

Hua Bai, Ph.D.
Curriculum vitae

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I. Professional Information

I.1. Contact Information

Hua Bai, Ph.D.

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College of Liberal Arts and Sciences, Iowa State University
3260 Molecular Biology Building, Ames, IA 50011
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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

07/2022-present	Associate Professor, Department of Genetics, Development and Cell Biology, Iowa State University, Ames, IA
01/2016-06/2022	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

2022 Dean's Emerging Faculty Leaders Award, Iowa State University
2021 NSF CAREER Award, National Science Foundation
2021 College Award for Early Achievement in Research, LAS, Iowa State University
2019 Department Early Achievement in Research Award, GDCB, Iowa State University
2016 American Federation for Aging Research (AFAR) Young Investigator Award (Research Grants for Junior Faculty)
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, Entomology Society of America (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, Entomology Society of America (ESA) Annual Meeting

I.5. Professional Memberships and Service

- Chair of GDCB department Graduate Affairs Committee
- Scientific committee member, National Scientific Advisory Council (NSAC) at American Federation for Aging Research
- Founding member and institutional representative, Midwest Aging Consortium
- Member, American Association for the Advancement of Science
- Member, Genetics Society of America
- Member, American Aging Association
- Member, Gerontological Society of America
- Member, Entomological Society of America
- Member, Ohio Valley Entomological Society
- Scientific Journal Editor
 - Associate Editor Board - Journal of Gerontology: Biological Sciences
 - Editorial Board - Frontiers in Endocrinology: Experimental Endocrinology
 - Associate Editor - Frontiers in Aging: Molecular Mechanisms of Aging
 - Review Editor - Frontiers in Genetics: Genetics of Aging
 - Guest editor - PLoS Genetics

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
- Interdepartmental Toxicology Graduate Program

II. Research/Scholarship

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

- **23** peer-reviewed journal articles since appointment (Corresponding author on **14** articles).
- **24** Invited seminar and conference talks (by Dr. Bai), **18** National and regional oral presentations (by group members), and **47** poster presentations.
- PI on extramural grants totaling **\$3.73 M**.
- **5** courses taught, **430** undergraduate and graduate students.
- Mentored **21** undergraduate research assistants, **4** research associates, **26** graduate students (as major professor for **11** students, **7** of them graduated)

II.2. Publications:

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

Total published papers: 44

Total Citations: 11879 (as of 03/07/2023)

h-index = 21

i10-index = 27

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

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

1. **Huang K#, Kim J#, Vo P, Miao T, Bai H***. Peroxisome import stress impairs ribosome biogenesis and induces endoplasmic reticulum genes. 2020. *bioRxiv*. doi.org/10.1101/2020.11.19.390609.

B). Peer-reviewed original research and review articles (Published after joining ISU in 2016) (Total Papers: 23)

44. **Miao T, Kim J, Kang P**, Fujiwara H, Hsu FF, **Bai H***. 2022. Acetyl-CoA mediated autoacetylation of fatty acid synthase as a metabolic switch of de novo lipogenesis in *Drosophila*. *PNAS* (**Journal Impact Factor 11.205**).
Contribution of Bai research group: 99%. (the co-authors, Fujiwara H and Hsu FF, helped with the acetyl-CoA quantification).
43. **Liu P#, Chang K#, Requejo G&, Bai H***. 2022. mTORC2 protects the heart from high-fat diet-induced cardiomyopathy through mitochondrial fission in *Drosophila*. *Frontiers in Cell and Developmental Biology*. (**Journal Impact Factor 6.684**).
Contribution of Bai research group: 100%.
42. **Kim J*, Bai H***. 2022. Peroxisomal stress response and inter-organelle communication in cellular homeostasis and aging. *Antioxidants*. (**Journal Impact Factor 6.313**) (Invited review article).
Contribution of Bai research group: 100%.
41. Chaudrhy N, Sica M, Surabhi S, Hernandez DS, Mesquita A, Selimovic A, Riaz A, **Bai H**, Macintosh GC*, Jenny A*. 2022. Lamp1 mediates lipid transport, but is dispensable for autophagy in *Drosophila*. *Autophagy*. (**Journal Impact Factor 16.02**).
Contribution of Bai research group: 10%. Training Chaudrhy N on *Drosophila* genetics, autophagy assays, assistant with fluorescence and TEM imaging analysis.
40. Wu X, Zhao J, Wang X, Niu K, Wang H, Wang H, **Miao T**, Yang Y, Ma H, Zhang Y, Pan L, Liu R, **Bai H**, Liu N*. 2021. microRNA-252 and FoxO repress inflammaging by a dual inhibitory mechanism on Dawdle mediated TGF- β pathway in *Drosophila*. *Genetics*. (**Journal Impact Factor 4.562**).
Contribution of Bai research group: 10%. Autophagy analysis of FOXO and daw mutants, manuscript writing and editing.
39. Green CL, Englund DA, Das S, Herrerias MM, Yousefzadeh MJ, Grant RA, Clark J, Pak HH, **Liu P, Bai H**, Prahlad V, Lamming DW, Chusyd DE*. 2021. The Second Annual Symposium of the Midwest Aging Consortium: The Future of Aging Research in the Midwestern United States. *J Gerontol A Biol Sci Med Sci*. Nov 15;76(12):2156-2161. PubMed PMID: 34323268; PubMed Central PMCID: PMC8599030. (**Journal Impact Factor 4.598**).
Contribution of Bai research group: 10%.

