

Hua Bai, Ph.D.
Curriculum vitae

I. Professional Information

I.1. Contact Information

Hua Bai, Ph.D.

Assistant Professor
Department of Genetics, Development and Cell Biology
College of Liberal Arts and Sciences, Iowa State University
3260 Molecular Biology Building, Ames, IA 50011
Phone: 515-294-9395; Email: hbai@iastate.edu
Lab website: <http://www.thebailab.com/>

I.2. Education

| | | |
|-----------------|----------------------|-------------------------------------|
| 01/2005-11/2009 | Ph.D. Entomology | University of Kentucky |
| 09/1997-07/2000 | M.S. Aquatic biology | Shanghai Ocean University, China |
| 09/1993-07/1997 | B.S. Biology | East China Normal University, China |

I.3. Employment and Professional Experience

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|-----------------|--|
| 01/2016-present | Assistant Professor, Department of Genetics, Development and Cell Biology, Iowa State University, Ames, IA |
| 07/2014-12/2015 | Investigator, Department of Ecology and Evolutionary Biology, Brown University, Providence, RI |
| 12/2009-06/2014 | Postdoctoral Associate, Department of Ecology and Evolutionary Biology, Brown University, Providence, RI |
| 01/2005-11/2009 | Graduate Research Assistant, Department of Entomology, University of Kentucky, Lexington, KY |
| 01/2004-01/2005 | Graduate Research Assistant, Marine Sciences Program, University of Connecticut, Storrs, CT |

I.4. Honors and Awards

2019 GDCB Early Achievement in Research Award
2016 AFAR Research Grants for Junior Faculty, American Federation for Aging Research
2014 NIH Pathway to Independence Award (K99/R00), National Institute on Aging
2013 Annual NIA Summer Training Fellowship, National Institute on Aging
2013 Future of Science Fund Scholarship, Keystone Symposia
2011 Molecular Biology of Aging Summer Training Fellowship, Marine Biological Laboratory
2011 EMF/AFAR Postdoctoral Fellows in Aging Research, Ellison Medical Foundation
2008 President's Prize, ESA Annual Meeting
2008 Clarke & Knapp Travel Award, University of Kentucky
2008 Dissertation Year Fellowship, University of Kentucky
2007 Publication Scholarship, University of Kentucky
2007 Student Poster Award, National Conference on Agricultural Genomics
2006 Student Poster Award, ESA Annual Meeting

I.5. Professional Societies

Midwest Aging Consortium
American Association for the Advancement of Science
Genetics Society of America
Gerontological Society of America
Entomological Society of America
Ohio Valley Entomological Society

I.6. Memberships at Iowa State University

Nanovaccine Institute
Genetics Major Committee
Interdepartmental Genetics and Genomics Graduate Program
Interdepartmental Molecular, Cellular and Developmental Biology Graduate Program

I.7. Professional Development Activities

2017 Faculty Search Committee Training, ISU LAS
2017 Responsible Conduct of Research (RCR) Bootcamp, ISU Office of the Senior Vice President and Provost
2016 Write Winning Grant Proposals Seminar, GRANT WRITERS' SEMINARS & WORKSHOPS (GWSW)
2016 Broader Impacts Workshop for NSF Grant Application, ISU Office of the Senior Vice President and Provost
2016 Managing Your Award: What to Expect After You Get Your Money, ISU Office of the Senior Vice President and Provost
2016 LAS College Teaching Workshop, ISU LAS
2016 CELT Teaching Symposium (Faculty Cohort), ISU Center for Excellence & Teaching
2016 New Faculty Workshop: Preparing for a Successful P&T Review, ISU Office of the Senior Vice President and Provost

II. Research/Scholarship

II.1. Summary of Research Accomplishments (Since ISU appointment 01/2016):

- Corresponding author on **7** peer-reviewed journal articles (**1** under review).
- Co-author on **4** peer-reviewed journal articles.
- **13** Invited seminar and conference talks (**10** by Dr. Bai) and **30** poster presentations.
- PI on extramural grants totaling **\$2.47 M**.

II.2. Publications:

Google Scholar: https://scholar.google.com/citations?hl=en&user=O_5UaCsAAAAJ

Total published papers: 31 (10 articles since appointment)

Total Citations: 7178

h-index = 17

i10-index = 19

(* denote corresponding author; Bai lab members in **bold**; # denote equal contribution; & denote undergraduate authors)

A). Original research and review articles (Submitted) (Total Papers: 1)

32. **Huang K, Miao T, Chang K, Kang P, Jiang Q&**, Simmonds AJ, Cara, FD, **Bai H***. Impaired peroxisomal import in Drosophila hepatocyte-like cells induces cardiac dysfunction through the pro-inflammatory cytokine Upd3. *Nature Communications* (Minor revision) (**Journal Impact Factor 11.88**).

