

各研究室発表論文**2015**

生体分子機能学研究室（倉光研）

Ebihara A, Manzoku M, Fukui K, Shimada A, Morita R, Masui R, Kuramitsu S (2015) Roles of Mn-catalase and a possible heme peroxidase homologue in protection from oxidative stress in *Thermus thermophilus*. *Extremophiles* 19:775-785.

Iino H, Hikima T, Nishida Y, Yamamoto M, Kuramitsu S, Fukui K (2015) Small-angle X-ray scattering analysis reveals the ATP-bound monomeric state of the ATPase domain from the homodimeric MutL endonuclease, a GHKL phosphotransferase superfamily protein. *Extremophiles* 19:643-656.

Kanagawa M, Baba S, Watanabe Y, Nakagawa N, Ebihara A, Kuramitsu S, Yokoyama S, Sampei G, Kawai G (2015) Crystal structures and ligand binding of PurM proteins from *Thermus thermophilus* and *Geobacillus kaustophilus*. *J Biochem* 159:313-321.

Sundaresan R, Ebihara A, Kuramitsu S, Yokoyama S, Kumarevel T, Ponnuraj K (2015) Crystal structure analysis of ornithine transcarbamylase from *Thermus thermophilus* -HB8 provides insights on the plasticity of the active site. *Biochem Biophys Res Commun* 465:174-179.

Tomoike F, Nakagawa N, Kuramitsu S, Masui R (2015) Structural and biochemical studies on the reaction mechanism of uridine-cytidine kinase. *Protein J* 34:411-420.

Weinert T, Olieric V, Waltersperger S, Panepucci E, Chen L, Zhang H, Zhou D, Rose J, Ebihara A, Kuramitsu S, Li D, Howe N, Schnapp G, Pautsch A, Bargsten K, Protá AE, Surana P, Kottur J, Nair DT, Basilico F, Cecatiello V, Pasqualato S, Boland A, Weichenrieder O, Wang BC, Steinmetz MO, Caffrey M, Wang M (2015) Fast native-SAD phasing for routine macromolecular structure determination. *Nat Methods* 12:131-133.

岡西 広樹, Kim K (金光) (2015R) 翻訳後修飾による酵素の多機能性を探る—質量分析技術. *生化学* 87:286-291.

増井良治 (2015R) 機能未知タンパク質の機能解明を目指して—ヌクレオチド代謝を例に—. *生化学* 87:749–752.

神経可塑性生理学研究室（小倉研）

Hasegawa S, Sakuragi S, Tominaga-Yoshino K, Ogura A (2015) Dendritic spine dynamics leading to spine elimination after repeated inductions of LTD. *Sci Rep* 5:7707.

Saito S, Kimura S, Adachi N, Numakawa T, Ogura A, Tominaga-Yoshino K (2015) An *in vitro* reproduction of stress-induced memory defects: Effects of corticoids on dendritic spine dynamics. *Sci Rep* 5:19287.

Sawano E, Iwatani K, Tominaga-Yoshino K, Ogura A, Tashiro T (2015) Reduction in NPY-positive neurons and dysregulation of excitability in young senescence-accelerated mouse prone 8 (SAMP8) hippocampus precede the onset of cognitive impairment. *J Neurochem* 135:287-300.

小倉明彦 (2015B) お皿の上の生物学. 築地書館.

#### 細胞内情報伝達研究室 (河村研)

Sato S, Miyazono S, Tachibanaki S, Kawamura S (2015) RDH13L, an enzyme responsible for the aldehyde-alcohol redox coupling reaction (AL-OL coupling reaction) to supply 11-*cis* retinal in the carp cone retinoid cycle. *J Biol Chem* 290:2983-2992.

Tomizuka J, Tachibanaki S, Kawamura S (2015) Phosphorylation-independent suppression of light-activated visual pigment by arrestin in carp rods and cones. *J Biol Chem* 290:9399-9411.