38. **Bouska MJ*, Bai H***. 2021. Loxl2 is a mediator of cardiac aging in *Drosophila melanogaster*; genetically examining the role of aging clock genes. *G3: Genes, Genomes, Genetics*. PubMed PMID: 34734976. **(Journal Impact Factor 3.154)**.
Contribution of Bai research group: 100%.
37. Murphy ME, Narasimhan A, Adrian A, **Kumar A**, Green CL, Soto-Palma C, Henpita C, Camell C, Morrow CS, Yeh CY, Richardson CE, Hill CM, Moore DL, Lamming DW, McGregor ER, Simmons HA, Pak HH, **Bai H**, Denu JM, Clark J, Simcox J, Chittimalli K, Dahlquist K, Lee KA, Calubag M, **Bouska M**, Yousefzadeh MJ, Sonsalla M, Babygirija R, Yuan R, Tsuji T, Rhoads T, Menon V, Jarajapu YP, Zhu Y*. 2021. Metabolism in the Midwest: research from the Midwest Aging Consortium at the 49th Annual Meeting of the American Aging Association. *Geroscience*. PubMed PMID: 34714522; PubMed Central PMCID: PMC8554732. **(Journal Impact Factor 7.713)**.
Contribution of Bai research group: 10%.
36. **Bouska M*, Bai H***. 2021. Long non-coding RNA regulation of spermatogenesis and endosomal processes via the spectrin cytoskeleton in *Drosophila*. *G3: Genes, Genomes, Genetics*. **(Journal Impact Factor 2.781)**.
Contribution of Bai research group: 100%.
35. Klionsky DJ, ..., **Bai H**, et al. 2021. Guidelines for the Use and Interpretation of Assays for Monitoring Autophagy (4th edition). *Autophagy*. (Review article). **(Journal Impact Factor 9.77)**
Contribution of Bai research group: <1%. Review of Drosophila autophagy methodology.
34. **Birnbaum A*, Sodders M, Bouska M, Chang K, Kang P, McNeill E, Bai H***. 2021. FOXO regulates neuromuscular junction homeostasis during *Drosophila* aging. *Frontiers in Aging Neuroscience*. **(Journal Impact Factor 4.504)**.
Contribution of Bai research group: 99%.
33. **Huang K*, Bai H***. 2020. Liver hepatokines and peroxisomes as therapeutic targets for cardiovascular diseases. *Future cardiology*. **(Journal Impact Factor 1.5)**. (Invited review article).
Contribution of Bai research group: 100%.
32. **Huang K, Miao T, Chang K, Kim J, Kang P, Jiang Q&, Simmonds AJ, Di Cara F, Bai H***. 2020. Impaired peroxisomal import in *Drosophila* oenocytes causes cardiac dysfunction by inducing upd3 as a peroxikine. *Nature Communications*. **(Journal Impact Factor 11.88)**.
Contribution of Bai research group: 99%. Conceived and designed 99% of the experiments, performed almost all of the experiments and analyzed the data, wrote the paper.
Altmetric score: 75 (6 News, 2 Blogs, 43 Twitter)
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.
Altmetric score: 76 (9 News, 2 Blogs, 15 Twitter, 1 Facebook)

30. Cao C, Sun L, Du H, Mural 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***. 2019. 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.
Article impact: >48,000 total views by June 2021. This article has more views than 99% of all Frontiers articles.
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. **(Journal Impact Factor 4.066)**. (Invited review article).
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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: 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. PMCID: PMC2909337. **(Journal Impact Factor 3.547)**

11. Zhu F, Parthasarathy R, **Bai H**, Woitheb K, Kausmann M, Nauenb 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 Petrerá 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. Smaghhe (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

- Miao et al., 2023 *PNAS* paper was featured by ISU News and KGAN News (<https://www.news.iastate.edu/news/2023/01/10/metabolicswitch>; <https://cbs2iowa.com/news/local/isu-research-team-makes-discovery-that-could-pave-a-new-path-for-metabolic-diseases-fruit-flies-hua-bai-iowa-state-university-garrett-heyd-diabetes-obesity-cancer>)
- Huang et al. 2020 *Nature Communications* paper was highlighted by ISU News (<https://www.news.iastate.edu/news/2020/06/10/liverheart>).
- Kai et al. 2019 *Autophagy* paper 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* paper was highlighted by ISU News (<https://www.news.iastate.edu/news/2020/01/07/cardiacmuscleflies>).
- 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

- Dr. Bai was featured in September 2020 *GDCB BioCY News*, “https://www.gdcb.iastate.edu/files/news/files/092020_biocy_news.pdf”
- 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):

- **42 Invited talks (24 by Dr. Bai) and 47 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 = 24, 18 outside of ISU)

