

Program for 19th Flagellar Meeting

March 1-3, 2014
Hiroshima Culture Center
Hiroshima-shi, Hiroshima

Chair: Shin-ich Aizawa

March 1 (Sat)

12:00 Check-in

13:15 Opening address

Kenichi Nakamura (President of Prefectural University of Hiroshima)
Shin-ichi Aizawa (Chair)

Gene Expression: Discussion Leader : Seiji Kojima

13:30 - 14:00: Christopher Rao (University of Illinois, USA)
Bistability in flagellar gene expression

14:00 - 14:30: Chankyu Park (Korea Advanced Institute of Science and Technology)
Redox and flagellar expression

14:30 - 14:45: Ikuro Kawagishi (Hosei University) 川岸 郁朗
Search of transcription factors that regulate chemoreceptor genes in *E. coli*
大腸菌走化性受容体遺伝子を調節する新規転写因子の探索

14:45 - 15:00: Break

Chemotaxis I : Discussion Leader : Ikuro Kwagishi

15:00 - 15:30: Gerald L. Hazelbauer (University of Missouri, USA)
Transmembrane chemoreceptors: complex interactions and sophisticated signaling

15:30 - 16:00: Jim Mitchell (Flinders University, Australia)
The role of flagella in rotational stabilization during chemotaxis

16:00 - 16:15: So-Ichiro Nishiyama (Hosei University) 西山宗一郎
Temperature control of chemotaxis in *Vibrio cholerae*
コレラ菌走化性の温度による制御

16:15 - 16:30: Break

Chemotaxis II : Discussion Leader : Yuuichi Inoue

16:30 - 16:50: Hajime Fukuoka (Tohoku University) 福岡 創
Measurement of intracellular signaling and imaging of signaling molecules in *E. coli* cell
大腸菌細胞内シグナル伝達の計測とシグナル伝達分子のイメージング

16:50 - 17:05: Toshitaka Matsubara (Tokyo Institute of Technology) 松原 惇高
Aerotaxis transducers from extremely halophilic archaeon *Haloarcula japonica*: Preparation and characterization of chimeric transducers

高度好塩性古細菌 *Haloarcula japonica* 由来走気性トランスデューサーの機能解明: キメラトランスデューサーの調製と性質検討

17:05 - 17:20: MD. Shafiqul Islam (Tohoku University)
Analysis of Chemotactic behavior of *Leptospira* by Microscopic Agar Drop Assay
アガードロップを用いたレプトスピラの走化性評価

Motility I: Discussion Leader : Daisuke Nakane

17:20 - 17:35: Takashi Sawada (Hosei University) 沢田孝
Mutational analyses on the flagellar motor control by the histone-like nucleoid structuring protein H-NS
大腸菌ヒストン様タンパク質 H-NS 変異導入によるべん毛モーター制御能の解析

17:35 - 17:55 Masayoshi Nishiyama (Kyoto University) 西山雅祥
Motility of *Thermococcus kodakaraensis* cells
超好熱始原菌の遊泳運動観察

17:55 - 18:10 Akiko Kusumoto (Obihiro University of Agriculture and Veterinary Medicine)
楠本晃子

Gliding motility of fish pathogen *Tenacibaculum maritimum*
魚病細菌 *Tenacibaculum maritimum* の滑走運動

18:30 - 20:00 Social dinner

March 2 (Sun)

8:30 - 9:00 Poter discussion (Odd number)

Regulation of Flagellar Formation: Discussion Leader : Tohru Minamino

9:00 - 9:30: Phillip Aldridge (Newcastle University, UK)
Flagellar Numbers: Its regulation and impact on host recognition

9:30 - 10:00: Kelly T. Hughes (University of Utah, USA)
Rod-cap to Hook-cap transition

10:00 - 10:15: Seiji Kojima (Nagoya University) 小嶋誠司
Role of FlhF and FlhG in the biogenesis for a single polar flagellum of marine *Vibrio*
海洋性ビブリオ菌が極べん毛を1本だけ形成する仕組み

10:15 - 10:30: Kaoru Uchida (Prefectural University of Hiroshima) 内田薫
Identification of the key sequence in the loop2 of FliK for substrate-specificity switching.
輸送基質切替に必須なFliKループ2の部位の同定

