタッフが判断した場合には、お預かりをお断りすることがあります。 緊急の場合は、携帯電話による呼び出しをいたします。「託児申込書」に必ず緊急連絡先をご記入ください。また、その際は迅速なご対応をお願いします。 保育スタッフによる投薬はいたしかねます。 送り・迎えとも時間厳守でお願いいたします。 お持ち物にはすべてに名前をご記入ください。ご記名の無いものにつきましては、当社では責任を負いかねます。
変更・キャンセル	2022 年 4 月 22 日（金）までに下記連絡先までご連絡ください。
保 険	万が一の場合に備え、弊社加入の損害保険で対応させていただきます。但し、シッターの過失以外の原因、不可抗力の場合はこの限りではありません。 （一社）日本発生生物学会ならびに運営事務局は責任を負わないことを了承願います。 ご理解の上、申込書に署名捺印をお願いします。
個人情報の取扱について	株式会社ケアサポート金沢（以下、当社という）では、当社の掲げる個人情報保護方針・関連規程類・法令の沿い今後のサービスご提供の期間に担って貴殿の個人情報の適正な取り扱い、管理及び保護に努めます。 つきましては、本紙内容をご理解いただき、貴殿の個人情報の提供及び利用に同意いただきますようお願いいたします。
連 絡 先	株式会社ケアサポート金沢 ゆいま～るベビー金沢 担当：吉谷 TEL：076-261-5566 E-mail：baby@cs-kanazawa.com

Instruction for Presentations

大会発表についてのご注意

Oral presentation

1. Computer for oral presentation

Presentation should be given with your own PC connected to switcher next to the podium.

- **Make sure to bring any necessary electrical adaptors and connectors for your computer.**
- The meeting venue will provide Mini D-sub15 pins and HDMI cables for connecting to PC switchers. Macintosh and certain kinds of Windows computers require an appropriate connector to fit a Mini D-sub15 pin or HDMI plug.
- The electricity runs on 100 volts and 60 hertz in Kanazawa.
- **The screen ratio is 4:3.** DO NOT use the 16:9 layout for your presentation.

2. Presentation registration

Please come to your session room **at least 15 minutes prior to your talk**, and connect your PC to a PC switcher.

3. Presentation time

Oral Presentation (in English)

12 minutes for presentation and **3 minutes** for discussion.

1BELL	10 minutes	2 minutes to the end of presentation
2BELL	12 minutes	End of presentation-Start of discussion
3BELL	15 minutes	End of discussion

Poster Presentations

Poster board size: **900 mm** (width) × **2100 mm** (height)

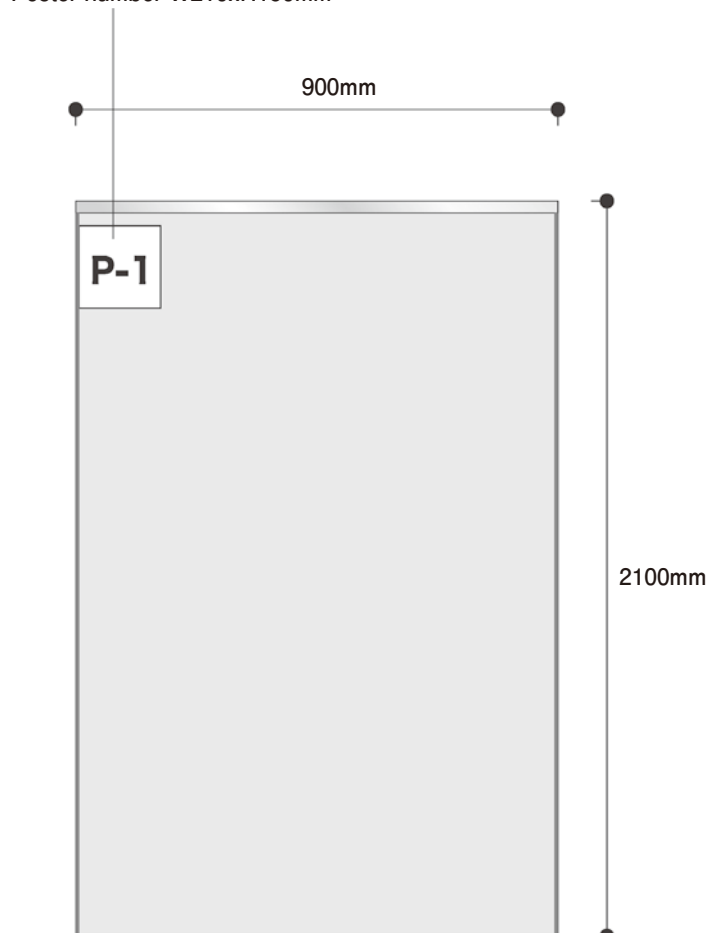
- ◆ Please leave a 210 mm × 150 mm blank space from the top left corner for the organizing committee to indicate your poster number.
- ◆ Please stay (or stand) in the vicinity of your poster during your assigned discussion time. Be sure that every poster presenter is assigned to give explanations his/her poster on Day2 and on Day3 or Day4.

Mounting:	9:00–13:00 on Day2 (June 1 (Wed))
June 1 (Wed) Discussion: 13:15–14:45	13:15–13:45 for A number posters 13:45–14:15 for B number posters 14:15–14:45 for C number posters
June 2 (Thu) Discussion: 14:30–16:00	14:30–15:00 for A number posters 15:00–15:30 for B number posters 15:30–16:00 for C number posters
Removal:	9:00–12:00 on Day4 (June 3 (Fri))

Poster Awards

Eligible participants are students or young research scientists (received Ph.D. within last five years) who wish to be considered for the poster awards. Non-student participants to the meeting will vote.

Poster number W210xH150mm



Scientific Programs

Plenary Lectures

June 1 (Wed) 9:00-11:00 Room A

Chairperson: Hiroshi Kawasaki (Kanazawa University)

- PL-1** 09:00-10:00 The role of oscillatory gene expression in embryogenesis
○Ryoichiro Kageyama (RIKEN)

Chairperson: Makoto Sato (Kanazawa University)

- PL-2** 10:00-11:00 The generation of neuronal diversity
○Claude Desplan (NYU, USA)

June 2 (Thu) 9:00-10:00 Room A

Chairperson: Koichiro Urie (Kanazawa University)

- PL-3** 09:00-10:00 Do mathematical models promote understanding of developmental processes?
○Yoh Iwasa (Kyushu University)

Symposia

Symposium 1 : Stem Cells in Developmental Biology

DATE: June 1 (Wed) 15:00-17:30 Room A
Chairpersons: Makoto Ikeya (Kyoto University)
Yayoi Toyooka (Kyoto University)

Stem cell biology and developmental biology are inextricably linked. In this symposium, front-runners of the field will introduce their latest achievements on developmental biology research using stem cells or stem cell research using the knowledge from developmental biology. We hope that this symposium will especially stimulate young developmental biologists by exposing them to the cutting edge of stem cell-based developmental biology research.

15:00-15:03 Opening

- S01-01** 15:03-15:21 Establishment of mouse stem cells that can recapitulate the developmental potential of primitive endoderm
○Yasuhide Ohinata^{1,2}, Haruhiko Koseki^{1,2} (Cellular and Molecular Medicine, Graduate School of Medicine, Chiba Univ.¹, Laboratory for Developmental Genetics, IMS, RIKEN²)
- S01-02** 15:21-15:36 Clonal dynamics in the murine male germline from primordial germ cells to spermatogonial stem cells, and the next generation
始原生殖細胞から精子幹細胞、そして次世代に至る、マウス雄性生殖系列のクローン動態
○Tatsuro Ikeda¹, Maurice Langhinrichs^{2,3}, Tamar Nizharadze^{2,3}, Thomas Höfer^{2,3}, Hans-Reimer Rodewald^{2,3}, Shosei Yoshida^{1,4} (Div. Germ Cell Biol., NIBB¹, DKFZ², Univ. Heidelberg³, Dep. Bsc. Biol., SOKENDAI⁴)
- S01-03** 15:36-15:51 Loss of matrix integrity underlies age-dependent impairment of epidermal stem cell heterogeneity
加齢皮膚における幹細胞不均一性破綻メカニズムの解明：抗老化マトリクス Fibulin-7 に着目して
Erna Raja^{1,2}, Gopakumar Changarathil², Lalhaba Oinam², Yen Ngo^{1,2}, Jun Tsunazumi³, Ryutaro Ishii², Takako Sasaki⁴, Kyoko Imanaka-Yoshida⁵, Hiromi Yanagisawa², ○Aiko Sada^{1,2} (IRCMS, Kumamoto Univ.¹, TARA, Univ of Tsukuba², Dep of Pharmaceutical Sciences, Kyushu Univ of Health and Welfare³, Dep of Biochemistry II, Oita Univ⁴, Dep of Pathology and Matrix Biology, Mie Univ⁵)
- S01-04** 15:51-16:09 Developing hematopoietic stem cells acquire adaptability to the final hematopoietic niche
発生期の造血幹細胞は最終的な造血組織への適応能を獲得する
○Isao Kobayashi (Fac Bio Sci & Tech, Inst Sci & Eng, Kanazawa Univ)
- S01-05** 16:09-16:24 Tracing the origin of hierarchical hematopoietic structure in the mouse fetal liver
マウス胎仔肝における造血システム階層様構造の起源について
○Tomomasa Yokomizo¹, Takako Ideue¹, Saori Morino-Koga², Cheng Yong Tham³, Tomohiko Sato⁴, Naoki Takeda⁵, Yoshiaki Kuboita⁶, Mineo Kurokawa⁴, Norio Komatsu⁷, Minetaro Ogawa², Kimi Araki⁵, Motomi Osato³, Toshio Suda^{1,3} (IRCMS, Kumamoto Univ.¹, IMEG, Kumamoto Univ.², CSI, NUS³, Dept. of Hematol. and Oncol., Univ. of Tokyo⁴, IRDA, Kumamoto Univ.⁵, Dept. of Anatomy, Keio Univ.⁶, Hematol., Juntendo Univ⁷)
- S01-06** 16:24-16:42 Hepato-biliary-pancreatic organogenesis in vitro
多能性幹細胞を用いた肝胆膵発生システム
○Takanori Takebe^{1,2,3,4} (Institute of Research, Tokyo Medical and Dental University¹, Center for Stem Cell and Organoid Medicine, Cincinnati Children's Hospital Medical Center², Division of Gastroenterology, Hepatology and Nutrition and Division of Developmental Biology, Cincinnati Children's Hospital Medical Center³, Communication Design Center, Yokohama City University⁴)
- S01-07** 16:42-17:00 A Genome-Scale CRISPR screen reveals novel factors regulating Wnt-dependent

renewal of mouse gastric epithelial cells

ゲノムワイドな CRISPR スクリーニングによる Wnt シグナルに依存したマウス胃上皮細胞の増殖を制御する新規遺伝子の発見

○Kazuhiro Murakami¹, Yumi Terakado¹, Nick Barker^{1,2} (Div. of Epithelial Stem Cell Biol., CRI, Kanazawa Univ.¹, Epithelial Stem Cell Group, IMCB, A*Star, Singapore²)

S01-08 17:00-17:15 Generation of the organotypic kidney structure solely from pluripotent stem cells

多能性幹細胞由来間質の誘導法確立による腎臓の高次構造構築

○Shunsuke Tanigawa, Etsuko Tanaka, Ryuichi Nishinakamura (Dept. Kidney Dev. IMEG. Kumamoto Univ.)

S01-09 17:15-17:30 Induction of Neural Crest Stem Cells and Somite Derivatives, and Beyond.

○Makoto Ikeya, Yayoi Toyooka (CiRA)

Symposium 2 : Analysis, reconstruction and synthesis of multicellular systems

DATE: June 1 (Wed) 15:00-17:30 Room B

Chairpersons: Etsuo Susaki (Juntendo University)

Hirofumi Nishizono (Kanazawa Medical University)

Synthetic biology, which aims to understand biological systems and create industrially beneficial organisms through constitutive methodologies, has expanded worldwide in recent years. However, the synthetic biology of multicellular bodies has not yet been thoroughly investigated in the academic field. The purpose of this symposium is to create this “multicellular synthetic biology” community ahead of the rest of the world and discuss possible multicellular models and techniques for artificially designing synthetic multicellular bodies. In particular, the speaker will propose the idea of extending the DBTL (design-build-test-learning) cycle, which enables a systematic design workflow for ongoing single-cell synthetic biology, to multicellular synthetic biology.

15:00-15:10 Introduction

S02-01 15:10-15:45 HD Video Recorder of the Cell

哺乳動物発生を捉える高解像度イベントレコーダーの開発に向けた取り組み

○Nozomu Yachie (UBC)

S02-02 15:45-16:10 Structure and engineering of the type III-E CRISPR-Cas7-11 effector complex, and its application for RNA knockdown tool

CRISPR-Cas7-11 の構造とエンジニアリングによる RNA ノックダウンツールへの応用

○Kazuki Kato¹, Wenyan Zhou², Sae Okazaki¹, Yukari Isayama¹, Tomohiro Nishizawa³, Jonathan Gootenberg², Omar Abudayyeh², Hiroshi Nishimasu^{1,4,5} (RCAST, Tokyo Univ.¹, McGovern Institute for Brain Research at MIT, Massachusetts Institute of Technology², Graduate School of Medical Life Science, Yokohama City University³, Department of Chemistry and Biotechnology, Graduate School of Engineering, The University of Tokyo⁴, Department of Biological Sciences, Graduate School of Science, The University of Tokyo⁵)

S02-03 16:10-16:35 Organoid-based screening for modulators of the cellular composition of intestinal epithelia

腸上皮再編のためのオルガノイドスクリーニング

○Kazuki Hattori (RCAST, UTokyo)

S02-04 16:35-17:00 Programming multicellular pattern formation with synthetic cell-cell signaling

細胞間コミュニケーションの設計による多細胞パターンのデザイン

○Satoshi Toda (NanoLSI, Kanazawa Univ.)

S02-05 17:00-17:20 Sprouting angiogenesis model for tubular multicellular synthetic biology

血管新生モデルの管状多細胞体合成生物学への応用

○Yukiko Matsunaga (IIS, UTokyo)

17:20-17:30 Conclusion

Symposium 3 : Developmental mechanisms underlying sexual reproduction

DATE: June 1 (Wed) 15:00-17:30 Room C

Chairperson: Kei-ichiro Ishiguro (Kumamoto University)

Mechanisms underlying sexual reproduction are the fundamental subject in developmental biology, since genetic and epigenetic information involved in the development is constructed in the germline in a sex-dependent manner. The mechanisms include sex determination, meiosis and gametogenesis, some of which are conserved across species. In the symposium, leaders in the research area will summarize their historical and recent researches and discuss a new horizon of the study on sexual reproduction.

15:00-15:02 Introduction

- S03-01** 15:02-15:23 Roles of m7G-RNA modification in *Drosophila* fertility
ショウジョウバエ稔性を支える m7G-RNA 修飾の役割
○Kuniaki Saito (Inverte. Genet. Lab, Natl. Inst. of Genet.)
- S03-02** 15:23-15:44 Cell fate specifications during female gametophyte development in *Arabidopsis*
シロイヌナズナ雌性配偶体形成過程における細胞運命決定
○Daisuke Kurihara^{1,2}, Daichi Susaki³, Tetsuya Higashiyama^{1,4} (ITbM, Nagoya Univ.¹, IAR, Nagoya Univ.², KIBR, Yokohama City Univ.³, Grad Sch Sci, Univ. of Tokyo⁴)
- S03-03** 15:44-16:05 Sexually different mechanisms of meiotic cell cycle in mammalian germ cells
マウスにおける減数分裂型細胞周期の性差
○Kei-Ichiro Ishiguro (IMEG, Kumamoto Univ.)
- S03-04** 16:05-16:26 Functions of maternal Polycomb-mediated imprinting
母性ポリコームによるゲノム刷り込みの機能
○Azusa Inoue (RIKEN IMS)
- S03-05** 16:26-16:47 Lumicrine Factors in the Regulation of Spermiogenesis
ルミクリン因子による精子成熟制御
○Masahito Ikawa^{1,2} (RIMD, Osaka University¹, IMSUT, The University of Tokyo²)
- S03-06** 16:47-17:08 Reconstitution of molecular and cellular network regulating oogenesis
○Katsuhiko Hayashi^{1,2}, Takashi Yoshino¹, Go Nagamatsu¹ (Division of developmental stem cell biology, DFaculty of Medical Sciences, Kyushu University¹, Osaka University²)
- S03-07** 17:08-17:29 Multistate dynamics of sperm stem cells
○Shosei Yoshida (Div. Germ Cell Biol., Natl. Inst. Basic Biol., Natl. Inst. Natural Sci.)
- 17:29-17:30 Conclusion

Symposium 4 : Novel insights into cellular plasticity in development, regeneration, and aging

DATE: June 3 (Fri) 09:00-11:30 Room A
Chairperson: Mio Nakanishi (Chiba University)

In the classical hierarchical model of differentiation, upstream stem cells or progenitors progressively narrow their differentiation potentials with a series of fate decisions that lead to each mature cell type. An underlying assumption has been that differentiation is an irreversible process, which is fully supported by the analysis of cell progeny in transplantation studies. However, this assumption is challenged by recently-accumulated data from single-cell transcriptomics, live-cell imaging, and next-generation lineage tracing studies that allowed us to assess the differentiation dynamics in the native context. The goal of this symposium is to bring together researchers leading studies related to the cellular plasticity to share new insights into its roles in development, disease, and aging with the audience.

- S04-01** 09:00-09:25 Plasticity of lineage-restricted progenitors: potential key mechanism underlying homeostasis, regeneration, and ageing of the somatic stem cells
○Mio Nakanishi (Graduate School of Medicine, Chiba University)
- S04-02** 09:25-09:50 Alteration of human epidermal stem cell behavior in temperature fluctuations
温度環境変化がヒト表皮幹細胞に与える影響
○Daisuke Nanba (IMSUT, UTokyo)
- S04-03** 09:50-10:15 Cell plasticity in the pancreatic islet
膵島における細胞可塑性
○Kenichiro Furuyama (CiRA, Kyoto Univ.)
- S04-04** 10:15-10:40 In vivo single cell analysis resolves hematopoietic stem cell heterogeneity and aging
○Ryo Yamamoto (ASHBi-WPI, Kyoto University)
- S04-05** 10:40-11:05 Multicellular and basement membrane dynamics underlying skin morphogenesis
皮膚の形態形成を支える多細胞集団と基底膜のダイナミクス
○Hironobu Fujiwara (RIKEN BDR)
- S04-06** 11:05-11:30 Treefit: a method to measure the robustness of differentiation trajectories inferred from single-cell RNA-seq data
○Momoko Hayamizu (Faculty of Science and Engineering, Waseda University)

Symposium 5 : Unveiling morphogenesis through theory and engineering

DATE: June 3 (Fri) 09:00-11:30 Room B

Chairpersons: Satoru Okuda (Kanazawa University)

Fumio Motegi (Hokkaido University)

The ability of cells to autonomously progress from simple to complex, organized structures is the most fundamental properties of biological systems. Recent advances in engineering techniques have accelerated progress in understanding the mechanisms of morphogenesis. This symposium will focus on cutting-edge engineering techniques that empower studies of morphogenesis on multiple scales and will bring together engineers, material scientists, and developmental biologists interested in new interdisciplinary connections. We hope to generate an opportunity to discuss exciting advances in the field.

