

CURRICULUM VITAE

Name: Mamiko Yajima

Position: Assistant Professor (Research)

Department: Molecular Biology Cell Biology Biochemistry

Institution: Brown University

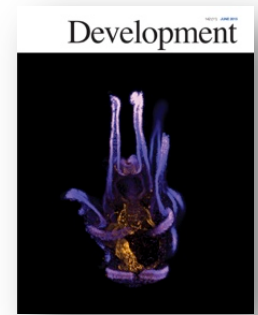
1. Completed Publications / Presentations

a. Refereed journal articles

Peer reviewed Original Research articles

1. **Yajima, M.** and Kiyomoto, M. (2006) Study of larval and adult skeletogenic cells in the developing sea urchin larvae. *Biol. Bull.* 211:183–192.
2. **Yajima, M.,** Kiyomoto, M. and Akasaka, K. (2007) Ars insulator protects transgenes from long-term silencing in sea urchin larvae. *Dev. Genes Evol.* 217:331–336.
3. **Yajima, M.** (2007a) Evolutionary modification of mesenchyme cells in sand dollars in the transition from indirect to direct development. *Evol. Dev.* 9:258–267.
4. **Yajima, M.** (2007b) A switch in the cellular basis of skeletogenesis in late-stage sea urchin larvae. *Dev. Biol.* 307:272-281.
5. Juliano, C.E., **Yajima, M.** and Wessel, G.M. (2010) Nanos functions to maintain the fate of the small micromere lineage in the sea urchin embryo. *Dev. Biol.* 337:220–232.
6. Sasakura, Y., Yaguchi, J., Yaguchi, S. and **Yajima, M.** (2010) Excision and Transposition Activity of Tc1/mariner Superfamily Transposons in Sea Urchin Embryos. *Zool. Sci.* 27:256-262.
7. **Yajima M.,** Umeda, R., Fuchikami, T., Kataoka, M., Sakamoto, N., Yamamoto, T. and Akasaka, K. (2010) Implication of HpEts in gene regulatory networks responsible for specification of sea urchin skeletogenic primary mesenchyme cells. *Zool. Sci.* 27:638-646.
8. Gustafson, E.A., **Yajima, M.,** Juliano, C.E. and Wessel, G.M. (2010) Post-translational regulation by gustavus contributes to selective Vasa protein accumulation in multipotent cells during embryogenesis. *Dev. Biol.* 349: 440-450.
9. **Yajima, M.** and Wessel, G.M. (2011a) Small micromeres contribute to the germline in the sea urchin. *Development* 138: 237-243.
10. **Yajima, M.** and Wessel, G.M. (2011b) The DEAD-box RNA helicase Vasa functions in embryonic mitotic progression in the sea urchin. *Development* 138: 2217-2222.
11. Takagi, H., Inai, Y., Watanabe, S., Tatemoto, S., **Yajima, M.,** Akasaka, K., Yamamoto, T. and Sakamoto, N. (2011). Nucleosome exclusion from the interspecies conserved central AT-rich region of the Ars insulator. *J. Biochem.* 151: 75-87.
12. **Yajima, M.,** Fairbrother, W. and Wessel, G.M. (2012) ISWI contributes to Arsl insulator function in development of the sea urchin. *Development* 139: 3613-3622.
13. **Yajima, M.** and Wessel, G.M. (2012) Autonomy in Specification of Primordial Germ Cells and their Passive Translocation in the Sea Urchin. *Development* 139: 3786-3794.
14. **Yajima, M.,** Suglia, E., Gustafson, E.A. and Wessel, G.M. (2013) Meiotic gene expression initiates during larval development in the sea urchin. *Dev. Dyn.* 242(2): 155-163.
15. Oulhen, N., Yoshida, T., **Yajima, M.,** Song, J., Sakuma, T., Sakamoto, N., Yamamoto, T., and Wessel, G.M. (2013) The 3'UTR of Nanos2 directs enrichment in the germ cell lineage of the sea urchin. *Dev. Biol.* 377(1): 275-283.
16. **Yajima, M.,** Gustafson E.A., Song, J.L., and Wessel, G.M. (2014) Piwi regulates Vasa accumulation during embryogenesis in the sea urchin. *Dev. Dyn.* 243: 451-458.