10:30 - 10:45: Break

Flagellar swichi complex: Discussion Leader : Masahiro Ito

10:45 - 11:15: AU Shannon Wing-ngor (The Chinese University of Hong Kong)
Structural characterization of *H. pylori* motor switch complex

11:15 - 11:45: Michael Eisenbach (The Weizmann Institute of Science, Israel)
Phosphorylation-independent switching of the direction of flagellar rotation

11:45 - 12:00: Koichiro Mori (Osaka University) 森 広一郎
Functional analysis of the *Salmonella* flagellar FliFG fusion motor
サラモネラ菌べん毛の回転子蛋白質 FliFG 融合型モーターの機能解析

12:00-13:30: Photo, Lunch and Free Time

Pathogenicity: Discussion Leader: Yuki Ichinose

13:30 - 14:00: Linda J. Kenney (NUS, Singapor)
Acidification of the *Salmonella* Cytoplasm in the Macrophage Vacuole Requires OmpR and Drives SPI-2 Type Three Secretion

14:00 - 14:20: Kohei Ohnishi (Kochi University) 大西浩平
How is the motility of *Ralstonia solanacearum* related to pathogenicity?
青枯病菌の運動能は病原性に関係しているのか?

14:20 - 14:35: Tomoko Kubori (Osaka University) 久堀智子
Native structure of a type IV secretion system core complex essential for pathogenesis of *Legionella* infection.

Vrious bacterial topics : Discussion Leader : Takayuki Kato

14:35 - 15:05: Liz (RE) Sockett (University of Nottingham, UK)
Predatory Surface Appendages of Predatory Bacteria-Studies with a Sensei

15:05 - 15:35: Christine Josenhans (Hannover Medical School, Germany)
Flagella of epsilonproteobacteria: not just for motility

15:35 - 15:55: Takeaki Tezuka (The University of Tokyo) 手塚武揚
Characterization of *Actinoplanes missouriensis* sporangia and motile spores
希少放線菌 *Actinoplanes missouriensis* が形成する孢子嚢と運動性孢子の解析

15:55 - 16:10: Fumio Hayashi (Gunma University) 林史夫
Key amino acid residues involved in the transitions of L- to R-type protofilaments of the *Salmonella* flagellar filament.
サルモネラべん毛繊維多型変換の分子機構解明にむけて

16:10 - 16:25: Break

Motility II: Discussion Leader : Yoshiyuki Sowa

16:25 - 16:40: Takahiro Abe (Tohoku University) 阿部貴寛
Swimming behavior of bacteria and bioconvection
バクテリアの遊泳行動と生物対流

16:40 - 16:55: Yuichi Inoue (Tohoku University) 井上裕一
Stepping rotation of the flagellar motor in the tethered-cell assay and the bead assay.
テザードセル法およびビーズ法によるべん毛モーターの回転角度ステップ解析

16:55 - 17:10 Yoshiaki Kinoshita (Gakushuin University) 木下佳昭
Unitary step and nucleotide-dependent binding change of gliding machinery in *Mycoplasma mobile*

マイコプラズマ・モービレの滑走装置における単位ステップとヌクレオチド依存的な結合変化

17:10 - 17:55:

Chi's Retirement Lecture

18:15 - 20:00: Banquet

March 3 (Mon)

8:30 - 9:00 Poter discussion (Even number)

Type III system : Discussion Leader : Katsumi Imada

9:00 - 9:20: Tohru Minamino (Osaka University) 南野徹
Role of FliI ATPase in bacterial flagellar protein export
バクテリアべん毛蛋白質輸送における FliI ATPase の役割

9:20 - 9:35: Naoko Kajimura (Osaka University) 梶村直子
Structure of the needle complex of *Shigella flexinelli* by electron cryomicroscopy
赤痢菌ニードル複合体のクライオ電子顕微鏡による構造解析

9:35 - 9:50: Akihiro Kawamoto (Osaka University) 川本晃大
Architecture of the *Salmonella* type III secretion system by electron cryotomography
クライオ電顕トモグラフィによるサルモネラ菌 III 型分泌装置の構造

9:50 - 10:05: Cilve S. Barker (Okinawa Institute of Science and Technology)
A minimized flagellar export apparatus without FliO