B). Peer-reviewed original research and review articles (Published after joining ISU in 2016) (Total Papers: 10)

31. **Chang K#, Kang P#, Liu Y, Huang K, Ting M**, Sagona AP, Nezis IP, Bodmer R, Ocorr K, **Bai H***. 2019. TGFB-INHB/activin signaling regulates age-dependent autophagy and cardiac health through inhibition of MTORC2. *Autophagy*. 1-16. PMID: 31884871. (**Journal Impact Factor 11.1**)
Contribution of Bai research group: 98%. Conceived and designed 98% of the experiments, Performed almost all of the experiments and analyzed the data, Wrote the paper.
30. Cao C, Sun L, Du H, Moyal T, **Bai H**, Liu P, Zhu F*. 2019. Physiological functions of a methuselah-like G protein coupled receptor in *Lymantria dispar* Linnaeus. *Pesticide Biochemistry and Physiology*. 160:1-10. PMID: 31519242. (**Journal Impact Factor 1.44**)
Contribution of Bai research group: 5%. Designed the experiments, Wrote the paper.
29. **Birnbaum A**, Wu X, Tatar M, Liu N*, **Bai H***. Age-Dependent Changes in Transcription Factor FOXO Targeting in Female Drosophila. *Frontiers in Genetics, Genetics of Aging*. 10:312. PMID: 31134124. PMCID: PMC6514159. (**Journal Impact Factor 4.151**)
Contribution of Bai research group: 75%. Conceived and designed the experiments, Performed 75% of the experiments and analyzed the data, Wrote the paper.
28. **Bouska M, Huang K, Kang P, Bai H***. 2019. Organelle Aging: Lessons from model organisms. *Journal of Genetics and Genomics*. 46(4):171-185. PMID: 31080045. PMCID: PMC6553499. (Invited review article) (**Journal Impact Factor 4.066**)
Contribution of Bai research group: 100%. Reviewed literature and wrote the paper.
27. Zhang Z, Zhang S, Niu B, Jia D, Liu X, Li M, **Bai H**, Palli SR, Wang C, Tan A*. 2019. A determining factor for insect feeding preference in the silkworm *Bombyx mori*. *PLOS Biology*. 17(2):e3000162. PMID: 30811402. PMCID: PMC6411195. (**Journal Impact Factor 9.163**)
Contribution of Bai research group: 5%. Data interpretation, Generated model, Edited and revised the paper, Responded to reviewer's comments..
26. **Huang K***, Chen W, Zhu F, Li P, Kapahi P, **Bai H***. 2019. RiboTag translomic profiling of *Drosophila* oenocytes under aging and induced oxidative stress. *BMC Genomics*. 20(1):50. PMID: 30651069. PMCID: PMC6335716. (**Journal Impact Factor 3.729**)
Contribution of Bai research group: 99%. Conceived and designed 99% of the experiments, Performed all of the experiments and analyzed the data, Wrote the paper.

25. **Kang P, Chang K, Liu Y, Bouska M, Birnbaum A**, Karashchuk G, Thakore R&, Zheng W, Post S, Brent C, Li S, Tatar M*, **Bai H***. 2017. Drosophila Kruppel homolog 1 represses lipolysis through interaction with dFOXO. *Scientific Reports*. PMID:29180716. PMCID:PMC5703730. DOI:10.1038/s41598-017-16638-1. **(Journal Impact Factor 4.259)**
Contribution of Bai research group: 90%. Conceived and designed most of the experiments, Performed most of the experiments and analyzed the data, Wrote the paper.
24. Zeng B, Huang Y, Xu J, Shiotsuki T, **Bai H**, Palli SR, Huang Y, Tan A. 2017. The FOXO transcription factor controls insect growth and development by regulating juvenile hormone degradation in the silkworm, *Bombyx mori*. *Journal Biological Chemistry*. pii: jbc.M117.777797. doi: 10.1074/jbc.M117.777797. **(Journal Impact Factor 2.582)**
Contribution of Bai research group: 5%. Designed experiments, Edited and revised the paper, Responded to reviewer's comments.
23. **Bai H***, Palli SR*. 2016. Identification of G protein-coupled receptors required for vitellogenin uptake into the oocytes of the red flour beetle, *Tribolium castaneum*. *Scientific Reports*. 6:27648. doi: 10.1038/srep27648. PMCID: PMC489975.7. **(Journal Impact Factor 5.578)**
Contribution of Bai research group: 90%. Conceived and designed the experiments, Performed most of the experiments and analyzed the data, Wrote the paper.
22. Klionsky DJ, ..., **Bai H**, et al. 2016. Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*.12(1):1-222. PMCID: PMC4835977. (Review article). **(Journal Impact Factor 11.753)**
Contribution of Bai research group: <1%. Review of Drosophila autophagy methodology.