- S05-01** 09:00-09:25 Automated high speed 3D imaging of organoid cultures with multi-scale phenotypic quantification.
Anne Beghin¹, Gianluca Grenzi^{1,2}, Harini Rajendiran¹, Tom Delaire³, Saburnisha Binte¹, Mohamad Raffi¹, Damien Blanc⁴, Richard de Mets¹, Hui Ting Ong¹, Vidhyalakshmi Acharya¹, Geetika Sahini¹, Victor Racine⁴, Remi Galland³, Jean-Baptiste Sibarita³, [○]Virgile Viasnoff^{1,5,6} (Mechanobiology Institute, National University of Singapore, 117411, Singapore¹, Biomedical Engineering Department, National University of Singapore, 117583, Singapore², Univ. Bordeaux, CNRS, Interdisciplinary Institute for Neuroscience, IINS, UMR 5297, F- 33000 Bordeaux, France³, QuantaCell, 33600 Pessac, France⁴, Department of Biological Sciences, National University of Singapore, 117583, Singapore⁵, IRL 3639 CNRS, 117411 Singapore⁶)
- S05-02** 09:25-09:50 Bridging the hierarchies between cells and the cytoskeleton: Thermodynamics, statistical mechanics, and non-equilibrium physics
細胞と細胞骨格の階層をつなぐ：熱力学・統計力学・非平衡物理
[○]Shinji Deguchi, Yuika Ueda, Daiki Matsunaga (Div. Bioeng., Osaka Univ.)
- S05-03** 09:50-10:15 Flexible cell culture substrates for mimicking in vivo environment
生体内環境を模倣するフレキシブル培養基材
[○]Tomoko Oyama¹, Kotaro Oyama¹, Hiromi Miyoshi², Mitsumasa Taguchi¹ (QST¹, Tokyo Metropolitan Univ.²)
- S05-04** 10:15-10:40 Molecular and Mechanical Mechanisms Driving Columnar-to-squamous Epithelial Transformation
[○]Chun Wai Kwan, Michiko Takeda, Yu-Chiun Wang (Lab for Epithelial Morphogenesis, RIKEN BDR)
- S05-05** 10:40-11:05 Multiscale modeling and in silico experiments of bone mechanical adaptation by remodeling
骨のリモデリングによる力学的適応の多階層モデリングと in silico 実験
[○]Taiji Adachi (LIME, Kyoto Univ.)
- S05-06** 11:05-11:30 Computational approach to integrate hemodynamic forces with molecular dynamics controlling endothelial cell polarity
Takao Hikita^{1,2}, Yosuke Hasegawa³, [○]Masanori Nakayama^{1,2} (Max Planck Institute for Heart and Lung Research Laboratory for Cell Polarity and Organogenesis¹, Okayama University², Institute of Industrial Science, The University of Tokyo³)

Symposium 6 : New perspectives of brain development and evolution

DATE: June 3 (Fri) 09:00-11:30 Room C

Chairpersons: Hiroshi Kawasaki (Kanazawa University)

Kinichi Nakashima (Kyushu University)

The molecular mechanisms underlying the development and evolution of the brain have been of great interest. To uncover these mechanisms, various new approaches including experimental techniques, disease models and animal species have been utilized. In this symposium, to further facilitate combinatorial approach, we will discuss the recent advances of the mechanisms of the development and evolution of the brain using various techniques and animals.

- S06-01** 09:00-09:25 Investigation of the mechanisms underlying the development and evolution of the cerebral cortex using gyrencephalic carnivore ferrets
フェレットを用いた大脳皮質の形成と進化のメカニズム解析
○Hiroshi Kawasaki (Sch of Med, Kanazawa Univ)
- S06-02** 09:25-09:50 Extrinsic factors contributing cerebral cortical expansion in primates
霊長類の大脳皮質拡大化を支える外的要因
○Jun Hatakeyama, Haruka Sato, Kenji Shimamura (IMEG, Kumamoto Univ.)
- S06-03** 09:50-10:15 Molecular control of prefrontal cortex development and evolution
ヒト前頭前野形成と進化の分子的制御機構
○Mikihito Shibata¹, Kartik Pattabiraman¹, Belen Lorente-Galdos¹, David Andrijevic¹, Suel-Kee Kim¹, Navjot Kaur¹, Sydney Muchnik^{1,2}, Xiaojun Xing^{1,3}, Gabriel Santpere^{1,4}, Andre Sousa^{1,5,6}, Nenad Sestan^{1,2,3,7,8,9,10} (Dept. Neurosci, Yale School of Medicine¹, Department of Genetics, Yale School of Medicine, New Haven, CT, USA², Yale Genome Editing Center, Yale School of Medicine, New Haven, CT, USA³, Neurogenomics Group, Research Programme on Biomedical Informatics (GRIB), Hospital del Mar Medical Research Institute (IMIM), DCEXS, Universitat Pompeu Fabra, Barcelona, Spain⁴, Waisman Center, University of Wisconsin–Madison, Madison, WI, USA⁵, Department of Neuroscience, University of Wisconsin–Madison, Madison, WI, USA⁶, Department of Comparative Medicine, Yale School of Medicine, New Haven, CT, USA⁷, Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA⁸, Program in Cellular Neuroscience, Neurodegeneration and Repair, Yale School of Medicine, New Haven, CT, USA⁹, Kavli Institute for Neuroscience, Yale University, New Haven, CT, USA¹⁰)
- S06-04** 10:15-10:40 Physiological functions of novel proteins encoded by Hidden ORFs
Hidden ORF から翻訳される新規タンパク質の生理的機能
○Akinobu Matsumoto (Dept. of Mol. Cell. Biol., Med. Inst. of Bioreg., Kyushu Univ.)
- S06-05** 10:40-11:05 Dynamic changes in the chromatin and nuclear state during neuronal differentiation
ニューロン分化過程におけるクロマチンと核の変化
○Yusuke Kishi^{1,2}, Seishin Sakai², Tanita Frey², Yukiko Gotoh² (IQB, Univ. of Tokyo¹, Grad. Sch. Pharm. Sci., Univ. of Tokyo²)
- S06-06** 11:05-11:30 870911 Possible involvement of endogenous DNA-mediated microglial activation in the pathogenesis of neurodevelopmental disorder Rett syndrome
内在性 DNA を介したミクログリア活性化による広汎性発達障害レット症候群発症の可能性
Hideyuki Nakashima, ○Kinichi Nakashima (Grad. Sch. Med. Sci., Kyushu Univ.)

Free Style Workshops (in Japanese)

Free Style Workshop 1 : Developmental biology spin-off: Exploring principles that govern the emerging intelligence of cells

DATE: May 31 (Tue) 17:00-19:00 Room B
Chairperson: Daiki Umetsu (Tohoku University)

We focus on “intelligent” behaviors which emerge from the self-organizing activities of autonomous individuals such as cells or organisms. Swarms of organisms behave intelligently as if the entire group were a single individual with a will. Individuals achieve this collective behavior only through the local interactions. It is expected that the similar behaviors are also found in the multicellular systems. Here, we will brainstorm to build such a new vision in the developmental biology by discussing a wide range of multi-scale “intelligent” behaviors of cells, organisms and robots.

本ワークショップでは、細胞や個体が自己組織化的に創発する「知能」的な振る舞いにスポットライトを当てる。鳥や魚の群れはしばしば全体としてあたかも一つの生き物であるかのような秩序的な振る舞いを見せる。これと似た現象が発生過程における細胞集団においても認められる。細胞のこうした動態は我々人間の目には「知能」的な振る舞いとして映るが、細胞は全体を俯瞰することをせずとも、お互いの局所的なやりとりによってこの振る舞いを実現している。細胞の「知能」的な振る舞いの謎を解き明かし、生命の構築原理の本質に迫るという切り口から発生生物学の新たな展開を図る。

発生現象にとどまらず、細胞単体、動き回る単細胞の群れ、個体の群れなど、さまざまなスケールで生命が示す「知能」的な振る舞いの制御原理の解明を目指す最新の研究成果を共有し、それらの制御原理のロボット工学や再生医療など人間社会への応用可能性を含め幅広く議論を展開したい。

17:00-17:02 Brief Introduction

WS01-01 17:02-17:15 Cell dynamics during muscle remodeling in the insect metamorphosis

昆虫変態時の筋組織リモデリングにおける細胞動態

○Daiki Umetsu (Tohoku University)

WS01-02 17:15-17:30 What we can learn from sponges; The intelligence through cellular behavior

カイメン骨片骨格形成に学ぶ 細胞挙動による「知」

○Noriko Funayama (Dept. of Biophys., Graduate School of Science, Kyoto Univ.)

WS01-03 17:30-17:45 Swarming migration of new neurons in the adult brain for neuronal regeneration

成体脳独自の新生ニューロンの集団移動と神経再生

○Naoko Kaneko^{1,2} (Lab. Neuronal Regen., Grad. Sch. Brain Sci., Doshisha Univ.¹, Dept. Dev. Regen. Neurobiol., Inst. Brain Sci., Nagoya City Univ. Grad. Sch. Med. Sci.²)

WS01-04 17:45-18:00 3D morphogenetic movements in the parallel world

アメーバゾアの形態形成運動にみる進化のパラレルワールド

Satoshi Kuwana¹, Hidenori Hashimura¹, Seiya Nishikawa^{1,2}, Takahiro Kanazawa³, Toshinori Namba¹, Shuji Ishihara¹, ○Satoshi Sawai^{1,2} (Grad Schl Arts Sci, U Tokyo¹, RCCS, UBI, U.Tokyo², Arts & Sci, U. Tokyo³)

WS01-05 18:00-18:15 Understanding the principle of collective behaviors and development of real-time high-resolution light-field imaging

動物集団による状態転移と高分解能ライトフィールドイメージング技術開発

○Takuma Sugi (Grad. Sch. Integ. Sci. Life, Hiroshima Univ.)

WS01-06 18:15-18:30 Crossroads of swarms and natural language processing

群れと自然言語処理のクロスロード

○Yuichiro Sueoka (Osaka University)

WS01-07 18:30-18:45 Understanding the mechanism for emergence of high survivability in bacterial biofilms by using a simple mathematical model

シンプルな数理モデルを用いてバクテリアのバイオフィルムのサバイバビリティの発現原理を探る

○Takeshi Kano¹, Taishi Mikami¹, Munehiro Asally^{2,3,4}, Akio Ishiguro¹ (RIEC, Tohoku Univ.¹, School of Life Sciences, Univ. of Warwick², Warwick Integrative Synthetic Biology Centre, Univ. of Warwick³, Bio-Electrical Engineering Innovation Hub, Univ. of Warwick⁴)

WS01-08 18:45-19:00 Ethological dynamics of plasmodial slime mold in some diorama environments
真正粘菌のジオラマ行動力学

○Toshiyuki Nakagaki (RIES, Hokkaido Univ.)

Free Style Workshop 2 : Lessons from Non-Model organisms: For developmental biologists who only use model organisms

DATE: May 31 (Tue) 17:00-19:00 Room C
Chairperson: Naoki Okamoto (University of Tsukuba)

Research using model organisms has contributed to discovering many fundamental principles in the life sciences. On the other hand, research using non-model organisms was challenging until several years ago due to the limitations of genome information, research techniques, and tools. However, with the recent development of sequencing and genome editing techniques, the barrier between model and non-model organisms is breaking down. Nowadays, unique phenomena and fundamental principles that can only be discovered from studies using non-model organisms are reported daily. In this workshop, I invite researchers working with non-model organisms in developmental biology and various other fields and aim to enjoy and learn from their pure and innocent research pursuing fascinating phenomena. I believe that researchers who have only worked with model organisms can learn a lot from the unique research techniques and approaches using a wide range of species, from vertebrates to plants.

モデル生物を用いた研究は、生命科学分野において数々の重要な基本原理の発見に貢献してきた。その一方で、これまで非モデル生物を用いた研究は、研究技術やツールの制限から、多角的な研究を進めることが難しく、その結果、多くの場合、モデル生物を用いた研究者からは見向きされない不遇の時代が続いてきた。しかしながら、近年のシーケンシング技術やゲノム編集技術の発展に伴い、モデル生物と非モデル生物の壁は壊れつつある。非モデル生物を用いた研究からしか発見し得ないユニークな現象や新たな基本原理が次々と報告されている。本ワークショップでは、発生生物学分野に限定せず、さまざまな分野において非モデル生物を用いて研究を進める演者達をお招きし、真に面白い現象を追求する純粋無垢な研究を楽しみ、学ぶことを目的とする。脊椎動物から植物まで幅広い生物種を用いたユニークな研究技術や研究アプローチから、モデル生物しか扱ったことのない研究者も多くを学ぶことができると考え、本ワークショップを開催する。

17:00-17:01 Introduction

WS02-01 17:01-17:18 Lessons from the medicinal leech: correlated voltage imaging and electron microscopy for functional connectome

医用ビルを用いた膜電位イメージング - 電子顕微鏡相関法による機能的コネクトームの実現

○Yusuke Tomina¹, Daniel Wagenaar² (NIC, RIES, Hokkaido Univ.¹, BBE, Caltech, CA, USA²)

WS02-02 17:18-17:35 Genetic tool development for understanding the molecular basis of intraspecific color pattern diversification in the ladybug

テントウムシにおける種内斑紋多様化の分子基盤解明に向けた遺伝学的ツール開発

○Toshiya Ando^{1,2,3}, Taro Nakamura^{2,3}, Yuji Matsuoka², Teruyuki Niimi^{2,3} (The Hakubi Center, Kyoto Univ.¹, NIBB², Dept Basic Biol, Sch Life Sci, SOKENDAI³)

WS02-03 17:35-17:52 The evolutionary basis of diversified sexually selected traits in Indonesian medaka fishes

インドネシアメダカにおける多様な性淘汰形質の進化機構の解明

○Satoshi Ansai (Grad. Sch. Life Sci., Tohoku Univ.)

WS02-04 17:52-18:09 *Marchantia polymorpha* -my lovable hater-
ゼニゴケ ～私の愛すべき嫌われもの～

○Hidefumi Shinohara (Dept. Biosci. Biotech., Fukui Pref. Univ.)

WS02-05 18:09-18:26 The mystery of plant double fertilization tackled from familiar Non-Model plants
身近な非モデル植物から挑む重複受精の謎

○Akane Mizukami, Tetsuya Higashiyama (Dep. of Biological Sci., Grad. Sch. of Sci., The Univ. of Tokyo)

- WS02-06** 18:26-18:43 Regulatory mechanisms of larval development via social communication in ant
アリの社会的コミュニケーションによる発生制御メカニズム
○Akiko Koto^{1,2} (BPRI, AIST¹, CBBB-OIL, AIST²)
- WS02-07** 18:43-19:00 Interspecies comparison between eutherian and marsupial mammals identifies how
cardiomyocytes adapt to switching from intrauterine to postnatal environment
出生による環境変動への適応と再生～哺乳類種間比較による心筋再生機構の
解明
○Wataru Kimura (RIKEN BDR)

Oral presentations

Oral presentation 1 : Morphogenesis and Organogenesis 1

DATE: June 1 (Wed) 17:45-19:15 Room A

Chairpersons: Mikiko Inaki (Osaka University)

Takashi Nishimura (Gunma University)

- OP01-01** 17:45-18:00
(P050B) The mechanical force generated by limb movement depending on the environment affects tendon development during the embryo to neonatal phase
環境依存的に変化する四肢運動はメカニカルストレスとして胎生期から新生児期までの腱の発達に影響を与える
○Yuna Usami, Takanori Kokubun (Saitama Prefectural University)
- OP01-02** 18:00-18:15 Live imaging analysis of cell dynamics during the final shape formation of *Drosophila* adult leg
ショウジョウバエ成虫肢の最終的な形を作り上げる細胞動態のライブイメージングによる解析
○Shotaro Hiraiwa¹, Reiko Tajiri^{1,2}, Tetsuya Kojima¹ (Grad. Sch. of Frontier Sci., Univ. Tokyo¹, Grad. Sch. Sci., Chiba U²)
- OP01-03** 18:15-18:30 Collective cell migration drives tissue elongation during coordinate growth of zebrafish midline tissues
ゼブラフィッシュ正中軸組織の協調した伸長における細胞集団移動の役割
○Toru Kawanishi¹, Takamichi Sushida², Tony Y.-C. Tsai³, Hiroyuki Takeda¹, Sean G. Megason⁴ (Grad Sch Sci, Univ Tokyo¹, Dept Comp Sci Tech, Salesian Polytechnic², Dept Dev Biol, Washington Univ³, Dep Systems Biol, Harvard Medical School⁴)
- OP01-04** 18:30-18:45
(P037A) E3 ubiquitin ligase HUWE1 regulates planar cell polarity through Pk degradation
E3 ユビキチンライゲース HUWE1 は Pk の分解により平面内極性を制御する
○Rieko Ajima, Yumiko Saga (NIG)
- OP01-05** 18:45-19:00 A neomorphic inhibitor secreted from *pecanex* mutant macrophages remotely suppresses Notch signaling
pecanex 突然変異マクロファージから分泌されるネオモルフィック抑制因子は Notch シグナルを遠隔的に抑制する
○Tomoko Yamakawa, Rin Fujii, Kenji Matsuno (Dept. of Biol. Sci., Grad. school of Sci., Osaka Univ.)
- OP01-06** 19:00-19:15 Twist and elongation of gut tube independently arise through chiral cell sliding and convergent extension, respectively, in epithelial tissue
消化管の捻転と伸長は上皮組織のキラルな細胞スライドと収斂伸長により独立に制御される
○Mikiko Inaki¹, Satoru Okuda², Kenji Matsuno¹ (Dep. Biol. Sci., Grad. Sch. Sci., Osaka Univ.¹, Nano LSI, Kanazawa Univ.²)

Oral presentation 2 : Stem Cells 1

DATE: June 1 (Wed) 17:45-19:15 Room B

Chairpersons: Aiko Sada (Kumamoto University)

Akio Kobayashi (Kumamoto University)

- OP02-01** 17:45-18:00
(P129C) Generation of gastric organoids from mouse embryonic stem cells
○Thi Thuy Linh Trinh, Hitomi Takada, Akira Kurisaki (NAIST)
- OP02-02** 18:00-18:15
(P128B) Muscarinic receptor M3 contributes to intestinal stem cell maintenance via EphB/ephrin-B signaling
代謝型ムスカリン性 ACh 受容体 M3 は、EphB/ephrin-B シグナリングを介して腸上皮幹細胞の維持に貢献する

○Toshio Takahashi (Suntory Found. for Life Sci.)

