YOSHINORI TOMOYASU

tomoyay@miamioh.edu

Home: 110 Marti Ct.
Oxford OH 45056
513-593-4038

Work: 252 Pearson Hall
Miami University
Oxford, OH 45056
513-529-3126

Nationality: Japanese

Education:

B.S.	Pharmaceutical Sciences/ 1996	Hokkaido University
M.S.	Pharmaceutical Sciences/ 1998	Hokkaido University
Ph.D.	Developmental Biology/ 2001	The Graduate University for Advanced Studies /National Institute for Basic Biology

Professional Experience:

2015-	Associate Professor, Department of Biology, Miami University
2008-2015	Assistant Professor, Department of Biology, Miami University
2004-2008	Res. Assistant Professor, Division of Biology, Kansas State Univ.
2001-2004	Long-term Fellow, Human Frontier Science Program, Kansas State Univ.
1998-2001	Special Research Fellow, Japan Society for the Promotion of Science, National Institute for Basic Biology

Awards:

1998	Research Fellowship, Japan Society for Promotion of Science (JSPS-DC1)
1998	The Nagakura Research Prize for young investigators
2001	Long-term Fellowship, Human Frontier Science Program
2006	Research Fellowship, JSPS -Fellowships for Research Abroad
2015	Outstanding Educator Award, Cincy Magazine

Research Funding:

Lobes or Gills, Exploring the origin of insect wings
National Science Foundation
5/1/2016-4/30/2019
$ 531,845
Principal Investigator (coPI Dr. Karro at Miami/Google)

dsRNA Uptake Mechanism in Western Corn Rootworm
Monsanto Company
12/1/2011-11/30/2013
$272,356
Principal Investigator

Molecular mechanisms contributing evolutionary morphological diversity
National Science Foundation (IOS-0950964)
9/1/2010-8/31/2014 (extended to 8/31/2015)
$490,000
Principal Investigator

Do insect wings have a dual evolutionary origin?
Faculty Research Grants Program at Miami University
2014-2015
$3,000 and Research Graduate Assistantship for 1 academic year

Understanding Molecular Mechanism Contributing to Morphological Evolution
Faculty Research Grants Program at Miami University
2010-2011
$8,400 and Research Graduate Assistantship for 1 academic year

Understanding Molecular Mechanism Contributing to Morphological Evolution
Miami University College of Arts & Science, Summer Research Grants for New Tenure-Track Faculty
2009
$5,000

Diverged function of the HOX protein Ubx in the evolution of insect wings
Japan Society for the Promotion of Science
4/1/2006-3/31/2008
~$70,000 (two-year research fellowship)
Principal Investigator (host advisor: Dr. Denell)

Elucidation of animal diversity by comparing Drosophila and Tribolium wing development
Human Frontier Science Program
5/1/2001-4/30/2004
~$120,000 (three-year research fellowship, including support on research expense)
Principal Investigator (host advisor: Dr. Denell)

Professional Service:

Served as a Faculty member for F1000 Prime
Developmental Evolution (2017-)

Served on Editorial Board for the following science journals
ISRN Developmental Biology (2012-2014)
Insect Biochemistry and Molecular Biology (2015-)

Served as a guest editor for the following science journal
Current Opinion in Insect Science (2016)

Served as an organizer for conferences
The International *Tribolium* Meeting, 2011 Kansas City MO (co-organized with Dr. Brown at Kansas State University)

The International *Tribolium* Meeting, 2015 Berkeley CA (co-organized with Dr. Brown at Kansas State University and Logan Terry at University of Arkansas)

Served as a reviewer for the following science journals
BMC Biotechnology, BMC Developmental Biology, BMC Genomics, Current Biology, Current Opinion in Insect Science, Developmental Biology, Evolution and Development, Insect Biochemistry and Molecular Biology, Insect Molecular Biology, International Journal of Developmental Biology, Journal of Experimental Zoology, Journal of Insect Science, Molecular Biology and Evolution, Nature, Nature Communications, PLoS Genetics, Science Report, eLife.

Also served as an external peer- reviewer for grant proposals submitted to *Notional Science Foundation* (NSF, U.S. government funding agency) and *Canadian Forest Service* (a sector of the Canadian government, department of Natural Resources Canada)

Served on a panelist for National Science Foundation
Division of Integrative Organismal Systems (IOS) pre-proposal panel: 2012, 2014

Synergistic Activities:

1. In collaboration with Dr. Friedberg and Dr. Karro, we have established two new online databases (BeetleDIG and BeetleWiki) that allow researchers and students to publicly share the results of their RNAi-based analyses. These online databases help researchers and students effectively organize and share their results, and advance collaboration among the community.
2. Providing our beetle injection techniques to the scientific and educational communities, by regularly hosting scientists who wish to learn our techniques and by publishing our protocols. The book chapter we published (Phillip and Tomoyasu Methods Mol Biol 2011) is the first complete documentation of *Tribolium* larval RNAi techniques. More recently, we have also published our injection protocol in video format (Linz et al. JoVE 2014). This visual protocol complements our previous protocol, and when combined, they provide a more comprehensive view of the larval RNAi procedures in *Tribolium*. In addition, in the past five years, I visited over ten schools ranging from liberal arts colleges to major Universities to further disseminate the use of *Tribolium* in teaching laboratories.
3. Participating in several programs aiming to broaden the participation of groups underrepresented in science, including Miami University First Year Research Experience Program (FYRE) and an NSF-funded Undergraduate Research and Mentoring Program (URM. #0731634 PI: Dr. Fernandes). I have been actively involved in these programs by recruiting URM and FYRE students to my lab, and also presenting posters at URM poster sessions. Three of the undergraduate students in my lab are recruited through these programs.
4. Co-organized the International *Tribolium* Meeting held in Kansas City in 2011. This is an annual international conference for the researchers who use *Tribolium* and other non-traditional model insects. I co-organized this conference with Dr. Brown at Kansas State University. I co-organized the *Tribolium* Meeting again in August 2015, which was held as a satellite to the Pan-American Society for Evolutionary Developmental Biology (SEDB) Inaugural Meeting. I also worked as a workshop organizer for the SEDB meeting.
5. I have served as a panelist for NSF and also served as an external reviewer for grant proposals submitted to NSF and Canadian Forest Service (a sector of the Canadian government, department of Natural Resources Canada). I have also started serving on editorial board for Insect Biochemistry and Molecular Biology in 2015. In addition, I have served as a reviewer for multiple science journals (see the previous section for the list of Journals).

Student mentoring:

Post-doctoral fellows: 3

Nagraj Sambrani (2010-2012), Keita Miyata (2012-2014), Ferran Borràs Castells (2012-2015)

Graduate students supervised: 7 (4 current)

Kansas State University

Sherry Rhoades-Miller (Ph.D. 2009)

Miami University

Tingjia Lao (M.A. 2012), Padmapriyadarshini Ravisankar (M.S. 2012), Yi-Ting Lai (M.S. 2017), David Linz (Ph.D. 2017)

Current Students

Courtney Clark-Hachtel (Ph.D), Kevin Deem (Ph.D.), Kangxu Wang (Ph.D. co-advising with Dr. Han at Nanjing Agricultural University)

Also serving/ have served on graduate committee for 24 graduate students (Heather Bryner, Jing Chen, Aminata Coulibaly, Girija Gangapatnam, Jamie Klements, Vishal Kumar, Deepti Kumar, Shanying Li, David Milewski, Andrew Rosendale, Kevin Wright, Barbosa Sabanero Karla Yadire, Mollie Sorrell, Thanh Hoang, Houxiang Zu, Kai Wang, Joe Powers, Yingdong Zhu, Xiaolin Liu, Benjamin Schmitz, Taylor Chae, Chandra Mani Kafle, Jennifer Hassert).

Undergraduates Supervised: 26 (5 current)

Kansas State University

Kathleen Ruyle (2003), Meagan Rondeau (2007)

Miami University

Jordan Thompson (2009), Emily Atkinson (2010), Rachel Marino (2011), Robert Malinak (2011), Holly Steigelman (2011), Sindhu Samba (2011), David Linz (2011), Matthew Korth (2011), Courtney Clark (2012), Julius Higiro (2013), Grace Miner (2013), Lillian Sedacca (2014), Mike Strayer (2014), John Dougherty (2016), McKenna Kaser (2017), Jennifer Kennedy (2015), Ryan Rinn (2017), Alan Hu (2016), Kathleen Queenan (2016), Sam James (2017)

Current Students

Dongqi Yang (2018), Jacob Schultz (2019), Monica Fernandez (2019), Sean Boyle (2019)

Courses Taught:

BIO116:	Biological Concepts: Structure, Function, Cellular and Molecular Biology, 2013, 2014
BIO444/544:	Molecular Biology, 2008-2010, 2012, 2013, 2015, 2016
BIO464/564:	Laboratory in Cell and Molecular Biology, 2014, 2016, 2017
ZOO491:	Zoology Senior Seminar, 2011, 2013
BIO710:	Graduate Seminar, 2009, 2014, 2015, 2016, 2017

Publications:

*corresponding author, ** student authors

1. **Tomoyasu, Y**.*, Ohde, T., Clark-Hachtel C.M**. What serial homologs can tell us about the origin of insect wings. **F1000Research**. 6: 268 (2017)
2. **Tomoyasu, Y.*** *Ultrabithorax* and the evolution of insect forewing/hindwing differentiation. **Current Opinion in Insect Science**. 19, 8-15 (2017)
3. Linz, D.M.**, Hu, A.W.**, Sitvarin M.I, **Tomoyasu, Y**.* Functional value of elytra under various stresses in the red flour beetle, *Tribolium castaneum*. **Scientific Reports.** 6, Article number: 34813 (2016)
4. Zattara E.E., Busey H.A., Linz D.M., **Tomoyasu Y**., Moczek A.P. Neofunctionalization of embryonic head patterning genes facilitates the positioning of novel traits on the dorsal head of adult beetles. **Proc Biol Sci.** 283(1834) (2016)
5. Clark-Hachtel C.M.**, **Tomoyasu Y.** * Exploring the origin of insect wings from an evo-devo perspective. **Current Opinion in Insect Science**. 13, 77-85 (2016)
6. Ravisankar, P.**, Lai, Y.**, Sambrani, N., **Tomoyasu, Y.** * Comparative developmental analysis of *Drosophila* and *Tribolium* reveals conserved and diverged roles of *abrupt* in insect wing evolution. **Developmental Biology**. 409 (2), 518-529 (2016)
7. Linz, D.M.**, **Tomoyasu, Y.*** RNAi screening of developmental toolkit genes: A search for novel wing genes in the red flour beetle *Tribolium castaneum*. **Development Genes and Evolution.** 225 (1), 11-22 (2015)
8. Linz, D.M.**, Clark-Hachtel, C.M.**, Borràs-Castells, F., **Tomoyasu, Y.*** Larval RNA Interference in the Red Flour Beetle, *Tribolium castaneum*. **J. Vis. Exp.** (92), e52059. (2014).
9. Miyata K., Ramaseshadri P., Zhang Y., Segers G., Bolognesi R., and **Tomoyasu Y.*** Establishing an in vivo assay system to identify components involved in environmental RNA Interference in the Western Corn Rootworm **PLoS One.** 9(7): e101661. (2014)
10. Clark-Hachtel C.M**., Linz D.M.**, **Tomoyasu Y**.* Insights into Insect Wing Origin Provided by Functional Analysis of *vestigial* in the Beetle*, Tribolium castaneum*. **Proc Natl Acad Sci U S A.**

110(42):16951-6. (2013)

11. Miller S.C.**, Miyata K., Brown S.J., **Tomoyasu Y**.* Dissecting Systemic RNA Interference in the Red Flour Beetle *Tribolium castaneum*: Parameters Affecting the Efficiency of RNAi. **PLoS One.** 7(10):e47431 (2012)
12. Burns, K.A., Gutzwiller, L.M., **Tomoyasu Y.**, Gebelein, B. Oenocyte development in the red flour beetle *Tribolium castaneum*. **Development Genes and Evolution.** 222(2):77-88. (2012)
13. **Louse Genome Sequencing Consortium**[a] Genome sequences of the human body louse and its primary endosymbiont provide insights into the permanent parasitic lifestyle. **Proc Natl Acad Sci U S A.** 107(27):12168-73. (2010) [a]I contributed to the developmental biology section.
14. Arakane, Y., Dittmer, N.T., **Tomoyasu, Y.**, Kramer, K.J., Muthukrishnan, S., Beeman, R.W., Kanost, M.R. Identification, mRNA expression and functional analysis of several *yellow* family genes in *Tribolium castaneum* **Insect Biochemistry and Molecular Biology**. 40(3):259-66. (2010)
15. **Tomoyasu, Y.***, Arakane, Y., Kramer, K.J., Denell, R.E. Repeated co-options of exoskeleton formation during wing-to-elytron evolution in beetles. **Curr Biol.** 19(24):2057-65. (2009)
16. Lommen, S.T.E.**, Saenko, S.V.**, **Tomoyasu, Y.**, Brakefield P.M. Development of a wingless morph in the ladybird beetle, *Adalia bipunctata.* **Evolution & Development**. 11(3):278-89 (2009)
17. Miller, S.C.**, Brown, S.J., **Tomoyasu, Y*.** Larval RNAi in *Drosophila*? **Development Genes and Evolution**. 218(9):505-10 (2008)
18. Shippy, T.D., **Tomoaysu, Y.,** Nie, W.**, Brown, S.J., Denell, R.E. Do *teashirt* family genes specify trunk identity?: Insights from the single *tiptop*/*teashirt* homolog of *Tribolium castaneum.* **Development Genes and Evolution**. 218 (3-4), 141-152 (2008)
19. ***Tribolium* Genome Sequencing Consortium**[b], The first genome sequence of a beetle, *Tribolium castaneum*, a model for insect development and pest biology. **Nature**. 452 (7190), 949-55 (2008) [b]I played a leading role in the RNAi section, and I also was a primary contributor in the developmental biology section.
20. **Tomoyasu Y***., Miller, S.C.**, Tomita, S., Schoppmeier, M., Grossmann, D.**, Bucher, G. Exploring Systemic RNA Interference in Insects: a Genome-Wide Survey for RNAi Genes in *Tribolium*. **Genome Biology**. 17;9(1):R10 (2008)
21. Arakane, Y., Muthukrishnan, S., Kramer, K.J., Specht, C.A., **Tomoyasu, Y.**, Lorenzen, M.D., Kanost. M.R. and Beeman, R.W. The *Tribolium* chitin synthase genes *TcCHS1* and *TcCHS2* are specialized for synthesis of epidermal cuticle and midgut peritrophic matrix, respectively. **Insect Molecular Biology**. 14(5):453-63. (2005)
22. **Tomoyasu Y*.,** Wheeler S.R.**, Denell R.E. *Ultrabithorax* is required for membranous wing identity in the beetle *Tribolium castaneum*. **Nature**. 433(7026):643-7. (2005)
23. **Tomoyasu Y.**, Denell R.E. Larval RNAi in *Tribolium* (Coleoptera) for analyzing adult development. **Development Genes and Evolution**. 214(11):575-8. (2004)
24. **Tomoyasu Y.,** Ueno N., Nakamura M.. The decapentaplegic morphogen gradient regulates the notal *wingless* expression through induction of *pannier* and *u-shaped* in *Drosophila*. **Mechanisms of Development.** 96(1):37-49. (2000)
25. Hamada F., Murata Y., Nishida A., Fujita F., **Tomoyasu Y.**, Nakamura M., Toyoshima K., Tabata T., Ueno N., Akiyama T. Identification and characterization of *E-APC*, a novel *Drosophila* homologue of the tumour suppressor APC. **Genes to Cells**. 4(8):465-74. (1999)
26. Adachi-Yamada T., Nakamura M., Irie K., **Tomoyasu Y.**, Sano Y., Mori E., Goto S., Ueno N., Nishida Y., Matsumoto K. p38 mitogen-activated protein kinase can be involved in transforming growth factor