- 2023 *Invited speaker*. Comparative transcriptomic analysis on the cellular stress response to peroxisomal dysfunction. Annual GDCB Research Day. Ames, IA
- 2022 *Invited seminar speaker*. 2022 Brown University Biology of Aging Seminar. “Mechanisms of aging: From inter-organ communication to inter-organelle cross-talk”.
- 2022 *Invited symposium speaker (Virtual)*. 2022 Midwest Aging Consortium (MAC) Symposium. “Comparative transcriptomic analysis identifies ribosome biogenesis and integrated stress response as the conserved cellular responses to peroxisomal dysfunction”.
- 2022 *Invited participant talk (Virtual)*. 2022 PerlCo (Peroxisome Interactions and Communication) conference. “Comparative transcriptomic analysis identifies ribosome biogenesis and integrated stress response as the conserved cellular responses to peroxisomal dysfunction”.
- 2021 *Departmental seminar (Virtual)*. Institute for Integrative Genome Biology, University of California, Riverside, CA, USA. “Mechanisms of aging: From inter-organ communication to inter-organelle cross-talk”.
- 2020 *Departmental seminar (Virtual)*. Department of Molecular and Cellular Medicine, Texas A&M University Health Science Center, Bryan, TX, USA. “Peroxisome-mediated liver-heart communication during *Drosophila* aging”.
- 2020 *Invited Platform Speaker (Virtual)*. 2020 Midwest *Drosophila* Conference. “Peroxisome-mediated liver-heart communication during *Drosophila* aging”.
- 2020 *Departmental seminar (Virtual)*. Department of Genetics, Development and Cell Biology, Iowa State University. “Understanding Peroxisomal Stress Responses”.
- 2020 *Invited Short Talk (Virtual)*. 2020 Cold Spring Harbor Laboratory Conference- Mechanisms of Aging. “Peroxisome aging and inter-organ communication”.
- 2020 *Invited Speaker (Virtual)*. Insect Workshop. Department of Microbiology & Immunology, Dalhousie University, Canada. “Impaired peroxisomal import in *Drosophila* oenocytes causes cardiac dysfunction by inducing inflammatory cytokine upd3”.
- 2020 *Invited Short Talk (Virtual)*. AGE Goes Virtual 2020. Aging Association 49th Annual Meeting. “Peroxisome aging and inter-organ communication”.
- 2020 *Guest Speaker (Virtual)*. Aging Science Talks Series, Supported by the Glenn Foundation for Medical Research. “Peroxisome aging and inter-organ communication”.
- 2020 *Invited Speaker*. Keystone Symposia on Intra- and Intercellular Mechanisms of Aging. Vancouver, British Columbia, Canada. “Peroxisome-Mediated Inter-Tissue Communication during *Drosophila* Aging”.
- 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*. 4th International Insect Hormone Workshop, Kolymbari, Crete, Greece. “Peroxisome-mediated inter-organ communication via inflammatory cytokine Upd3 in *Drosophila*”.
- 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*. Cold Spring Harbor conference-Mechanisms of Aging, Cold Spring Harbor, NY, USA. “Activin signaling regulates autophagy and cardiac aging through mTOR complex 2”.
- 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 = 8)

- 2022 Miao T, Bai H. Acetyl-CoA mediated autoacetylation of fatty acid synthase in de novo lipogenesis. 63rd Annual *Drosophila* Research Conference (Hybrid).
- 2022 Correia J, Bai H. 2022 PerICo (Peroxisome Interactions and Communication) conference. “SCAF1 a novel regulator involved in mitochondrial homeostasis under peroxisome stress response”.
- 2021 Miao T, Bai H. Protein acetylation as a metabolic switch for de novo lipogenesis in *Drosophila* development. The 5th International Insect Hormone Virtual Workshop 2021.
- 2021 Vo P&, Huang K, Bai H. Defective peroxisomal import accelerates abnormal lipid accumulation in *Drosophila* oenocytes. 62nd Annual *Drosophila* Research Conference (Virtual).
- 2021 Liu P, Bai H. Peroxisomal Dysfunction Disrupts Mitochondrial Dynamics Through mTORC2. 2nd Annual Symposium of the Midwest Aging Consortium (Virtual).
- 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. PTTH 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 = 10)

- 2021 Vo P &, Huang K, Bai H. Defective peroxisomal import accelerates abnormal lipid accumulation in Drosophila. 3rd Symposium for Cellular Organelles (Virtual).
- 2021 Liu P, Bai H. Peroxisomal Dysfunction Disrupts Mitochondrial Dynamics Through mTORC2. 3rd Symposium for Cellular Organelles (Virtual).
- 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: 47)