C). Peer-reviewed original research articles (Published before 2016) (Total Papers: 21)

21. **Bai H**, Post S, Kang P, Tatar M*. 2015. Drosophila longevity assurance conferred by reduced insulin receptor substrate chico requires 4E-BP. *PLoS One*. 10(8):e0134415. PMCID: PMC4529185. **(Journal Impact Factor 3.057)**
20. Huang CW, Wang HD, **Bai H**, Wu MS, Yen JH, Tatar M, Fu TF, Wang PY*. 2015. Tequila regulates insulin-like signaling and extends life span in *Drosophila melanogaster*. *Journal of Gerontology: Biological Sciences*. 70(12):1461-9. PMCID: PMC4675830. **(Journal Impact Factor 5.476)**
19. **Bai H**, Kang P, Hernandez AM, Tatar M*. 2013. Activin signaling targeted by insulin/dFOXO regulates aging and muscle proteostasis in *Drosophila*. *PLoS Genetics*. 9(11): e1003941. PMCID: PMC3820802. **(Journal Impact Factor 7.528)**
(Highlighted in Faculty of 1000, Brown News and ScienceDaily)
18. Yamamoto R, **Bai H**, Dolezal AG, Amdam G, Tatar M*. 2013. Juvenile hormone regulation of *Drosophila* aging. *BMC Biology*. 11:85. PMCID: PMC3726347. **(Journal Impact Factor 7.43)**
17. **Bai H**, Kang P, Tatar M*. 2012. *Drosophila* insulin-like peptide-6 (dilp6) expression from fat body extends lifespan and represses secretion of *Drosophila* insulin-like peptide-2 from the brain. *Aging Cell*. 11(6):978-85. PMCID: PMC3500397. **(Journal Impact Factor 7.627)**
(Highlighted in Faculty of 1000)

16. Hong S-H, Lee K-H, Kwak S-H, Kim A-K, **Bai H**, Jung M-S, Kwon O-Y, Song W-J, Tatar M, Yu K*. 2012. Minibrain/Dyrk1a regulates food intake through the Sir2-FOXO-sNPF/NPY pathway in *Drosophila* and mammals. *PLoS Genetics*. 8(8): e1002857. PMID: PMC3410862. **(Journal Impact Factor 7.528)**
15. Sheng Z, Xu J, **Bai H**, Zhu F, Palli SR*. 2011. Juvenile hormone regulates vitellogenin gene expression through insulin-like peptide signaling pathway in the red flour beetle, *Tribolium castaneum*. *Journal of Biological Chemistry*. 286(49):41924-36. PMID: PMC3234905. **(Journal Impact Factor 4.573)**
14. **Bai H**, Zhu F, Shah K, Palli SR*. 2011. Large-scale RNAi screen of G protein-coupled receptors involved in larval growth, molting and metamorphosis in the red flour beetle. *BMC Genomics*, 12(1):388. PMID: PMC3163568. **(Journal Impact Factor 3.986)**
13. **Bai H**, Gelman D. B, Palli SR*. 2010. Mode of action of methoprene in affecting female reproduction in the African malaria mosquito, *Anopheles gambiae*. *Pest Management Science*, 66(9):936-43. PMID: PMC2928151. **(Journal Impact Factor 2.811)**
12. **Bai H**, Palli SR*. 2010. Functional characterization of bursicon receptor and genome-wide analysis for identification of genes affected by bursicon receptor RNAi. *Developmental Biology*, 344(1):248-58. PMID: PMC2909337. **(Journal Impact Factor 3.547)**
11. Zhu F, Parthasarathy R, **Bai H**, Woitheb K, Kausmann M, Nauen R, Harrison DA, Palli SR*. 2010. A brain-specific cytochrome P450 responsible for the majority of deltamethrin resistance in the QTC279 strain of *Tribolium castaneum*. *The Proceedings of the National Academy of Sciences of the U.S.A.*, 107(19):8557-62. PMID: PMC2889294. **(Journal Impact Factor 9.423)**
10. Parthasarathy R, Sun Z, **Bai H**, Palli SR*. 2010. Juvenile hormone regulation of vitellogenin synthesis in the red flour beetle, *Tribolium castaneum*. *Insect Biochemistry and Molecular Biology*, 40(5):405-14. PMID: PMC2875371. **(Journal Impact Factor 3.42)**
9. Lu J, Chang G, Wu X, **Bai H**, Zhao W, Cheng Y*. 2009. The mandibular organ in crustacean and a radiochemical assay for methyl farnesoate. *Fisheries Science*, 28(2):113-116. **(Journal Impact Factor N/A)**
8. Parthasarathy R, Tan A, **Bai H**, Palli SR*. 2008. Transcription factor broad suppresses precocious development of adult structures during larval-pupal metamorphosis in the red flour beetle, *Tribolium castaneum*. *Mechanisms of Development*, 125(3-4):299-313. PMID: PMC3556786. **(Journal Impact Factor 2.383)**
7. **Bai H**, Parthasarathy R, Palli SR*. 2007. Identification and characterization of juvenile hormone esterase gene from the yellow fever mosquito, *Aedes aegypti*. *Insect Biochemistry and Molecular Biology*, 37(8):829-37. PMID: PMC2020842. **(Journal Impact Factor 3.42)**
6. Wu Y, Parthasarathy R, **Bai H**, Palli SR*. 2006. Mechanisms of midgut remodeling: Juvenile hormone analog methoprene blocks midgut metamorphosis by modulating ecdysone action. *Mechanisms of Development*, 123(7):530-547. PMID: 16829058. **(Journal Impact Factor 2.383)**