beta superfamily signal transduction in *Drosophila* wing morphogenesis. **Molecular and Cellular Biology**. 19(3):2322-9. (1999)

27. Hamada F., **Tomoyasu Y**., Takatsu Y., Nakamura M., Nagai S., Suzuki A., Fujita F., Shibuya H., Toyoshima K., Ueno N., Akiyama T. Negative regulation of Wingless signaling by D-axin, a *Drosophila* homolog of axin. **Science**. 283(5408):1739-42. (1999)
28. **Tomoyasu Y.,** Nakamura M., Ueno N. Role of dpp signalling in prepattern formation of the dorsocentral mechanosensory organ in *Drosophila melanogaster*. **Development**. 125(21):4215-24. (1998)

Book Chapters and Other Publications

1. **Tomoyasu Y***., and Haruhiko Fujiwara*. Editorial Overview: Development and regulation: The diverse traits that have facilitated the successful radiation of insects. Current Opinion in Insect Science. 19 (2017)
2. Philip B.N., and **Tomoyasu Y.** * Gene knockdown analysis by double-stranded RNA injection. Chapter in Molecular Methods for Evolutionary Genetics. Methods in Molecular Biology Series. Humana Press. (2011)
3. Shippy T.D., Coleman C.M, **Tomoyasu Y**. and Brown S.J., Concurrent *in situ* hybridization and antibody staining in red flour beetle (*Tribolium*) embryos. **Cold Spring Harb Protoc.** 2009(8):pdb.prot5257. (2009)
4. **Tomoyasu Y.** "Bunshi-Kontyu-gaku – posutogenomu jidai no kontyu-gaku" (translation: Molecular insect biology –post-genomic insect studies) Kyoritsu Press. (2009)
5. **Tomoyasu Y.** The beetle genome has been sequenced!! **Seibutsu no Kagaku Iden (translation: Life Science & Genetics)** NTS inc. 2-4 Vol 63 No. 1 (2009)
6. **Tomoyasu Y.** Fly forewing and hindwing, Beetle forewing and hindwing (Hae no Maebane Ushirobane, Kouchu no Maebane Ushirobane) **Saibou Kougaku (Cell Technology).** 24(7): 710-1 (2005)

Invited Oral Presentations:

1. Lobes or Gills: Exploring the origin of insect wings from an evo-devo perspective. **Indian Society for Developmental Biologist Biennial Meeting 2017**. Pune, India, June 24-27, 2017 (Invited oral speaker)
2. Lobes or Gills: Exploring the origin of insect wings from an evo-devo perspective. **Janelia Workshop "Crustacean Models in Cross-Disciplinary Biological Research"**. HHMI Janelia Research Campus, June 12-14, 2017 (Invited speaker)
3. Lobes or Gills: Exploring the origin of insect wings from an evo-devo perspective. **Hiroshima University**, Hiroshima, Japan, May 16, 2017 (Invited seminar speaker)
4. Lobes or Gills: Exploring the origin of insect wings from an evo-devo perspective. **National Institute for Basic Biology**, Okazaki, Japan, May 15, 2017 (Invited seminar speaker)
5. Enhancer identification and activity evaluation in the red flour beetle, *Tribolium castaneum*. **4th Asia-Pacific *Drosophila* Research Conference**. Osaka, Japan, May 8-11, 2017 (Invited symposium speaker)
6. Exploring the origin of insect wings from an evo-devo perspective. **University of Windsor**, Windsor, Canada, March 22-23, 2017 (Invited seminar speaker)
7. Origin(s) and diversification of insect wings. **West Virginia University**, Morgantown WV October 13-14, 2016 (Invited seminar speaker)

