

Kenji Sugioka

Curriculum Vitae

Assistant Professor/Principal Investigator
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ACADEMIC CAREER

Assistant Professor (PI) **2018 Oct 1st-**
Department of Zoology, The University of British Columbia

Current project 1: Analysis of cortical flow-dependent cell division regulation
Current project 2: Coordination of cell-cycle timer during organogenesis

Postdoctoral Research Associate (PI: Dr. Bruce Bowerman) **2012 Oct-2018 Sep**
Institute of Molecular Biology, University of Oregon

- Cortical flow-dependent oriented division (Sugioka and Bowerman, *Dev Cell* 2018)
- Identification of critical centriole regulator protein SAS-7 (Sugioka et al., *eLife* 2017)
- Identification of new meiotic spindle formation mechanism (Connolly et al., *JCB* 2015)
- Attenuation mechanism of microtubule pulling force (Sugioka et al., *PNAS* 2018)
- Awarded funding from Human Frontier Science Program Fellowship

Graduate Student /Postdoctoral Fellow (PI: Dr. Hitoshi Sawa) **2006 Oct-2012 Sep**
RIKEN Center for Developmental Biology/Kobe University (2006-2011)
National Institute of Genetics, Japan (2011-2012)

- Mechanisms underlying the Wnt-dependent asymmetric division (Sugioka et al., *Cell*, 2011)
- Nuclear positioning during asymmetric cell division (Sugioka and Sawa, *Genes to Cells*, 2010)

EDUCATION

Ph.D. RIKEN Center for Developmental Biology/Kobe University, Japan 2006-2010
Dissertation: Analysis of Asymmetric Cell Division Regulated by the Wnt Signaling
Advisor: Dr. Hitoshi Sawa

MSc. Department of Biochemistry and Biophysics, University of Tokyo 2004-2006
Thesis projects: Analysis of DAZ-1 mediated translational regulation during oogenesis
Advisor: Dr. Masayuki Yamamoto

BSc. Department of Biochemistry and Biophysics, University of Tokyo 2000-2004

PUBLICATIONS

- 1) Hsu, C.R., Xiong, R., and **Sugioka, K.***, (2019) (* Corresponding author)
In vitro reconstitution of spatial cell contact patterns with isolated *Caenorhabditis elegans* embryo blastomeres and adhesive polystyrene beads.
Journal of Visualized Experiments, (153), e60422.
- 2) Bowerman, B., and **Sugioka, K.**, (2019)
Breaking Symmetry: Worm Cue Finally Found.
Developmental Cell 48(5), 593-594.
- 3) **Sugioka, K.***, Bowerman, B., (2018) (* Corresponding author)
Combinatorial contact cues specify cell division orientation by directing cortical myosin flows.
Developmental Cell 46(3), 257-270.e5
(Preprint at bioRxiv: <https://doi.org/10.1101/164186>.)
- 4) **Sugioka, K.**, Fielmich, LE., Mizumoto, K., Bowerman, B., van den Huevel, S., Kimura, A., Sawa, H., (2018)
Tumor suppressor APC is an attenuator of spindle-pulling forces during *C. elegans* asymmetric cell division. *Proceedings of the National Academy of Sciences USA*, Jan 30;115(5): E954-E963. (Preprint at bioRxiv: <https://doi.org/10.1101/157404>)
- 5) **Sugioka, K.**, Hamill, DR., Lowry, J., McNeely, ME., Enrick, M., Murali, B., Parsons, LW., Priess, JR., Bowerman, B., (2017)
Centriolar SAS-7 acts upstream of SPD-2 to regulate centriole assembly and pericentriolar material formation. *eLife*, Jan 16;6. doi: 10.7554/eLife.20353.
*Recommended by Faculty of 1000/Media Coverages by UPI news/Phys.org
- 6) Lowry, J., Yochem, J., Chuang, CH., **Sugioka, K.**, Connolly, AA., Bowerman, B., (2015)
High-throughput cloning of temperature-sensitive *C. elegans* mutants with adult syncytial germline membrane architecture defects. *G3: Genes| Genomes| Genetics*, g3. 115.021451
- 7) Connolly, AA., **Sugioka, K.**, Chuang, CH., Lowry, J., Bowerman, B., (2015)
The *C. elegans* kinesin-13/MCAK family member KLP-7 acts through kinetochores to limit spindle pole number during oocyte meiotic spindle assembly. *Journal of Cell Biology*, 210(6): 917-932
- 8) **Sugioka, K.**, Sawa, H., (2012) Formation and functions of asymmetric microtubule organization in polarized cells. *Current Opinion in Cell Biology*, 24(4):517-25.