17. Sakamaki, K., Shimizu, K., Iwata, H., Imai, K., Satou, Y., Funayama, N., Nozaki, M., **Yajima, M.**, Nishimura, O., Higuchi, M., Chiba, K., Yoshimoto, M., Kimura, H., Gracey, A.Y., Shimizu, T., Tomii, K., Gotoh, O., Akasaka, K., Sawasaki, T., and Miller, D.J. (2014) The apoptotic initiator caspase-8: its functional ubiquity and genetic diversity during animal evolution. *Mol. Biol. Evol.* 12: 3282-3301.



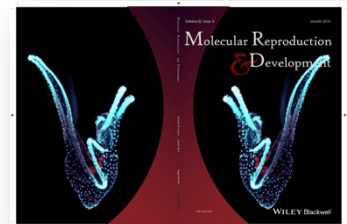
18. **Yajima, M.**, Wessel, G.M. (2015) The germ line factor Vasa functions broadly in somatic cells: mRNA clustering, translational regulation, and wound healing. *Development* 142:1960-1970.

**This article was selected for the cover image.*

19. **Yajima, M.**, Wessel, G.M. (2015) Broad Functions for the “germ line factor. *Mor. Reprod. Dev.* 82: 405.

** This article was selected for the cover image.*

20. **Yajima, M.**, Kiyomoto, M. Wessel, G.M. (2015) The germ line begins as a single cluster of cells in the penta-radial juvenile starfish. *Mor. Reprod. Dev.* 82: 821.

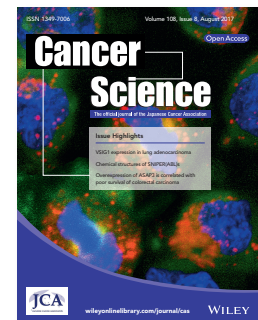


21. Fresques, T., Swartz, S.Z., Juliano, C., Morino, Y., Kikuchi, M., Akasaka, K., Wada, H., **Yajima, M.**, Wessel, G.M. (2016) The Diversity of Nanos Expression in Echinoderm Embryos Supports Different Mechanisms in Germ Cell Specification. *Evol. Develop.* 18(4):267-78.

22. Schudrowitz, N., Takagi, S., Wessel, G.M., **Yajima, M.** (2017) Germline factor DDX4 functions in blood-derived cancer cell phenotypes. *Cancer Sci.* 108: 1612-1619.

**This article was selected for the cover image.*

23. Shevidi S., Uchida A., Schudrowitz N., Wessel G.M., **Yajima M.** (2017) Single nucleotide editing without DNA cleavage using CRISPR/Cas9-deaminase in the sea urchin embryo. *Dev. Dyn.* 246(12):1036-1046.



24. Uchida A., **Yajima M.** (2018) An Optogenetic approach to control protein localization during embryogenesis in the sea urchin. *Develop. Biol.* 441(1):19-30.

Peer reviewed Review articles

25. **Yajima M.** and Wessel G.M. (2011c) The multiple hats of Vasa: Its functions in the germline and in cell cycle progression. *Mol. Reprod. Dev.* 78: 861– 867.
26. Wessel GM, Brayboy L, Fresques T, Gustafson EA, Oulhen N, Ramos I, Reich A, Swartz SZ, **Yajima M**, Zazueta V. (2013). The biology of the germ line in echinoderms. *Mol Reprod. Dev.* 81: 679-711.
27. Wessel GM, Fresques T, Kiyomoto M, **Yajima M**, Zuzueta V. (2014) Origin and development of the germ line in sea stars *Genesis.* 52: 367-377.
28. Poon J., Wessel G.M., **Yajima M.** (2016) An unregulated regulator: ectopic Vasa expression and tumorigenesis. *Develop. Biol.* 415(1): 24-32.

Articles under review or in preparation

29. Fries A., Poon J., Wessel G.M., **Yajima M.** Evolutionary modification of the G-protein regulator, AGS, contributes to asymmetric cell division in sea urchins. *In preparation.*

30. Fernandez A.N., Poon J., Uchida A., Inoue A., Wessel G.M., **Yajima M.** Vasa nucleates asymmetric translation along the mitotic spindle during unequal cell divisions. *In preparation.*

b. Invited lectures

2010

- The Marine Biologist Meeting for Young Scientists (Sep 2010, Misaki Marine Biological Station, Kanagawa, Japan)

2011

- The Department of Biology, University of North Carolina at Charlotte (Apr 2011, Charlotte, NC)
- Izayoi seminar, Harvard Medical School (Oct 2011, WAB#436 Harvard Medical School, Longwood, Boston)