8. Lobes or gills: Exploring the origin of insect wings from an evo-devo perspective. **International Congress of Entomology (ICE) XXV**, Orlando FL, September 25-30, 2016 (Invited symposium speaker)
9. Origin(s) and diversification of insect wings. **iBeetle Symposium**, Kiel, Germany, September 13-14, 2016 (Invited symposium speaker)
10. Identification of a pan-holometabolous insect wing enhancer responsible for nubbin wing expression. ***Tribolium* Meeting** (a satellite meeting of the Euro Evo Devo meeting), Uppsala, Sweden July 25-26, 2016 (Invited Oral Presentation)
11. Wing homologs in crustaceans. **Euro Evo Devo**, Uppsala, Sweden July 26-29, 2016 (Selected oral Presentation)
12. Round Table Discussions on new and developing tools for emerging model systems in Evo-Devo. **Pan-American Society for Evolutionary Developmental Biology**, Inaugural 2015 meeting, Berkeley CA August 5-9, 2015 (Workshop speaker)
13. Enhancer identification via FAIRE in *Tribolium*, International ***Tribolium* Meeting 2015**, Berkeley CA August 5, 2015 (Invited Oral Presentation)
14. Beetling around the bench and blackboard: how to combine research and teaching. **The Ohio Miami Valley Chapter of the Society for Neuroscienc**e, Oxford OH, May 29, 2015 (Invited workshop speaker)
15. A FAIRE way of finding wing enhancers from the beetle genome. **56th Annual Drosophila Research Conference**, Chicago IL, 3/4-3/8, 2015 (Invited workshop speaker)
16. The insect wing: its origin(s), homology, and diversification. **University of Toledo**, Toledo, OH February 6, 2015 (Invited seminar speaker)
17. The insect wing: its origin(s), homology, and diversification. **University of Dayton**, Dayton, OH January 29, 2015 (Invited seminar speaker)
18. The insect wing: its origin(s), homology, and diversification. **Indiana University**, Bloomington, IN November 14, 2014 (Invited seminar speaker)
19. The insect wing: its origin(s), homology, and diversification. **Michigan State University**, East Lansing, MI April 15, 2014 (Invited seminar speaker)
20. Contribution of *abrupt* in the evolution of beetle elytra. **International Congress on Invertebrate Reproduction and Development 2013**, Detroit, MI. July 14-19, 2013 (Invited oral presentation)
21. Shielding up! --Molecular basis of beetle wing evolution. **The Jikei University School of Medicine**, Tokyo, Japan, June 12, 2013 (Invited seminar speaker)
22. Shielding up! --Molecular basis of beetle wing evolution. **National Institute for Basic Biology,** Okazaki, Aichi Japan, June 10, 2013 (Invited seminar speaker)
23. Shielding up! --Molecular basis of beetle wing evolution. **RIKEN Center for Developmental Biology**, Kobe, Hyogo Japan, June 6, 2013 (Invited seminar speaker)
24. Shielding up! --Molecular basis of beetle wing evolution. Department of Biology, **Rivier University**, Nashua, NH. March 22, 2013 (Invited seminar speaker)
25. Diverged developmental mechanisms underlying the conserved insect wing vein patterns. **Euro Evo-Devo**, Lisbon Portugal. July 10–13, 2012 (Invited symposium speaker)
26. Shielding up! --Molecular basis of beetle wing evolution. Department of Biology, **Case Western Reserve University,** Cleveland OH. November 1, 2012 (Invited seminar speaker)
27. Diverged developmental mechanisms underlying the conserved morphological patterns in insect

wings. ***Tribolium*** **Meeting 2011**, Kansas City MO June 8-9, 2011 (Invited symposium speaker)