- 2023 Kumar A, Bai H. The Interplay of peroxisome and mitochondrial dynamics during aging in Drosophila. 64th Annual Drosophila Research Conference. Chicago, IL.
- 2023 Bolton M &, Bai H. The Impact of Oxidative Stress on Peroxisome and Mitochondrial Function in Drosophila. NCUR 2023.
- 2023 Kim J, Bai H. The Comparative transcriptomic analysis on the cellular responses to peroxisomal import stress. 2023 Midwest Stress Response meeting. Northwestern University. Evanston, IL.
- 2023 Correia J, Bai H. Characterization of peroxisomal import function in aged PBMCs. 2023 Midwest Stress Response meeting. Evanston, IL.
- 2023 Liu P, Bai H. mTORC2 protects the heart from high-fat diet-induced cardiomyopathy through mitochondrial fission in Drosophila. Annual GDCB Research Day Ames, IA
- 2023 Kumar A, Bai H. The Interplay of peroxisome and mitochondrial dynamics during aging in Drosophila. Annual GDCB Research Day Ames, IA
- 2023 Correia J, Bai H. Characterization of peroxisomal import function in aged PBMCs. Annual GDCB Research Day Ames, IA
- 2022 Kumar A, Huang K, Bai H. Peroxisome-mitochondria communication in tissue aging. CSHL conference-Mechanisms of Aging (Virtual).
- 2022 Liu P, Bai H. mTORC2 protects the heart from high-fat diet-induced cardiomyopathy through mitochondrial fission in Drosophila. CSHL conference-Mechanisms of Aging (Virtual).
- 2022 Kumar A, Bai H. The Interplay of peroxisome and mitochondrial dynamics during aging in Drosophila. 2022 Midwest Aging Consortium (MAC) Symposium (Virtual).
- 2022 Sodders M, Bai H. The Role of Glial Peroxisome in Neuron-Glia Communication in Drosophila. 63rd Annual Drosophila Research Conference (Hybrid).
- 2022 Kumar A, Liu P, Vo P, Bai H. The Interplay of peroxisome and mitochondrial dynamics during aging in Drosophila. 63rd Annual Drosophila Research Conference (Hybrid).

- 2022 Liu P, Chang K, Bai H. mTORC2 protects the heart from high-fat diet-induced cardiomyopathy through mitochondrial fission in *Drosophila*. 63rd Annual *Drosophila* Research Conference (Hybrid).
- 2021 Kumar A, Vo P, Liu P, Bai H. The interplay of peroxisome and mitochondrial dynamics during aging in *Drosophila*. 2021 American Aging Association (AGE) Annual Meeting. Madison, WI, USA.
- 2021 Bouska M, Bai H. Loxl2 is a mediator of cardiac aging in *Drosophila melanogaster*; genetically examining the role of aging clock genes. 2021 American Aging Association (AGE) Annual Meeting. Madison, WI, USA.
- 2021 Liu P, Bai H. Peroxisomal Dysfunction Disrupts Mitochondrial Dynamics Through mTORC2. 62nd Annual *Drosophila* Research Conference (Virtual).
- 2020 Mark Bouska, Hua Bai. Long non-coding RNA regulation of spermatogenesis and endosomal processes via the spectrin cytoskeleton in *Drosophila*. 2020 Midwest *Drosophila* Conference (Virtual).
- 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, Mentor
Current Grants	3	\$2,767,853	\$2,767,853	/
Completed Grants	3	\$871,917	\$871,917	/
Mentored Fellowships	4	\$94,704	/	\$94,704
Total	9	\$3,734,474	\$3,734,474	\$94,704

A). Current

Dean's Emerging Faculty Leaders Award

Agency: Iowa State University (ISU)
Project Title: Profiling Peroxisomal Import Stress Response
Project period: 07/01/2022-06/30/2024
Total Funds: \$50,000
Role: Sole PI

NSF-BIO-MCB (NSF 2046984)

Agency: National Science Foundation (NSF)
Project Title: CAREER: Understanding Peroxisomal Stress Responses
Project period: 03/01/2021-02/28/2026
Total Funds: \$1,212,704
Role: Sole PI

NIH/NIA R01 (R01AG058741-01A1)

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: Sole 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: Sole PI

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: Sole PI

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: Sole PI

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: Sole PI

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: Sole PI

C). Pending

NIH/NIA R01 (R01AG075156-01A1)-Likely fundable

Agency: National Institute of Health (NIH)
Project Title: Role of peroxisome-mitochondrion communication in tissue aging
Project period: 07/01/2023-06/30/2028
Total Funds: \$1,812,150
Role: Sole PI

Results: Impact score is 24 out of 90, Percentile is 6th out of 100

NIH/NIA Administrative Supplements (3R01AG058741-03)

Agency: National Institute of Health (NIH)
Project Title: Role of liver-brain communication in neurodegeneration
Project period: 07/01/2022-06/30/2023
Total Funds: \$364,174
Role: PI

D). Mentored Student and Postdoctoral Fellowships (Funded)

2020 Kalman/AFAR Scholarships for Research in the Biology of Aging

Agency: American Federation for Aging Research (AFAR)
Project Title: Acetylation modification of lipogenic enzyme in liver aging
Project period: 09/01/2020-02/28/2021
Total Funds: \$5,000
Role: Mentor. **PI: Ting Miao (Graduate student in Bai lab)**