- OP02-03** 18:15-18:30 Live imaging of avian epiblast and anterior mesendoderm grafting reveals the complexity of cell dynamics during early brain development
ニワトリ胚エピブラストの生体イメージングによって、前部中内胚葉に向けての広汎な細胞移動が脳発生第一段階であることがわかった
Koya Yoshihi², Kagayaki Kato^{3,4}, Hideaki Iida², Machiko Teramoto⁴, Yasuo Ishii⁵, ○Hisato Kondoh¹ (BRH¹, KSU², ExCELLS³, NIBB⁴, TWU⁵)
- OP02-04** 18:30-18:45 The chromosome 19 miRNA cluster is essential for the differentiation potential of human pluripotent stem cells into trophoblast lineages
19 番染色体マイクロ RNA クラスターはヒト多能性幹細胞から栄養膜系列への分化に必須である
○Hiroaki Okae, Norio Kobayashi, Takahiro Arima (Tohoku University)
- OP02-05 (P127A)** 18:45-19:00 XENOBARRIER IN HUMAN-MOUSE INTERSPECIES CHIMERA
○Hideki Masaki (Center for Stem Cell Biology and Regenerative Medicine, The Institute of Medical Science, The University of Tokyo)
- OP02-06** 19:00-19:15 Nutrient-dependent dedifferentiation of enteroendocrine cells drives adaptive tissue growth in the adult *Drosophila* midgut
栄養依存的な分泌性細胞の脱分化はショウジョウバエ成虫の中腸における適応成長を駆動する
Hiroki Nagai¹, Luis Augusto Eijy Nagai², Ryuichiro Nakato², Masayuki Miura¹, ○Yuichiro Nakajima¹ (Gra. Sch. Pha. Sci., Univ. Tokyo¹, IQB, Univ. Tokyo²)

Oral presentation 3 : Neural Development 1

DATE: June 1 (Wed) 17:45-19:15 Room C

Chairpersons: Takashi Suzuki (Tokyo Institute of Technology)

Koji Oishi (Doshisha University)

- OP03-01** 17:45-18:00 Neural progenitor mechanisms underlying species-specific control of neuronal number
種固有のニューロン数を制御する神経幹細胞メカニズムの解明
○Yuki Yamauchi¹, Ikuo Suzuki^{1,3}, Kazuo Emoto^{1,2,4} (GSS, Tokyo Univ.¹, International Research Center for Neurointelligence (WPI-IRCN), The University of Tokyo², AMED-PRIME³, AMED-CREST⁴)
- OP03-02 (P046A)** 18:00-18:15 SHH signaling regulates the directional cell motion through cellular mechanosensation
SHH シグナルは細胞の力覚応答を介して細胞集団運動方向を制御する
○Daisuke Ohtsuka, Yoshihiro Morishita (RIKEN BDR)
- OP03-03** 18:15-18:30 Transcriptional factor network for differentiation of Purkinje cells in the zebrafish cerebellum
ゼブラフィッシュ小脳におけるプルキンエ細胞分化を制御する転写制御因子ネットワーク
Tsubasa Itoh, Mari Uehara, Shinnosuke Yura, Akiko Nakanishi, Takashi Shimizu, ○Masahiko Hibi (Grad. Sch., Nagoya Univ.)
- OP03-04** 18:30-18:45 Bi-directional Eph/Ephrin signaling organizes the columnar structure under the control of Neurexin in the fly brain
○Miaoxing Wang, Makoto Sato (IFSI, Kanazawa Univ.)
- OP03-05 (P077B)** 18:45-19:00 Notch signaling regulates early-born neuronal production in the neural retina.
神経性網膜の細胞分化における Notch シグナルの役割
○Kiyo Sakagami^{1,2}, Lillian Lai², Mei Zhang², Xian-Jie Yang^{2,3} (Nagahama Inst Bio-Sci and Tech¹, UCLA, JSEI², UCLA, BRI³)

- OP03-06 (P076A)** 19:00-19:15 Regulation of gliogenesis in the mammalian neocortex by organelle stress response pathways
細胞内小器官のストレス応答による大脳皮質グリア細胞産生の制御
○Koji Oishi^{1,2,4}, Jun Motoyama³, Kazunori Nakajima⁴ (Grad. Sch. of Brain Sci., Doshisha Univ.¹, Grad Sch of Pharm Sci, Univ of Tokyo², Grad Sch of Brain Sci, Doshisha Univ.³, Dept of Anat, Keio Univ Sch of Med⁴)

Oral presentation 4 : Morphogenesis and Organogenesis 2

DATE: June 2 (Thu) 10:15-12:15 Room A

Chairpersons: Asako Shindo (Kumamoto University)

Hideru Togashi (Kobe University)

- OP04-01** 10:15-10:30 Strip1 coordinates retinal neural circuit formation by promoting retinal ganglion cell survival during development
Strip1 は発生過程において網膜神経節細胞の生存を促進することで神経回路形成を調節する
○Mai Ahmed, Yutaka Kojima, Ichiro Masai (Developmental Neurobiology Unit, OIST)
- OP04-02 (P039C)** 10:30-10:45 ECM remodeling drives epithelial unfolding of Drosophila imaginal discs during development
ECM リモデリングはショウジョウバエ成虫原基の外部形態への展開を駆動する
○Chigusa Hinata, Emi Maekawa, Shizue Ohsawa (Genetics, Div. of Biol. Sci., Grad Sch. of Sci., Nagoya Univ.)
- OP04-03** 10:45-11:00 Map7 regulates Sertoli cell polarity through microtubule-Wnt/PCP network to support the differentiation of sperm lineage cells.
○Koji Kikuchi¹, Mami Nakagawa², Toshihiko Fujimori², Kimi Araki³, Kei-Ichiro Ishiguro⁴ (Dept. Mol. Pharm., Grad. Sch. of Med. Sci., Kumamoto Univ.¹, Div. of Embryology, NIBB², IRDA, Kumamoto Univ³, Dept. Chromosome Biol., IMEG, Kumamoto Univ.⁴)
- OP04-04 (P038B)** 11:00-11:15 Regulation of vessel diameter during vascular remodelling
○Yan Chen, Núria Carretero, Li-Kun Phng (RIKEN Center for Biosystems Dynamics Research, Lab. Vascular Morphogenesis)
- OP04-05 (P040A)** 11:15-11:30 Development of Ca²⁺ oscillators that regulate the spatial patterning of gut motility
腸ぜんどう運動を制御するカルシウム振動体の発生
○Masafumi Inaba, Yuuki Shikaya, Sho Takanabe, Yoshiko Takahashi (Dept. of Zool., Grad. Sch. of Sci., Kyoto Univ.)
- OP04-06** 11:30-11:45 Chirality of cardiac myocytes determines left-handed helical looping of the embryonic heart
心筋細胞のキラリティーが初期胚心臓のねじれを左巻きにきめる
○Hisao Honda (Kobe Univ. Medicine)
- OP04-07 (P049A)** 11:45-12:00 Fgf8a secreted from differentiating retinal ganglion cells regulates lens fiber differentiation in zebrafish
ゼブラフィッシュにおいて網膜神経節細胞から分泌される Fgf8a は水晶体の線維細胞分化を制御する
○Yuki Takeuchi, Yutaka Kojima, Ichiro Masai (OIST)
- OP04-08 (P044B)** 12:00-12:15 Tbx3 differently regulate digits morphogenesis of the fore- and hindlimbs in newts (Pleurodeles waltl)
Tbx3 はイモリの指形成において前肢と後肢で異なる制御を行う
○Haruka Matsubara¹, Takashi Takeuchi¹ (Laboratory of Biosignaling, School of Life Science, Faculty of Medicine Tottori University,¹, Takashi Takeuchi²)

Oral presentation 5 : Regeneration

DATE: June 2 (Thu) 10:15-12:15 Room B

Chairpersons: Yoshihiko Umesono (University of Hyogo)

Akira Satoh (Okayama University)

- OP05-01 (P097A)** 10:15-10:30 Flexible Shh and Fgf8 expression domain in regenerating axolotl limb guarantees consistent limb morphogenesis in different limb sizes.
アホロートルの空間特異的な Shh・Fgf8 の発現パターンは異なるフィールドサイズでの一貫した四肢形態形成を保証する
○Saya Furukawa¹, Sakiya Yamamoto¹, Rena Kashimoto¹, Yoshihiro Morishita², Akira Satoh^{1,3} (Okayama University¹, RIKEN², RCIS³)
- OP05-02 (P098B)** 10:30-10:45 Analysis of collagen structure in the axolotl skin and their dynamics in the regeneration
メキシコサラマンダーにおける皮膚コラーゲン構造解析および再生過程の構造変化解析
○Rena Kashimoto¹, Saya Furukawa², Sakiya Yamamoto², Yasuhiro Kamei⁴, Joe Sakamoto⁴, Shigenori Nonaka^{3,4}, Tomonobu Watanabe^{5,6}, Tatsuya Sakamoto^{1,7}, Hirofumi Sakamoto^{1,7}, Akira Satoh⁸ (Grad. Sch. of Nat. Sci. and Tech., Okayama Univ.¹, Fac. of Sci., Okayama Univ.², ExCELLS, NINS³, NIBB, NINS⁴, BDR⁵, RIRBM, Hiroshima Univ.⁶, UMI, Okayama Univ.⁷, RCIS, Okayama Univ.⁸)
- OP05-03 (P100A)** 10:45-11:00 Roles for microglia in chronic photoreceptor degeneration and associated regeneration caused by *pde6c* dysfunction in zebrafish
ゼブラフィッシュ PDE6C 変異体で起こる視細胞変性とそれに続く再生においてミクログリアが果たす役割
○Darshini Ravishankar, Yuki Takeuchi, Ichiro Masai (OIST)
- OP05-04** 11:00-11:15 Distinct stem-like cell populations coordinate tissue elongation and regeneration in *Cladonema medusa* tentacles
エダアシクラゲ触手の伸長と再生における異なる幹細胞集団の存在
○Sosuke Fujita¹, Erina Kuranaga¹, Masayuki Miura², Yu-Ichiro Nakajima² (Graduate School of Life Sciences, Tohoku University¹, Graduate School of Pharmaceutical Sciences, The University of Tokyo²)
- OP05-05 (P101B)** 11:15-11:30 Involvement of ERK Signalling in the Regeneration Processes of the Enteric Nervous System in Zebrafish
ゼブラフィッシュの腸神経系再生過程における ERK シグナルの関与の解明
○Kaho Yamamoto, Masataka Nikaido, Kohei Hatta (Univ. of Hyogo)
- OP05-06 (P103A)** 11:30-11:45 Regeneration response enhancers composed of E-box and AP-1 motifs
再生に応答するエンハンサーは E-box と AP-1 の 2 つのモチーフから構成される
○Takafumi Yoshida¹, Teruhisa Tamaki¹, Eri Shibata¹, Hidenori Nishihara¹, Haruki Ochi², Atsushi Kawakami¹ (School of Life Science and Technology, Tokyo Tech¹, Faculty of Medicine, Yamagata Univ.²)
- OP05-07 (P102C)** 11:45-12:00 Transgenic *Xenopus laevis* with a limb-specific *shh* enhancer, outlines the competence to express *shh* in regenerating limbs
Reimi Tada¹, Takuya Higashidate², Takanori Amano³, Shoma Ishikawa¹, Saki Nara¹, Koshiro Ishida¹, Akane Kawaguchi⁴, Haruki Ochi⁵, Hajime Ogino⁶, Nayuta Yakushiji-Kaminatsui⁷, Joe Sakamoto⁸, Yasuhiro Kamei^{8,9}, Koji Tamura², ○Hitoshi Yokoyama¹ (Dept. of Biochem. & Mol. Biol., Facul. of Agri. & Life Sci., Hirosaki Univ.¹, Department of Ecological Developmental Adaptability Life Sciences, Graduate School of Life Sciences, Tohoku University², Next Generation Human Disease Model Team, RIKEN BioResource Research Center³, Graduate School of Biological Sciences, Nara Institute of Science and Technology (NAIST)⁴, Institute for Promotion of Medical Science Research, Faculty of Medicine, Yamagata University⁵, Amphibian Research

Center / Graduate School of Integrated Sciences for Life, Hiroshima University⁶, RIKEN Center for Integrative Medical Sciences (IMS)⁷, Laboratory for Biothermology, National Institute for Basic Biology⁸, Spectrography and Bioimaging Facility, National Institute for Basic Biology⁹)

OP05-08 12:00-12:15
(P099C)

Zebrafish pancreatic β cell clusters undergo stepwise regeneration using Neurod1-expressing cells from different cell lineages

ゼブラフィッシュは細胞系譜が異なる Neurod1 発現細胞を用い、 β 細胞集合体の機能と形態を段階的に再生させる。

○Hiroki Matsuda (Ritsumeikan University)

Oral presentation 6 : Reproduction and Germ Cells & Technologies and Resources

DATE: June 2 (Thu) 10:15-12:15 Room C

Chairpersons: Akira Nakamura (Kumamoto University)

Reiko Tajiri (Chiba University)

OP06-01 10:15-10:30
(P121A)

Sperm entry into immature oocytes before ovulation in a viviparous teleost *Poecilia reticulata*

卵胎生魚グッピーにおける排卵前未成熟卵への精子進入

○Junki Yoshida¹, Yuki Tajika², Makoto Kuwahara³, Takayuki Suzuki¹, Eiichi Hondo¹, Atsuo Iida¹ (Dept of Ani Sci, Grad Sch of Bioagr, Nagoya Univ, THERS¹, Department of Anatomy, Gunma University Graduate School of Medicine, Maebashi, Gunma, Japan², Institute of Materials and Systems for Sustainability, Nagoya University³)

OP06-02 10:30-10:45
(P120C)

STRA8-RB interaction coordinates S phase entry and meiotic initiation in female germ cells

メス生殖細胞における STRA8-RB による S 期と減数分裂開始の同調機構

○Ryuki Shimada¹, Yuzuru Kato², Naoki Takeda³, Sayoko Fujimura¹, Kei-ichiro Yasunaga¹, Shingo Usuki¹, Hitoshi Niwa¹, Kimi Araki³, Kei-Ichiro Ishiguro¹ (IMEG¹, NIG², IRDA³)

OP06-03 10:45-11:00
(P117C)

Functional Modules in Gametogenesis

配偶子形成を構成する機能的モジュール

○Mariko Kikuchi, Minoru Tanaka (Nagoya University)

OP06-04 11:00-11:15
(P116B)

Sexually different phenotype of medaka *terb1* mutant

terb1 変異体における雌雄で異なる表現型の解析

○Shiyu Kameyama, Mariko Kikuchi, Minoru Tanaka (Biological Science, Nagoya Univ.)

OP06-05 11:15-11:30
(P119B)

Co-existence of ovarian-expressed ZP proteins (medaka ZPC5) and liver-expressed choriogenins (Chgs) in the egg envelope (chorion) of Medaka, *Oryzias latipes*.

○Kenji Murata¹, Devun Birk¹, Shinji Onose^{1,2}, Masato Kinoshita³ (CHE., UC Davis, USA¹, For-days Co., Ltd², Div., Biosci., Kyoto Univ., Japan³)

OP06-06 11:30-11:45
(P118A)

Drosophila Tpp is required for proper piRNA biogenesis in the nuage and facilitates the posterior localization of Aubergine to the germ plasm.