Yamaoka H, Tachibanaki S, Kawamura S (2015) Dephosphorylation during bleach and regeneration of visual pigment in carp rod and cone membranes. *J Biol Chem* 290:24381-24390.

#### 分子遺伝学研究室 (升方研)

Ruan K, Yamamoto TG, Asakawa H, Chikashige Y, Masukata H, Haraguchi T, Hiraoka Y (2015) Meiotic nuclear movements in fission yeast are regulated by the transcription factor Mei4 downstream of a Cds1-dependent replication checkpoint pathway. *Genes Cells* 20:160-172.

Ruan K, Yamamoto TG, Asakawa H, Chikashige Y, Kimura H, Masukata H, Haraguchi T, Hiraoka Y (2015) Histone H4 acetylation required for chromatin decompaction during DNA replication. *Sci Rep* 5:12720.

\*Sanuki Y, Kubota Y, Kanemaki MT, Takahashi TS, Mimura S, Takisawa H (2015) RecQ4 promotes the conversion of the pre-initiation complex at a site-specific origin for DNA unwinding in *Xenopus* egg extracts. *Cell Cycle* 14:1010-1023.

#### 核機能学研究室 (滝澤研)

\*Sanuki Y, Kubota Y, Kanemaki MT, Takahashi TS, Mimura S, Takisawa H (2015) RecQ4 promotes the conversion of the pre-initiation complex at a site-specific origin for DNA unwinding in *Xenopus* egg extracts. *Cell Cycle* 14:1010-1023.

#### 発生生物学研究室 (西田研)

Omotezako T, Onuma TA, Nishida H (2015) DNA interference: DNA-induced gene silencing in the appendicularian *Oikopleura dioica*. *Proc Biol Sci* 282:20150435.

Stolfi A, Sasakura Y, Chalopin D, Satou Y, Christiaen L, Dantec C, Endo T, Naville M, Nishida H, Swalla BJ, Volff JN, Voskoboynik A, Dauga D, Lemaire P (2015) Guidelines for the nomenclature of genetic elements in tunicate genomes. *Genesis* 53:1-14.

Takatori N, Oonuma K, Nishida H, Saiga H (2015) Polarization of PI3K activity initiated by ooplasmic segregation guides nuclear migration in the mesendoderm. *Dev Cell* 35:333-343.

Wang K, Omotezako T, Kishi K, Nishida H, Onuma TA (2015) Maternal and zygotic transcriptomes in the appendicularian, *Oikopleura dioica*: novel protein-encoding genes, intra-species sequence variations, and trans-spliced RNA leader. *Dev Genes Evol* 225:149-159.

Wang K, Nishida H (2015) REGULATOR: a database of metazoan transcription factors and maternal factors for developmental studies. *BMC Bioinformatics* 16:114.

分子生物学・教育研究室（米崎研）

Qi D, Alawneh AM, Yonesaki T, Otsuka Y (2015) Rapid degradation of host mRNAs by stimulation of RNase E activity by Srd of bacteriophage T4. *Genetics* 201:977-987.

植物生長生理学研究室（柿本研）

Müller D, Waldie T, Miyawaki K, To JP, Melnyk CW, Kieber JJ, Kakimoto T, Leyser O (2015) Cytokinin is required for escape but not release from auxin mediated apical dominance. *Plant J* 82:874-886.

Lin CY, Huang LY, Chi WC, Huang TL, Kakimoto T, Tsai CR, Huang HJ (2015) Pathways involved in vanadate-induced root hair formation in *Arabidopsis*. *Physiol Plant* 153:137-148.

Randall RS, Miyashima S, Blomster T, Zhang J, Elo A, Karlberg A, Immanen J, Nieminen K, Lee JY, Kakimoto T, Blajecka K, Melnyk CW, Alcasabas A, Forzani C, Matsumoto-Kitano M, Mähönen AP, Bhalerao R, Dewitte W, Helariutta Y, Murray JA (2015) AINTEGUMENTA and the D-type cyclin CYCD3;1 regulate root secondary growth and respond to cytokinins. *Biol Open* 4:1229-1236.