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)**

III. Teaching/Advising**III.1. Courses Taught at Iowa State University**

Semester	Course #	Course Title	Percent effort	Credits	Enrollment
F2022	BIOL 114X	Experiential Learning and Explorations in Life Sciences	100%	1	18
F2022	GDCB 510	Transmission Genetics	50%	3	8
S2022	GEN 410	Analytical Genetics	50%	3	62
S2022	GDCB 590	Special Topics	100%	1	3
F2021	GDCB 510	Transmission Genetics	50%	3	15
S2021	GDCB 590	Special Topics	100%	1	3
F2020	GDCB 510	Transmission Genetics	50%	3	16
F2020	GDCB 590	Special Topics	100%	1	4
F2020	GEN 410	Analytical Genetics	50%	3	29
S2020	GDCB 590	Special Topics	100%	1	5
S2020	GEN 410	Analytical Genetics	50%	3	36
F2019	GDCB 590	Special Topics	100%	1	5
F2019	GEN 410	Analytical Genetics	50%	3	26
S2019	GEN 410	Analytical Genetics	50%	3	40
S2019	GDCB 590	Special Topics	100%	1	5
F2018	GDCB 510	Transmission Genetics	50%	3	16
F2018	GDCB 590	Special Topics	100%	1	5
S2018	GEN 410	Analytical Genetics	50%	3	49
F2017	GDCB 510	Transmission Genetics	50%	3	24
S2017	GEN 410	Analytical Genetics	50%	3	46
F2016	GEN 692	Foundations of Genetics	50%	1	15

III.2. Additional Teaching Activities

Semester	Course #	Course Title	Percent effort	Enrollment
S2021	Pen State U.	ENT530 Gene Silencing	1 guest lecture	~4

F2019	Univ. of Kentucky	Professional Development Seminar (Entomology)	1 guest lecture	~10
S2019	BIOL 313L	Poster Judge	1 meeting	~25
F2018	GEN 691	IG Graduate seminar	1 lecture	~25
S2017	BIOL 313L	Poster Judge	1 meeting	~15
F2016	GEN 691	IG Graduate seminar	1 lecture	~25

III.3. Summary of Student Evaluations for All Courses Taught

Semester	Course #	Enrollment	Re-sponse	Overall rating of instructor	Dept. Mean*	Overall rating of course	Dept. Mean*
F2022	BIOL 114X	18	47.06%	4.5	/	4.38	/
F2022	GDCB510	9	33.33%	4.33	/	4.33	/
S2022	GEN 410-1	37	40.54%	4.6	4.26	4.4	4.12
S2022	GEN 410-2	24	25%	4.33	4.26	4.33	4.12
F2021	GDCB 510	15	31/3%	4.8	4.27	4.6	4.2
F2020	GDCB 510	16	62.5%	4.56	4.11	4.56	4.04
F2020	GEN 410-1	29	51.72%	4.33	4.11	4.27	4.04
S2020	GEN 410-1	21	42.86%	4.44	NA	4.22	4.01
S2020	GEN 410-2	15	40%	4.5	NA	4.33	4.01
F2019	GEN 410	26	42.31%	3.86	4.11	3.75	4.04
S2019	GEN 410 A	32	37.5%	4.0	3.91	3.83	3.76
S2019	GEN 410 B	8	50%	3.75	3.91	3.33	3.76
F2018	GDCB 510	16	62.5%	4.45	3.76	3.72	3.68
S2018	GEN 410 A	37	27.03%	4.03	3.79	3.55	3.67
S2018	GEN 410 B	12	16.67%	3.38	3.79	3.0	3.67
F2017	GDCB 510	24	74%	4.15	3.89	3.46	3.83
S2017	GEN 410 A	32	56.25%	4.0	3.70	3.68	3.49
S2017	GEN 410 B	14	64.29%	4.31	3.70	4.0	3.49

* Department mean are total [student scores] for all Biology/total respondents. NA: not available.

III.4. Mentoring and Advising Activities

Mentored Group	# of Students Since 2016
High School Student Research	2
Undergraduate Research	21
Graduate Rotation Students	20
Undergraduate Advisees	13
Graduate Student Advising - Major Professor	11 (7 graduated)
Graduate Student Advising - POS Committee	15
Research Associates Supervised	4

A). Mentoring of High School Students (Research Assistant) (Total = 2)

Name	Semester	Program	Placement
Kimberly Yin	S2018	CBIRC NSF Young Engineers and Scientists Summer Internship	Enrolled at University of California, San Diego
Fahmo Mohamed	Su2016	George Washington Carver Summer Internship	Enrolled at ISU

B). Mentoring of Undergraduates (Research Assistant) (Total = 21)