2012

- The School of Science and Technology, Keio University (Jan 2012, Kanagawa, Japan)
- The Department of Mathematics and Life Science, Hiroshima University (Jan 2012, Hiroshima, Japan)
- The Department of Life science, Kwangaku University (Jan 2012, Hyogo, Japan)
- RIKEN CDB institute (Feb 2012, Kobe, Japan)

2013

- The Department of Biology, Fukui University (May 2013, Fukui, Japan)

2014

- The Department of Organismal Biology and Anatomy, University of Chicago (Feb 2014, Chicago)
- The Japanese Society of Developmental Biologists, Invited speaker at the Germline and Pluripotency Symposium (May 2014, Nagoya, Japan)
- The Division of Developmental Biology Research, Cincinnati Children's Hospital Medical Center (July 2014, Cincinnati, OH)
- The Department of Molecular Biology, University of California, Berkeley (Aug 2014, Berkeley, CA)

2018

- The Department of Organismal Biology, Harvard University (Feb 2018, Boston, MA)
- The Department of Biology, University of Florida (Feb 2018, Gainesville, FL)

c. Other conference presentations

1. Poon J., Wessel G.M., Yajima M., Evolutionary modification of the G-protein regulator, AGS, contributes to asymmetric cell division in sea urchins in the Developmental Biology of Sea Urchins at MBL (Apr 2017, MA, USA), Invited plenary presentation.
2. Yajima M., Kiyomitsu T., and Wessel G.M. Symmetry-breaking mechanisms are essential for Vasa distribution and micromere function in the Developmental Biology of Sea Urchins XXIII at MBL (Oct 2015, MA, USA), p.10, Invited plenary presentation.
3. Yajima M. and Wessel G.M. Developmental Plasticity: A broad utilization of germline molecules in the somatic lineage of the sea urchin in the Developmental Biology of Sea Urchins XXII at MBL (Apr 2014, MA, USA), p.31, Invited plenary presentation.
4. Yajima M. and Wessel G.M. Primordial Germ Cell Specification in the Sea Urchin in the Developmental Biology of Sea Urchins XXI at MBL (Oct 2012, MA, USA), p.3, Invited plenary presentation.
5. Yajima M. and Wessel G.M. Autonomy in Specification of Primordial Germ Cells and their Passive Translocation in the Sea Urchin Germ Cells Meeting at Cold Spring Harbor Laboratory (Oct 2012, NY, USA), invited Oral presentation.

6. Yajima M., Wessel G.M. Primordial Germ Cell specification in the sea urchin. 11th Awardees Annual Meeting of HFSP (June 2011, Montreal, Canada), p.20, invited Oral presentation.
7. Yajima M., Wessel G.M. Small micromere specification in the sea urchin. 44th JSDB meeting. (May 2011, Okinawa, Japan), p.52, #p-1182, Poster presentation.
8. Yajima M., Wessel G.M. Small micromere specification in the sea urchin. DBSU20 meeting (April 2011, MBL, MA, USA), p.10, invited plenary presentation.
9. Yajima M., Fairbrother W.H., Wessel G.M. The mechanism of insulator function in embryonic gene expression. 10th Awardees Annual Meeting of HFSP (Nov 2010, Kerala, India) p.169, Poster presentation.
10. Yajima M., Wessel G.M. Vasa is essential for mitotic progression. Germ Cell Meeting (Oct 2010, CSHL, NY, USA) p.158, Poster presentation.
11. Yajima M., Wessel G.M. Vasa is involved in the mitotic progression. 80th Zoological Science meeting (Sep 2010, Tokyo, Japan) p.105, 1J0945, invited Oral presentation.
12. Yajima M., Wessel G.M. Vasa is essential for cell cycle progression. 49th ASCB meeting (Dec 2009, San Diego, USA) p.54, 597-B544, Poster presentation.
13. Yajima M., Wessel G.M. Vasa is essential for cell cycle progression. Developmental Biology of Sea Urchins XVIII (Oct 2009, MBL, MA, USA), p.44, invited Oral presentation.
14. Yajima M., Fairbrother W., Wessel G.M. The mechanism of insulator function in embryonic gene expression. 9th Awardees Annual Meeting of HFSP (Jun 2009, Tokyo, Japan) p.200, Poster presentation.
15. Yajima M., Akasaka K., Kiyomoto M. SMCs are involved in the late larva and adult spicule formation. Developmental Biology of Sea Urchins XVII (Sep 2006, MBL, Woods Hole, MA, USA) p.19, Oral presentation.
16. Yajima M., Kiyomoto M., Akasaka K. *Ars* insulator protects the transgene from long-term silencing in sea urchin larva. Developmental Biology of Sea Urchins XVII (Sep 2006, MBL, Woods Hole, MA, USA) Poster presentation.
17. Yajima M., Kiyomoto M., Akasaka K. *Ars* insulator protects the transgene from long-term silencing in sea urchin larva. International Molecular Biology and Biochemical meeting (Jun 2006, Kyoto, Japan) Poster presentation.
18. Yajima M., Akasaka K., Kiyomoto M. SMC is related to the spicule formation in the late sea urchin larva. Japanese Society of Developmental Biologists (Jun 2006, Hiroshima, Japan) Poster presentation.
19. Yajima M., Hatta M. Planula larvae secrete metamorphosis inhibitor during their metamorphic event. Japanese Coral Society (Dec 2005, Okinawa, Japan) Oral presentation.
20. Yajima M., Akasaka K., Sakamoto N., Yamamoto T., Kiyomoto M. Long-term cell lineage trace of sea urchin. Zoological Society of Japan (Oct 2005, Tsukuba, Japan) Oral presentation.
21. Yajima M., Kiyomoto M. The relationship between PMCs and adult spicule formation. Sea Urchin Meeting □ (Jul 2005, MMBS, University of Tokyo, Misaki, Japan) Poster presentation.
22. Yajima M., Kiyomoto M. Are PMCs involved in adult spicule formation? Developmental Biology of the Sea Urchins XVI, (May 2005, MBL, Woods Hole, MA, USA) Poster presentation.
23. Yajima M., Kiyomoto M. Skeletogenic cell in late larva and adult sea urchin. Zoological Society of Japan (Sep 2004, Kobe, Japan) Poster presentation.
24. Yajima M., Kiyomoto M. The study of the skeletogenesis in the sea urchin larva and adult rudiment. Developmental Biology of the Sea Urchins XV (Sep 2003, MBL, Woods Hole, MA, USA) Poster presentation.