5. Lu J, **Bai H**, Cheng Y, Zhao W*. 2006. *In vitro* regulation of hormone biosynthesis of the mandibular organ in crayfish, *Procambarus clarkia*. *Journal of Fisheries of China*. Vol.13, No.3, 471-474. **(Journal Impact Factor N/A)**
4. Zhao W*, **Bai H**, Lu J. 2002. The regulation of methyl farnesoate biosynthesis in *Procambarus clarkii*. *Journal of Fisheries of China*. Vol.26, Suppl. 1-6. **(Journal Impact Factor N/A)**
3. Yuan C*, **Bai H**, Yang F. 2002. Effects of the Chinese herb, *Radix polygoni multiflori* on MPTP-induced mouse model of Parkinson's disease. *Journal of East China Normal University (Natural Science)*. No.3, 95-98. **(Journal Impact Factor N/A)**
2. Zhao W*, **Bai H**. 2001. The biosynthesis of methyl farnesoate by the mandibular organ in crayfish, *Procambarus clarkii*. *Journal of Fisheries of China*. Vol.25, No.3, 193-196. **(Journal Impact Factor N/A)**
1. Zhao W*, **Bai H**, Ma X. 1999. Changes in progesterone contents of the ovary and mandibular organ in crayfish during vitellogenesis. *Journal of Shanghai Fisheries University*. Vol.8, No.3, 232-236. **(Journal Impact Factor N/A)**

D). Book Chapters (Total Chapter: 4)

- **Bai H**, 2012. Genome-Wide RNAi Screen for the Discovery of Gene Function, Novel Therapeutical Targets and Agricultural Applications. In: *Functional genomics*. Meroni G. and Petretera F. (ed). *InTech*. DOI: 10.5772/49945
- **Bai H**, Palli SR. 2012. G protein-coupled receptors as target sites for insecticide discovery. In: *Advanced Technologies for Controlling Insect Pests*. Ishaaya I, Palli S.R, Horowitz A.R. (ed). *Springer Science*.
- Palli SR, **Bai H**, Wigginton J. 2011. Insect genomics and beyond. In: *Insect Biochemistry and Molecular Biology*. Gilbert L. (ed). *Springer Science*.
- Garry NH, Hill RJ, Dedos SG, Swevers L, Latrou K, Tan A, Parthasarathy R, **Bai H**, Zhang Z, Palli SR. 2009. Applications of RNA interference in ecdysone research. In: *Ecdysone, structures and functions*. G. Smaghe (ed). *Springer Science*, 205-227.

E). PhD. Thesis

- **Bai H**, 2009. Functional Genomics Approaches to Study Hormone Action in Mosquitoes and Beetles. University of Kentucky.

II.3. Recognition of Published Work

- Kai et al. 2019 *Autophagy* was highlighted by The Ames Tribune (<https://www.amestrib.com/news/20200111/fly-hearts-could-hold-secrets-to-human-heart-aging>).
- Kai et al. 2019 *Autophagy* was highlighted by ISU News (<https://www.news.iastate.edu/news/2020/01/07/cardiaccmuscleflies>).

- Bai et al. (2013) was highlighted and recommended by Faculty of 1000 Biology (<https://f1000.com/prime/718178429#>).
- Bai et al. (2013) was featured in *Brown News* (<https://news.brown.edu/articles/2013/11/aging>) and *ScienceDaily* (<https://www.sciencedaily.com/releases/2013/11/131114142140.htm>).
- Bai et al. (2012) was highlighted and recommended by Faculty of 1000 Biology (<https://f1000.com/prime/717978509#>).

II.4. Advertisements and Popular Press

- Bai laboratory was featured in Fall 2016 College of Liberal Arts and Sciences Alumni Magazine *Link*, “Prolonging our healthspan” (<https://link.las.iastate.edu/2016/11/28/prolonging-our-healthspan/>).
- Dr. Bai was featured in Feb 2016 *Iowa State Daily*, “ISU professor studies how animals age” (http://www.iowastatedaily.com/news/article_7b47c28c-dc0c-11e5-9aa3-cb70b5e13241.html).
- Dr. Bai was featured in Feb 2016 College of Liberal Arts and Sciences News, “New GDCB faculty member Hua Bai studies how animals age” (<https://archive.las.iastate.edu/2016/02/10/new-gdcb-faculty-member-hua-bai-studies-how-animals-age/>).

