

## Bacterial Flagella, Injectisomes and Type III Secretion Systems

**March 1<sup>st</sup>, 2017**

**8:30 Registration**

9:00 - 9:05: Message from the organisers

9:05 - 9:15: Message from OIST Dean of Research

**Session Chair: Kelly Hughes**

9:15 - 9:40 **Howard Berg** - Bacterial Motility: Swimming and Gliding

9:40 - 10:05 **Richard Berry** - Torque, speed and assembly of the E. coli flagella motor

10:05 - 10:30 **Yoshiyuki Sowa** - Single-molecule studies of the chemo-mechanical coupling in the bacterial flagellar motor

**10:30 - 10:50: Coffee-Tea break**

**Session Chair: Judith Armitage**

10:50 - 11:15 **Rasika Harshey** - Success in a swarm

11:15 - 11:40 **Akihiko Ishijima** - The chemotactic response and motor function of a bacterial flagella motor in a single cell

11:40 - 11:55 **Akio Kitao** - Dynamic structure of bacterial flagellar proteins observed *in silico*

11:55 - 12:20 **Seishi Kudo** - A Trial Run of a Bacterium Robot with a Flagellum

12:20 - 12:25 Discussion / Announcement

**12:25 - 13:55: Lunch – Break**

**Session Chair: Seiji Kojima**

13:55 - 15:00 Poster talks

**15:00 - 16:30 Poster presentation / Coffee-Tea break**

**Session Chair: Shin-Ichi Aizawa**

16:30 - 16:55 **David Blair** - Dissecting the mechanism of flagellar type-III secretion

16:55 - 17:20 **Katsumi Imada** - In vitro observation of the bacterial flagellar type III protein export

17:20 - 17:35 **Danielle Tullman-Ercek** - Engineering high-titer heterologous protein secretion in bacteria

**17:35 - 17:40 Discussion / Announcement / Closing**

**Dinner**

**March 2<sup>nd</sup>, 2017**

**Session Chair: Ariel Blocker**

- 9:00 - 9:25 **Samuel Wagner** - Assembly, structure, and function of the export apparatus of the *Salmonella* SPI-1 T3SSs
- 9:25 - 9:50 **Linda Kenney** - Super-resolution Imaging of *Salmonella* SPI-2 regulation: A View from 30,000 feet to 20 nm
- 9:50 - 10:15 **Natalie Strynadka** – Near-atomic CryoEM Structural Analysis of the *Salmonella* Type III Injectisome Basal Body
- 10:15 - 10:30 **Neta Sal-Man** - Calcium Sensing and Secretion Hierarchy Regulation in EPEC T3SS

**10:30 - 10:50: Coffee-Tea break**

**Session Chair: Keichi Namba**

- 10:50 – 11:15 **Marc Erhardt** - Self-Assembly of a Bacterial Nanomachine: Flagella Grow Through an Injection-Diffusion Mechanism
- 11:15 - 11:30 **Chien-Jung Lo** - The growth rate of *Vibrio alginolyticus* polar flagella
- 11:30 - 11:55 **Tohru Minamino** - Cooperative remodeling of the FlhA ring structure coordinates flagellar type III protein export with assembly
- 11:55 - 12:00 Discussion / Wrapping up

**12:00 - 13:25 Lunch – Break**

**Session Chair: Tohru Minamino**

- 13:25 - 13:40 **Jun Liu** - *In Situ* Structural Analysis of *Vibrio* Flagellar Motor by Cryo-Electron Tomography and Sub-tomogram Averaging
- 13:40 - 13:55 **Daisuke Nakane** - Asymmetric Distribution of Type IV Pili Triggered by Directional Light in Unicellular Cyanobacteria

**Session Chair: Marc Erhardt**

13:55 - 15:00 Poster talks

**15:00 – 16:30 Poster presentation / Coffee-Tea break**

**Session Chair: Ikuro Kawagishi**

- 16:30 - 16:55 **Sonja Albers** - Assembly and Interactions of the Archaelium Motor
- 16:55 - 17:10 **Tomohiro Kimura** - AMIS75470 is Essential for Flagellar Assembly in the Rare Actinomycete *Actinoplanes missouriensis*
- 17:10 - 17:35 **Ariane Briegel** - Structure and Function of Chemoreceptor Arrays- the Bacterial Brain that Controls Flagellar Motility
- 17:35 - 17:40 Discussion / Announcement