Name	Semester	Program/Research Credit	Placement
			/
Wren Murzyn	S2023	BIOL299X	/
Elliana Fahey	S2023	BIOL299X	/
Elizabeth Quam	S2023	Honor program, HON 290H L7	/
Catherine Steele	S2023	GEN499	/
Elizabeth Larkin	S2023	GEN499	/
Cara McCutchin	F2022-	Undergraduate research assistance	/
Harper Clark	F2022	BIOL499	/
Grace Gaber	S2022	BIOL499	/
Marie Bolton	F2021-present	CALS Dean's Leadership Scholarship	/
Emma Shepard	Su2021	Summer internship	/
James Yeagerlehner	S2021	Research assistant	/
Sau-Qwan Yap	F2020	Research assistant	Graduate student, IGG Graduate program at ISU
Pham Vo	Su2020-S2021	Summer internship, Research assistant	Graduate student, UC San Diego
Dongyeol Lee	S2020-F2020	BIOL499, Sui Tong Chan Fung Internship in Genetics, Dean's High Impact Award for Undergraduate Research	/
Jamie Cook	F2019-S2020	BIOL499	/
Guillermo Requejo	F2019	URA Work-Study	/
Seth Millikan	Su2018-S2019	BIOL499	Medical student at Lincoln Memorial University-Debusk College of Osteopathic Medicine in 2021
Zhitao Ming	Su2018	Sui Tong Chan Fung Internship in Genetics	Lab technician, ISU
Immaculate Edwin	S2018-S2020	BBMB 499, GEN 499	/
Rachel Mehmert	S2018-S2020	BIOL 499, Dean's High Impact Award for Undergraduate Research	Medical student at Kirksville College of Osteopathic Medicine in 2020
Emma Troyer	S2018	BIOL 499	/
Kaiser Arndt	F2017	GEN 499	Graduate student, Virginia Polytechnic Institute and State University
Qiuhan Jiang	S2017-Su2017	GEN 499	Graduate student, BCB Graduate program at ISU
Matt Weiser	F2016	GEN 499	Master of Science in Biomedical Sciences at ISU
Emily Marison	S2016-F2016	GEN 499	/
Jazmine Real	Su2016	HHMI Summer Intern	Transfer to ISU
Larsa Al Bayati	S2016	GEN 499	Graduate student, Biochemistry at ISU Research associate at DuPont Pioneer
Sheridan Schwartz	S2016-Su2016	Sui Tong Chan Fung Internship in Genetics	Genetic counseling assistant at Huntsman Cancer Institute
Audrey Ade	S2016-F2016	Dean's Leadership Scholarship	Quality lab associate at Baxter Pharmaceuticals

C). Mentoring of Graduate Student

Served as Major Professor (Total = 11; Seven completed)

Name	Degree	Program	Year	Placement
Anurag Das	Doctoral	Neuro	03/2022-current	/
Jacinta Correia	Doctoral	MCDB	05/2021-current	/
Ankur Kumar	Doctoral	IGG	05/2021-current	/
Peiduo Liu	Doctoral	MCDB	05/2020-current	/
Maggie Sodders	Master	IGG	08/2020-05/2022	Technician, University of Pittsburgh, Abby Olsen Lab
Ting Miao	Doctoral	IGG	07/2018-12/2022	Postdoc, Harvard Medical School, Norbert Perrimon Lab
Mark Bouska	Doctoral	MCDB	05/2017-12/2021	Postdoc, University of South Dakota, Xuejun Wang Lab
Kerui Huang	Doctoral	IGG	08/2016-11/2020	Postdoc, Harvard Medical School, Norbert Perrimon Lab
Kai Chang	Doctoral	IGG	05/2016-11/2020	Postdoc, Karolinska Institute, Anna Wredenberg Lab
Allison Birnbaum	Doctoral	IGG	03/2016-08/2020	Postdoc, University of Alabama at Birmingham, Constanza Cortes lab
Axelle Weeger	Master	IGG	08/2016-05/2018	ISU, IG2 PhD program, Dennis Lavrov Lab

Member of Program of Study Committee (Total = 15; Nine completed)

Name	Department/Program	Advisor	Degree	Awarded
Norin Chaudhry	BBMB/MCDB	Gustavo MacIntosh	Doctoral	/
Alyssa Hohman	FSHN/IGG	Elizabeth McNeill	Doctoral	/
Xiaoyi Cheng	GDCB/MCDB	Raquel Espin Palazon	Doctoral	/
Abbigail McCune	GDCB/MCDB	Raquel Espin Palazon	Doctoral	/
Tamara Gulstad	BMS	Jinoh Kim	Doctoral	/
Junmarie Soto-Burgos	GDCB/Plant Bio	Diane Bassham	Doctoral	Su2018
Rebekah Reynolds	Entomology	Ryan Smith	Doctoral	S2020
Jordan M. Welker	GDCB/IGG	Jeff Essner	Doctoral	S2019
Jie Tang	GDCB/Plant Bio	Diane Bassham	Doctoral	F2022
Xiaoyi Dou	Entomology	Russell Jurenka	Doctoral	Su2019
Jyothsna Ramesh-Kumar	Entomology	Ryan Smith	Master	F2018
Hao Jiang	GDCB/Plant Bio	Yanhai Yin	Doctoral	Su2020
Ahmed Abdalla	Vet Med/Biomed Sci	Anumantha Kanthasamy	Doctoral	Su2022
Ching-Yi Liao	GDCB/Plant Bio	Diane Bassham	Doctoral	/
Norin Chaudhry	BBMB/MCDB	Gustavo MacIntosh	Master	S2019

Mentoring of Graduate Students-Rotation (Total = 20)

Name	Department or Program	Semester
Shafayet Siddiqui	Molecular, Cellular, and Developmental Biology (MCDB)	F2022
Anh Pham	Molecular, Cellular, and Developmental Biology (MCDB)	F2022
Anurag Das	Neuroscience (Neuro)	F2021
Ludvin Mejia	Interdepartmental Genetic & Genomic (IGG)	F2021