10:05 - 10:20: Yuki Nakanishi (Osaka University) 中西雄紀
Structure of the flagellar type III export chaperone, FlgN
べん毛 III 型輸送シャペロン FlgN の構造

10:20 - 10:35: Break

Flagellar stator: Discussion Leader : Akio Kitao

10:35 - 10:55: Yasutaka Nishihara (The University of Tokyo) 西原 泰孝
Proton permeation mechanism through the stator MotA/B in bacterial flagellar motor
細菌べん毛モーター固定子 MotA/B のプロトン透過機構

10:55 - 11:10: Naoya Terahara (Osaka University) 寺原 直矢
Environmental adaptation of *Bacillus* flagellar motor by MotAB and MotPS stators
枯草菌べん毛モーターの2種類の固定子による外環境適応機構

11:10 - 11:25: Norihiro Takekawa (Nagoya University) 竹川 宜宏
Functional analysis and purification of the stator of extreme thermophilic bacterium *Aquifex aeolicus*
高度好熱菌 *Aquifex aeolicus* の固定子の機能解析と精製

11:25 - 11:40: Shiwei Zhu (Nagoya University) 朱 世偉
Structural and functional analysis of the periplasmic region of B subunit in the flagellar stator
べん毛モーター固定子Bサブユニットのペリプラズム領域に関する構造機能解析

Technical seminar: Chair : Norio Hayashi

11:40 - 11:55: Shin Mizutani (Bio-Rad Laboratories, Inc., Japan) 水谷伸
ENrich カラムを用いた目的タンパク質からの夾雑物分離例

11:55 – 12:10 **Closing address (by May Macnab)**
Shin-Ichi Aizawa and the Macnab Lab

Poster

P-1: Tomoko Miyata (Osaka University) 宮田知子
Identification of a switch protein FliG in the flagellar basal body.
細菌べん毛基部体におけるスイッチ蛋白質 FliG の位置と向きの同定

P-2: Juanfang Ruan (Osaka University)
Structural analysis of the flagellar sheath of magnetotactic bacteria MO-1 by electron cryomicroscopy
低温電子顕微鏡による磁性細菌鞭毛鞘の構造解析

P-3: Miki Kinoshita (Osaka University) 木下実紀
Interaction of bacterial flagellar chaperones with an export gate protein FlhA
べん毛特異的分子シャペロンと輸送ゲート構成蛋白質 FlhA との相互作用

P-4: Yusuke Morimoto (RIKEN QBiC) 森本雄祐
Evidence of stator-rotor interaction activating proton channel for torque generation by the flagellar motor
細菌べん毛固定子回転子間相互作用によるプロトンチャネルの活性化

P-5: Yasuhiro Onoue (Nagoya University) 尾上靖宏
The role of conserved charged residues essential for rotor-stator interaction in the bidirectional rotation of the flagellar motor
べん毛モーター回転方向制御におけるローター・ステーターの保存荷電残基の役割

P-6: Hiroyuki Terashima (Osaka University) 寺島浩行
Construction of an *in vitro* Transport Assay for the Bacterial TypeIII Protein Secretion System
細菌III型蛋白質輸送システムの*in vitro*アッセイ系の構築

P-7: Koichi Hiraoka (Osaka University) 平岡孝一
Findings from non-motile motor
動かないモーターから見えてくるもの

P-8: Tadahiko Sato (Tohoku University) 佐藤忠彦
Fromation process of a ring-like pattern induced by bacterial chemotaxis
細菌の走化性に起因するリング状パターンの形成過程の解析

P-9: Satoshi Inaba (Nagoya University) 稲葉敏
Structural analysis of the hook basal body with C-ring components from *Vibrio alginolyticus*.
*Vibrio alginolyticus*のCリングタンパク質が付随したフック基部体構造の解析

P-10: Ryosuke Sagawa (Tohoku University) 佐川亮介
Measurement of microscopic viscosity by centrifugal microscopy
遠心顕微鏡を用いた高分子水溶液の微視的粘度の測定