28. Dissecting systemic RNA interference in the red flour beetle, *Tribolium castaneum*. **Monsanto Company**, St Louis MO. June 29, 2011 (Invited seminar speaker)
29. To beetle or not to beetle – an evo-devo story of how beetles came to be. Fly/Worm group seminar, **Cincinnati Children's Hospital**, Cincinnati OH. November 11, 2010 (Invited seminar speaker)
30. To beetle or not to beetle – an evo-devo story of how beetles came to be. School of Biological Science, **University of Nebraska**, Lincoln, Lincoln NE. September 30, 2010 (Invited seminar speaker)
31. Conserved and divergent wing vein patterning mechanisms in the red flour beetle *Tribolium castaneum.* Workshop at the **51th Annual Drosophila Research Conference***,* Washington, DC, April 7-11, 2010 (Invited symposium speaker)
32. Dissecting systemic RNA interference in the red flour beetle *Tribolium castaneum*: Parameters affecting the efficiency of RNAi. **Entomological Society of America -North Central Branch**, Louisville, KY. March 14-17, 2010 (Invited symposium speaker)
33. To beetle or not to beetle – an evo-devo story of how beetles came to be. Department of Biological Science, **Wayne State University**, Detroit MI. October 20, 2009 (Invited seminar speaker)
34. To beetle or not to beetle – an evo-devo story of how beetles came to be. Department of Biological Science, **University of Cincinnati**, Cincinnati OH. February 2, 2009 (Invited seminar speaker)
35. To beetle or not to beetle – an evo-devo story of how beetles came to be. Department of Biology, **University of Dayton**, Dayton OH. October 30, 2008 (Invited seminar speaker)
36. Exploring Systemic RNA Interference in Insects: a Genome-Wide Survey for RNAi Genes in *Tribolium*. **2nd Annual Arthropod Genomics Symposium**, Kansas City, KS, April 11 - 13, 2008 (Selected oral presentation)
37. Evolution of beetle wings: how did they get so tough? **8th Japanese Drosophila Research Conference**, Awaji, Japan, July 2, 2007 (Invited symposium speaker)
38. Acquisition of a novel vein patterning mechanism during the evolution of the beetle elytron. **3rd International *Tribolium* Meeting**. Prague, Czech, August 16, 2006 (Invited symposium speaker)
39. Evolutionary modification of Hox-free dorsal appendages in a beetle *Tribolium castaneum.* **Euro Evo-Devo**, Prague, Czech, August 16-19, 2006 (Selected oral presentation)
40. Evolutionary modification of Hox-free dorsal appendages in a beetle *Tribolium castaneum.* **47th Annual Drosophila Research Conference**, Houston, USA, March 29-April 2, 2006 (Selected oral presentation)
41. Changes in the developmental system which have contributed to the evolution of beetle wings. **International symposium on "Dynamics of Developmental Systems",** Kazusa Akademia Center, Japan, November 3-6, 2005 (Invited symposium speaker)
42. Changes in the developmental system which have contributed to the evolution of beetle wings. CDB Seminar, **RIKEN Center for Developmental Biology**, Kobe, Japan, October 27, 2005 (Invited seminar speaker)
43. Changes in the developmental system which have contributed to the evolution of beetle wings. **NIG Symposium 2005: New Frontiers in Genetics,** Mishima, Japan, October 18, 2005 (Invited symposium speaker)
44. Fore/hind wing differentiation in the red flour beetle, *Tribolium castaneum*. **The HFSP 15th Anniversary-Fourth Awardees Annual Meeting,** Hakone, Japan, May 15-19, 2004 (Invited symposium speaker)

45. Using RNAi to analyze wing development in *Tribolium*. **A Workshop in 45th Annual Drosophila Research Conference**, Washington, DC, March 24-28, 2004 (Invited symposium speaker)

Other conference presentations (after arriving at Miami):