ショウジョウバエ Tpp はヌアージュにおける適切な piRNA 生合成に必須であり、Aubergine の生殖質への局在を促進する

○Hirono Kina^{1,2}, Natsuko Izumi³, Keisuke Shoji³, Yukihide Tomari³, Akira Nakamura^{1,2} (IMEG¹, Graduate School of Pharmaceutical Sciences, Kumamoto University², Institute for Quantitative Biosciences, The University of Tokyo³)

OP06-07 11:45-12:00

An image processing and deep learning-based pipeline for quantitative analysis of cellular (morpho)dynamics

細胞 (形態) 動態の定量解析のための画像処理・深層学習パイプライン

○Yusuke Azuma, Shuichi Onami (RIKEN BDR)

OP06-08 12:00-12:15

Intercellular and intracellular gene regulatory networks inference with individual-difference correction from time-course bulk RNA-Seq of whole embryo

個体差補正を用いた時系列一全体 RNA-Seq に基づく細胞間及び細胞内遺伝

Oral presentation 7 : Morphogenesis and Organogenesis 3

DATE: June 2 (Thu) 16:15-18:45 Room A

Chairpersons: Tetsuhisa Otani (National Institute for Physiological Sciences)

Shizue Ohsawa (Nagoya University)

- OP07-01 16:15-16:30 (P051C)** Contribution of Convergent Extension in AIP Midline Cells to Foregut Elongation
前腸門腹側細胞での収斂伸長運動は前腸伸長にどのくらい貢献するか
○Qingyang Wang, Kimiko Fukuda (Dept. Biol. Sci., Tokyo Metropol. Univ.)
- OP07-02 16:30-16:45 (P052A)** Reciprocal signals between the pacemaker and smooth muscles cells in the gut contractile organoid
腸収縮オルガノイドにおけるペースメーカー細胞と平滑筋間の相互シグナル解析
○Rei Yagasaki, Yuuki Shikaya, Yoshiko Takahashi (Dept of Zool. Kyoto Univ.)
- OP07-03 16:45-17:00 (P053B)** Identification of the motifs in left-right Myosin I proteins dictating the handedness of the embryonic gut in *Drosophila*
○Asuka Yamaguchi¹, Takeshi Sasamura¹, Kohei Yoshimura², Chinami Maeda¹, Takeshi Haraguchi², Kohji Ito², Kenji Matsuno¹ (Dept. Bio. Sci., Grad. Sch. Sci., Osaka Univ.¹, Grad. Sch. Sci., Univ. Chiba²)
- OP07-04 17:00-17:15** Regularity of gene expression waves under the cell mobility gradient in vertebrate somitogenesis
細胞移動勾配存在下における分節時計遺伝子発現の波の精度
○Koichiro Uriu¹, Luis Morelli² (Graduate School of Natural Science and Technology, Kanazawa University¹, IBioBA-MPSP²)
- OP07-05 17:15-17:30 (P041B)** The role of Sox9 SUMOylation in skeletal development and homeostasis
Sox9 SUMO 化の骨格形成・維持における役割
○Masafumi Inui (Meiji Univ. Sch. Agri.)
- OP07-06 17:30-17:45 (P042C)** Cell chirality emerges left-right asymmetry at the multi-cellular level: left-right asymmetric formation of lamellipodia and focal adhesions drive collective migration
細胞キラリティが多細胞レベルの左右非対称性を創発するメカニズム：左右非対称に形成される葉状仮足と焦点接着斑が細胞の集団回転を生み出す
○Tomoki Ishibashi, Tatsuo Shibata (BDR, RIKEN)
- OP07-07 17:45-18:00 (P043A)** Self-organization of apical ECM molecules underlies insect cuticle nano-patterning
細胞外マトリックス分子の自己組織化による昆虫外骨格ナノ構造の構築
○Yuki Itakura¹, Zhengkuan Sun^{1,2}, Sachi Inagaki¹, Housei Wada¹, Shigeo Hayashi^{1,2} (RIKEN BDR¹, Dept. of Biology, Kobe Univ.²)
- OP07-08 18:00-18:15 (P048C)** Newt Hoxa13 has an essential and predominant role in digit formation during development and regeneration
イモリの Hoxa13 は発生および再生における指形成において必須かつ主要な機能をもつ
○Takashi Takeuchi¹, Haruka Matsubara¹, Fumina Minamitani¹, Yukio Satoh¹, Sayo Tozawa¹, Tomoki Moriyama¹, Kohei Maruyama¹, Ken-Ichi Suzuki², Shuji Shigenobu², Takeshi Inoue³, Koji Tamura⁴, Kiyokazu Agata², Toshinori Hayashi^{1,5} (Sch. of Life Sci., Fac. of Med., Tottori Univ.¹, NIBB², Sch. of Med., Fac. of Med., Tottori Univ.³, Grad. Sch. of Life Sci., Tohoku Univ.⁴, ARC, Hiroshima Univ.⁵)
- OP07-09 18:15-18:30 (P045C)** Mesothelial fusion mediates chorioallantoic membrane formation
中皮の融合と漿尿膜形成

○Hiroki Nagai¹, Yuki Tanoue¹, Tomonori Nakamura^{2,3,4}, Christopher Chan^{1,5}, Shigehito Yamada⁶, Mitinori Saitou^{2,3,7}, Takaichi Fukuda⁸, Guojun Sheng¹ (IRCMS, Kumamoto Univ.¹, WPI-ASHBI, Kyoto Univ.², Department of Anatomy and Cell Biology, Graduate School of Medicine, Kyoto Univ.³, The Hakubi Center for Advanced Research, Kyoto Univ.⁴, Francis Crick Institute, London⁵, Congenital Anomaly Research Center, Graduate School of Medicine, Kyoto Univ.⁶, CiRA, Kyoto Univ.⁷, Department of Anatomy and Neurobiology, Graduate School of Medical Sciences, Kumamoto Univ.⁸)

OP07-10 18:30-18:45
(P047B)

Competitive elimination of tight junction deficient cells regulate epithelial barrier homeostasis

細胞競合による上皮バリア破綻細胞の排除

○Tetsuhisa Otani^{1,2,3}, Mikio Furuse^{1,2} (NIPS, Div. of Cell Structure¹, Dept. of Physiol., SOKEN-DAI², JST PRESTO³)

Oral presentation 8 : Early Embryogenesis

DATE: June 2 (Thu) 16:15-18:45 Room B
Chairpersons: Hiroshi Sasaki (Osaka University)
Tatsuo Shibata (RIKEN BDR)

OP08-01 16:15-16:30
(P001A)

Translational control of pou5f3 mRNA through shortening the 3' -end sequences during early development in zebrafish

○Ludivine Fierro¹, Yuki Takada², Tomoya Kotani² (Biosystems Science Course, Grad School of Life Science, Hokkaido Uni¹, Department of Biological Sciences, Faculty of Science, Hokkaido Uni²)

OP08-02 16:30-16:45
(P006C)

Role of MafB gene in cardiac neural cell development

心臓神経堤細胞形成における MafB 遺伝子の役割

○Saori Tani-Matsuhana, Yuga Kawata, Yusei Sakata, Kunio Inoue (Dept. Biol., Grad. Sch. Sci., Kobe Univ.)

OP08-03 16:45-17:00
(P002B)

Development of chicken embryo-based in vivo system to study human iPS cell differentiation into lateral plate mesoderm derivatives

○Galym Ismagulov¹, Guojun Sheng² (IRCMS, Kumamoto Univ.¹, IRCMS, Kumamoto Univ.²)

OP08-04 17:00-17:15
(P007A)

Analysis of the mechanism of regulating the cell division orientation in early ascidian embryogenesis

ホヤ初期胚発生における細胞分裂軸制御機構の解析

○Hiromu Terui, Naohito Takatori (TMU)

OP08-05 17:15-17:30
(P003C)

Origin and lineage of mesenchymal cells in zebrafish

ゼブラフィッシュ間葉細胞の起源と系譜

○Hiroaki Komiya, Atsushi Kawakami (School of Life Science and Technology, Tokyo Tech)

OP08-06 17:30-17:45

Initial analysis to understand the molecular mechanisms of regulative development in sea urchin embryos

ウニ胚調節発生の分子メカニズムを探る

○Haruka Suzuki¹, Junko Yaguchi¹, Shunsuke Yaguchi^{1,2} (University of Tsukuba, Shimoda Marine Research Center¹, PRESTO²)

OP08-07 17:45-18:00
(P009C)

Left-right asymmetry is formed in the basal bodies of the node cilia in a cilia motility and/or nodal flow-dependent manner.

ノード繊毛の基底小体において、ノード繊毛の運動に依存的に左右非対称性が形成される。

○Hiroshi Yoke¹, Atsushi Taniguchi¹, Shigenori Nonaka^{1,2} (NIBB, NINS¹, ExCELLS, NINS²)

OP08-08 18:00-18:15
(P008B)

Fluctuation of gene expression levels in early embryos is correlated to environmental and evolutionary responses

初期胚における遺伝子発現の揺らぎは環境応答および進化応答と関連する

○Yuuri Yasuoka¹, Chikara Furusawa^{2,3}, Yasushi Okazaki¹ (RIKEN IMS¹, RIKEN BDR², UBI, Univ. of Tokyo³)

OP08-09 18:15-18:30
(P004A)

Planar cell polarity-dependent asymmetric organization of microtubules for polarized positioning of the basal body in node cells

○Xiao Rei Sai¹, Katsura Minegishi², Hiroshi Hamada¹ (RIKEN BDR¹, National Center of Neurology and Psychiatry²)

OP08-10 18:30-18:45
(P005B)

Migrating mesoderm cells self-organize into a dynamic meshwork structure during chick gastrulation

ニワトリ初期胚における運動する中胚葉細胞によるダイナミックなメッシュワーク構造の自己組織化

Yukiko Nakaya, Mitsusuke Tarama, Sohei Tasaki, Ayako Isomura, ○Tatsuo Shibata (BDR)

Oral presentation 9 : Growth and Metabolism & Theory and Modeling

DATE: June 2 (Thu) 16:15-18:45 Room C

Chairpersons: Fumiaki Obata (RIKEN BDR)

Yoshihiro Morishita (RIKEN BDR)

OP09-01 16:15-16:30
(P031A)

Loss of *wrn*, premature aging gene, affects pancreatic development in zebrafish

wrn 早老遺伝子の欠損はゼブラフィッシュの膵臓の発生に影響を及ぼす

○Kota Ujibe, Makoto Kashima, Hiromi Hirata (Aoyama Gakuin Univ.)

OP09-02 16:30-16:45
(P030C)

The transcriptional repressor Blimp-1 fine-tunes the expression timing of the genes in each organ at the onset of metamorphosis in *Drosophila*

ショウジョウバエ変態開始期において転写抑制因子 Blimp-1 は各器官での遺伝子発現タイミングの微調整に関わる

Aya Samir¹, Koichi Miyagawa¹, Mitsuki Ikeda¹, Koutaro Kami², Hikaru Yamashita², Yuji Kageyama³, Kazutaka Akagi⁴, ○Hitoshi Ueda^{1,2} (Fac. Natl. Sci. Tech., Okayama Univ.¹, Dept. Biol., Sch. Sci., Okayama Univ.², BRC, Kobe Univ.³, RCPDS, Univ. Toyama⁴)

OP09-03 16:45-17:00

Evolutionarily conserved functions of the polyol pathway in glucose sensing

ポリオール経路のグルコース感知における進化的に保存された役割

○Hiroko Sano¹, Akira Nakamura², Mariko Yamane², Hitoshi Niwa², Takashi Nishimura³, Kimi Araki^{4,5}, Kazumasa Takemoto^{2,4}, Kei-Ichiro Ishiguro², Hiroki Aoki⁶, Yuzuru Kato⁷, Masayasu Kojima¹ (Inst. of Life Science, Kurume Univ.¹, Inst. of Molecular Embryology and Genetics, Kumamoto Univ.², Inst. of Molecular and Cellular Regulation, Gunma Univ.³, Inst. of Resource Development and Analysis, Kumamoto Univ.⁴, Center for Metabolic Regulation of Healthy Aging, Kumamoto Univ.⁵, Cardiovascular Research Institute, Kurume Univ.⁶, National Inst. of Genetics⁷)

OP09-04 17:00-17:15
(P028A)

Adaptive responses to protein restriction governed by nonessential amino acid tyrosine in *Drosophila* larvae

ショウジョウバエ幼虫において、非必須アミノ酸チロシンが制御するタンパク質制限への適応応答

○Hina Kosakamoto¹, Naoki Okamoto², Ryusuke Niwa², Masayuki Miura³, Fumiaki Obata¹ (RIKEN BDR¹, Life Science Center for Survival Dynamics, Tsukuba Advanced Research Alliance (TARA), University of Tsukuba, Japan², Department of Genetics, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan³)

OP09-05 17:15-17:30
(P029B)

Programmed Cellular Acidification (PCA) might be the novel biological process that suspend cellular activity in the multicellular organisms

プログラム細胞内酸性化 (PCA) : 多細胞生物の細胞活性を停止する新規生命現象?

○Masayuki Oginuma¹, Moana Nishida¹, Tohru Ishitani¹ (RIMD¹, RIMD², RIMD³)

- OP09-06 17:30-17:45 (P140B)** Image-based model construction and parameter estimation for epithelial mechanics
画像を元にした上皮組織力学のモデル構築およびパラメータ推定
○Goshi Ogita^{1,2}, Xin Yan¹, Takefumi Kondo², Keisuke Ikawa^{1,3}, Tadashi Uemura², Shuji Ishihara^{4,5}, Kaoru Sugimura^{1,3,5,6} (Dept of Biol Sci., Grad Sch of Sci., U Tokyo¹, Biostudies, Kyoto Univ.², iCeMS Kyoto Univ.³, GSAS, U Tokyo⁴, UBI, U Tokyo⁵, CBMS, U Tokyo⁶)
- OP09-07 17:45-18:00 (P138C)** Data-driven analysis of the formation of neural circuit based on gene expression
遺伝子発現に基づく神経回路形成のデータ駆動型解析
○Jigen Koike¹, Kana Yoshido¹, Naoki Honda^{1,2,3} (Kyoto University¹, Hiroshima University², ExCELLs³)
- OP09-08 18:00-18:15 (P137B)** Virtual multicellular platform for simulating evolvable morphogenetic processes for body axis formation in spider embryos
クモ胚の体軸形成における形態形成の進化過程をシミュレーションする仮想多細胞プラットフォーム
○Motohiro Fujiwara¹, Yasuko Akiyama-Oda^{1,3,4}, Hiroki Oda^{1,2} (JT BRH¹, Osaka Univ.², PRESTO JST³, OMPU⁴)
- OP09-09 18:15-18:30 (P139A)** Mapping hemodynamic forces in zebrafish vascular networks through numerical modelling
○Swe Soe Maung Ye, Li-Kun Phng (RIKEN BDR)
- OP09-10 18:30-18:45** Preference of pericytes for vascular junctions by three-dimensional topography
3次元地形による血管周皮細胞の分岐部選好性
○Kei Sugihara¹, Akiyoshi Uemura², Takashi Miura¹ (Kyushu Univ Grad Sch Med Sci¹, Nagoya City Univ Grad Sch of Med Sci²)

Oral presentation 10 : Stem Cells 2 & New Experimental Systems

DATE: June 3 (Fri) 13:45-15:45 Room A

Chairpersons: Takuya Imamura (Hiroshima University)

Takefumi Kondo (Kyoto University)

- OP10-01 13:45-14:00** Proliferation maintains the undifferentiated status of stem cells: the role of the planarian cell cycle regulator Cdh1.
幹細胞の未分化性は細胞増殖によって維持される：プラナリアにおける細胞周期制御因子 Cdh1 の役割
○Yuki Sato¹, Yoshihiko Umeson³, Yoshihito Kuroki^{4,5}, Kiyokazu Agata⁴, Chikara Hashimoto^{1,2} (BRH¹, Department of Biology, Graduate School of Science, Osaka University, Japan², Graduate School of Life Science, University of Hyogo, Japan³, NIBB⁴, SOKENDAI⁵)
- OP10-02 14:00-14:15** Dynamical systems approach of universal mechanisms of cellular differentiation and reprogramming
細胞分化とリプログラミングの普遍性への力学系的アプローチ
○Yuuki Matsushita^{1,2}, Tetsuhiro Hatakeyama¹, Kunihiro Kaneko¹ (Department of Basic Science, Graduate School of Arts and Sciences, University of Tokyo¹, Department of Biological Sciences, Graduate School of Science, Osaka University²)
- OP10-03 14:15-14:30** Direct reprogramming of non-limb fibroblasts to cells with properties of limb progenitors
線維芽細胞から四肢前駆細胞様細胞を生み出すダイレクトリプログラミング法
○Yuji Atsuta^{1,2}, Changhee Lee², Cliff Tabin² (Dept. Biol., Kyushu Univ.¹, HMS²)
- OP10-04 14:30-14:45** Modeling limb morphogenesis in 3D culture derived from mouse embryonic limb bud and human ES cells
マウス胚およびヒト ES 細胞からの肢形態形成の三次元培養モデルの構築
○Rio Tsutsumi¹, Mototsugu Eiraku^{1,2} (ASHBi, Kyoto Univ.¹, LiMe, Kyoto Univ.²)
- OP10-05 14:45-15:00** The MiT/TFE family members of transcription factors, Mitfa, Mitfb and Tfec, play

an important role in pigment cell development in medaka

Mit/TFE ファミリー転写因子 Mitfa および Mitfb, Tfec はメダカの色素細胞発生において重要な役割を果たす

Keisuke Sugiawaka¹, Hikaru Kobayashi¹, Tetsuaki Kimura², Satoshi Ansai³, Rieko Tanaka⁴, Kazunori Yamahira⁵, Kawilarang Masengi⁶, Motohiro Miyadai¹, Yusuke Nagao¹, Robert Kelsh⁷, Kiyoshi Naruse², Masahiko Hibi¹, [○]Hisashi Hashimoto¹ (Grad. Sch. Sci., Nagoya Univ.¹, NIBB², Grad. Sch. Life Sci., Tohoku Univ.³, World Medaka Mus., Nagoya Higashiyama Zoo Bot. Gdns.⁴, Trop. Biosph. Res. Ctr., Univ. Ryukyus⁵, Fac. Fish. Mar. Sci., Sam Ratulangi Univ.⁶, Dept. Biol. Biochem., Univ Bath⁷)

OP10-06 15:00-15:15

Developmental immune activation alters adult fitness and lifespan in *Drosophila*

発生期免疫活性化がショウジョウバエ成虫の健康と寿命を変化させる

Ayano Oi^{1,2}, [○]Fumiaki Obata^{1,2} (RIKEN BDR¹, Grad Biostudies, Kyoto Univ²)

OP10-07 15:15-15:30
(P114C)

Maternal chimeric cells' influence on the development of the mouse neonatal immune system

[○]Flore Castellan, Naoki Irie (UTokyo, Grad. Sch. Sci.)

OP10-08 15:30-15:45
(P115A)

Establishment of developmental toxicity test based on the integration of FGF signal disruption effects for safety evaluation of drugs and chemicals using human iPS cells

ヒト iPS 細胞を用いた医薬品や化学物質の安全性を評価する FGF シグナルかく乱作用に基づいた発生毒性試験

[○]Yusuke Okubo¹, Seiya Kanno², Satoshi Kitajima¹, Yoko Hirabayashi³, Junji Fukuda² (NIHS¹, YNU², NIHS³)

Oral presentation 11 : Patterning

DATE: June 3 (Fri) 13:45-15:45 Room B

Chairpersons: Tomoko Yamakawa (Osaka University)

Yusuke Mii (NIBB)

OP11-01 13:45-14:00
(P093C)

The upstream 5.5-kb region of zebrafish *gbx1* is necessary and sufficient for specific expression in the rhombencephalon and spinal cord.

ゼブラフィッシュ *gbx1* 遺伝子上流 5.5 kb 領域は菱脳・脊髄での特異的発現制御に必要十分である

[○]Ayako Yokokawa, Minami Komoriya, Kyo Yamasu (Grad. Sch. Sci, Eng., Saitama Univ.)

OP11-02 14:00-14:15
(P090C)

Three different domains of afadin independently regulate cell intercalation in nectin-dependent mosaic cellular patterning.

アフアディンは3種類の独立したドメインを介してネクチン依存的な細胞のモザイクパターンにおける細胞の割込みを制御する

[○]Shuhei Kuno¹, Tetsuhisa Otani^{2,3,4}, Akira Suzuki¹, Hideru Togashi^{1,4} (Div. Mol. Cell. Biol., Dpt. Biochem. Mol. Biol., Grad. Sch. Med., Kobe Univ.¹, Div. Cell Str., NIPS², Dpt. Physiol. Sci., Sch. Life Sci., SOKENDAI³, JST, PRESTO⁴)

OP11-03 14:15-14:30
(P087C)

Single-nucleus RNA sequencing of segmented embryos can reconstruct the spatial periodic stripes of gene expression in the spider *Parasteatoda tepidariorum*

オオヒメグモ胚を用いた single nucleus RNA シーケンシングは遺伝子発現の周期的な縞パターンを再構築する

[○]Takanori Akaiwa^{1,2}, Hiroki Oda^{1,2}, Yasuko Akiyama-Oda^{2,3,4} (Osaka Univ.¹, JT BRH², PRESTO JST³, OMPU⁴)

OP11-04 14:30-14:45
(P091A)

Phosphorylation of Vangl2 is involved in local scaffold formation for Wnt11 in the establishment of planar cell polarity.