Siddique S, Radakovic ZS, De La Torre CM, Chronis D, Novák O, Ramireddy E, Holbein J, Matera C, Hütten M, Gutbrod P, Anjam MS, Rozanska E, Habash S, Elashry A, Sobczak M, Kakimoto T, Strnad M, Schmölling T, Mitchum MG, Grundle FM (2015) A parasitic nematode releases cytokinin that controls cell division and orchestrates feeding site formation in host plants. *Proc Natl Acad Sci U S A* 112:12669-12674.

Sugawara S, Mashiguchi K, Tanaka K, Hishiyama S, Sakai T, Hanada K, Kinoshita-Tsujimura K, Yu H, Dai X, Takebayashi Y, Takeda-Kamiya N, Kakimoto T, Kawaide H, Natsume M, Estelle M, Zhao Y, Hayashi K, Kamiya Y, Kasahara H (2015) Distinct characteristics of indole-3-acetic acid and phenylacetic acid, two common auxins in plants. *Plant Cell Physiol* 56:1641-1654.

#### 細胞生物学研究室（松野研）

Ishio A, Sasamura T, Ayukawa T, Kuroda J, Ishikawa HO, Aoyama N, Matsumoto K, Gushiken T, Okajima T, Yamakawa T, Matsuno K (2015) O-fucose monosaccharide of *Drosophila* Notch has a temperature-sensitive function and cooperates with O-glucose glycan in Notch transport and Notch signaling activation. *J Biol Chem* 290:505-519.

Okumura T, Sasamura T, Inatomi M, Hozumi S, Nakamura M, Hatori R, Taniguchi K, Nakazawa N, Suzuki E, Maeda R, Yamakawa T, Matsuno K (2015) Class I myosins have overlapping and specialized functions in left-right asymmetric development in *Drosophila*. *Genetics* 199:1183-1199.

#### 1 分子生物学研究室（上田研）

Ishibashi M, Miyanaga Y, Matsuoka S, Kozuka J, Togashi Y, Kinashi T, Ueda M (2015) Integrin LFA-1 regulates cell adhesion via transient clutch formation. *Biochem Biophys Res Commun* 464:459-466.

Komatsuzaki A, Ohyanagi T, Tsukasaki Y, Miyanaga Y, Ueda M, Jin T (2015) Compact halo-ligand conjugated quantum dots for multicolored single-molecule imaging of overcrowding GPCR proteins on cell membrane. *Small* 11:1396-1401.

Watabe M, Arjunan SNV, Fukushima S, Iwamoto K, Kozuka J, Matsuoka S, Shindo Y, Ueda M, Takahashi K (2015) A computational framework for bioimaging simulation. *PLoS ONE* 10:e0130089.

#### 分子細胞運動学研究室（昆研）

Imai H, Shima T, Sutoh K, Walker ML, Knight PJ, Kon T, Burgess SA (2015) Direct observation shows superposition and large scale flexibility within cytoplasmic dynein motors moving along microtubules. *Nat Commun* 6: 9179.

Uchimura S, Fujii T, Takazaki H, Ayukawa R, Nishikawa Y, Minoura I, Hachikubo Y, Kurisu G, Sutoh K, Kon T, Namba K, Muto E (2015) A flipped ion pair at the dynein-microtubule interface is critical for dynein motility and ATPase activation. *J Cell Biol* 208 211-222.

#### 学際グループ／生体分子エネルギー変換学 G（荒田 G）

Matsuo T, Arata T, Oda T, Nakajima K, Ohira-Kawamura S, Kikuchi T, Fujiwara S (2015) Internal dynamics of F-actin and myosin subfragment-1 studied by quasielastic neutron scattering. *Biochem Biophys Res Commun* 459:493-497.