II.5. Presentations (Since 01/2016):

- **22 Invited talks (12 by Dr. Bai) and 30 poster presentations since appointment.** (Presenters are underlined; & denote undergraduate presenters, % denote high school student presenters).

A). Invited Research Seminars and Conference Presentations by Dr. Bai (Total = 12)

- 2020 *Invited Speaker*. Peroxisome-Mediated Inter-Tissue Communication during *Drosophila* Aging. Keystone Symposia on Intra- and Intercellular Mechanisms of Aging. Vancouver, British Columbia, Canada.
- 2019 *Invited Speaker*. The 1st Midwest Aging Consortium (MAC) Symposium, University of Minnesota., Minneapolis, MN, USA. “Peroxisome-mediated inter-tissue communication during *Drosophila* aging”.
- 2019 *Invited Short Talk*. Peroxisome-mediated inter-organ communication via inflammatory cytokine Upd3 in *Drosophila*. 4th International Insect Hormone Workshop, Kolymbari, Crete, Greece.
- 2019 *Departmental seminar*. Department of Physiology, Wayne State University, Detroit, MI, USA. “Autonomous and non-autonomous regulation of cardiac aging”.
- 2019 *Departmental seminar*. Department of Physiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA. “Autonomous and non-autonomous regulation of cardiac aging”.
- 2019 *Departmental seminar*. Department of Biochemistry, University of Iowa, Iowa City, IA, USA. “Autonomous and non-autonomous regulation of cardiac aging”.
- 2019 *Invited Speaker*. GDCB Research Day, Iowa State University. “Peroxisome-mediated inter-tissue communication during *Drosophila* aging”.
- 2018 *Invited Short Talk*. Activin signaling regulates autophagy and cardiac aging through mTOR complex 2. Cold Spring Harbor conference-Mechanisms of Aging, Cold Spring Harbor, NY, USA.

- 2018 *Departmental seminar*. Roy J. Carver Department of Biochemistry, Biophysics and molecular biology, Iowa State University. "Mechanisms of Cardiac Aging: A Tale of Two mTOR Complexes".
- 2017 *Invited Speaker*. Biological Sciences Club Presentation, Iowa State University. "Cellular and Molecular Mechanisms of Cardiac Aging in Drosophila".
- 2017 *Departmental seminar*. Biomedical Sciences, College of Veterinary Medicine, Iowa State University. "Autonomous and Non-Autonomous Regulation of Cardiac Aging".
- 2016 *Departmental seminar*. Washington State University Entomology Colloquium, Pullman, WA, USA. "Transcriptional co-regulation of lipid metabolism by juvenile hormone and insulin signaling in Drosophila".

B). International and National Oral Presentations by group members (Total = 3)

- 2019 Miao T, Bai H. Protein acetylation as a metabolic switch for de novo lipogenesis in Drosophila development. 2019 Midwest Drosophila Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Kang P, Shimell M, O'Connor M, Bai H. PTH regulates lifespan and tissue aging through innate immunity pathway in Drosophila. 4th International Insect Hormone Workshop Kolymbari, Crete, Greece.
- 2019 Huang K, Bai H. Peroxisome-mediated inter-organ communication during cardiac aging. 60th Annual Drosophila Research Conference, Dallas, TX, USA.

C). Local Oral Presentations by group members (Total = 7)

- 2019 Rachel Mehmert&, Bai H. Autophagy Importance in Podocyte Homeostasis in Drosophila. ISU Symposium on Undergraduate Research and Creative Expressions. Ames, IA, USA.
- 2019 Miao T, Bai H. Regulation of lipogenesis by Kr-h1-mediated acetylation of fatty acid synthase during Drosophila development. 2nd ISU Symposium for Cellular Organelles. Ames, IA, USA.
- 2019 Huang K, Bai H. Peroxisome-mediated inter-tissue communication during Drosophila aging. 2nd ISU Symposium for Cellular Organelles. Ames, IA, USA.
- 2018 Chang K, Bai H. Activin Signaling Regulates Autophagy and Cardiac Aging through mTORC2. 1st ISU Symposium for Cellular Organelles. Ames, IA, USA.
- 2018 Huang K, Bai H. Mechanism of inter-talk between liver and heart during aging: A link between peroxisome and upd3 cytokine. 1st ISU Symposium for Cellular Organelles. Ames, IA, USA.
- 2017 Birnbaum A, Bai H. The role of the dFOXO interactome in cellular homeostasis and organismal aging in Drosophila melanogaster. 129th Iowa Academy of Science (IAS) Annual Meeting. Cedar Falls, IA, USA.
- 2017 Weeger A, Bai H. Discovering new genetic variation influencing autophagy pathway response in the fruit fly, Drosophila melanogaster. 129th Iowa Academy of Science (IAS) Annual Meeting. Cedar Falls, IA, USA.