6. Service

a. To the University

2011

Relief Committee in Response to Japan Earthquake and Tsunami (Chair, Marisa Quinn, VP of Public Affairs)

April- Helped Brown undergraduates broadcast to Japan their supporting activities on campus via NHK (Japan's national public broadcasting organization) and via Nikkei newspaper.

August- Hosted and mentored a Japanese graduate student (Mr. Keisuke Niikura, 2nd year) from Keio University supported by the Relief Committee's funds.

2012

Keio faculty Visit (Hosted by Office of International Affairs, OIA): *Keio university, one of the Brown's oldest partner schools seeks to strengthen its' institutional tie at the graduate school level, especially in Science fields, and made an official visit to explore future directions.*

March 14-17- Helped OIA organize Keio faculty visit to Brown's Science Departments (MCB, Neuroscience, Engineering, Computer Science).

2013

Keio collaboration to celebrate the 250th (Sponsored by Brown 250th Anniversary Celebration Committee): *This event is to invite Keio faculty to celebrate Brown's 250th anniversary together.*

May/ October/ November- Awarded with internal funds sponsored by the Brown 250th committee, OIA, Dean of Faculty's Office.

2014

Brown Open House Events (Hosted by Brown 250th Anniversary Celebration Committee): *This event is to invite public and neighbors to Brown Campus to celebrate Brown's 250th.*

March 7-8- Hosted lab tours to middle school students and public.

Keio collaboration to celebrate the 250th (Sponsored by Brown 250th Anniversary Celebration Committee, Office of Global Engagement, Dean of the Faculty's office): *This event is to invite Keio faculty to celebrate Brown's 250th anniversary together.*

March 11-15- Hosted and organized activities on campus during their visit.

b. To the profession and to the community.

- 2007-Current URM and Community Outreach activities: *Laboratory hands-on experience for local middle school science classes each semester (LaSalle Pegasus program 7th grade; San Miguel 6th grade) approximately 75 students each year.*

Other Experience and Professional Memberships:

- 2008- anonymous manuscript reviewer of *Experimental Cell Research*
- 2010- anonymous manuscript reviewer of *Journal of Experimental Zoology Part B*
- 2013- anonymous manuscript reviewer of *Molecular Reproduction and Development*
- 2014- anonymous manuscript reviewer of *Biology of Reproduction*
- 2014- anonymous grant reviewer of *Israel Science Foundation*
- 2016- anonymous manuscript reviewer of *PLOS One, Developmental Dynamics, BMC Genomics.*
- 2017- anonymous manuscript reviewer of *Gene Expression Patterns.*
- 2017- anonymous grant reviews: The Richard B. Salomon Faculty Research Awards (Brown Internal Award).