#### 学際グループ／蛋白質機能学 G（大岡 G）

Kondo T, Itoh S, Matsuoka M, Azai C, Oh-oka H (2015) Menaquinone as the secondary electron acceptor in the type I homodimeric photosynthetic reaction center of *Heliobacterium modesticaldum*. *J Phys Chem B* 119:8480-8489.

大岡宏造 (2015B) ヘムと鉄硫黄クラスター. 杉浦美羽ほか編「光合成のエネルギー変換と物質交換」第17章. 化学同人.

大岡宏造 (2015B) 「光合成細菌」ほか. 日本光合成学会編「光合成事典 (WEB版)」 日本光合成学会.

#### 学際グループ/植物細胞生物学 G (高木 G)

Sakai Y, Inoue S, Takagi S (2015) *In vitro* phosphorylation assay of putative blue-light receptor phototropins using microsomal and plasma-membrane fractions prepared from *Vallisneria* leaves. *Bio-protocol* 5:e1647.

Sakai Y, Takagi S (2015) Observation of chloroplast movement in *Vallisneria*. *Bio-protocol* 5:e1646.

Sakai Y, Inoue S, Harada A, Shimazaki K, Takagi S (2015) Blue-light-induced rapid chloroplast de-anchoring in *Vallisneria* epidermal cells. *J Integ Plant Biol* 57:93-105.

#### 神経回路機能学研究室 (木村研)

Yamazoe-Umemoto A, Fujita K, Iino Y, Iwasaki Y, Kimura KD (2015) Modulation of different behavioral components by neuropeptide and dopamine signalings in non-associative odor learning of *Caenorhabditis elegans*. *Neurosci Res* 99:22-33.

Kimura KD (2015R) Different roles for different modulators in the learning of worms. *Neurotransmitter* 2:1056.

#### 理論生物学研究室 (藤本研)

Kitazawa MS, Fujimoto K (2015) A dynamical phyllotaxis model to determine floral organ number. *PLoS Comput Biol* 11:e1004145.

## 博士学位論文 2015

### 6月授与

#### 神経発生制御研究室（吉川研）

Ibrahim GUR : Mechanisms underlying neccdin-induced regulation of PIAS1 SUMO E3 ligase (Necdin による PIAS1 SUMO E3 リガーゼの調節機構)

### 9月授与

#### 神経回路機能学研究室（木村研）

山添 萌子 : Studies of regulatory mechanisms for odor avoidance behavior in *Caenorhabditis elegans* by quantitative behavioral and genetic analyses (定量的行動解析と遺伝学的解析を用いた *Caenorhabditis elegans* の匂い忌避行動の制御機構の研究)

### 12月授与

#### 発生生物学研究室（西田研）

Kai Wang : Development of a transcription factor database useful for developmental biology, and decoding the maternal and zygotic transcriptome of the appendicularian, *Oikopleura dioica* (発生生物学研究のための転写因子データベースの開発とオタマボヤを用いた母性と胚性の RNA-Seq 解析)

#### 細胞外マトリックス研究室（関口研）

倉田 隆一郎 : Structural and functional analysis of human sweat glands (ヒト汗腺の構造機能解析)

#### エピジェネティクス研究室（田嶋研）

Ahmet Can Berkyurek : Interaction of the RFTS domain of Dnmt1 with the SRA domain of Uhrf1 for the maintenance DNA methylation (Dnmt1 の RTFS 領域と Uhrf1 の SRA 領域の相互作用が DNA の維持メチル化に果たす役割)

### 3月授与

#### 生体分子機能学研究室（倉光研）

西田 優也 (生命) : Nucleoid-associated protein HU in *Thermus thermophilus* HB8 has unique nucleotide-binding activity and novel diversity by post-translational modification (*Thermus thermophilus* HB8のヌクレオイド構成タンパク質HUは独特なヌクレオチド結合能を持つだけでなく、翻訳後修飾によって新規な多様性を示す)