Fazhir Kayondo	Interdepartmental Genetic & Genomic (IGG)	F2021
Amanda Kirk	Interdepartmental Genetic & Genomic (IGG)	F2021
Sau-Qwan Yap	Interdepartmental Genetic & Genomic (IGG)	F2021
Ankur Kumar	Interdepartmental Genetic & Genomic (IGG)	S2021
Jacinta Correia	Molecular, Cellular, and Developmental Biology (MCDB)	S2021
Thomas Burns	Interdepartmental Genetic & Genomic (IGG)	S2021
Vishesh Bhatia	Interdepartmental Genetic & Genomic (IGG)	F2020
Mahsa Askary Hemmat	Interdepartmental Genetic & Genomic (IGG)	F2019
Sean McLaughlin	Interdepartmental Genetic & Genomic (IGG)	F2019
Peiduo Liu	Molecular, Cellular, and Developmental Biology (MCDB)	F2019
McKenzie Wishman	Interdepartmental Genetic & Genomic (IGG)	F2019
Jacob Zobrist	Interdepartmental Genetic & Genomic (IGG)	F2017
Ting Miao	Interdepartmental Genetic & Genomic (IGG)	F2017
Mark Bouska	Molecular, Cellular, and Developmental Biology (MCDB)	F2016
Allison Birnbaum	Interdepartmental Genetic & Genomic (IGG)	S2016
Kai Chang	Interdepartmental Genetic & Genomic (IGG)	S2016

D). Mentoring of Research Associates Supervised (Total = 4)

- Pham Vo, Research Technician, 01/2021-8/2021 (100% time). Position Upon Departure: PhD student at UC San Diego
- Jino Kim, Postdoctoral Research Associate, 03/2019-Present (100% time).
- Qiuhan Jiang, Research Associate, 03/2019-08/2019 (100% time). Position Upon Departure: PhD student at Iowa State University.
- Ying Liu, Postdoctoral Research Associate, 07/2016-06/2017 (100% time). Position Upon Departure: Postdoctoral, Hui-Ying Lim Lab, University of Oklahoma. Current position: Technologist at Genetics Laboratory of the University of Oklahoma, Health Sciences Center

E). Awards and Honors Received by Undergraduate and Graduate Trainees

Graduate Trainees

- Ting Miao, 2022 ISU Research Assistantship Award (REX)
- Ankur Kumar, 2021 American Aging Association Travel Award
- Ting Miao, 2020 Kalman/AFAR Scholarships for Research in the Biology of Aging
- Kerui Huang, 2020 ISU Research Assistantship Award (REX)
- Kerui Huang, American Heart Association (AHA) Predoctoral Fellowship, 2020
- Kai Chang, Poster presentation prize, 2019 Midwest Aging Consortium (MAC) Symposium
- Kai Chang, Poster presentation prize, 2019 Midwest Drosophila Conference
- Allison Birnbaum, 2019 ISU David Gladson Scholarship
- Kai Chang, American Heart Association (AHA) Predoctoral Fellowship, 2019-2020
- Kerui Huang, 2017 Glenn/AFAR Scholarship for Research on the Biology of Aging
- Kerui Huang, 2016 ISU Graduate College Scholarship

Undergraduate Trainees

- Marie Bolton, 2021 CALS Dean's Leadership Scholarship
- Dongyeol Lee, Dean's High Impact Award for Undergraduate Research, Fall 2020
- Dongyeol Lee, Sui Tong Chan Fung Internship in Genetics, Summer 2020
- Rachel Mehmert, Dean's High Impact Award for Undergraduate Research, Fall 2019
- Zhitao Ming, Sui Tong Chan Fung Internship in Genetics, Summer 2018
- Sheridan Schwartz, Sui Tong Chan Fung Internship in Genetics, Summer 2016

- Audrey Ade, Dean's Leadership Scholarship 2016

F). Undergraduate Advising (Total = 13)

Name	Major	College
Casey James Van Kirk	Genetics	Agriculture and Life Sciences
Amy Kathryn Kraak	Genetics	Agriculture and Life Sciences
Hannah Marie Clubb	Genetics	Agriculture and Life Sciences
Kaci Kay Arkfeld	Genetics	Agriculture and Life Sciences
Alexander Wayne Walden	Biology	Agriculture and Life Sciences
Abby Lee Curtis	Biology	Liberal Arts and Sciences
Alicia Lynne Berghefer	Biology	Liberal Arts and Sciences
Lindsey Morgan Buehler	Biology	Agriculture and Life Sciences
Logan Clifford Davis	Biology	Liberal Arts and Sciences
Casalduc GI Maldonado	Biology	Agriculture and Life Sciences
Molly Crystal Monroe	Biology	Liberal Arts and Sciences
Kali A Welling	Biology	Liberal Arts and Sciences
Sura Smadi	Genetics	Agriculture and Life Sciences