- 9) **Sugioka, K.**, Mizumoto, K., Sawa, H., (2011)
 Wnt regulates spindle asymmetry to generate asymmetric nuclear β -catenin in *C. elegans*
Cell, 146(6): 942-54.
 *Recommended by Faculty of 1000
- 10) **Sugioka, K.**, Sawa, H., (2010)
 Regulation of asymmetric positioning of nuclei by Wnt and Src signaling and its roles in POP-1/TCF nuclear asymmetry in *Caenorhabditis elegans*.
Genes to Cells 15(4): 397-407.
- 11) **Sugioka, K.**, Sawa, H., (2010)
 Wnt-dependent regulation of cell polarity and asymmetric cell division—mechanism to create orderly cellular diversity.
Journal of Clinical and Experimental Medicine, 233: 966-970. (review in Japanese)
- 12) **Sugioka, K.**, Sawa, H., (2011)
 Wnt signaling regulates asymmetric spindle formation to regulate nuclear β -catenin asymmetry.
Cell Technology, 30: 1294-1295. (review in Japanese: ISBN 978-4-7809-0125-2)

FUNDING

Project Grant	2020-2024
Canadian Institutes of Health Research (CIHR)	
Role: PI, Amount: \$745,875	
Support for Teams to Advance Interdisciplinary Research (STAIR)	2020
UBC Faculty of Science	
Role: co-PI, Amount: \$22,500 to K.S.	
B.C. Knowledge Development Fund (BCKDF)	2019
Province of British Columbia	
Role: PI, Amount: \$175,000	
Discovery Grant	2019-2023
Natural Sciences and Engineering Research Council of Canada (NSERC)	
Role: PI, Amount: \$162,500	
John R. Evans Leaders Fund	2019
Canada Foundation for Innovation	
Role: PI, Amount: \$175,000	

Start-up fund University of British Columbia Role: PI	2018
HFSP Long-term Postdoctoral Fellowship Human Frontier Science Program Organization Role: Postdoc (PI), Amount: \$164,102	2012-2015
RIKEN Junior Research Associate Program Fellowship RIKEN Role: Trainee, Amount: \$ 50,973	2006-2009
Molecular Biology Society of Japan Travel Fellowship Molecular Biology Society of Japan Role: Postdoc (PI), Amount: \$1,327	2015
Journal of Cell Science Travelling Fellowship Company of Biologist Role: Postdoc (PI), Amount: \$2,322	2015
NIG Collaborative Research Program Grant (2013-A60) National Institute of Genetics Role: Postdoc (PI), Amount: \$2,654	2013
Inoue Research Award for Young Scientists Inoue Foundation for Science Role: N.A., Amount: \$4,425	2012

HONORS AND AWARDS

Molecular Biology Society of Japan Travel Fellowship	2015
Journal of Cell Science Travelling Fellowship	2015
Human Frontier Science Program Long-term Postdoctoral Fellowship	2012-2015
Inoue Research Award for Young Scientists	2012
RIKEN Junior Research Associate Program Fellowship	2006-2009

RESEARCH COLLABORATORS

Dr. Danielle Hamill (Dept. Zoology, Ohio Wesleyan University, OH, USA)	2014-2017
Dr. James R Priess (Fred Hutchinson Cancer Research Center, WA, USA)	2017
Dr. Akatsuki Kimura (National Institute of Genetics, Japan)	2015-2018
Dr. Sander van den Heuvel (Dept. Dev. Biol., Utrecht University, Netherlands)	2015-2018

Dr. Don Moerman (Dept. Zoology, The University of British Columbia)

2018-

SELECTED TALKS

Invited

Seminar at Tohoku University, Sendai, Japan (Host: Dr. Asako Sugimoto)
Wnt-dependent asymmetric cell division. 2012

Seminar at National Institute of Genetics, Mishima, Japan (Host: Dr. Hitoshi Sawa)
CUL-3 E3 ubiquitin ligase regulates cell division axis to specify the D-V body axis. 2015

Seminar at University of British Columbia, Vancouver, Canada (Host: Dr. Don Moerman)
Context-dependent cell division orientation programs during *C. elegans* embryogenesis. 2018

Seminar at Ichan School of Medicine Mount Sinai, New York (Host: Dr. Florence Marlow)
Context-dependent determination of animal cell division axes. 2018

Selected

Kenji Sugioka and Bruce Bowerman (Talk)

Patterns of contact cue specify cell division orientation with myosin flow.
EMBO *C. elegans* Development, Cell Biology and Gene Expression Meeting. Barcelona, Spain,
June 2018.