- P-11: Satoshi Shibata (Nagasaki University) 柴田敏史
Gliding motility machinery of the gliding bacterium *Flavobacterium johnsoniae*
滑走細菌 *Flavobacterium johnsoniae* の滑走運動装置
- P-12: Yuya Ogawa (Osaka University) 小川雄也
Conformational change of a cytoplasmic fragment of FlhA, a flagellar type III protein export apparatus protein
べん毛 III 型輸送装置蛋白質 FlhA の細胞質領域の構造変化
- P-13: Mizuki Gohara (Nagoya University) 郷原瑞樹
Recent results about physicochemical properties of PomA or PomA/B complex of *Vibrio*.
ビブリオ菌べん毛モータータンパク質PomAおよびPomAB複合体の物理化学性状
- P-14: Akihiko Ishijima (Tohoku University) 石島秋彦
Development of the high S/N imaging system for the fast detection of stepping rotation of bacterial flagellar motor
回転ステップ運動の高時間分解能検出に向けた高 S/N 計測系の開発
- P-15: Takehiko Nishigaki (Nagoya University) 西垣岳彦
The intracellular localization of SflA, the *dnaJ* family protein that plays a role in the suppression of flagellar formation in *Vibrio alginolyticus*
海洋性ビブリオ菌のべん毛形成抑制に関与するDnaJモチーフを持ったSflAの細胞内局在
- P-16: Takashi Sagawa (Tohoku University) 佐川貴志
Single cellular measurement of response of *E. coli* to the chemoattractant in high-temporal resolution
大腸菌走化性応答の1細胞高時間分解能計測
- P-17: Arisa Mori (Nagoya University) 森安梨沙
Expression and functional analysis of channel rhodopsin-1 in *Escherichia coli*
大腸菌におけるチャネルロドプシン1の発現と機能解析
- P-18: Yuka Takahashi (Toyo University) 高橋優嘉
Analysis of the inflow control mechanism of Na^+ at neutral pH of Na^+ -driven flagellar motor stator MotPS in *Bacillus pseudofirmus* OF4
好アルカリ性細菌と好中性細菌の Na^+ 駆動型べん毛モーター固定子 MotPS のイオン流入制御機構の解析
- P-19: Akari Takashima (Nagoya University) 高島明里
Biochemical analysis of FlhG which negatively regulates the flagellar number of *Vibrio* cells
ビブリオ菌のべん毛本数を負に制御する FlhG タンパク質の生化学的解析
- P-20: Tohru Umemura (Hosei University) 梅村徹
Control of bacterial flagellar rotation via crosstalk from a non-cognate histidine kinase to the response regulator CheY
ヒスチジンキナーゼ間のクロストークを使ったバクテリアのべん毛回転方向制御
- P-21: Yohei Takahashi (Osaka University) 高橋洋平
Structural insight into the ligand recognition of chemoreceptor proteins of *Vibrio cholerae*
コレラ菌走化性受容体のリガンド認識機構
- P-22: Yoshiyuki Sowa (Hosei University) 曾和義幸
Tracking of fluorescently tagged bacterial flagellar motor
蛍光標識した細菌べん毛モーターの輝点追跡

P-23: Erika Yamaguchi (Nagoya University) 山口絵里花
Assembly of a MS-ring component, FliF, of *Vibrio* flagellar motor
*Vibrio alginolyticus*のべん毛回転子MSリング構成タンパク質FliFの構造形成解析

P-24: Yong-Suk Che (Hosei University) 蔡榮叔
Functional analysis of Na⁺-driven chimeric flagellar motor with tandem PomA
タンデム PomA の荷電残基に変異導入したキメラべん毛モーターの動態計測

P-25: Takuma Fukumura (Osaka University) 福村拓真
X-ray structure of the periplasmic domain of FliP, a component of the flagellar protein export apparatus
細菌べん毛蛋白質輸送装置構成因子 FliP のペリプラズムドメインの構造

P-26: Daisuke Nakane (Gakushuin University) 中根大介
Large-scale vortex lattice emerging from gliding bacteria
滑走するバクテリアがつくる巨大渦パターン

P-27: Kyosuke Takabe (Tohoku University) 高部響介
Microscopic analysis of *Leptospira* motility in highly viscous environments
高粘性流体中におけるらせん細菌レプトスピラの運動解析

P-28: Yurika Yamada (Osaka University) 山田有里佳
Isolation of native thin filament from skeletal muscle for structural analysis by cryoEM
ワタリガニ骨格筋の細いフィラメントの精製および低温電子顕微鏡法による構造解析