



ASHBi YOUNG RESEARCHER MEETING

Program

12:30 Opening Remarks

12:35 Session 1 (Chairman: Taro Tsujimura/ Tsutomu Sawai)

Takefumi Kondo (Assist. Prof. / Graduate School of Biostudies) – **Invited Speaker** –
Reona Yamaguchi (Assist. Prof. / Isa Gr.)

Tomoyuki Tsukiyama (Assoc. Prof. / Primate Genome Editing Core)

Yukihiro Yabuta (Assist. Prof. / Saitou Gr.)

14:55 Break

15:20 Session 2 (Chairman: Yukihiro Yabuta/ Reona Yamaguchi)

Taro Tsujimura (Lecturer/ Single Cell Genome Information Analysis Core)

Yusuke Imoto (Assist. Prof. / Hiraoka Gr.)

Masanaga Muto (Assist. Prof. / Ema Gr.)

Tsutomu Sawai (Assist. Prof. / Fujita Gr.)

17:20 Closing Remarks

Social Gathering

Wednesday, December 11, 2019

Meeting | 12:30–17:30 at Seminar Room 103, Faculty of Medicine Bldg. A

Social Gathering | 17:30– at Seminar Room 1st Floor, Faculty of Medicine Bldg. B

Fee

Meeting : Free Social Gathering : ¥1,000

Application

Please sign up by filling the forms provided in the following website.
<https://forms.gle/BCUyvqT6iKqFXbF87>

Hosted by Institute for the Advanced Study of Human Biology (WPI-ASHBi)
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Tel 075-753-9291



Yusuke Imoto Hiraoka Gr. / WPI-ASHBi, Kyoto University

Mathematical analysis for biological data

ASHBi で実施している生命科学 × 数学の融合研究を紹介します。特に、生物データをデータ解析するときの落とし穴、対応策、さらに最新の結果について紹介します。

Takefumi Kondo Graduate School of Biostudies, Kyoto University / K-CONNEX

– Invited Speaker –

Shaping three-dimensional epithelial structures in harmony with cell differentiation

I am a developmental biologist, and our group is studying in developmental system across multiple hierarchical levels (genome, cells and tissues) by which complex multicellular organisms accurately emerge from a single fertilized egg. To this long-term goal, we are analyzing *Drosophila* embryos as a model by using genetics, imaging and single-cell genomics techniques. In particular, we are now trying to understand how genomic information regulates cell and tissue behavior, and how tissue morphogenesis affects gene expression and cell differentiation during embryogenesis.

Masanaga Muto Ema Gr. / Research Center for Animal Life Science, Shiga University of Medical Science

Intersection of Regulatory Pathways Controlling Blood Coagulation, Trophoblast Cell Lineage Development, and Deep Hemochorial Placentation

胎盤を起因とする妊娠疾患は、胎盤における胎児由来のトロホプラスト細胞の浸潤不全が原因とされていますが、その分子機構はわかっていません。私はこれまでの研究で、抗血液凝固因子としてしか知られていなかった因子がトロホプラスト細胞の分化・浸潤に関わる可能性を示してきました。今後の詳細な分子メカニズム解析のため、様々な分野の方からアドバイスがありましたら大変うれしく思います。

Tsutomu Sawai Fujita Gr. / WPI-ASHBi, Kyoto University / Uehiro Research Division for iPS Cell Ethics, CiRA, Kyoto University

Ethics of Brain Organoid Research

ここ数年は、iPS 細胞研究所の若手科学者と、最先端科学技術に伴う倫理的課題に取り組んでいます。今夏、共同研究プロジェクトの一つ、「脳オルガノイド研究の倫理」を扱った論文が科学誌に掲載されました。もしお互いの関心が合えば、積極的に共同研究に発展させたいと思っています。皆さんが取り組んでおられる研究で倫理に関係しそうなテーマがあれば、是非ご相談ください。

Taro Tsujimura Single Cell Genome Information Analysis Core / WPI-ASHBi, Kyoto University

Controlling gene activation by enhancers through a drug-inducible topological insulator

My research interest is to understand full spectrum of cis-interaction to gain insights into evolution and human diseases by genomic rearrangements. I have recently developed a system, named STITCH, to control gene-enhancer interaction by drugs (Tsujimura et al. 2019 bioRxiv). This system should be able to switch on and off repeatedly gene expression in a tissue-specific manner in various organisms with an easier scheme than the Cre/loxP system. It would be really nice if anyone is interested in trying STITCH for her/his genetic research.

Tomoyuki Tsukiyama Primate Genome Engineering Core, Research Center for Animal Life Science, Shiga University of Medical Science

Monkeys mutant for PKD1 recapitulate human autosomal dominant polycystic kidney disease

カニクイザルを用いて遺伝子改変非ヒト霊長類の作出に取り組んでいます。今回は、サルでの疾患モデル開発の一例として、最も頻度の高い遺伝的疾患の一つである常染色体優性多発性嚢胞腎の疾患モデルの作出について紹介したいと思います。小型動物モデルでは再現することが難しい疾患を、霊長類を用いて研究したいとお考えの方はご相談下さい。

Yukihiro Yabuta Saitou Gr. / WPI-ASHBi, Kyoto University

Transcriptome and epigenetic analysis of mammalian germ cells

元々ピペットマンが友達の実験科学者でしたが、現在は NGS 解析のニーズに合わせて斎藤研の ChIP-seq、RNA-seq、Methyl-seq のデータハンドリング全般を行っています。苦手は解析の部分で、特に ChIP-seq は、解析を進めるごとにぬかるみにはまっていく感覚。失敗談、成功談含め、情報を共有できたらと思っています。

Reona Yamaguchi Isa Gr. / WPI-ASHBi, Kyoto University

Functional brain network for recovery of hand functions after spinal cord injury in macaque monkeys

I'm studying about brain activity and plasticity associated with recovery of hand motor function from the spinal cord injury. The muscle activities and forelimb kinematics were recorded simultaneously with brain activity in this experiment. I'm trying to analyze the relationship between the change of brain activity and behavior. I would appreciate if you could give me advice or feedback.