**Conference dinner (special dinner)**

**March 3<sup>rd</sup>, 2017**

**Session Chair: Michio Homma**

- 8:45 - 9:10 **Judith Armitage** - Exchange of motor proteins measured in living cells
- 9:10 - 9:35 **Keiichi Namba** - Insights into the mechanism of bacterial flagellar motor rotation from the structure and dynamics
- 9:35 - 10:00 **Seiji Kojima** - How to anchor and activate flagellar stator units: assembly-coupled stator activation mechanism revealed by the crystal and solution structures of the stator fragment
- 10:00 - 10:25 **Takayuki Nishizaka** - Unitary steps of supermolecular motility machineries in gliding bacteria and swimming archaea

**10:25 - 10:40: Coffee-Tea break**

**Session Chair: Linda Kenney**

- 10:40 - 11:05 **Ariel Blocker** - Structural and Functional Analysis of Type III Secretion Systems
- 11:05 - 11:30 **Tomoko Yamamoto** - Functional dissection of *Salmonella* SPI-2 injectisome
- 11:30 - 11:45 **Hanh Lam** - Synthetic cyclic peptomers as Type III secretion system inhibitors
- 11:45 - 12:00 **Nicholas Dickenson** - Spa47 oligomerization drives ATP hydrolysis and *Shigella* T3SS activation
- 12:00 - 12:15 **Tomoko Kubori** - Manipulation of the Host Ubiquitin System by *Legionella* Deubiquitinases

**12:15 - Lunch**

**Excursion to Okinawa aquarium (Lunch in Bus)  
Free afternoon (for those not going to the aquarium)**

**18:30 Dinner**

## March 4<sup>th</sup>, 2017

### Session Chair: Seishi Kudo

- 9:00 - 9:25 **Kelly Hughes** - Nano-scale length control of the flagellar drive-shaft requires hitting the protein-tethered outer membrane
- 9:25 - 9:50 **Daniel Kearns** - Homeostatic control of the flagellar filament protein in *Bacillus subtilis*
- 9:50 - 10:15 **Michio Homma** - How to determine the number and localization of polar flagellum in *Vibrio* cells?
- 10:15 - 10:30 **Bin Ni** - Evolutionary Remodeling of Bacterial Motility Checkpoint Control

### 10:30 - 10:50 Coffee-Tea break

### Session Chair: Rasika Harshey

- 10:50 - 11:15 **James Fleckenstein** - A Secreted Adhesin Bridges Enterotoxigenic *E. coli* Flagella and A-blood group Host Glycans
- 11:15 - 11:40 **Fadel A. Samatey** - Bacterial flagellar hook: similarities and specificities
- 11:40 - 11:55 **Thibaud Renault** - A highly conserved methionine loop in FliP controls substrate export across the inner membrane
- 11:55 - 12:10 **Clive Barker** - Stability of the bacterial flagellar hook as a universal joint
- 12:10 - 12:15 Discussion / Announcement / Closing

### 12:15 - 13:45 Lunch - Break

### Session Chair: Ariane Briegel

13:45 - 14:50 Poster talks

### 14:50 - 16:20 Poster presentation / Coffee-Tea break

### Session Chair: Daniel Kearns

- 16:20 - 16:45 **Shin-Ichi Aizawa** - Campylobacter jejuni flagella is controlled short for optimal pathogenesis
- 16:45 - 17:10 **Ikuro Kawagishi** - Dynamically Regulated Assembly of the Bacterial Xenobiotic Efflux Complex
- 17:10 - 17:25 **Satoshi Shibata** - A multi-rail structure in the cell envelope for the bacteroidete gliding machinery

### 17:25 - 17:35 Conference Closing / Announcement / Dinner

## == March 5<sup>th</sup>, 2017: Departure