1. Exploring insect wing origin through cis analysis of *vestigial* in *Drosophila.* Yi-Ting Lai, Kevin D. Deem, and Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) poster presentation at 2nd Meeting for Pan-American Society for Evolutionary Developmental Biology, Calgary, Canada, August 19-23, 2017.
2. Exploring insect wing origin through *cis* analysis of vestigial in the fruit fly, *Drosophila melanogaster*. Yi-Ting Lai and Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) poster presentation at 4th Asia-Pacific *Drosophila* Research Conference, Osaka, Japan, May 8-11, 2017.
3. Finding wings in a non-winged arthropod. Courtney Clark[1], David Linz[1], Xavier Bellés[2], Elke Buschbeck[3], Nipam Patel[4], Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Institut de Biologia Evolutiva, Barcelona, Spain, [3]Department of Biological Sciences, University of Cincinnati, Cincinnati, OH, [4]Department of Integrative Biology, University of California, Berkeley, CA, [5]Department of Molecular and Cell Biology, University of California, Berkeley, CA) poster presentation at Society for Developmental Biology 75th Annual Meeting and International Society of Differentiation 19th International Conference Boston, MA, August 4-8, 2016
4. Identification of a pan-holometabolous insect wing enhancer responsible for nubbin wing expression. Yi-Ting Lai[1], Ferran Borràs-Castells[1], Kushal Suryamohan[2], Marc S. Halfon[2], Daniel J. McKay[3], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford OH, [2]Biochemistry, State University of New York at Buffalo, Buffalo NY, [3]Department of Biology, Department of Genetics, Integrative Program in Biological and Genome Sciences, University of North Carolina at Chapel Hill, Chapel Hill, NC) oral presentation at Midwest Ecology & Evolution 36th Annual Meeting, Oxford, OH, March 19-20 2016
5. Assessing the functional value of elytra under various stresses in the red flour beetle, Tribolium castaneum David Linz[1], Alan Hu[1], Michael Sitvarin, Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford OH, [2]Entomology, University of Kentucky, Lexington KY) oral presentation at Midwest Ecology & Evolution 36th Annual Meeting, Oxford, OH, March 19-20 2016
6. Exploring the Origin of Insect Wings Through Functional Analysis of vestigial in Various Arthropod Species. Courtney Clark-Hachtel[1], David Linz[1], Xavier Bellés[2], Elke Buschbeck[3], Nipam Patel[4,5], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Institut de Biologia Evolutiva, Barcelona, Spain, [3]Department of Biological Sciences, University of Cincinnati, Cincinnati, OH, [4]Department of Integrative Biology, University of California, Berkeley, CA, [5]Department of Molecular and Cell Biology, University of California, Berkeley, CA) oral presentation at Midwest Ecology & Evolution 36th Annual Meeting, Oxford, OH, March 19-20 2016
7. Identification of a pan-holometabolous insect wing enhancer responsible for nubbin wing expression Yi-Ting Lai[1], Ferran Borràs-Castells[1], Kushal Suryamohan[2], Marc S. Halfon[2], Daniel J. McKay[3], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford OH, [2]Biochemistry, State University of New York at Buffalo, Buffalo NY, [3]Department of Biology, Department of Genetics, Integrative Program in Biological and Genome Sciences, University of North Carolina at Chapel Hill, Chapel Hill, NC) poster session at The 53rd Midwest Regional Society of Developmental Biology meeting, Ann Arbor, MI, October 18-20 2015
8. The Role of Knirps Family Genes in Beetle Wing Development. Kathleen Queenan, Courtney Clark-Hatchel, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) poster session at the 53rd Midwest Regional Society of Developmental Biology meeting, Ann Arbor, MI, October 18-20 2015
9. Exploring the origin of insect wings through functional analysis of *vestigial* in various arthropod species. Courtney Clark-Hachtel[1], David Linz[1], Xavier Bellés[2], Elke Buschbeck[3], Nipam Patel[4,5], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Institut de Biologia Evolutiva, Barcelona, Spain, [3]Department of Biological Sciences, University of Cincinnati, Cincinnati, OH,

[4]Department of Integrative Biology, University of California, Berkeley, CA, [5]Department of Molecular and Cell Biology, University of California, Berkeley, CA) Oral presentation at The 53rd Midwest Regional Society of Developmental Biology meeting, Ann Arbor, MI, October 18-20 2015

10. Exploring the molecular basis of insect wing evolution: A transcriptomic approach. David Linz[1], Yuichiro Hara[2], Shigehiro Kuraku[2], Shigeo Hayashi[2], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Riken Center for Developmental Biology, Kobe Japan) Poster session at The Pan-American Society for Evolutionary Developmental Biology Inaugural Meeting, Berkeley, CA August 5-9 2015
11. Exploring the origin of insect wings through functional analysis of *vestigial* in various arthropod species. Courtney Clark-Hachtel[1], David Linz[1], Xavier Bellés[2], Elke Buschbeck[3], Nipam Patel[4,5], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Institut de Biologia Evolutiva, Barcelona, Spain, [3]Department of Biological Sciences, University of Cincinnati, Cincinnati, OH, [4]Department of Integrative Biology, University of California, Berkeley, CA, [5]Department of Molecular and Cell Biology, University of California, Berkeley, CA) Poster session at The Pan-American Society for Evolutionary Developmental Biology Inaugural Meeting, Berkeley, CA. August 5-9 2015
12. Exploring the molecular basis of insect wing evolution: a transcriptomic approach. David Linz, and Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Poster session at the 56th Annual Drosophila Research Conference, Chicago, IL. March 4-8, 2015
13. Exploring the origin of insect wings through functional analysis of vestigial in various insect species. Courtney Clark-Hachtel[1], David Linz[1], Xavier Bellés[2], Elke Buschbeck[3], and Yoshinori Tomoyasu[1] ([1]Biology, Miami University, Oxford, OH, [2]Institut de Biologia Evolutiva, Barcelona, Spain, [3]Department of Biological Sciences, University of Cincinnati, Cincinnati, OH) Poster session at the 56th Annual Drosophila Research Conference, Chicago, IL. March 4-8, 2015
14. Timing and concentration dependent actions of *Ultrabithorax* during wing development in the red flour beetle, *Tribolium castaneum*. Ferran Borras-Castells, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Poster session at Society for Developmental Biology 73rd Annual Meeting, Seattle, WA. July 17-21, 2014
15. Lobes or Gills: Insights into Insect Wing Origin Provided by Functional Analysis of *vestigial* in *Tribolium*. Courtney Clark-Hachtel, David Linz, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Poster session at Society for Developmental Biology 73rd Annual Meeting, Seattle, WA. July 17-21, 2014
16. Exploring the molecular basis of insect wing evolution: a transcriptomic approach. David Linz, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Poster session at Society for Developmental Biology 73rd Annual Meeting, Seattle, WA. July 17-21, 2014
17. Lobes or Gills: Insights into Insect Wing Origin Provided by Functional Analysis of *vestigial* in *Tribolium*. Courtney Clark-Hachtel, David Linz, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Oral presentation at 34th Annual Midwest Ecology and Evolution Conference, Dayton, OH. March 1-2, 2014
18. RNAi screening of developmental toolkit genes: A search for novel wing genes in the red flour beetle *Tribolium castaneum*. David Linz, Yoshinori Tomoyasu (Biology, Miami University, Oxford, OH) Poster session at 34th Annual Midwest Ecology and Evolution Conference, Dayton, OH. March 1-2, 2014
19. *vestigial* ectodermal function is not limited to wing development in *Tribolium*. Courtney Clark, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 53rd Annual Drosophila Research Conference, Chicago, IL. March 7-11, 2012
20. Exploring the molecular basis of insect wing evolution: a comparison of beetle and fly wing development. David Linz, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 53rd Annual Drosophila Research Conference, Chicago, IL. March 7-11, 2012

