

The 12th CDB Meeting
**Diversity of Developmental Mechanisms in Invertebrates
Program**

Wednesday, February 2

Session 1

Chair: Teruyuki Niimi

- 13:05 **Evolution and development of the caste polyphenism in social insects**
Toru Miura Hokkaido University, Japan
- 13:30 **Species-specific activation of EGF receptor signaling underlies evolutionary diversity of the dorsal appendage number of the genus *Drosophila* eggshells**
Kenji Matsuno Tokyo Univ. of Science, Japan
- 13:55 **MORPHOLOGICAL DIVERSIFICATION OF APPENDAGES IN INSECTS AND POLYCHAETES**
Nao Niwa RIKEN Center for Developmental Biology, Japan
- 14:20 **The evolution of cell division patterns in Crustacea**
Gerhard Scholtz Humboldt-University, Germany
- 14:55 Coffee Break & Poster Presentation (1)
Presenters for **odd-numbered posters** should be at their panels for discussion.

Session 2

Chair: Shigeo Hayashi

- 16:00 **Towards understanding the molecular mechanism of wing-color pattern formation in the ladybird beetle, *Harmonia axyridis***
Teruyuki Niimi Nagoya University, Japan
- 16:25 **Hormonal control of wing morphogenesis and larval body markings in butterflies and moths**
Haruhiko Fujiwara University of Tokyo, Japan
- 16:50 **Hox gene fusion and evolution of divergent translational controls in Crustaceans**
Yasuhiro Shiga Tokyo University of Pharmacy and Life Science, Japan
- 16:15 **An analysis of segmentation and limb development in *Oncopeltus fasciatus***
Thomas Charles Kaufman Indiana University, USA

17:50 Reception

19:00 Poster Presentation (2)

Presenters for **even-numbered posters** should be at their panels for discussion.

Thursday, February 3

Session 3

Chair: Kenji Matsuno

9:00 **Formation of the dorsal-ventral axis and the mesoderm in spiders**

Hiroki Oda JT Biohistory Research Hall, Japan

9:25 **Evolution of segmentation: The molecular basis of segmentation in spiders and millipedes**

Wim G.M. Damen University of Cologne, Germany

10:00 **Evolution of arthropod segmentation - lessons and insights from centipede development**

Ariel Chipman University Museum of Zoology, Cambridge, UK

10:35 Coffee Break

Session 4

Chair: Yasuhiro Shiga

11:00 **Developmental mechanisms in the intermediate-germ cricket *Gryllus bimaculatus***

Sumihare Noji University of Tokushima, Japan

11:25 **Asymmetric Cell Division, Signaling and Segmentation in *Helobdella robusta*, a Glossiphoniid Leech**

David A. Weisblat University of California, USA

12:00 Closing Remarks

Sumihare Noji University of Tokushima, Japan

Poster Program

(Alphabetical order)

- 1. Studies on pro-phenoloxidasases of *Drosophila***
Tsunaki Asano, Kazushi Takebuti
Department of Biology, Tokyo Metropolitan University, Japan
- 2. Melanin synthesis genes co-regulate the stage-specific larval cuticular markings of a swallowtail butterfly, *Papilio xuthus***
Ryo Futahashi and Haruhiko Fujiwara
Department of Integrated Biosciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan
- 3. HSP-90 gene in Decapod Crustaceans: diversity and participation in the control of hatching of embryos**
Oleg Gusev and Masayuki Saigusa
Graduate School of Natural Science and Technology, Okayama University, Japan
- 4. Patterning mechanisms underlying the two distinct types of invertebrate limbs: a hypothesis**
Shigeo Hayashi
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan
- 5. Two *engrailed*-related genes in the myodocopid ostracod *Vargula hilgendorffii* (Crustacea)**
Kyosuke Ikuta
Department of Biology, Osaka Kyoiku University, Kashiwara, Osaka 582-8582, Japan
- 6. The developmental significance and molecular mechanisms of the attachment between wing discs and tracheal branches during embryogenesis**
Yoshiko Inoue, Shigeo Hayashi
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan
- 7. Roles of Delta/Notch signaling during embryogenesis in the cricket *Gryllus bimaculatus***
Chieko Ishifune, Taro Mito, Katsuyuki Miyawaki, Hideyo Ohuchi, Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
- 8. Role of the even-skipped gene in segmentation of the cricket, *Gryllus bimaculatus***
Chiharu Kobayashi, Taro Mito, Katsuyuki Miyawaki, Hideyo Ohuchi and Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan

9. **Developmental origin of the super-symbiotic system in the pea aphid, *Acyrtosiphon pisum***
Ryuichi Koga, Makiko Sakurai, Tsutomu Tsuchida, Takema Fukatsu
 National Institute of Advanced Industrial Science and Technology (AIST), Institute for Biological Resources and Functions, Japan
10. **Apparent similarity in the role of the midline structure in left-right asymmetry between vertebrate and *Drosophila* embryos**
Reo Maeda, Shunya Hozumi, Kiichiro Taniguchi, Takeshi Sasamura, and Kenji Matsuno
 Dept. Biol. Sci./Tech., Tokyo Univ. of Science, Chiba, Japan
11. **Non-canonical functions of hunchback in segment patterning of the intermediate germ cricket *Gryllus bimaculatus***
Taro Mito, Katsuyuki Miyawaki, Hideyo Ohuchi, Sumihare Noji
 Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
12. **Expression and functional analyses of the *engrailed*-related gene in the cricket, *Gryllus bimaculatus***
Katsuyuki Miyawaki, Taro Mito, Hideyo Ohuchi, Sumihare Noji
 Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
13. **Present knowledge on the development and reproduction in sea spiders (Arthropoda, Pycnogonida)**
Katsumi Miyazaki
 Seto Marine Biological Laboratory, Field Science Education and Research Center, Kyoto University, Japan
14. **Developmental calorimetry: The early development and starvation of starfish embryos**
Yatsuhisa Nagano(a) and Hiroko Shirai(b)
 (a) Research Center for Molecular Thermodynamics, Graduate School of Science, Osaka University, Japan (b) Ushimado Marine Laboratory, Faculty of Science, Okayama University, Japan
15. **Roles of a rho enhancer and positional information in evolution of *Drosophila* eggshell shape**
 1) Yukio Nakamura, 1) Tatsuo Kagesawa, 2) Yoshiki Hayashi, 2) 3) 4) Satoru Kobayashi, 5) 6) Teruyuki Nimi, 1) Kenji Matsuno
 1) Dept Biol Sci/Tech, Tokyo Univ Sci, Chiba, Japan, 2) Dept Biosci, Grad Univ Advanced Studies, Aichi, Japan, 3) Okazaki Natl Res Inst, Ctr Integrative Biosci, NIBB, Aichi, Japan, 4) CREST, JST, 5) Nagoya Univ, Grad Sch of Bioagricultural Science, Nagoya, Japan, 6)PRESTO, JST