平面細胞極性の形成における Vangl2 リン酸化の Wnt11 のローカルな足場形成への関与

[○]Yusuke Mii^{1,2}, Minako Suzuki¹, Hiroshi Koyama¹, Ritsuko Takada¹, Makoto Matsuyama³, Moto-suke Tsutsumi⁴, Tomomi Nemoto⁴, Toshihiko Fujimori¹, Shinji Takada¹ (NIBB¹, JST PRESTO²,

SMRI³, NIPS⁴)

- OP11-05** 14:45-15:00 Genetic tool development for understanding the molecular basis of intraspecific color pattern diversification in the ladybug
ナミテントウの種内に見られる多様な斑紋パターンの形成に関わる分子基盤の解明に向けた技術開発
○Yuji Matsuoka¹, Tshiya Ando³, Teruyuki Niimi^{1,2} (NIBB¹, SOKENDAI², The Hakubi Center, Kyoto Univ.³)
- OP11-06 (P088A)** 15:00-15:15 The morphogenesis of fingerprint like structure "Microridges" in zebrafish skin cells
ゼブラフィッシュ上皮細胞における指紋様構造 Microridges の形態形成解析
○Yasuko Inaba, Yasumasa Bessho (NAIST)
- OP11-07 (P092B)** 15:15-15:30 The molecular logic for the determination of somite boundary position in zebrafish
ゼブラフィッシュ体節形成における分節境界の位置決定機構
○Taijiro Yabe^{1,2,3}, Koichiro Uriu⁴, Shinji Takada^{1,2,3} (NIBB¹, ExCELLS², SOKENDAI³, Graduate School of Natural Science and Technology, Kanazawa University⁴)
- OP11-08 (P089B)** 15:30-15:45 Mouse nodal immotile cilium sense bending direction for generating left-right asymmetry: Mechanical regulation in initiation of symmetry breaking
マウスノド不動繊毛は変形の向きを感知して左右軸を決定する：非対称性を生み出すメカニカルな機構
○Takanobu Katoh¹, Toshihiro Omori², Katsutoshi Mizuno³, Takuji Ishikawa², Hiroshi Hamada¹ (RIKEN BDR¹, Dept. Finemechanics, Grad. Sch. Eng., Tohoku University², School of Medical Sciences, University of Fukui³)

Oral presentation 12 : Neural Development & Evolution

DATE: June 3 (Fri) 13:45-15:30 Room C

Chairpersons: Hiromi Hirata (Aoyama Gakuin University)

Misako Okumura (Hiroshima University)

- OP12-01** 13:45-14:00 Development of an automated lineage tracking system for human-specific cortical neurogenesis
ヒト大脳皮質の神経発生における幹細胞系譜追跡システムの開発
○Xuanhao Zhou¹, Ikuo Suzuki^{1,3}, Kazuo Emoto^{1,2,4} (GSS, Tokyo Univ.¹, International Research Center for Neurointelligence (WPI-IRCIN), The University of Tokyo², AMED-PRIME³, AMED-CREST⁴)
- OP12-02** 14:00-14:15 SHH and NOTCH regulate SOX9+ progenitors to govern arcuate POMC neurogenesis
ソニックヘッジホッグとノッチは Sox9 陽性前駆細胞を制御することで POMC ニューロン産生を支配する
○Kyoji Ohyama¹, Elsie Place², Elizabeth Manning², Thomas Kim³, Arisa Kinjo¹, Go Nakamura¹ (Tokyo Med Univ¹, Univ Sheffield², Univ Sheffield³, John Hopkins Univ⁴, Tokyo Med Univ⁵, Tokyo Med Univ⁶)
- OP12-03** 14:15-14:30 Zebrafish MeCP2 mutation produce behavioral alterations reminiscent of Rett Syndrome.
○Luis Carretero¹, Tatsuo Izawa², Ichiro Masai¹ (OIST¹, OIST²)
- OP12-04** 14:30-14:45 The cellular dynamics of microglia and border-associated macrophage in the early embryonic cerebral wall
胎生早期大脳におけるミクログリアとマクロファージの細胞動態
○Yuki Hattori (Grad Sch of Med., Nagoya Univ.)
- OP12-05** 14:45-15:00 Evolution of neural differentiation mechanisms: insights from the structure of POU-IV/Brn-3 gene regulatory networks driving mechanoreceptor development in Cnidaria.

○Nagayasu Nakanishi (Univ. of Arkansas)

OP12-06 15:00-15:15
(P021C)

A lineage-specific GATA-like gene regulates zygotic gene activation to promote endoderm specification and pattern formation in the Theridiidae spider

オオヒメグモにおいて系統特異的な GATA 様遺伝子が胚性遺伝子活性化を制御し、内胚葉特異化とパターン形成を促進する

Sawa Iwasaki-Yokozawa¹, Ryota Nanjo^{1,2}, Yasuko Akiyama-Oda^{1,3,4}, ○Hiroki Oda^{1,2} (JT BRH¹, Osaka Univ², PRESTO JST³, OMPU⁴)

OP12-07 15:15-15:30
(P022A)

The evolution of multiple traits associated with a derivative feeding habit is mediated by co-option of an astacin metalloprotease in the nematode *Pristionchus pacificus*

線虫 *Pristionchus pacificus* におけるアスタシンメタロプロテアーゼを介した派生的摂食行動に関連する複数の形質の進化

Yuuki Ishita¹, Takahiro Chihara^{1,2}, ○Misako Okumura^{1,2} (Prog. of Biomed. Sci., Grad. Sch. of Integr. Sci. for Life, Hiroshima Univ.¹, Prog. of Basic Biol., Grad. Sch. of Integr. Sci. for Life, Hiroshima Univ.²)

Poster Sessions

The white number is Poster Award candidate.

- P001A**
(OP08-01) Translational control of pou5f3 mRNA through shortening the 3'-end sequences during early development in zebrafish
○Ludivine Fierro¹, Yuki Takada², Tomoya Kotani² (Biosystems Science Course, Grad School of Life Science, Hokkaido Uni¹, Department of Biological Sciences, Faculty of Science, Hokkaido Uni²)
- P002B**
(OP08-03) Development of chicken embryo-based in vivo system to study human iPS cell differentiation into lateral plate mesoderm derivatives
○Galym Ismagulov¹, Guojun Sheng² (IRCMS, Kumamoto Univ.¹, IRCMS, Kumamoto Univ.²)
- P003C**
(OP08-05) Origin and lineage of mesenchymal cells in zebrafish
ゼブラフィッシュ間葉細胞の起源と系譜
○Hiroaki Komiya, Atsushi Kawakami (School of Life Science and Technology, Tokyo Tech)
- P004A**
(OP08-09) Planar cell polarity-dependent asymmetric organization of microtubules for polarized positioning of the basal body in node cells
○Xiao Rei Sai¹, Katsura Minegishi², Hiroshi Hamada¹ (RIKEN BDR¹, National Center of Neurology and Psychiatry²)
- P005B**
(OP08-10) Migrating mesoderm cells self-organize into a dynamic meshwork structure during chick gastrulation
ニワトリ初期胚における運動する中胚葉細胞によるダイナミックなメッシュワーク構造の自己組織化
Yukiko Nakaya, Mitsusuke Tarama, Sohei Tasaki, Ayako Isomura, ○Tatsuo Shibata (BDR)
- P006C**
(OP08-02) Role of MafB gene in cardiac neural cell development
心臓神経堤細胞形成における MafB 遺伝子の役割
○Saori Tani-Matsuhana, Yuga Kawata, Yusei Sakata, Kunio Inoue (Dept. Biol., Grad. Sch. Sci., Kobe Univ.)
- P007A**
(OP08-04) Analysis of the mechanism of regulating the cell division orientation in early ascidian embryogenesis
ホヤ初期胚発生における細胞分裂軸制御機構の解析
○Hiromu Terui, Naohito Takatori (TMU)
- P008B**
(OP08-08) Fluctuation of gene expression levels in early embryos is correlated to environmental and evolutionary responses
初期胚における遺伝子発現の揺らぎは環境応答および進化応答と関連する
○Yuuri Yasuoka¹, Chikara Furusawa^{2,3}, Yasushi Okazaki¹ (RIKEN IMS¹, RIKEN BDR², UBI, Univ. of Tokyo³)
- P009C**
(OP08-07) Left-right asymmetry is formed in the basal bodies of the node cilia in a cilia motility and/or nodal flow-dependent manner.
ノード繊毛の基底小体において、ノード繊毛の運動に依存的に左右非対称性が形成される。
○Hiroshi Yoke¹, Atsushi Taniguchi¹, Shigenori Nonaka^{1,2} (NIBB, NINS¹, ExCELLS, NINS²)
- P010A**
How is the epiblast established in the mouse pre-implantation embryo?
マウス着床前胚においてエピブラストはどのようにして形成されるのか?
○Masakazu Hashimoto^{1,2}, Rui Shibata¹, Karin Konno¹, Hiroshi Sasaki¹ (FBS. Osaka Univ.¹, JST PRESTO²)
- P011B**
Intercellular exchange of Wnt ligands reduces heterogeneity in epiblast cell population and con-

fers robustness to environmental stress

Wnt リガンドの相互交換はエピブラスト細胞集団の均一性を高め、より頑強に保つ

○Yudai Hatakeyama^{1,2,3}, Nen Saito^{1,2,3}, Yusuke Mii^{1,2,3,4}, Takuma Shinozuka^{1,2,3}, Tatsuya Takemoto⁵, Naoki Honda^{2,6}, Shinji Takada^{1,2,3} (SOKENDAI¹, ExCELLS², NIBB³, JST⁴, Tokushima Univ.⁵, Hiroshima Univ.⁶)

P012C

Functional analysis of a new zinc finger protein that induces formation of neural tissue in *Xenopus* embryos

○Ryota Koike, Regina Putri Virgiri, Makoto Nakamura, Kimiko Takebayashi-Suzuki, Atushi Suzuki (Amphibian Research Center, Grad. Sch. of Integr. Sci. for Life., Hiroshima Univ.)

P013A

Cancelled

P014B

Investigating the Anti-apoptotic Mechanisms that Counteracts Genotoxic Stress in Retinal Stem Cells

○Taimu Masaki, Yuki Takeuchi, Ichiro Masai (OIST)

P015C

Development of a method for rapid production of embryo specific mutant mice

胚特異的な遺伝子破壊マウスの高速作成法の開発

○Daisuke Masui, Masakazu Hashimoto, Hiroshi Sasaki (FBS, Osaka Univ.)

P016A

Establishment of mouse stem cells that can recapitulate the developmental potential of primitive endoderm

マウスにおける原始内胚葉幹細胞の樹立

○Yasuhide Ohinata^{1,2}, Haruhiko Koseki^{1,2} (Cellular and Molecular Medicine, Graduate School of Medicine, Chiba Univ.¹, Developmental Genetics, IMS, RIKEN²)

P017B

Remodeling of the luminal epithelium of the uterus during implantation of mouse embryos

マウス胚の着床時期に起こる子宮内膜上皮のリモデリングメカニズムの解明

○Jun Sakurai^{1,2}, Youko Higuchi¹, Azusa Kato¹, Toshihiko Fujimori^{1,2} (NIBB¹, SOKENDAI²)

P018C

Next Generation SPIM towards live imaging and all-cells tracking of a whole mouse embryo

次世代 SPIM : マウス胚まるごとのライブイメージングと全細胞トラッキングに向けて

○Go Shioi¹, Tomonobu Watanabe¹, Junichi Kaneshiro¹, Yusuke Azuma², Shuichi Onami² (Lab. Comprehensive Bioimaging, RIKEN BDR¹, Lab. Comprehensive Bioimaging, RIKEN BDR², Lab. Developmental Dynamics, RIKEN BDR³)

P019A

Transcriptional dynamics during development of early zygotes in rice: An approach using time-course single-cell RNA sequencing

イネ受精卵の初期発生過程における転写ダイナミクス

○Erika Toda^{1,2}, Shizuka Koshimizu³, Atsuko Kinoshita², Tetsuya Higashiyama¹, Kentaro Yano³, Takashi Okamoto² (Dept. Biol. Sci., Univ. Tokyo¹, Dept. Biol. Sci., Tokyo Metropolitan Univ.², Dept. Life Sci., Meiji Univ.³)

P020B

Understanding the cell origin and developmental signals during mammalian bladder development.

○Filip Wymeersch¹, Yukari Usuda^{1,2}, Minoru Takasato^{1,2} (RIKEN BDR, Kobe¹, Lab. Mol. Cell Biol., Kyoto Univ.²)

**P021C
(OP12-06)**

A lineage-specific GATA-like gene regulates zygotic gene activation to promote endoderm specification and pattern formation in the Theridiidae spider

オオヒメグモにおいて系統特異的な GATA 様遺伝子が胚性遺伝子活性化を制御し、内胚葉特異化とパターン形成を促進する

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**P022A
(OP12-07)**

The evolution of multiple traits associated with a derivative feeding habit is mediated by co-option

of an astacin metalloprotease in the nematode *Pristionchus pacificus*

線虫 *Pristionchus pacificus* におけるアスタシンメタロプロテアーゼを介した派生的摂食行動に関連する複数の形質の進化

Yuuki Ishita¹, Takahiro Chihara^{1,2}, [○]Misako Okumura^{1,2} (Prog. of Biomed. Sci., Grad. Sch. of Integr. Sci. for Life, Hiroshima Univ.¹, Prog. of Basic Biol., Grad. Sch. of Integr. Sci. for Life, Hiroshima Univ.²)

P023B Subdivision- and layer-selective expression of serotonin receptors in chick hippocampal formation
ニワトリ海馬のセロトニン受容体サブファミリー遺伝子は、サブ領域と層選択的に発現する

[○]Toshiyuki Fujita¹, Naoya Aoki¹, Chihiro Mori¹, Eiko Fujita¹, Toshiya Matsushima², Koichi Homma¹, Shinji Yamaguchi¹ (Fac. of Pharm., Teikyo Univ.¹, Dept. of Biol., Fac. of Sci., Hokkaido Univ.²)

P024C Hox code in the zebrafish anteriormost vertebrae

ゼブラフィッシュ最前部椎骨における Hox コード

Kenya Suzuki¹, Akiteru Maeno², Koumi Satoh¹, Daiki Kobayashi¹, Kazuya Yamada¹, Takumi Sugawara¹, Atsuki Ishizu¹, [○]Akinori Kawamura¹ (Grad. Sch. Eng., Saitama Univ.¹, National Institute of Genetics²)

P025A Evolvability of *cis*-regulatory elements of the neural tube patterning genes

神経管パターンニング遺伝子のシス制御配列の進化可能性

[○]Katsuki Mukaigasa, Chie Sakuma, Hiroyuki Yaginuma (Fukushima Med. Univ.)

P026B Comparative study of testis descent and scrotal development in mammalian species

哺乳類における精巣下降と陰嚢形成の比較発生学的解析

[○]Yoshio Wakamatsu¹, Hiroshi Kiyonari², Gen Yamada³ (Dept. Dev. Neurosci., Tohoku Univ. Grad. Sch. Med.¹, LARGE, BDR², Dept. Plastic Reconstructive Surgery, Wakayama Med. Univ.³)

P027C Serotonergic Neurons in the Chick Brainstem display Various Serotonin Receptor Subfamily Genes

ニワトリ脳幹での様々なセロトニン受容体遺伝子の発現

Toshiyuki Fujita, Naoya Aoki, Chihiro Mori, Koichi Homma, [○]Shinji Yamaguchi (Teikyo University)

P028A
(OP09-04) Adaptive responses to protein restriction governed by nonessential amino acid tyrosine in *Drosophila* larvae

ショウジョウバエ幼虫において、非必須アミノ酸チロシンが制御するタンパク質制限への適応応答

[○]Hina Kosakamoto¹, Naoki Okamoto², Ryusuke Niwa², Masayuki Miura³, Fumiaki Obata¹ (RIKEN BDR¹, Life Science Center for Survival Dynamics, Tsukuba Advanced Research Alliance (TARA), University of Tsukuba, Japan², Department of Genetics, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Japan³)

P029B
(OP09-05) Programed Cellular Acidification (PCA) might be the novel biological process that suspend cellular activity in the multicellular organisms

プログラム細胞内酸性化 (PCA) : 多細胞生物の細胞活性を停止する新規生命現象?

[○]Masayuki Oginuma¹, Moana Nishida¹, Tohru Ishitani¹ (RIMD¹, RIMD², RIMD³)

P030C
(OP09-02) The transcriptional repressor Blimp-1 fine-tunes the expression timing of the genes in each organ at the onset of metamorphosis in *Drosophila*

ショウジョウバエ変態開始期において転写抑制因子 Blimp-1 は各器官での遺伝子発現タイミングの微調整に関わる

Aya Samir¹, Koichi Miyagawa¹, Mitsuki Ikeda¹, Koutaro Kami², Hikaru Yamashita², Yuji Kageyama³, Kazutaka Akagi⁴, [○]Hitoshi Ueda^{1,2} (Fac. Natl. Sci. Tech., Okayama Univ.¹, Dept. Biol., Sch. Sci., Okayama Univ.², BRC, Kobe Univ.³, RCPDS, Univ. Toyama⁴)

P031A
(OP09-01) Loss of *wrn*, premature aging gene, affects pancreatic development in zebrafish
wrn 早老遺伝子の欠損はゼブラフィッシュの膵臓の発生に影響を及ぼす

○Kota Ujibe, Makoto Kashima, Hiromi Hirata (Aoyama Gakuin Univ.)