21. A possible contribution of abrupt in the evolution of beetle elytra. Padmapriyadarshini Ravisankar, Nagraj Sambrani, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 53rd Annual Drosophila Research Conference, Chicago, IL. March 7-11, 2012
22. Diverged developmental mechanisms underlying the conserved morphological structures in insect wings. Tingjia Lao, Matthew Korth, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 53rd Annual Drosophila Research Conference, Chicago, IL. March 7-11, 2012
23. A possible contribution of abrupt in the evolution of beetle elytra. Padmapriyadarshini Ravisankar, Tingjia Lao, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the International *Tribolium* Meeting 2011, Kansas City MO. June 8-9, 2011
24. *vestigial* function is not limited to wing development in *Tribolium*. Courtney M. Clark, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the International *Tribolium* Meeting 2011, Kansas City MO. June 8-9, 2011
25. Morphological homology vs. Developmental homology - a case study using insect wing veins. Tingjia Lao, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 52nd Annual Drosophila Research Conference, San Diego, CA. March 30-April 3, 2011
26. A possible contribution of abrupt in the evolution of beetle elytra. Padmapriyadarshini Ravisankar, Tingjia Lao, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 52nd Annual Drosophila Research Conference, San Diego, CA. March 30-April 3, 2011
27. Geographic variation of cold and desiccation tolerance in the red flour beetle, *Tribolium castaneum*. David M Linz, Benjamin N Philip, Sindhu Samba, Yoshinori Tomoyasu, Richard E Lee, Jr. (Zoology, Miami University, Oxford, OH) Poster session at the 52nd Annual Drosophila Research Conference, San Diego, CA. March 30-April 3, 2011
28. *vestigial* function is not limited to wing development in *Tribolium*. Courtney M. Clark, Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 52nd Annual Drosophila Research Conference, San Diego, CA. March 30-April 3, 2011
29. Conserved and divergent wing vein patterning mechanisms in the red flour beetle *Tribolium castaneum*. Tingjia Lao, Padmapriyadarshini Ravisankar, and Yoshinori Tomoyasu (Zoology, Miami University, Oxford, OH) Poster session at the 51th Annual Drosophila Research Conference, Washington, DC. April 7-11, 2010
30. Multiple co-options of the exoskeleton formation process into the conserved wing gene network during beetle elytral evolution. Yoshinori Tomoyasu[1], Yasuyuki Arakane[2,3], Karl J. Kramer[2,3], Robin E. Denell[4] ([1]Zoology, Miami University, Oxford, OH, [2]Department of Biochemistry, Kansas State University, Manhattan, KS, [3]Grain Marketing and Production Research Center, Agricultural Research Service, Manhattan, KS, [4]Biology, Kansas State University, Manhattan, KS) Evolution –The Molecular Landscape,74th Cold Spring Harbor Symposium on Quantitative Biology, Cold Spring Harbor, NY. May 27 - June 1, 2009
31. Systemic RNAi in insects. Sherry C Miller[1], Susan J Brown[1], Yoshinori Tomoyasu[2] ([1]Biology, Kansas State University, Manhattan, KS, [2]Zoology, Miami University, Oxford, OH) 50th Annual Drosophila Research Conference, Chicago, IL. March 4-8, 2009