c. Awards and fellowships

- 1997-2001 Ochanomizu University four-year full tuition waiver award
- 1997-2001 Kinoshita Scholarship for Undergraduates
- 1997-2001 JASSO scholarship for Undergraduates
- 2002-2004 Ochanomizu University two-year full tuition waiver award
- 2004-2007 Ochanomizu University three-year a half tuition waiver award
- 2002-2007 JASSO scholarship for Graduate students

- 2008-2011 Human Frontiers of Science Program Long-term Fellowship

8. Teaching. In chronological order for the last three academic years

a. Regular courses

2012

- Spring - BIOL1330, Biology of the Reproduction class at Brown University, Guest Lecturer
 Summer - NSF SURF program, Mentoring an undergraduate (Ms. Elena Suglia) at Brown University, see resulting manuscript (Yajima, Suglia...et al, 2013) from this mentorship above.
 Fall - BI1950, Mentoring an undergraduate (Ms. Elena Suglia) at Brown University.

2013

- September- Invited instructor at Tateyama Marine Laboratory Open Course (1-week lab course), Chiba, Japan

2014

- Spring - BIOL1330, Biology of the Reproduction class at Brown University, Guest Lecturer.
 Fall - BIOL 2980 S61, Graduate Independent Study, Mentoring a Master's of Science program student (Mr. Matthew McAvoy) at Brown University.
 - BIOL1310/2310, Developmental Biology classes at Brown University, Guest Lecturer in the sections of iPSC, Stem cell and Regeneration.
 - Mentoring a research assistant (Ms. Jessica Poon).

2015

- Spring - Awarded an Undergraduate Teaching and Research Awards (UTRA) grant to support Ms. Saba Shevidi for the summer program at Brown
 - Mentoring an undergraduate (Ms. Saba Shevidi), 3days / week in the lab.
 - Mentoring a research assistant (Ms. Jessica Poon), full time in the lab.

- September- Invited instructor at Tateyama Marine Laboratory Open Course (1-week lab course), Chiba, Japan

- Fall - BIOL 1950, Undergraduate Independent Study, Mentoring an undergraduate (Ms. Saba Shevidi), 3days / week in the lab.

2016

- Spring - Awarded an Undergraduate Teaching and Research Awards (UTRA) grant to support Ms. Natalie Schudrowitz for the summer program at Brown
 - Mentoring an undergraduate (Ms. Saba Shevidi and Natalie Schudrowitz), 3days/ week in the lab.
 - Mentoring a research assistant (Ms. Jessica Poon), full time in the lab.

- September - Invited instructor at Tateyama Marine Laboratory Open Course (1-week lab course), Chiba, Japan

2017

- September - Invited instructor at Tateyama Marine Laboratory Open Course (1-week lab course), Chiba, Japan

b. The number of students advised

- 5 Undergraduate students (Ms. Elena Suglia, Sophomore; Ms. Saba Shevidi, Junior and Senior; Ms. Natalie Schudrowitz, Sophomore; Ms. Annaliese Fries, Senior and 5th year)
 1 NIIH internship fellow for the STEP-UP Program (Ms. Olivia Akinsunmoye from Wellesley College)

1 Master's course graduate student (Mr. Matthew McAvoy, 1st year)

1 Clinical OBGYN Fellow (Dr. Lindsey Beffa)

Current grants:

National Institution of General Medical Sciences R01 Grant #1R01GM126043-01

Title: Localized mRNA translation on the spindle - an essential mechanism for embryonic cell regulation
12/26/2017-12/25/2022

Role: PI

Total Award Amount: \$1706, 250

Pending grants:

National Science Foundation Grant, MCB Cellular Dynamics and Function cluster

Title: Evolutionary modification of AGS contributes to organizer formation in sea urchins
9/1/2018-8/31/2022

Role: PI

Total Amount Requested: \$957,000

Lung Cancer Research Foundation Grant

Title: Function of a germline factor DDX4 in cancer cell regulation.

11/1/2018-10/31/2020

Role: PI

Total Amount Requested: \$150,000

Completed grants:

American Heart Association Scientist Development Grant #14SDG18350021

Title: Single Nucleotide Genome Modifications in Oocytes

1/1/2014-12/31/2017

Role: PI

Total Award Amount: \$308,000

The Richard B. Salomon Faculty Research Awards

Title: Optogenetic approach to control sub-cellular localization of developmental regulators.

3/16/2017-6/30/2018

Role: PI

Total Award Amount: \$15,000