IV. Services

IV.1. Institutional Services

A). College level

2020-present Member of Nanovaccine Institute, participate in 2 NSF center grants applications
 2019-2021 Undergraduate Genetics Major Committee
 2020 Poster Judge for ISU Graduate and Professional Student Conference
 2020 Admissions Committee for Interdepartmental MCDB graduate program
 2019 College of Agriculture & Life Sciences Family Weekend Reception
 2017 Campus interview with IGG and MCDB graduate student candidates
 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 Admissions Committee for Interdepartmental Genetics & Genomic graduate program

B). Departmental level

2023- Member of GDCB Curriculum Committee, Peer Teaching Coordinators
 2022- Chair of GDCB department Graduate Affairs Committee
 2021 Peer teaching review for BIOL 313L •
 2018 GDCB Plant Genome Engineering Faculty Search Committee (35 applications, 4 on-site interviews)
 2017 GDCB Cellular/Developmental Biology Faculty Search Committee. Two Assistant Professor positions (160 applications, 24 virtual interviews, 8 on-site interviews)
 2016-2021 GDCB Seminar Committee. Host 10 GDCB seminar speakers

IV.2. Professional Service

A). Editorial role for Scientific Journals

2022-present Associate Editor - Frontiers in Aging: Molecular Mechanisms of Aging
2022-present Review Editor - Frontiers in Genetics: Genetics of Aging
2021-present Associate Editor Board - Journal of Gerontology: Biological Sciences
2021-present Editorial Board - Frontiers in Endocrinology: Experimental Endocrinology
2019 Guest editor - PLoS Genetics

B). Meeting organizer and committee member

2023 Chair of Meeting Organizing Committee, 4th Annual MAC Aging Research Symposium
2021 Scientific committee member, National Scientific Advisory Council (NSAC) at American Federation for Aging Research
2021 Symposium organizer, Peroxisome and diseases, Aging Science Talks Series (Virtual)
2021 Symposium session chair, 3rd Cellular Organelles Symposium, ISU (Virtual)
2020 Session Chair, Keystone Symposia on Intra- and Intercellular Mechanisms of Aging, Vancouver, BC, Canada
2019 Founding member and institutional representative of the Midwest Aging Consortium (MAC).
2017 Ecdysone Workshop at the 58th Annual Drosophila Research Conference. (Invited as a session chair and speaker; Declined due to schedule conflicts)

C). Grant Review

06/2022 AFAR postdoc fellowship review panelist
06/2022 ISU postdoc seed grant reviewer
05/2022 National Science Foundation (NSF)-BIO Panelist (9 proposals)
02/2022 National Institutes of Health (NIH) Panelist, Cellular Mechanisms in Aging and Development (CMAD) (9 proposals)
04/2021 National Science Foundation (NSF)-BIO *Ad hoc* Reviewer (1 proposal).
02/2021 National Institutes of Health (NIH) *Ad hoc* Reviewer, Integrative Myocardial Physiology/Pathophysiology B (MPPB) Study Section (7 proposals)
02/2021 American Heart Association (AHA) Postdoctoral and Predoctoral Fellowship reviewer (6 proposals).
01/2021 Grant reviewer for AFAR's National Scientific Advisory Council (NSAC).
09/2020 Biotechnology and Biological Sciences Research Council (BBSRC) Research Grant (1 proposal).
10/2019 American Heart Association (AHA) Postdoctoral and Predoctoral Fellowship reviewer (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 (NSF)-BIO Panelist (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 (NSF), International Science & Engineering proposal

08/2012 National Science Foundation (NSF), BIO/IOS-PSS proposal

D). Manuscript Reviewer for Scientific Journals (Since 01/2016, 91 manuscripts/Times, 27 journals)

- 2021 PNAS, Nature Communications, Aging Cell, eLife, Frontier in Physiology, Cellular and Molecular Life Sciences. Total: 8 times.
- 2020 Nature Communications, EMBO Review Commons, Frontiers in Cell and Developmental Biology, Theranostics, PLOS Computational Biology, Molecular and Cellular Biology, Insect Biochemistry and Molecular Biology, Current Opinion in Insect Science, npj Systems Biology and Applications, Autophagy, Journal of Gerontology: Biological Sciences, Aging, Journal of Genetics and Genomics, Journal of Human and Clinical Genetics, Cell Cycle, PLoS One, Insect Science, SCIENCE CHINA Life Sciences. Total: 24 times.
- 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

IV.3. Outreach and Diversity Enrichment Efforts

A). Outreach

Years	Service
2020	Faculty mentor for SACNAS grant writing workshop at Iowa State
2018	Judge for 2018 The Intel International Science and Engineering Fair (Intel ISEF), Animal Science Category
2016	Participation in ISU LSAMP-IINSPIRE Summer Internship Program
2016	Participation in ISU HHMI Summer Internship Program for community college underrepresented students.
2016	Participation in George Washington Carver Summer Internship Program

B). Diversity Enrichment Efforts

# of Students	Service
2	Mentoring female high school students
12	Mentoring female undergraduates
3	Mentoring underrepresented students
5	Mentoring female graduate students
0	Mentoring underrepresented graduate students
8	POS committee member for women graduate students
1	POS committee member for underrepresented graduate students