D). Poster Presentations at Local and National Conferences (Total Presentations: 30)

- 2020 Mehmert R&, Bai H. Autophagy Importance in Podocyte Homeostasis Using Drosophila as the Model Organism. NCUR - the National Conferences on Undergraduate Research. Bozeman, Montana, USA. **(Chosen from more than 4,000 submissions)**

- 2020 Birnbaum A, Bai H. Transcription factor FOXO regulates late endosome activity in the adult *Drosophila* neuromuscular junction. The Allied Genetics Conference. Washington, DC, USA.
- 2020 Chang K, Bai H. The role of TGF-Beta/activin and mTORC2 signaling in cardiac homeostasis. The Allied Genetics Conference. Washington, DC, USA.
- 2020 Bouska M, Bai H. Long non-coding RNA regulation of spermatogenesis via endo/lysosome activity and cytoskeletal elements in *Drosophila*. The Allied Genetics Conference. Washington, DC, USA.
- 2020 Huang K, Bai H. Transcriptome profiling of peroxisomal protein translocation stress. The Allied Genetics Conference. Washington, DC, USA.
- 2020 Miao T, Bai H. Protein acetylation as a metabolic switch for de novo lipogenesis in *Drosophila* development. The Allied Genetics Conference. Washington, DC, USA.
- 2019 Kerui Huang, Hua Bai. Impaired peroxisomal import in *Drosophila* hepatocyte-like cells induces cardiac dysfunction through the pro-inflammatory cytokine Upd3. 1st Midwest Aging Consortium (MAC) Symposium, University of Minnesota., Minneapolis, MN, USA.
- 2019 Kai Chang, Hua Bai. The role of TGF-Beta/activin and mTORC2 signaling in cardiac homeostasis. 1st Midwest Aging Consortium (MAC) Symposium, University of Minnesota., Minneapolis, MN, USA.
- 2019 Allison Birnbaum, Hua Bai. Transcription factor FOXO in maintaining homeostasis at the *Drosophila* neuromuscular junction. 1st Midwest Aging Consortium (MAC) Symposium, University of Minnesota., Minneapolis, MN, USA.
- 2019 Mark Bouska, Hua Bai. Long non-coding RNA regulation of endo/lysosome activity and spermatogenesis via cytoskeletal elements in *Drosophila*. 1st Midwest Aging Consortium (MAC) Symposium, University of Minnesota., Minneapolis, MN, USA.
- 2019 Kerui Huang, Ting Miao, Kai Chang, Jinoh Kim, Ping Kang, Qiuhan Jiang, Andrew J. Simmonds, Francesca Di Cara, Hua Bai. Impaired peroxisomal import in *Drosophila* hepatocyte-like cells induces cardiac dysfunction through the pro-inflammatory cytokine Upd3. 2019 Midwest *Drosophila* Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Kai Chang, Hua Bai. The role of TGF-Beta/activin and mTORC2 signaling in cardiac homeostasis. 2019 Midwest *Drosophila* Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Allison Birnbaum, Hua Bai. Transcription factor FOXO in maintaining homeostasis at the *Drosophila* neuromuscular junction. 2019 Midwest *Drosophila* Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Mark Bouska, Hua Bai. Long non-coding RNA regulation of endo/lysosome activity and spermatogenesis via cytoskeletal elements in *Drosophila*. 2019 Midwest *Drosophila* Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Ping Kang, MaryJane Shimell O'Connor, Michael B. O'Connor , Hua Bai. PTH regulates lifespan and tissue aging through innate immunity pathway in *Drosophila*. 2019 Midwest *Drosophila* Conference. Allerton Park & Retreat Center, Monticello, IL, USA.
- 2019 Huang K, Jiang Q&, Bai H. Peroxisome-mediated inter-organ communication via inflammatory cytokine Upd3 in *Drosophila*. Biology of Aging, Gordon Research Conference. Newry, ME, USA.
- 2019 Miao T, Bai H. Regulation of lipogenesis by Kr-h1-mediated acetylation of fatty acid synthase during *Drosophila* larval development. 60th Annual *Drosophila* Research Conference, Dallas, TX, USA.
- 2019 Kai C, Bai H. The role of mTORC2 in mitochondrial dynamics. 2019 Keystone Symposia: Mitochondria in Aging and Age-Related Disease, Keystone, CO, USA.