P032B

Non-autonomous induction of tumor-like cells by *strip*-knockdown cell population in *Drosophila*
ショウジョウバエの *strip* ノックダウン細胞集団による非自律的な腫瘍様細胞の誘導

○Daichi Honda¹, Misako Okumura¹, Tomoki Umehara², Chisako Sakuma³, Masayuki Miura², Takahiro Chihara¹ (Program of Biomedical Science, Graduate School of Integrated Sciences for Life, Hiroshima University¹, Graduate School of Pharmaceutical Sciences, The University of Tokyo², Department of Tropical Medicine, The Jikei University School of Medicine³)

P033C

Mother-to-embryo nutrient transfer and absorption in a viviparous teleost *Xenotoca eiseni*

グーデア科胎生魚 *Xenotoca eiseni* における母から仔への栄養分の輸送と吸収について

○Atsuo Iida, Jumpei Nomura, Junki Yoshida, Eiichi Hondo (Grad Sch of Bioagri Sci, Nagoya Univ)

P034A

An artificial mutation introduced in the mechanosensitive cation channel *piezo1* causes morphological abnormality in zebrafish vertebral bone

○Ramli Elones (FBS, Osaka Univ)

P035B

A chemosensory mutant exhibits cannibalism-like behavior in *Drosophila*

ショウジョウバエ化学感覚変異体は共食い様行動を示す

○Nagisa Matsuda¹, Misako Okumura^{1,2}, Takahiro Chihara^{1,2} (Program of Biomedical Science, Graduate School of Integrated Sciences for Life, Hiroshima University¹, Program of Basic Biology, Graduate School of Integrated Sciences for Life, Hiroshima University²)

P036C

The expression patterns of ion transport peptide and its alternatively spliced variants imply their pleiotropic functions during development in *Drosophila*

ショウジョウバエ Ion transport peptide のアイソフォーム特異的な発現パターンと機能分化

○Akira Watanabe¹, Taishi Yoshii², Hiromu Tanimoto³, Shu Kondo⁴, Ryusuke Niwa⁵, Naoki Okamoto⁵ (Grad. Sch. of Sci. and Technol., Univ. of Tsukuba¹, Grad. Sch. of Nat. Sci. Technol., Okayama Univ.², Grad. Sch. of Life Sci., Tohoku Univ.³, Grad. Sch. of Adv. Eng., Tokyo Univ. of Sci.⁴, TARA Center, Univ. of Tsukuba⁵)

P037A

(OP01-04)

E3 ubiquitin ligase HUWE1 regulates planar cell polarity through Pk degradation

E3 ユビキチンライゲース HUWE1 は Pk の分解により平面内極性を制御する

○Rieko Ajima, Yumiko Saga (NIG)

P038B

(OP04-04)

Regulation of vessel diameter during vascular remodelling

○Yan Chen, Núria Carretero, Li-Kun Phng (RIKEN Center for Biosystems Dynamics Research, Lab. Vascular Morphogenesis)

P039C

(OP04-02)

ECM remodeling drives epithelial unfolding of *Drosophila* imaginal discs during development

ECM リモデリングはショウジョウバエ成虫原基の外部形態への展開を駆動する

○Chigusa Hinata, Emi Maekawa, Shizue Ohsawa (Genetics, Div. of Biol. Sci., Grad Sch. of Sci., Nagoya Univ.)

P040A

(OP04-05)

Development of Ca²⁺ oscillators that regulate the spatial patterning of gut motility

腸ぜんどう運動を制御するカルシウム振動体の発生

○Masafumi Inaba, Yuuki Shikaya, Sho Takanabe, Yoshiko Takahashi (Dept. of Zool., Grad. Sch. of Sci., Kyoto Univ.)

P041B

(OP07-05)

The role of Sox9 SUMOylation in skeletal development and homeostasis

Sox9 SUMO 化の骨格形成・維持における役割

○Masafumi Inui (Meiji Univ. Sch. Agri.)

P042C

(OP07-06)

Cell chirality emerges left-right asymmetry at the multi-cellular level: left-right asymmetric formation of lamellipodia and focal adhesions drive collective migration

細胞キラリティが多細胞レベルの左右非対称性を創発するメカニズム：左右非対称に形成される葉状仮足と焦点接着斑が細胞の集団回転を生み出す

○Tomoki Ishibashi, Tatsuo Shibata (BDR, RIKEN)

P043A
(OP07-07) Self-organization of apical ECM molecules underlies insect cuticle nano-patterning
細胞外マトリックス分子の自己組織化による昆虫外骨格ナノ構造の構築

○Yuki Itakura¹, Zhengkuan Sun^{1,2}, Sachi Inagaki¹, Housei Wada¹, Shigeo Hayashi^{1,2} (RIKEN BDR¹, Dept. of Biology, Kobe Univ.²)

P044B
(OP04-08) Tbx3 differently regulate digits morphogenesis of the fore- and hindlimbs in newts (*Pleurodeles waltl*)

Tbx3 はイモリの指形成において前肢と後肢で異なる制御を行う

○Haruka Matsubara¹, Takashi Takeuchi¹ (Laboratory of Biosignaling, School of Life Science, Faculty of Medicine Tottori University,¹, Takashi Takeuchi²)

P045C
(OP07-09) Mesothelial fusion mediates chorioallantoic membrane formation
中皮の融合と漿尿膜形成

○Hiroki Nagai¹, Yuki Tanoue¹, Tomonori Nakamura^{2,3,4}, Christopher Chan^{1,5}, Shigehito Yamada⁶, Mitunori Saitou^{2,3,7}, Takaichi Fukuda⁸, Guojun Sheng¹ (IRCMS, Kumamoto Univ.¹, WPI-ASHBI, Kyoto Univ.², Department of Anatomy and Cell Biology, Graduate School of Medicine, Kyoto Univ.³, The Hakubi Center for Advanced Research, Kyoto Univ.⁴, Francis Crick Institute, London⁵, Congenital Anomaly Research Center, Graduate School of Medicine, Kyoto Univ.⁶, CiRA, Kyoto Univ.⁷, Department of Anatomy and Neurobiology, Graduate School of Medical Sciences, Kumamoto Univ.⁸)

P046A
(OP03-02) SHH signaling regulates the directional cell motion through cellular mechanosensation
SHH シグナルは細胞の力覚応答を介して細胞集団運動方向を制御する

○Daisuke Ohtsuka, Yoshihiro Morishita (RIKEN BDR)

P047B
(OP07-10) Competitive elimination of tight junction deficient cells regulate epithelial barrier homeostasis
細胞競合による上皮バリア破綻細胞の排除

○Tetsuhisa Otani^{1,2,3}, Mikio Furuse^{1,2} (NIPS, Div. of Cell Structure¹, Dept. of Physiol., SOKENDAI², JST PRESTO³)

P048C
(OP07-08) Newt Hoxa13 has an essential and predominant role in digit formation during development and regeneration

イモリの Hoxa13 は発生および再生における指形成において必須かつ主要な機能をもつ

○Takashi Takeuchi¹, Haruka Matsubara¹, Fumina Minamitani¹, Yukio Satoh¹, Sayo Tozawa¹, Tomoki Moriyama¹, Kohei Maruyama¹, Ken-Ichi Suzuki², Shuji Shigenobu², Takeshi Inoue³, Koji Tamura⁴, Kiyokazu Agata², Toshinori Hayashi^{1,5} (Sch. of Life Sci., Fac. of Med., Tottori Univ.¹, NIBB², Sch. of Med., Fac. of Med., Tottori Univ.³, Grad. Sch. of Life Sci., Tohoku Univ.⁴, ARC, Hiroshima Univ.⁵)

P049A
(OP04-07) Fgf8a secreted from differentiating retinal ganglion cells regulates lens fiber differentiation in zebrafish

ゼブラフィッシュにおいて網膜神経節細胞から分泌される Fgf8a は水晶体の線維細胞分化を制御する

○Yuki Takeuchi, Yutaka Kojima, Ichiro Masai (OIST)

P050B
(OP01-01) The mechanical force generated by limb movement depending on the environment affects tendon development during the embryo to neonatal phase

環境依存的に変化する四肢運動はメカニカルストレスとして胎生期から新生児期までの腱の発達に影響を与える

○Yuna Usami, Takanori Kokubun (Saitama Prefectural University)

P051C
(OP07-01) Contribution of Convergent Extension in AIP Midline Cells to Foregut Elongation
前腸門腹側細胞での収斂伸長運動は前腸伸長にどのくらい貢献するか

○Qingyang Wang, Kimiko Fukuda (Dept. Biol. Sci., Tokyo Metropol. Univ.)

P052A
(OP07-02)

Reciprocal signals between the pacemaker and smooth muscles cells in the gut contractile organoid

腸収縮オルガノイドにおけるペースメーカー細胞と平滑筋間の相互シグナル解析

○Rei Yagasaki, Yuuki Shikaya, Yoshiko Takahashi (Dept of Zool. Kyoto Univ.)

P053B
(OP07-03)

Identification of the motifs in left-right Myosin I proteins dictating the handedness of the embryonic gut in *Drosophila*

○Asuka Yamaguchi¹, Takeshi Sasamura¹, Kohei Yoshimura², Chinami Maeda¹, Takeshi Haraguchi², Kohji Ito², Kenji Matsuno¹ (Dept. Bio. Sci., Grad. Sch. Sci., Osaka Univ.¹, Grad. Sch. Sci., Univ. Chiba²)

P054C

Regulation of collagen structure in zebrafish bone and dynamics of bone relating cells

ゼブラフィッシュ骨組織におけるコラーゲン構造制御と関連細胞の動態

○Hiromu Hino, Junpei Kuroda, Shigeru Kondo (Grad. Sch. Frontier of Bioscience, Osaka Univ.)

P055A

Analysis of cell lineage and tissue dynamics based on 4D imaging during jaw development in zebrafish

○Kazutaka Hosoda¹, Naofumi Kawahira^{1,2}, Daisuke Ohtsuka¹, Yoshihiro Morishita¹ (RIKEN BDR¹, UCLA MCDB²)

P056B

Transdifferentiation of Kupffer' s vesicle-derived cells into mesodermal lineages

クッペル胞由来細胞の中胚葉系譜への分化転換

○Takafumi Ikeda, Toru Kawanishi, Hiroyuki Takeda (Lab. of Embryology, Dept. of Biol. Scis., Grad. School of Sci., The Univ. of Tokyo)

P057C

Toward understanding the cellular and molecular mechanisms of directional carriage of gemmular spicule during gemmule formation.

芽球形成における、方向性を持った芽球骨片の運搬時に働く細胞・分子機構の解明

○Rinka Iseki¹, Junichiro Nakazawa¹, Masumi Okawa¹, Tomoyuki Ueda¹, Shutaro Endo¹, Takefumi Kondo^{2,3}, Noriko Funayama¹ (Kyoto University, Grad. Sch. Science, Dept. of Biophysice¹, Graduate School of Biostudies, Kyoto University², K-CONNEX³)

P058A

Sall1/4 are required for cardiac conduction system development by delimiting Hcn4-positive region

Sall1/4 は Hcn4 陽性特殊心筋領域の局在を制御して刺激伝導系発生に寄与する

○Wataru Katano¹, Yuki Tajika², Jun Takeuchi³, Kazuko Koshiba-Takeuchi¹ (Grad. Sch. of Life Sci., Toyo Univ.¹, Grad. Sch. of Med. Gunma Univ², Dept. of Bio. Phar., TMDU³, Grad. Sch. of Life Sci., Toyo Univ.⁴)

P059B

Distinct roles of aquaporins in blood vessel formation

○Igor Kondrychyn¹, Jeronica Chong¹, Akane Nomori¹, Christer Betsholtz², Li-Kun Phng¹ (RIKEN Center for Biosystems Dynamics Research, Lab. Vascular Morphogenesis¹, Uppsala University, Karolinska Institutet, Sweden²)

P060C

Characteristic tetraspanin expression patterns mark various tissues during *Xenopus* early development

様々な組織に特異的に発現するテトラスパニン遺伝子

○Sei Kuriyama (Akita University)

P061A

A novel cellular mechanism of collagen remodeling in the morphogenesis of fish fin bones revealed by 4D live imaging

4D ライブイメージングにより明らかになった魚類ヒレ骨の形態形成における新規コラーゲン・リモデリング機構

○Junpei Kuroda^{1,2}, Hiromu Hino¹, Shigeru Kondo¹ (FBS, Osaka univ¹, BDR²)

- P062B** Analyses of cellular and molecular mechanisms connecting spicules to construct skeleton of demsponges
 カイメン骨格を形成している骨片をつなぐ細胞分子機構の解析
 °Keiji Matsumoto¹, Sota Takagi¹, Satomi Kamimura¹, Junpei Kuroda^{1,2}, Noriko Funayama¹ (Grad. Sch. Sci., Kyoto Univ.¹, Grad. Sch. FBS., Osaka Univ.²)
- P063C** The role of Pri micropeptides in epithelial invagination
 マイクロペプチド遺伝子 pri の上皮シート陥入における機能
 °Sonoko Mizuno, Takefumi Kondo (Graduate School of Biostudies, Kyoto Univ.)
- P064A** Developmental process of pancreas in newt
 イモリの膵臓の発達過程の解析
 °Ryosuke Morozumi^{1,3}, Mitsuki Kyakuno^{1,3}, Hitoshi Uemasu², Nanoka Suzuki^{1,3}, Yasuhiro Kamei⁴, Ichiro Tazawa^{1,3}, Nobuaki Furuno^{1,3}, Noriyuki Nanba², Hajime Ogino^{1,3}, Toshinori Hayashi^{1,3} (Graduate School of Integrated Sciences for Life, Hiroshima University¹, Faculty of Medicine School of Medicine, Tottori University², Amphibian Research Center, Hiroshima University³, National Institute for Basic Biology⁴)
- P065B** Visceral mesoderm-dependent and -independent regional differentiation of the midgut endoderm of *Drosophila* midgut
 ショウジョウバエ中腸内胚葉における内臓中胚葉の依存／非依存の領域分化
 °Ryutaro Murakami, Saki Kamioka, Ryo Hijikata, Akihiro Kanao, Lily Shimooka, Yumiko Harada (Dept Biol, Yamaguchi Univ)
- P066C** Analysis of the progression of cell proliferation in CDK1 knockout newts
 CDK1 ノックアウトイモリにおける細胞増殖の進行の解析
 °Yuta Nakao^{1,2}, Ichiro Tazawa^{1,2}, Nobuaki Furuno^{1,2}, Toshinori Hayashi^{1,2} (Graduate School of Integrated Sciences for Life, Hiroshima Univ.¹, ARC, Hiroshima Univ.²)
- P067A** カイメン動物におけるゲノムへの遺伝子導入の試み
 Attempt to establish a gene introduction system in demosponge, *Ephydatia fluviatilis*.
 °Tetsuro Nishizawa, Tomoki Mukai, Sota Takagi, Noriko Funayama (Kyoto University, Grad. Sch. Science, Dept. of Biophysics)
- P068B** Forward genetic screening to reveal the molecular mechanism of polyphenism responding to light in the nematode *Pristionchus pacificus*
 光環境に応答した表現型多型の順遺伝学的解析
 °Ageha Onodera¹, Yuuki Ishita¹, Ken-Ichi Nakayama¹, Chinatsu Kai², Takahiro Chihara³, Misako Okumura³ (Program of Biomedical Science, Graduate School of Integrated Sciences for Life, Hiroshima university¹, Department of Biological Science, School of Science, Hiroshima University², Program of Basic Biology, Graduate School of Integrated Sciences for Life, Hiroshima University³)
- P069C** Nutrients and cell adhesion molecules manipulate thyroid follicle morphogenesis.
 栄養素と細胞接着分子が甲状腺濾胞の形態形成を制御する
 °Asako Shindo¹, Maki Takagishi², Kaoru Nakashima¹ (IMEG, Kumamoto Univ.¹, UT Austin²)
- P070A** Heparan sulfate proteoglycans are involved in a feedback loop with Wnt11 and core PCP components in the establishment of planar cell polarity
 平面内細胞極性形成における Wnt11 とコア PCP 因子間のフィードバック制御にヘパラン硫酸プロテオグリカンが関与する
 °Minako Suzuki^{1,2,3}, Hiroki Hikasa⁴, Masanori Taira⁵, Shinji Takada^{1,2,3}, Yusuke Mii^{1,2,3,6} (SOKENDAI¹, NIBB², ExCELLS³, UOEH⁴, Chuo Univ.⁵, JST PRESTO⁶)
- P071B** Formation of a larval “corset” structure by ECM proteins in *Drosophila*
 ECM タンパク質によるハエ幼虫のコルセット構造の形成機構
 °Reiko Tajiri^{1,2,3}, Haruhiko Fujiwara², Tetsuya Kojima² (Grad. Sch. Sci., Chiba U¹, Grad. Sch. Frontier

Sci., U. Tokyo², SunRiSE³)

P072C

The mechanism of hindlimb defect in Hox13 mutant newts

Hox13 変異イモリにおける後肢欠損メカニズムについて

○Sayo Tozawa¹, Haruka Matsubara², Fumina Minamitani², Yukio Satoh², Toshinori Hayashi³, Takashi Takeuchi² (Grad. Sch. Med. Sci., Tottori Univ.¹, Sch. Life Sci., Tottori Univ.², ARC, Hiroshima Univ.³)

P073A

Towards understanding the mechanism of early nephron morphogenesis

○Olena Trush, Minoru Takasato (RIKEN BDR, Kobe, Japan)

P074B

Proper amount and activity of the Wilms' tumor suppressor gene, WT1, is required for normal pronephros development of *Xenopus* embryos

ウィルムス腫瘍抑制遺伝子 WT1 の適切な量と活性は、アフリカツメガエル初期胚における正常な前腎形成に必要である

Taisei Shiraki², Takuma Hayashi², Joutaro Ozue², ○Minoru Watanabe^{1,2} (Inst. of Lib. Arts & Sci., Tokushima University¹, Grad. Sch. of Sci. & Technol. for Innov., Tokushima University²)

P075C

Search for genes regulating cell invasiveness and motility, which are required for the delamination of *Drosophila* border cells

ショウジョウバエ・ボーダー細胞のデラミネーションにおける細胞の浸潤性及び運動性を制御する遺伝子の探索

○Kengo Yada, Kenji Matsuno, Mikiko Inaki (Dept. of Biol. Sci., Grad. Sch. of Sci., Osaka Univ.)

P076A

(OP03-06)

Regulation of gliogenesis in the mammalian neocortex by organelle stress response pathways

細胞内小器官のストレス応答による大脳皮質グリア細胞産生の制御

○Koji Oishi^{1,2,4}, Jun Motoyama³, Kazunori Nakajima⁴ (Grad. Sch. of Brain Sci., Doshisha Univ.¹, Grad Sch of Pharm Sci, Univ of Tokyo², Grad Sch of Brain Sci, Doshisha Univ.³, Dept of Anat, Keio Univ Sch of Med⁴)

P077B

(OP03-05)

Notch signaling regulates early-born neuronal production in the neural retina.