Kenji Sugioka and Bruce Bowerman. (Plenary talk)

Asymmetric ubiquitination of the contractile ring by CUL-3 E3 ubiquitin ligase complex
regulates asymmetric cytokinesis in P0 cell.
20th International *C. elegans* Meeting. Los Angeles, USA, June 2015

Kenji Sugioka*, Danielle Hamill*, Josh Lowry, Marie E. McNeely, Molly Enrick, Bhavna Murali, Lauren W. Parsons and Bruce Bowerman (Talk)

SPD-2 interacting protein SAS-X is a new centriolar protein required for centriole duplication.
20th International *C. elegans* Meeting. Los Angeles, USA, June 2015

Kenji Sugioka, Kota Mizumoto and Hitoshi Sawa (Talk)

Distinct regulatory interactions between PAR and APC proteins that asymmetrically localize in
P0 and EMS cells
5th East Asia *C. elegans* Meeting, Taipei, Taiwan, June 2012

Kenji Sugioka, Kota Mizumoto and Hitoshi Sawa (Talk)

Wnts regulate asymmetric spindle to generate asymmetric cell fates in *C. elegans*.

69th Annual Meeting of the Society for Developmental Biology, Albuquerque, USA,
 August, 2010

Kenji Sugioka, Kota Mizumoto and Hitoshi Sawa (Talk)

Spindle asymmetry produced by Wnt signaling regulates asymmetric nuclear localization of β -catenin.

4th East Asia *C. elegans* Meeting, Tokyo, Japan, June 2010

Kenji Sugioka, Kota Mizumoto and Hitoshi Sawa (Talk)

Wnts regulate asymmetric spindle to generate asymmetry of nuclear β -catenin in *C. elegans*.

EMBO workshop: Wnt Signaling in Development and Disease, Arolla, Switzerland
 August, 2009

Kenji Sugioka and Hitoshi Sawa (Talk)

Wnts regulate spindle asymmetry to produce asymmetry of cell fates.

2nd *C. elegans* Development and Evolution Topic Meeting, Madison, USA, June 2008

Trainee Presentation (trainee indicated by asterisks)

Christina Hsu* and **Kenji Sugioka** (Poster)

Ubiquitination regulates asymmetric cytokinesis

Northwest Worm Meeting, Bellingham, WA, USA June 2019

MENTORING AND LEADERSHIP ACTIVITIES

Supervision of Highly Qualified Personnel (HQP) at the University of British Columbia

-Undergraduate students

Christina Hsu (Role: Undergraduate Research Assistant)	Jan 2019-Aug 2019
Andrew Chun (Role: Undergraduate volunteer)	Jan 2019-Apr 2019
Min Jee Kim (Role: Undergraduate Research Assistant)	May 2019-Dec 2019
Rain Xiong (Role: Undergraduate Research Assistant)	May 2019-
Kalen Dofher (Role: Directed Study Student)	May 2019-Aug 2019
Luis Altamirano (Role: Mitacs Exchange International Student from the National Autonomous University of Mexico)	Jun 2019-Aug 2019

-Graduate students

Christina Hsu	Sep 2019-
Md Abu Taher	Jan 2020-

-Research technicians

Aoi Hiroyasu Jan 2019-
 Lixin Zhou Jan 2019-
 Lisa Fernando Jul 2019-

Mentoring as a member of committee meeting

Mizuki Kurashina (Dept. of Zoology, Mizumoto lab) Feb 2019-

Activities Prior to UBC

- Worked with two graduate students at the National Institute of Genetics** 2011-2012
 Responsibilities: Teaching general molecular biology and *C. elegans* genetics methods.
- Worked with one undergraduate student at University of Oregon** 2012-2013
 Responsibilities: Teaching *C. elegans* genetics and mentored her own project to identify new mutation.
- Worked with three graduate students at University of Oregon** 2012-2017
 Responsibilities: Teaching imaging techniques, *C. elegans* methods, and genetics.
- Poster Award Judge at the Institute of Molecular Biology Retreat** 2017
 Responsibilities: Judging best poster presented by the graduate students.

Teaching

BIOL 362 Cellular Physiology 2019 Winter Term 2

Activities Prior to UBC

- Teaching Assistant, University of Tokyo** 2004-2006
 Course: Basic Biology Experiments
 Responsibilities: Prepared the materials for experiments and instructed molecular biology experiments to undergraduates.
- Teaching Assistant, RIKEN Center for Developmental Biology** 2008
 Course: Introduction of *C. elegans* Experiments to High School Teachers
 Responsibilities: Prepared the materials for experiments including hand-outs and instructed local high school teachers to aid them to use *C. elegans* in their classes.

Professional Membership/Service

The Molecular Biology Society of Japan	Member	(2004-)
Japanese Society of Developmental Biology	Member	(2012-)
The American Society for Cell Biology	Member	(2017-)
ASAPbio	Ambassador	(2017-)

F1000Prime
Genetics Society of America

Associate Faculty (2018-)
Member (2019-)

Peer Review Activities

Journal of Cell Biology

PLOS Genetics

Biochemical Society Transactions