#### 神経可塑性生理学研究室（小倉研）

長谷川 翔 (生命) : Studies on the functional and morphological changes of the long-lasting synaptic suppression after repeated LTD inductions (繰り返しLTD誘発後の長期持続的シナプス弱化現象の機能的および形態的变化の解析)

#### 細胞内情報伝達研究室（河村研）

増田 隆昌 (生命) : ES1 is a mitochondrial enlarging factor contributing to form mega-mitochondria in zebrafish cones (ES1はゼブラフィッシュ錐体のミトコンドリアの拡大を促進し、メガミトコンドリアの形成に寄与する)

#### 発生生物学研究室（西田研）

表迫 竜也 : Development of RNAi- and DNAi-mediated gene knockdown methods and analysis of

maternal factors using DNAi screening in the appendicularian *Oikopleura dioica* (ワカレオタマボヤにおけるRNAiおよびDNAiを用いた遺伝子解析手法の確立および母性因子のDNAiスクリーニング)

#### 細胞生物学研究室 (松野研)

岡西 広樹 : Proteome-wide distribution of lysine acylations in bacterial proteins (細菌タンパク質に広く存在するLys残基のアシル化修飾)

#### 学際グループ/動物発生進化学G (古屋・伊藤G)

藤田 恭平 : Formation mechanisms of mouse neural crest-derived stem cells (マウス神経冠細胞由来幹細胞の形成機構)

#### 神経発生制御研究室 (吉川研)

藤本 泉 : Regulatory mechanisms of epidermal growth factor receptor signaling in cortical progenitor cells (大脳皮質前駆細胞における上皮成長因子受容体シグナルの制御機構)

#### 超分子構造解析学研究室 (中川研)

米原 涼 : Crystal structure analysis of the outer membrane factors of multidrug efflux pumps from *Pseudomonas aeruginosa* (緑膿菌由来多剤排出ポンプの外膜因子の結晶構造解析)

Widhi Dyah Sawitri : Study on structure and function of sucrose phosphate synthase from sugarcane (サトウキビ由来sucrose phosphate synthaseの構造機能研究)

#### ゲノム-染色体機能学研究室 (篠原研)

Challa Kiran : Control of chromosome dynamics during meiosis I by cohesin and its regulator Rad61/Wpl1 (コヒーシンとその制御因子Rad61/Wpl1による減数第一分裂期染色体動態の制御)

#### 発癌制御研究室 (岡田研)

小宮 優 : A guanine nucleotide exchange factor Arhgef5 promotes malignant progression via epithelial-mesenchymal transition (Arhgef5は上皮間葉転換を介するがんの悪性化を促進させる)

#### 生体反応統御研究室 (長谷研)

金 宙妍 : Interaction of sulfite reductase with ferredoxin and its regulation to enzymatic activity (フェレドキシンと亜硫酸還元酵素間の分子間相互作用と酵素活性の関係性に関する研究)

## 年譜

### 2015年

4月 生物科学科入学者 59名  
(うち生物科学コース 29名、生命理学コース 30名)  
大学院生物科学専攻博士前期課程入学者 62名  
大学院生物科学専攻博士後期課程入学者 14名  
(うち G30 統合理学特別コース 1名)

10月 生物科学科入学者 4名  
(化学・生物学複合メジャーコース)  
大学院生物科学専攻博士前期課程入学者 3名  
(G30 統合理学特別コース)  
大学院生物科学専攻博士後期課程入学者 3名  
(うち G30 統合理学特別コース 1名)

### 2016年

3月 生物科学科卒業者 49名  
(うち生物科学コース 24名、生命理学コース 24名、化学・  
生物学複合メジャーコース 1名)  
大学院生物科学専攻博士前期課程修了者 46名  
(うち G30 統合理学特別コース 1名)  
大学院生物科学専攻博士後期課程修了者 17名  
(うち G30 統合理学特別コース 8名)