神経性網膜の細胞分化における Notch シグナルの役割

○Kiyo Sakagami^{1,2}, Lillian Lai², Mei Zhang², Xian-Jie Yang^{2,3} (Nagahama Inst Bio-Sci and Tech¹, UCLA, JSEF, UCLA, BRI³)

P078C

Human-specific pancCD63-CD63 pair contribute to the generation of basal neural progenitors for evolutionary expansion of cerebral cortex.

○Boyang An¹, Tomonori Kameda², Takuya Imamura¹ (Graduate School of Integrated Sciences for Life, Hiroshima Univ.¹, Graduate School of Medical Sciences, Kyushu Univ.²)

P079A

UCP2/Ucp2 can control the number of neural stem/progenitor cells to differentiate mouse and human brain development

UCP2/Ucp2 は神経幹・前駆細胞の量的制御を介してマウス・ヒト脳発達種差を形成しうる

○Akari Ando¹, Boyang An¹, Mayuri Tokunaga¹, Arisa Makimura¹, Fumihiro Morishita^{1,2}, Tomonori Kameda³, Takuya Imamura^{1,2} (Graduate School of Integrated Sciences for Life, Hiroshima Univ.¹, Department of Biological Science, Hiroshima Univ.², Graduate School of Medical Sciences, Kyushu Univ.³)

P080B

Midbrain competence to express ectopic Gbx2 in response to strong Fgf8 signaling in chicken embryos

強い Fgf8 シグナリングに因る Gbx2 の異所的発現に関するニワトリ胚中脳の応答能

Ryusei Furusawa^{1,2}, Taisei Kumagai^{1,2}, ○Isato Araki^{1,2} (Bio Course, Dept Chem Bio Sci, Fac Sci & Eng, Iwate Univ¹, Bio Sci Course, Div Sci Eng, Grad Sch Arts Sci, Iwate Univ²)

P081C

The role of the human-specific gene NOTCH2NL in the formation of human-specific neural circuits

ヒト固有遺伝子 NOTCH2NL によるヒトらしい神経回路形成のメカニズム

○Riina Ishiwatari¹, Ikuo Suzuki^{1,3}, Kazuo Emoto^{1,2,4} (Dept. Biol, UTokyo¹, WPI-IRCN², AMED-PRIME³, AMED-CREST⁴)

P082A Identification of the pupal stages at which three Kenyon cell subtypes are generated in the mushroom bodies of the honey bee

ミツバチのキノコ体を構成する 3 種類のケニヨン細胞サブタイプが作出される蛹期の同定

○Hiroki Kohno, Takeo Kubo (The Univ. of Tokyo)

P083B Quantitative analysis of the roles of IRM cell adhesion molecules in column formation in the fly brain

ハエの脳のカラム形成における IRM 細胞接着分子の役割の定量分析

○Yunfei Li¹, Takeshi Tomomizu², Toshiki Naito², Kosuke Imamura², Makoto Sato² (Kanazawa Univ¹, Kanazawa university²)

P084C Drp1 is required for photoreceptor apoptosis in response to vesicular fusion defects

Drp1 は小胞輸送の破綻による光受容細胞のアポトーシスに必要である

○Yuko Nishiwaki, Mamoru Fujiwara, Ichiro Masai (OIST)

P085A Single-nucleus RNA-seq identifies transcriptional regulation of embryonic neuromuscular junction in skeletal muscle

シングル核 RNA-seq による胎生期骨格筋の神経筋接合部の転写制御の同定

○Bisei Ohkawara¹, Kinji Ohno¹ (Neurogenetics, Nagoya Univ.¹, Neurogenetics, Nagoya Univ.²)

P086B Identifying genes that regulate the production of neuronal diversity in Drosophila visual center

ハエ視覚中枢において神経多様性の創出を制御する遺伝子の探索

Yuanchang Tsai, Chika Akiba, Misaki Izawa, Anna Saito, ○Takumi Suzuki (Ibaraki Univ. Dept. Sci.)

P087C Single-nucleus RNA sequencing of segmented embryos can reconstruct the spatial periodic stripes of gene expression in the spider *Parasteatoda tepidariorum*

(OP11-03)

オオヒメグモ胚を用いた single nucleus RNA シーケンシングは遺伝子発現の周期的な縞パターンを再構築する

○Takanori Akaiwa^{1,2}, Hiroki Oda^{1,2}, Yasuko Akiyama-Oda^{2,3,4} (Osaka Univ.¹, JT BRH², PRESTO JST³, OMPU⁴)

P088A The morphogenesis of fingerprint like structure “Microridges” in zebrafish skin cells

(OP11-06)

ゼブラフィッシュ上皮細胞における指紋様構造 Microridges の形態形成解析

○Yasuko Inaba, Yasumasa Bessho (NAIST)

P089B Mouse nodal immotile cilium sense bending direction for generating left-right asymmetry: Mechanical regulation in initiation of symmetry breaking

(OP11-08)

マウスノード不動繊毛は変形の向きを感知して左右軸を決定する：非対称性を生み出すメカニカルな機構

○Takanobu Katoh¹, Toshihiro Omori², Katsutoshi Mizuno³, Takuji Ishikawa², Hiroshi Hamada¹ (RIKEN BDR¹, Dept. Finemechanics, Grad. Sch. Eng., Tohoku University², School of Medical Sciences, University of Fukui³)

P090C Three different domains of afadin independently regulate cell intercalation in nectin-dependent mosaic cellular patterning.

(OP11-02)

アフアディンは 3 種類の独立したドメインを介してネクチン依存的な細胞のモザイクパターンにおける細胞の割込みを制御する

○Shuhei Kuno¹, Tetsuhisa Otani^{2,3,4}, Akira Suzuki¹, Hideru Togashi^{1,4} (Div. Mol. Cell. Biol., Dpt. Biochem. Mol. Biol., Grad. Sch. Med., Kobe Univ.¹, Div. Cell Str., NIPS², Dpt. Physiol. Sci., Sch. Life Sci., SOKENDAI³, JST, PRESTO⁴)

- P091A (OP11-04)** Phosphorylation of Vangl2 is involved in local scaffold formation for Wnt11 in the establishment of planar cell polarity.
平面細胞極性の形成における Vangl2 リン酸化の Wnt11 のローカルな足場形成への関与
○Yusuke Mii^{1,2}, Minako Suzuki¹, Hiroshi Koyama¹, Ritsuko Takada¹, Makoto Matsuyama³, Motosuke Tsutsumi⁴, Tomomi Nemoto⁴, Toshihiko Fujimori¹, Shinji Takada¹ (NIBB¹, JST PRESTO², SMRI³, NIPS⁴)
- P092B (OP11-07)** The molecular logic for the determination of somite boundary position in zebrafish
ゼブラフィッシュ体節形成における分節境界の位置決定機構
○Taijiro Yabe^{1,2,3}, Koichiro Uriu⁴, Shinji Takada^{1,2,3} (NIBB¹, ExCELLS², SOKENDAI³, Graduate School of Natural Science and Technology, Kanazawa University⁴)
- P093C (OP11-01)** The upstream 5.5-kb region of zebrafish *gbx1* is necessary and sufficient for specific expression in the rhombencephalon and spinal cord.
ゼブラフィッシュ *gbx1* 遺伝子上流 5.5 kb 領域は菱脳・脊髄での特異的発現制御に必要十分である
○Ayako Yokokawa, Minami Komoriya, Kyo Yamasu (Grad. Sch. Sci, Eng., Saitama Univ.)
- P094A** Identification and functional analysis of *Gdf11* enhancers that determine the hindlimb position.
後肢の位置決定に必須な *Gdf11* の発現を制御するエンハンサーの同定と機能解析
○Seiji Saito¹, Utsugi Kanazawa², Tatsuya Takemoto³, Takayuki Suzuki⁴ (Grad School of Bioag Sci, Nagoya Univ.¹, Grad. School of Sci., Nagoya Univ.², IAMS, Tokushima Univ.³, Div. of Bio., Grad. School of Sci., OMU⁴)
- P095B** Deep single-cell transcriptome atlas of *Drosophila* gastrula
高解像度な空間情報を付加したショウジョウバエ原腸胚 1 細胞トランスクリプトームアトラス
○Shunta Sakaguchi¹, Yasushi Okochi², Chiharu Tanegashima³, Osamu Nishimura³, Mitsutaka Kadota³, Naoki Honda⁴, Takefumi Kondo¹ (Grad. Sch. Biostudies, Kyoto Univ.¹, Fac. Med., Kyoto Univ.², RIKEN BDR³, Grad. Sch. Integrated Science for Life, Hiroshima Univ.⁴)
- P096C** Molecular interactions between p120 catenin and cadherin regulate junction shrinkage of heterotypic interfaces during cadherin-dependent cell sorting
カドヘリンと p120 の結合によるヘテロ接着面の収縮の制御が細胞選別に必要である
○Hideru Togashi^{1,2} (Div. Mol. Cell. Biol., Kobe Univ. Grad. Sch. Med.¹, JST PRESTO²)
- P097A (OP05-01)** Flexible Shh and Fgf8 expression domain in regenerating axolotl limb guarantees consistent limb morphogenesis in different limb sizes.
アホロートルの空間特異的な Shh・Fgf8 の発現パターンは異なるフィールドサイズでの一貫した四肢形態形成を保証する
○Saya Furukawa¹, Sakiya Yamamoto¹, Rena Kashimoto¹, Yoshihiro Morishita², Akira Satoh^{1,3} (Okayama University¹, RIKEN², RCIS³)
- P098B (OP05-02)** Analysis of collagen structure in the axolotl skin and their dynamics in the regeneration
メキシコサラマンダーにおける皮膚コラーゲン構造解析および再生過程の構造変化解析
○Rena Kashimoto¹, Saya Furukawa², Sakiya Yamamoto², Yasuhiro Kamei⁴, Joe Sakamoto⁴, Shigenori Nonaka^{3,4}, Tomonobu Watanabe^{5,6}, Tatsuya Sakamoto^{1,7}, Hirotaka Sakamoto^{1,7}, Akira Satoh⁸ (Grad. Sch. of Nat. Sci. and Tech., Okayama Univ.¹, Fac. of Sci., Okayama Univ.², ExCELLS, NINS³, NIBB, NINS⁴, BDR⁵, RIRBM, Hiroshima Univ.⁶, UMI, Okayama Univ.⁷, RCIS, Okayama Univ.⁸)
- P099C (OP05-08)** Zebrafish pancreatic β cell clusters undergo stepwise regeneration using Neurod1-expressing cells from different cell lineages
ゼブラフィッシュは細胞系譜が異なる Neurod1 発現細胞を用い膵 β 細胞集合体の機能と形態を段階的に再生させる。
○Hiroki Matsuda (Ritsukeikan University)

- P100A**
(OP05-03) Roles for microglia in chronic photoreceptor degeneration and associated regeneration caused by *pde6c* dysfunction in zebrafish
ゼブラフィッシュ PDE6C 変異体で起こる視細胞変性とそれに続く再生においてミクログリアが果たす役割
○Darshini Ravishankar, Yuki Takeuchi, Ichiro Masai (OIST)
- P101B**
(OP05-05) Involvement of ERK Signalling in the Regeneration Processes of the Enteric Nervous System in Zebrafish
ゼブラフィッシュの腸神経系再生過程における ERK シグナルの関与の解明
○Kaho Yamamoto, Masataka Nikaido, Kohei Hatta (Univ. of Hyogo)
- P102C**
(OP05-07) Transgenic *Xenopus laevis* with a limb-specific *shh* enhancer, outlines the competence to express *shh* in regenerating limbs
Reimi Tada¹, Takuya Higashidate², Takanori Amano³, Shoma Ishikawa¹, Saki Nara¹, Koshiro Ishida¹, Akane Kawaguchi⁴, Haruki Ochi⁵, Hajime Ogino⁶, Nayuta Yakushiji-Kaminatsui⁷, Joe Sakamoto⁸, Yasuhiro Kamei^{8,9}, Koji Tamura², ○Hitoshi Yokoyama¹ (Dept. of Biochem. & Mol. Biol., Facul. of Agri. & Life Sci., Hiroshima Univ.¹, Department of Ecological Developmental Adaptability Life Sciences, Graduate School of Life Sciences, Tohoku University², Next Generation Human Disease Model Team, RIKEN BioResource Research Center³, Graduate School of Biological Sciences, Nara Institute of Science and Technology (NAIST)⁴, Institute for Promotion of Medical Science Research, Faculty of Medicine, Yamagata University⁵, Amphibian Research Center / Graduate School of Integrated Sciences for Life, Hiroshima University⁶, RIKEN Center for Integrative Medical Sciences (IMS)⁷, Laboratory for Biothermology, National Institute for Basic Biology⁸, Spectrography and Bioimaging Facility, National Institute for Basic Biology⁹)
- P103A**
(OP05-06) Regeneration response enhancers composed of E-box and AP-1 motifs
再生に応答するエンハンサーは E-box と AP-1 の 2 つのモチーフから構成される
○Takafumi Yoshida¹, Teruhisa Tamaki¹, Eri Shibata¹, Hidenori Nishihara¹, Haruki Ochi², Atsushi Kawakami¹ (School of Life Science and Technology, Tokyo Tech¹, Faculty of Medicine, Yamagata Univ.²)
- P104B** The immune response network that determines the regenerative ability of *Xenopus laevis* tadpole tails.
アフリカツメガエル幼生尾再生能を決定する免疫応答ネットワーク
○Taro Fukazawa (Dept. Biol. Sci., Grad. Sch. Sci., Univ. Tokyo)
- P105C** Transcriptomic landscape during regeneration revealed turning point of anterior-posterior information in a planarian, *Dugesia japonica*.
プラナリアのトランスクリプトーム解析による再生過程における頭尾領域再獲得のタイムポイントの発見
○Miho Hosaka, Makoto Kashima, Hiromi Hirata (Aoyama Gakuin Uni.)
- P106A** Function of cyclin D1 in the regulation of the cell cycle in newts
○Hiromi Ikuta^{1,2}, Hitoshi Uemasu³, Shouhei Azuma⁴, Takeshi Igawa^{1,2}, Ichiro Tazawa^{1,2}, Nobuaki Huruno^{1,2}, Noriyuki Namba³, Hajime Ogino^{1,2}, Takashi Takeuchi⁴, Toshinori Hayashi^{1,2} (ARC, Hiroshima Univ.¹, Graduate School of Integrated Sciences for Life, Hiroshima Univ.², Division of Pediatrics and Perinatology, school of medicine, Faculty of Medicine, Tottori Univ.³, Department of Biomedical Sciences School of Life Sciences, Faculty of Medicine, Tottori Univ.⁴)
- P107B** Side population method is effective for tissue stem cell enrichment in *Xenopus laevis* tadpoles
サイドポピュレーション法による幹細胞濃縮はツメガエル幼生尾において有効である
○Sumika Kato, Takeo Kubo, Taro Fukazawa (Dept. of Biol. Sci., Grad. Sch. of Sci., Univ. of Tokyo)
- P108C** Transcription Factors Essential for Reactivation of Developmental Programs during Limb Regeneration
四肢再生過程における発生プログラム再活性化に必須な転写因子

○Aiko Kawasumi¹, Daisuke Ohtsuka¹, Lee Sangwoo¹, Keiichi Kitajima¹, Yuto Sakane², Koji Tamura³, Haruki Ochi⁴, Ken-ichi Suzuki⁵, Yoshihiro Morishita¹ (RIKEN BDR¹, Hiroshima Univ.², Tohoku Univ.³, Yamagata Univ.⁴, NIBB⁵)

P109A Co-expression of the tadpole tail antigens Ouro1 and Ouro2 promote alteration in subcellular localization and T-cell recognition response of *Xenopus laevis*

アフリカツメガエル幼生尾部抗原 Ouro1 と Ouro2 の共発現は細胞内局在の変化と成体 T 細胞の異物認識反応を促進する

○Haruka Kobayashi¹, Yumi Izutsu² (Grad. Sch. Sci. Tech., Niigata Univ.¹, Dept. Biol., Fac. Sci., Niigata Univ.²)

P110B Origin and lineage of the basal stem cells of the epidermis in zebrafish fin

○Zhengcheng Liu¹, Yidan Meng¹, Atsushi Kawakami¹ (School of Life Science and Technology, Tokyo Tech¹, Yidan Meng², Atsushi Kawakami³)

P111C Direct reprogramming of somatic cells into neural crest cells by epithelial-mesenchymal transition
上皮間葉系転換を利用した体細胞の神経堤細胞へのダイレクトリプログラミング

○Tsutomu Motohashi, Hitomi Aoki, Kenichi Tezuka, Takahiro Kunisada (SCRM, Gifu Univ.)

P112A Excess retinoic acid signaling induces retinoic acid clearance to suppress regeneration of zebrafish fin

過剰なレチノイン酸シグナルはレチノイン酸クリアランスを誘導して、ゼブラフィッシュの尾ひれ再生を抑制する

○Kumpei Murase, Eri Tanishita, Tomoya Nakashima, Ayumi Nagashima, Atsushi Kawakami (Tokyo Tech)

P113B Investigation of the initiation mechanism of testicular regeneration in the newt

イモリの精巣再生を開始させる機構の研究

○Mai Takehara^{1,2}, Mitsuki Kyakuno^{1,2}, Yukio Sato³, Takashi Takeuchi³, Ichiro Tazawa^{1,2}, Nobuaki Furuno^{1,2}, Toshinori Hayashi^{1,2} (Graduate school of Integrated Science for Life, Hiroshima Univ.¹, Amphibian Research Center, Hiroshima Univ.², Department of Biomedical Sciences, School of Life Sciences, Faculty of Medicine, Tottori Univ.³)

P114C Maternal chimeric cells' influence on the development of the mouse neonatal immune system

(OP10-07) ○Flore Castellan, Naoki Irie (UTokyo, Grad. Sch. Sci.)

P115A Establishment of developmental toxicity test based on the integration of FGF signal disruption effects for safety evaluation of drugs and chemicals using human iPS cells

(OP10-08) ヒト iPS 細胞を用いた医薬品や化学物質の安全性を評価する FGF シグナルかく乱作用に基づいた発生毒性試験

○Yusuke Okubo¹, Seiya Kanno², Satoshi Kitajima¹, Yoko Hirabayashi³, Junji Fukuda² (NIHS¹, YNU², NIHS³)

P116B Sexually different phenotype of medaka *terb1* mutant

(OP06-04) *terb1* 変異体における雌雄で異なる表現型の解析

○Shiyu Kameyama, Mariko Kikuchi, Minoru Tanaka (Biological Science, Nagoya Univ.)