- 2018 Birnbaum A, Arndt K&, Bai H. Identification of novel FOXO-binding partners regulating oxidative stress response in Drosophila melanogaster. 59th Annual Drosophila Research Conference, Philadelphia, PA, USA.
- 2018 Ping K, Bai H. Genome-wide association analysis reveals novel regulators of basal autophagy in Drosophila. 59th Annual Drosophila Research Conference, Philadelphia, PA, USA.
- 2018 Huang K, Bai H. RiboTag Profiling of aging and oxidative stress responses in adult hepatocyte-like cells. 59th Annual Drosophila Research Conference, Philadelphia, PA, USA.
- 2018 Bouska M, Kang P, Bai H. Long non-coding RNA regulation of Autophagy in Drosophila. 59th Annual Drosophila Research Conference, Philadelphia, PA, USA.
- 2017 Huang K, Bai H. Ligand-specific regulation of TGF-beta mediated muscle aging and longevity. THE 30TH ANNUAL AFAR GRANTEE CONFERENCE. Santa Barbara, CA, USA.
- 2017 Liu Y, Kang P, Bai H. Genome-Wide Analysis to reveal Novel Regulators of germline stem cell self-renewal and differentiation in Drosophila testis. 129th Iowa Academy of Science (IAS) Annual Meeting. Cedar Falls, IA, USA.
- 2016 Chang K, Kang P, Bodmer R, Ocorr K, Bai H. The Role of TGF-beta-Activin Signaling in Drosophila Cardiac Aging. Cold Spring Harbor Laboratory conference, Mechanisms of Aging, CSHL, NY, USA.
- 2016 Birnbaum A, Bai H. Kruppel homolog 1 represses dFOXO transcriptional activity and lipolysis. The Allied Genetics Conference. Orlando, FL, USA.
- 2016 Chang K, Bai H. Transcriptional co-regulation of lipid metabolism by Drosophila dFOXO and Kruppel homolog 1. The Allied Genetics Conference. Orlando, FL, USA.
- 2016 Kang P, Bodmer R, Ocorr K, Bai H. The Role of Activin Signaling in Drosophila Cardiac Aging. The Allied Genetics Conference. Orlando, FL, USA.
- 2016 Real J&, Bai H. Lipid metabolism in Drosophila oenocytes. HHMI Summer Intern Presentation. Iowa State University. Ames, IA, USA.
- 2016 Mohamed F%, Bai H. Genome-Wide Analysis on developmental timing in Drosophila. George Washington Carver Summer Intern Presentation. Iowa State University. Ames, IA, USA.

II.6. Current and Completed Funding

| Funding (Since 2016) | Number | Amount Awarded | PI | Co-PI |
|-----------------------------|---------------|-----------------------|--------------------|-----------------|
| Current Grants | 2 | \$2,227,249 | \$2,227,249 | / |
| Completed Grants | 2 | \$149,817 | \$149,817 | / |
| Mentored Fellowships | 3 | \$89,704 | / | \$89,704 |
| Total | 7 | \$2,466,770 | \$2,377,066 | \$89,704 |

A). Current

NIH/NIA R01 (R01AG058741-01A1) - Resubmission

Agency: National Institute of Health (NIH)
 Project Title: Autonomous and Non-Autonomous Regulation of Cardiac Aging
 Project period: 01/15/2019-11/30/2023
 Total Funds: \$1,505,149
 Role: PI

B). Completed

NIH/NIA R00 Pathway to Independence Award (R00AG048016)

Agency: National Institute of Health (NIH)
Project Title: Activin-Mediated Autophagy During Cardiac Aging
Total Funds: \$722,100
Project period: 02/01/2016-01/31/2020 (1 year of no cost extension)
Role: PI 100% contribution

AFAR Research Grants for Junior Faculty

Agency: American Federation for Aging Research (AFAR)
Project Title: Ligand-specific regulation of TGF-beta mediated muscle aging and longevity
Project period: 07/01/2016-06/30/2018
Total Funds: \$100,000
Role: PI 100% contribution

NIH/NIA K99 Pathway to Independence Award (1K99AG048016-02)

Agency: National Institute of Health (NIH)
Project Title: Activin-Mediated Autophagy During Cardiac Aging
Project period: 7/25/2016-1/31/2017
Total Funds: \$49,817.04
Role: PI 100% contribution

NIH/NIA K99 Pathway to Independence Award (1K99AG048016)

Agency: National Institute of Health (NIH)
Project Title: Activin-Mediated Autophagy During Cardiac Aging
Project period: 09/2014-12/2015
Total Funds: \$175,282
Role: PI 100% contribution

Ellison Medical Foundation/AFAR Postdoctoral Fellowship

Agency: Ellison Medical Foundation/AFAR
Project Title: Identification of dFOXO direct targets regulating lifespan in Drosophila melanogaster
Project period: 07/2011-06/2012
Total Funds: \$47,210
Role: PI 100% contribution

C). Mentored Student and Postdoctoral Fellowships (Funded)

AHA Predoctoral Fellowship (20PRE35200081)

Agency: American Heart Association (AHA)
Project Title: The non-autonomous role of hepatic peroxisomal import in cardiac aging
Project period: 01/01/2020-12/31/2020
Total Funds: \$ 31,016
Role: Mentor. **PI: Kerui Huang (Graduate student in Bai lab)**