16. **Functional analysis of the Egfr gene during leg regeneration of the cricket, *Gryllus bimaculatus***
Taro Nakamura, Katsuyuki Miyawaki, Taro Mito, Hideyo Ohuchi and Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
17. **Developmental profiles of wing imaginal discs in the female wingless-legged bagworm moth, *Bacotia sakabei* (Insecta, Lepidoptera, Psychidae)**
Shuhei Niitsu
Department of Natural History, Graduate School of Science, Tokyo Metropolitan University, Japan
18. **Germline stem cells of *Drosophila* in culture**
-Induction of oogenesis and attempt of interspecific interactions of soma and germline cells
Yuzo Niki¹⁾, Sachie Ueda¹⁾, Takahumi Yamaguchi¹⁾, Takuya Sato¹⁾ and Mahowald A. P.²⁾
1) Dept. of Materials and Biological sciences Faculty of Science Ibaraki University, Japan
2) Dept. Molec. and Cell Biol. Univ. of Chicago, USA
19. **Time lapse analysis of ectodermal invagination during the early stage of *Drosophila* tracheal formation**
Mayuko Nishimura, Yoshiko Inoue, Shigeo Hayashi
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan
20. **Conserved musculature underlying appendage diversity in insect and polychaete**
Nao Niwa, Ai Akimoto, Shigeo Hayashi
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan
21. **Molecular basis underlying the generation of polychaete body segments**
Nao Niwa, Ai Akimoto, Shigeo Hayashi
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan
22. **Developmental calorimetry: The post-diapause development of *Artemia***
Yatsuhisa Nagano and Mitsuhiro Okada
Research Center for Molecular Thermodynamics, Graduate School of Science, Osaka University, Japan
23. **Functional analysis of the Krüppel gene in segmentation of the cricket, *Gryllus bimaculatus***
Haruko Okamoto, Taro Mito, Katsuyuki Miyawaki, Hideyo Ohuchi, Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
24. **The LRR protein CAPS mediates differential cell positioning in the *drosophila* limb**
Kayoko Sakurai, Tetsuya Kojima, Toshiro Aigaki, Hayashi Shigeo
Laboratory for Morphogenetic Signaling, RIKEN Center for Developmental Biology, Japan

25. **A Novel RNA helicase-like protein during early embryonic development in silkworm *Bombyx mori***
Hiroshi Sawada 1), Yumi Yamahama 2), Keisuke Mase 3), Takayuki Yamamoto 4), Teruhiko Iino 1)
1) Lab. of Biology, Dept. of General Studies, College of Humanities and Sciences, Nihon University, Japan 2) Dept. of Biology, Hamamatsu University School of Medicine, Japan 3) National Institute of Agrobiological Sciences, Japan 4) Biological Laboratory, Center for Natural Science, Kitasato University, Japan
26. **Cortical zonation and neurogenetic modes in cephalopod brains: An unique evolutionary pathway for the brain elaboration**
Shuichi Shigeno, Takashi Kasugai, Takuya Moritaki, Yasunori Murakami, Hiroshi Tarui, Kiyokazu Agata
Laboratory for Evolutionary Regeneration Biology, RIKEN Center for Developmental Biology, Japan
27. **Caudal is required for gnathal and thoracic patterning and for posterior elongation in the intermediate-germband cricket *Gryllus bimaculatus***
Yohei Shinmyo, Taro Mito, Katsuyuki Miyawaki, Hideyo Ohuchi, Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
28. **Behaviors of piwi-expressing cells during regeneration of an oligochaete (annelid) suggests a conservative mechanism underlying a separation-and-encounter event between germ and somatic cells**
Ryosuke Tadokoro 1) 2), Shishin Kawamoto 3), Shin Tochinai 3) and Yoshiko Takahashi 1)
1) Laboratory for Body Patterning, Riken CDB, Kobe, Japan 2) NIST, Ikoma, Nara, Japan 3) Division of Biological Science, Graduate School of Science, Hokkaido University, Sapporo, Japan
29. **The organization of the visceral musculature is involved in left-right patterning of the endoderm during the embryogenesis of *Drosophila***
Kiichiro Taniguchi 1), Masashi Ooike 1), Shunya Hozumi 1), Reo Maeda 1), Takeshi Sasamura 1), Toshiro Aigaki 2), Kenji Matsuno 1)
1) Dept. Biol. Sci./Tec., Tokyo Univ. Sci., Japan 2) Dept. Biol. Sci., Tokyo Met. Univ., Japan
30. **Roles of the homothorax and extradenticle genes in appendage patterning in the cricket, *Gryllus bimaculatus***
Tomohiro Uda, Katsuyuki Miyawaki, Taro Mito, Hideyo Ohuchi and Sumihare Noji
Department of Biological Science and Technology, Faculty of Engineering, The University of Tokushima, Japan
31. **Screening of transposon insertion mutants in the silkworm, *Bombyx mori***
Hitoshi Ueda 1) and Toshiki Tamura 2)
1) Okayama Univ., Japan 2) National Institute of Agrobiological Science, Japan