P117C Functional Modules in Gametogenesis

(OP06-03) 配偶子形成を構成する機能的モジュール

○Mariko Kikuchi, Minoru Tanaka (Nagoya University)

P118A *Drosophila* Tpp is required for proper piRNA biogenesis in the nuage and facilitates the posterior localization of Aubergine to the germ plasm.

(OP06-06) ショウジョウバエ Tpp はヌアージにおける適切な piRNA 生合成に必須であり、Aubergine の生殖質への局在を促進する

○Hirono Kina^{1,2}, Natsuko Izumi³, Keisuke Shoji³, Yukihide Tomari³, Akira Nakamura^{1,2} (IMEG¹, Graduate School of Pharmaceutical Sciences, Kumamoto University², Institute for Quantitative Biosciences, The University of Tokyo³)

P119B
(OP06-05) Co-existence of ovarian-expressed ZP proteins (medaka ZPC5) and liver-expressed choriogenins (Chgs) in the egg envelope (chorion) of Medaka, *Oryzias latipes*.

○Kenji Murata¹, Devun Birk¹, Shinji Onose^{1,2}, Masato Kinoshita³ (CHE., UC Davis, USA¹, Fordays Co., Ltd², Div., Biosci., Kyoto Univ., Japan³)

P120C
(OP06-02) STRA8-RB interaction coordinates S phase entry and meiotic initiation in female germ cells
メス生殖細胞における STRA8-RB による S 期と減数分裂開始の同調機構

○Ryuki Shimada¹, Yuzuru Kato², Naoki Takeda³, Sayoko Fujimura¹, Kei-ichiro Yasunaga¹, Shingo Usuki¹, Hitoshi Niwa¹, Kimi Araki³, Kei-ichiro Ishiguro¹ (IMEG¹, NIG², IRDA³)

P121A
(OP06-01) Sperm entry into immature oocytes before ovulation in a viviparous teleost *Poecilia reticulata*
卵胎生魚グッピーにおける排卵前未成熟卵への精子進入

○Junki Yoshida¹, Yuki Tajika², Makoto Kuwahara³, Takayuki Suzuki¹, Eiichi Hondo¹, Atsuo Iida¹ (Dept of Ani Sci, Grad Sch of Bioagr, Nagoya Univ, THERS¹, Department of Anatomy, Gunma University Graduate School of Medicine, Maebashi, Gunma, Japan², Institute of Materials and Systems for Sustainability, Nagoya University³)

P122B Sex determination depending on X-chromosome dosage in primordial germ cells of *Drosophila*
ショウジョウバエ始原生殖細胞における X 染色体の数に依存した性決定機構

○Ryoma Ota¹, Fazratul Hasanah Muzayyan¹, Shumpei Morita², Makoto Hayashi³, Satoru Kobayashi³ (Dept. Biosci., Teikyo Univ.¹, ARCMB, Tohoku Univ.², TARA, Univ. of Tsukuba³)

P123C Live imaging analysis to reveal the cellular mechanism of primordial germ cell translocation into vascular tissue in avian embryo

胚内移動中の鳥類始原生殖細胞が血管組織に取り込まれる機構の解明に向けたライブイメージング解析

Chihiro Sunase, ○Daisuke Saito (Kyushu Univ.)

P124A Spatial and temporal regulation of pou5f3 mRNA translation in zebrafish early development
ゼブラフィッシュ初期発生における pou5f3 mRNA 翻訳の時空間制御機構

○Keisuke Sato¹, Kaori Machata¹, Kyota Yasuda^{2,3}, Tomoya Kotani^{1,4} (Biosystems Science Course, Graduate School of Life Science, Hokkaido University¹, Department of Mathematical and Life Sciences, Graduate School of Integrated Sciences for Life, Hiroshima University², Research Center for the Mathematics on Chromatin Live Dynamics, Hiroshima University³, Department of Biological Sciences, Faculty of Science, Hokkaido University⁴)

P125B A novel mechanism of the post-transcriptional regulation of maternal mRNA during mouse early development

マウス初期発生における新規の母性 mRNA 転写後制御機構

○Yuki Takada¹, Takehiro Yamamoto², Tomoya Kotani¹ (Dept of Bio Sci, Faculty of Sci, Hokkaido Uni¹, Dept of Biochem, Keio Uni Sch of Med²)

P126C CXCR4 signal-dependent and -independent migration of avian primordial germ cell

鳥類始原生殖細胞は胚内移動の大半において CXCR4 遺伝子機能を必要としない

○Haruna Yaguchi, Daisuke Saito (Department of Biology, Kyushu Univ)

P127A
(OP02-05) XENOBARRIER IN HUMAN-MOUSE INTERSPIECES CHIMERA

○Hideki Masaki (Center for Stem Cell Biology and Regenerative Medicine, The Institute of Medical Science, The University of Tokyo)

P128B
(OP02-02) Muscarinic receptor M3 contributes to intestinal stem cell maintenance via EphB/ephrin-B signaling

代謝型ムスカリン性 ACh 受容体 M3 は、EphB/ephrin-B シグナリングを介して腸上皮幹細胞の維持に貢献する

○Toshio Takahashi (Suntory Found. for Life Sci.)

P129C
(OP02-01) Generation of gastric organoids from mouse embryonic stem cells
○Thi Thuy Linh Trinh, Hitomi Takada, Akira Kurisaki (NAIST)

P130A Different methylation status of ribosomal RNA gene in the human and mouse pluripotent stem cell
ヒトとマウスの多能性幹細胞におけるリボソーム RNA 遺伝子のメチル化状態の違い
○Yutaro Hori¹, Akira Shimamoto², Takehiko Kobayashi¹ (IQB, Univ. of Tokyo¹, Fac. of Pharm. Sci., Sanyo Univ.²)

P131B Recent insights in single-cell gene expression profiling of planarian pluripotent stem cells
プラナリア多能性幹細胞におけるシングルセル遺伝子発現プロファイリングの最新の知見
○Yoshihito Kuroki, Kiyokazu Agata (NIBB)

P132C Self-organization of Wolffian duct-like tubes derived from human pluripotent stem cells
細胞の自己組織化を用いてヒト多能性幹細胞から作製するウォルフ管様管状組織
○Junichi Taniguchi¹, Minoru Takasato^{1,2} (BDR, RIKEN¹, Grad. Sch. of Biostudies, Kyoto Univ.²)

P133A Generating Kidney Organoids from Nephrotic Syndrome Patients-derived iPSCs
ネフローゼ症候群患者由来 iPS 細胞からの腎臓オルガノイドの作製
○Yukari Usuda^{1,2}, Yuya Aoto³, Tomoko Horinouchi³, Tomohiko Yamamura³, Kandai Nozu³, Kazumoto Iijima^{3,4}, Minoru Takasato^{1,2,5} (Riken, BDR¹, GSB, Kyoto Univ.², SOM, Kobe Univ.³, Hyogo Children Hospital⁴, SOM, Osaka Univ.⁵)

P134B A single-cell transcriptome approach to investigate the mechanism of mesoderm lineage-specification using human iPSCs
単細胞遺伝子発現解析を用いた EÄ 中胚葉発生機構の理解
○Wei Zhao, Minoru Takasato (BDR)

P135C The ensured proliferative potential of myoblast in a serum-reduced condition with methyl- β -cyclodextrin (M β CD)
メチル- β -シクロデキストリンの添加は低血清培地における筋芽細胞の増殖を保証する
○Tomoka Katayama¹, Yuta Chigi², Daiji Okamura³ (Dep. Adv. Biosci. Grad. school of Agri., Kindai Univ.¹, Emb. Inst. Adv. Med. Sci., Tokushima Univ.², Dep. Adv. Biosci. Grad. school of Agri., Kindai Univ.³)

P136A Generation of first genetically engineered marsupials, Monodelphis domestica
ゲノム編集による遺伝子改変有袋類の誕生
○Hiroshi Kiyonari¹, Mari Kaneko¹, Takaya Abe¹, Aki Shiraishi¹, Riko Yoshimi¹, Ken-Ichi Inoue¹, Yasuhide Furuta^{1,2} (LARGE, RIKEN BDR¹, MGCF, MSKCC²)

P137B
(OP09-08) Virtual multicellular platform for simulating evolvable morphogenetic processes for body axis formation in spider embryos
クモ胚の体軸形成における形態形成の進化過程をシミュレーションする仮想多細胞プラットフォーム
○Motohiro Fujiwara¹, Yasuko Akiyama-Oda^{1,3,4}, Hiroki Oda^{1,2} (JT BRH¹, Osaka Univ.², PRESTO JST³, OMPU⁴)

P138C
(OP09-07) Data-driven analysis of the formation of neural circuit based on gene expression
遺伝子発現に基づく神経回路形成のデータ駆動型解析
○Jigen Koike¹, Kana Yoshido¹, Naoki Honda^{1,2,3} (Kyoto University¹, Hiroshima University², ExCELLS³)

P139A Mapping hemodynamic forces in zebrafish vascular networks through numerical modelling
(OP09-09) °Swe Soe Maung Ye, Li-Kun Phng (RIKEN BDR)

P140B Image-based model construction and parameter estimation for epithelial mechanics
(OP09-06) 画像を元にした上皮組織力学のモデル構築およびパラメータ推定
°Goshi Ogita^{1,2}, Xin Yan¹, Takefumi Kondo², Keisuke Ikawa^{1,3}, Tadashi Uemura², Shuji Ishihara^{4,5}, Kaoru Sugimura^{1,3,5,6} (Dept of Biol Sci., Grad Sch of Sci., U Tokyo¹, Biostudies, Kyoto Univ.², iCeMS Kyoto Univ.³, GSAS, U Tokyo⁴, UBI, U Tokyo⁵, CBMS, U Tokyo⁶)

P141C Mathematical modeling of chromatin dynamics in Hox-mediated animal body development
動物初期発生における Hox 領域のクロマチン動態
°Yoshifumi Asakura^{1,2}, Takayuki Suzuki² (RIKEN BDR¹, Nagoya Univ.²)

P142A Mechanics of Epithelial Stratification: Numerical Simulations Using a 3D Vertex Model
上皮多層化の力学：三次元バーテックスモデルによる数値シミュレーション
°Shuya Fukamachi, Satoru Okuda (Nano LSI Kanazawa Univ.)

About World Café ／ワールドカフェについて

JSDB2022 では、昨年好評だったワールドカフェをオンサイトでを行います（初日 5 月 31 日 15 : 00 から 16 : 30 までの 1 時間半）。

At JSDB2022, we will hold an on-site version of World Café, which was very popular last year online (one and a half hours from 15 : 00 to 16 : 30 on the first day, May 31).

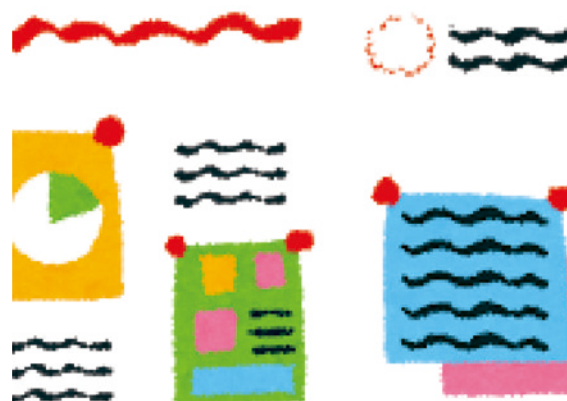
ワールドカフェは大会の参加者どうしの繋がりを最大限に高めるイベントです。参加者全員が 5～6 人のグループに分かれて、グループ内で自己紹介、研究紹介、ディスカッションを行います。これを繰り返すことで、全く新しい出会いや共同研究のきっかけをプロデュースします。大きな会場で、これまですれ違うだけだった方々の間に繋がりを作るのです。できるだけ多くの方々に参加して頂きたいと思います。

The World Café is an event that maximizes the connection between the participants of the conference. All participants are divided into groups of five or six, and within the groups, they introduce themselves, their research, and have discussions. By repeating this process, we produce opportunities for completely new encounters and collaborative research. In a large venue, we create connections between people who have only passed each other in the past. We would like as many people as possible to participate in this event.

What to prepare ／準備する物

A4 程度の紙、ノート PC、タブレットなどに自己紹介用のプレゼン資料を用意して下さい。ポスター発表や口頭発表がある人は、その内容をまとめたものでも構いません。

Please prepare presentation materials for self-introduction on A4 size paper, notebook PC, tablet, etc. If you have a poster or oral presentation, a summary of that presentation is also acceptable.



Schedule ／スケジュール

まず 15 : 00 に、会議棟 3 階のロビーに集まって下さい。5～6 人掛けのテーブルを用意しますので、各自、知り合いのいないテーブルに着席して下さい。

各テーブルには司会役のファシリテーターが待機しています。

Please gather at the lobby on the third floor of the conference building at 3 : 00 p.m. Tables for 5-6 people will be set up, so please take a seat at a table where you do not know anyone.

A facilitator will be waiting at each table to serve as a moderator.

最初に、各自 1 分間、プレゼン資料を使って自己紹介してください（5 分程度）。

First of all, each of you should introduce yourself for one minute using the presentation materials (about 5 minutes).

次に、各テーブルのファシリテーターが話題提供をする人を指名します。ポスターや口頭発表の宣伝をしても構いません（10 分以内）。2 人の方に話題提供してもらい、25 分経ったら第 1 ラウンド終了です。

Next, the facilitator of each table will nominate a person to give a topic. You may advertise your poster or oral presentation (within 10 minutes). 2 people will be asked to give a topic, and after 25 minutes, the first round is over.

self-introduction
5 min



flashtalk &
discussion1
10 min



flashtalk &
discussion2
10 min



第 1 ラウンドが終わったら席替えの時間です。前回とは異なるテーブル、できるだけ知り合いのいないテーブルに座って下さい。第 2 ラウンド開始です。第 1 ラウンドと同様、全員の自己紹介と 2 名の話題提供で 25 分間です。全部で 3 ラウンド行います。何人の方と出会うことができるでしょうか？

After the first round, it is time to change seats. Please sit at a different table from the previous round, a table where you know as few people as possible. Round 2 begins. As in the first round, you will have 25 minutes for everyone to introduce themselves and for two people to discuss the topic. There will be three rounds in total. How many people will you be able to meet?



日本発生物学会第55回大会キャリアパスワークショップ (in Japanese)

日時：6月3日（金）11:45-12:45

場所：Room B（会議棟3階）

日本発生物学会第55回大会
第4回キャリアパスランチョンセミナー



”研究者による起業” **-アカデミア起業家とベンチャーキャピタリスト対談-**

講演者：渡邊 崇人 先生

（徳島大学バイオイノベーション研究所・講師
/株式会社グリラス・代表取締役CEO）

：有馬 暁澄 先生

（Beyond Next Ventures株式会社・Manager
/アグリ・フードリードキャピタリスト）

日時：2022年6月3日（金）11:45-12:45, room B

研究者による起業。昨今、耳にすることも多くなってきた
と思います。本セミナーでは、アカデミアから起業された
株式会社グリラスCEOの渡邊先生、そしてベンチャーキャ
ピタリスト（投資会社）の有馬先生の対談を通じて、その
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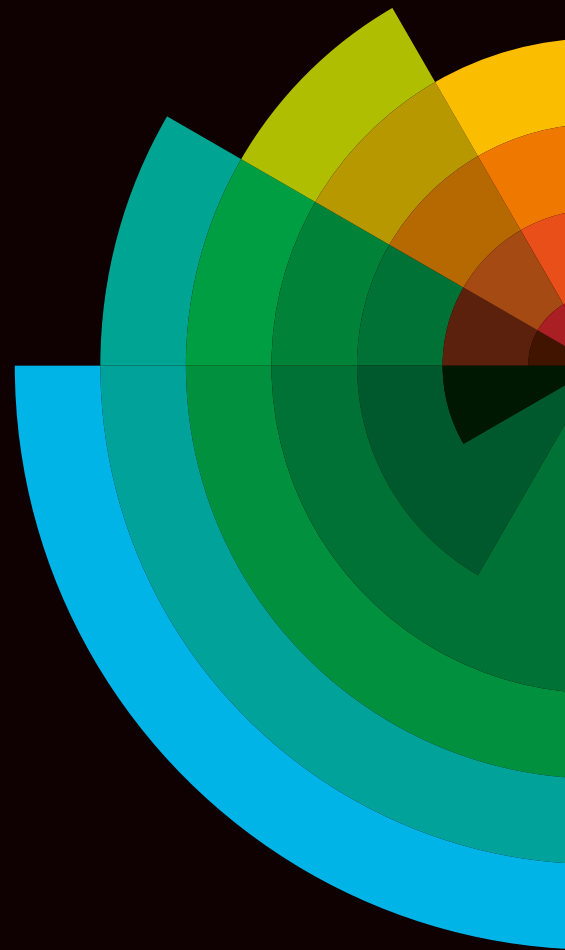
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Chair	SATO, Makoto (Kanazawa University)
Language	May 31 (in Japanese and English) June 1-3 (in English)
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Plenary Lectures

May 20 (Fri) 9:00-11:30 Room A

Plenary Lectures

Chairpersons: Tesuya Tabata (Univ. of Tokyo), Shinya Nakagawa (RIKEN)

PL-01: **Hedgehog Signaling in Development and Disease**
Matthew Scott (Stanford University School of Medicine)

PL-02: **The development of the eye and zebrafish retinas**
William Harris (University of Cambridge)

Symposia

DATE: May 19 (Thu) 9:00-11:30 Room A

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[PL-01]

Hedgehog Signaling in Development and Disease

*Matthew Scott

(Stanford University School of Medicine)

The development of numerous tissues and organs depends on Hedgehog (Hh) protein signals that influence gene expression in target cells. Defective Hh signaling leads to birth defects and cancer. We are investigating Hh signal transduction and gene expression mechanisms in the context of cultured fibroblasts and cerebellum development. Hh signal transduction involves the formation of the Hh protein signal has many unique features. In the context of primary cilia as a Hh signal transduction organelle, Hh signaling involves four distinct pathways. Hh signaling has been implicated in several human diseases. We have observed direct binding of Hh protein to cilia. We find that Hh protein binds to cilia, where it prevents accumulation of the Hh protein. Hh protein binding to cilia causes departure of both Hh protein and Smo. Smo in the cilium is able to activate Gli transcription factors, which control target gene expression. Using tagged proteins, and mutants that affect Hh signaling, we are exploring the mechanisms of protein trafficking and target gene activation. We are characterizing direct Hh target genes in responsive cerebellum granule neuron precursors and in the medulloblastoma tumors that arise from the precursors when Ptc function is reduced.

Signaling in development

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