AHA Predoctoral Fellowship (19PRE34380269) - Resubmission

Agency: American Heart Association (AHA)
Project Title: The roles of TGF-b/Activin and mTORC2 signaling in Cardiac Aging
Project period: 01/01/2019-12/31/2020

Total Funds: \$ 53,688

Role: Mentor. **PI: Kai Chang (Graduate student in Bai lab)**

Glenn/AFAR Scholarship for Research on the Biology of Aging

Agency: American Federation for Aging Research (AFAR)

Project Title: Functional and transcriptional analysis of activin-mediated autophagy in liver aging

Project period: 05/01/2017-10/31/2017

Total Funds: \$5,000

Role: Mentor. **PI: Kerui Huang (Graduate student in Bai lab)**

IV. Services

IV.1. Institutional Services

- 2020 Admission Committee for Interdepartmental MCDB graduate program
- 2019 College of Agriculture & Life Sciences Family Weekend Reception
- 2019 Undergraduate Genetics Major Committee
- 2018 GDCB Plant Genome Engineering Faculty Search Committee
- 2017 GDCB Cellular/Developmental Biology Faculty Search Committee. Two Assistant Professor positions (160 applications, 24 virtual interviews, 8 on-site interviews)
- 2017 Campus interview with IGG and MCDB graduate student candidates
- 2016-2020 GDCB Seminar Committee. Host 10 GDCB seminar speakers
- 2016 Judge of poster section in Neuroscience Research Day
- 2016 Campus and phone interview with IGG graduate student candidates
- 2016 Instructor for IGG Graduate Program Lab Boot camp
- 2016-2017 Admission Committee for Interdepartmental Genetic & Genomic graduate program

IV.2. Professional Service

A). Editorial role for Scientific Journals

- 2019 Guest editor for PLoS Genetics. Total: Once.

B). Manuscript Reviewer for Scientific Journals (Since 01/2016, 47 manuscripts, 16 journals)

- 2019 Autophagy, PLoS Genetics, PLoS One, Aging Cell, Aging, Biogerontology, Frontiers in Cell and Developmental Biology, Insect Biochemistry and Molecular Biology, SCIENCE CHINA Life Sciences. Total: 27 times.
- 2018 Nature Communications, Aging Cell, Developmental Biology, Journal of Gerontology: Biological Sciences, PLoS Genetics. Total: 7 times.
- 2017 Nature Communications, PLoS Genetics, PLoS One, DNA and Cell Biology, Journal of Gerontology: Biological Sciences, Aging Cell, Journal of Visualized Experiments. Total: 14 times.
- 2016 Aging Cell, Gene, International Journal of Biological Sciences, Scientific Reports. Total: 7 times.

Before 2016

Cell Report; Aging Cell; PLoS Genetics; PLoS One; Cell Cycle; BMC Genomics; Insect biochemistry and molecular biology; Journal of Insect Physiology; Journal of

Insect Science; Archives of Insect Biochemistry and Physiology; Pest Management Science; Pesticide Biochemistry and Physiology; Journal of Applied Entomology; Journal of Economic Entomology; Journal of Medical Entomology; Environmental Entomology; Annals of the Entomological Society of America; The Canadian Entomologist

C). Grant Review

- 10/2019 American Heart Association (AHA) Postdoctoral and Predoctoral Fellowship reviewer – Lipids Fellowship Peer Review Committee (8 proposals).
- 10/2018 National Institutes of Health (NIH) Study Section Reviewer-Cellular Mechanisms in Aging and Development (CMAD) (3 proposals).
- 11/2017 National Institutes of Health (NIH) R01 Cardiac Rehabilitation *Ad hoc* Reviewer (8 proposals)
- 11/2016 University of Michigan, Michigan Diabetes Research Center Pilot/Feasibility Grant Application (One proposal).
- 11/2016 University of Alabama at Birmingham, Pilot/Feasibility applications to UAB Nathan Shock Center (3 proposals).
- 04/2016 National Science Foundation Panelist, Directorate for Biological Sciences, Division of Integrative Organismal Systems, Physiological and Structural Systems Cluster, Physiological Mechanisms and Biomechanics Program, Animal -1 Panel (17 preliminary proposals).
- 01/2016 University of Alabama at Birmingham, Pilot/Feasibility applications to UAB Nathan Shock Center (3 proposals).

Before 2016

- 03/2013 National Science Foundation, International Science & Engineering proposal
- 08/2012 National Science Foundation, BIO/IOS-PSS proposal

C). Meeting organizer

- 02/2020 Session Chair, Keystone Symposia on Intra- and Intercellular Mechanisms of Aging, Vancouver, BC, Canada
- 05/2019 Founding member and institutional representatives of the Midwest Aging Consortium (MAC).
- 04/2017 Ecdysone Workshop at the 58th Annual Drosophila Research Conference. (Invited as a session chair and speaker; Declined due to schedule conflicts)