

## **Raquel Espin Palazon, Ph.D.**

Iowa State University  
Department of Genetics, Development and Cell Biology  
2213 Pammel Drive, ATRB  
Ames, Iowa 50011-2103

Website: <https://www.espinlab.com/>  
Phone: 515-294-4628  
Email: [espin@iastate.edu](mailto:espin@iastate.edu)

### **Education**

- 2013 Ph.D., Graduate Program in Molecular Biology and Biotechnology, University of Murcia, Spain.  
2009 M.S., Immunology, University of Murcia, Murcia, Spain.  
2008 B.S., Biology, University of Murcia, Murcia, Spain.

### **Employment and Professional Experience**

- 2019-Present Assistant Professor, Department of Genetics, Development and Cell Biology, Iowa State University, Ames, IA  
2018-2019 Assistant Project Scientist, Department of Cellular and Molecular Biology, University of California at San Diego, La Jolla, CA – Mentor: Dr. David Traver  
2013-2018 Post-doctoral fellow, Department of Cellular and Molecular Biology, University of California at San Diego, La Jolla, CA – Mentor: Dr. David Traver  
2009-2013 Research Assistant, Department of Cytology and Histology, University of Murcia, Murcia, Spain  
Mentors: Drs. Victoriano Mulero Mendez and Jose Meseguer.  
2008 Graduate Research Assistant, Department of Vascular Pathophysiology, National Center for Cardiovascular Research (CNIC), Madrid, Spain. Mentor: Dr. Juan Miguel Redondo Moya.  
2007 Undergraduate Research Assistant, Department of Cytology and Histology, University of Murcia, Murcia, Spain. Mentor: Dr. Victoriano Mulero Mendez.

### **Honors and Awards**

- 2024 **Faculty 2024 Early Achievement in Research Award from the College of Agriculture and Life Sciences at Iowa State University.**  
2023 **Rosalind Franklin Society Special Award in Science.**  
2023 GDCB Award for **Outstanding Achievement in Teaching.**  
2023 **ISU Student Employee Supervisor of the Year Finalist.**  
2022 **GDCB Early-Career Research Award.**  
2022 **Pew Biomedical Scholar nominee**, selected by Iowa State University.  
2023-2024 **K01 Mentored Research Scientist Career Development Award supplement.** \$139,750.  
2017-2022 **K01 Mentored Research Scientist Career Development Award**, postdoctoral award to support my postdoctoral research while transitioning to an independent position. \$698,750.  
2016-2018 **Postdoctoral Scholar**, scholar award to perform research as a postdoctoral researcher. \$50,000/year. American Heart Association (AHA).  
2014-2015 **Postdoctoral Scholar**, scholar award to perform research as a postdoctoral researcher. \$42,000/year. Fundación Séneca, Agencia Regional de Ciencia y Tecnología.  
2011, 2012 **Short-Term Research Scholar**, Scholar award to perform a short-term stay in a research group to enhance collaborations during the course of my Ph.D. Fundación Séneca, Agencia

Regional de Ciencia y Tecnología. University of California at San Diego, La Jolla, CA – Mentor: Dr. David Traver

- 2012 **Travel Award**, 10<sup>th</sup> International Meeting on Zebrafish Development and Genetics.
- 2011 **Best Scientific Poster**, Annual Zebrafish Disease Model 4 (ZDM4), Edinburgh, Scotland.
- 2010 **Travel Award**, 9<sup>th</sup> International Meeting on Zebrafish Development and Genetics.
- 2010 **Short-Term Research Scholar**, Scholar award to perform a short-term stay in a research group to enhance collaborations during the course of my Ph.D. Fundación Séneca, Agencia Regional de Ciencia y Tecnología. National Center for Cardiovascular Research (CNIC), Madrid, Spain. Mentor: Nadia Mercader Huber.
- 2009-2013 **Ph.D. Candidate Scholar**, Grant to perform Ph.D. research. \$25,000 stipend. Fundación Séneca, Agencia Regional de Ciencia y Tecnología.
- 2009-2013 **Ph.D. Candidate Scholar**, Most prestigious and competitive grant in the University of Murcia to perform Ph.D. research. \$20,000 stipend. Given by the University of Murcia. (Declined).
- 2009-2013 **Ph.D. Candidate Scholar**, Most prestigious and competitive grant in Spain to perform Ph.D. research. \$20,000 stipend. Given by the Spanish Ministry of Science and Education. (Declined).
- 2008 **Young Researcher's Scholar**, Scholar award for graduate students to start their Ph.D., University of Murcia.
- 2008 **CICERONE Scholar**, Scholar award for graduate students to collaborate in a research project at the Spanish National Centre for Cardiovascular Research (CNIC).
- 2007 **Undergraduate Research Scholar**, Scholar award for undergraduates at the University of Murcia.

### **Funding (current)**

- 2022-2027 **PI, NIH-NIDDK R01**. 02/01/2022-01/31/27 (\$2,073,148). *Molecular dissection of hematopoietic stem cell specification triggered by inflammatory mediators*. The goal of this project is to molecularly, and epigenetically understand a novel Nod1-Ripk2-NF-kB inflammatory signaling pathway on Hematopoietic Stem Cell specification using the zebrafish model and its translation to human.
- 2021-2024 **PI, Roy J. Carver Charitable Trust** 05/01/21-04/30/24. (\$381,385) *The impact of anti-inflammatory signals on hematopoietic stem cell development*. The goal of this application is to dissect at the molecular level how the anti-inflammatory cytokine Il-13 contributes to hematopoietic stem cell maintenance, avoiding their differentiation and subsequent exhaustion.

### **Funding (completed since 2020)**

- 2020-2023 **PI, NIH-NIDDK R03** DK125661. 09/01/20-08/31/22. (\$229,500) *In vivo assessment of granulin dependent myeloid cell formation*. The goal of this project is to use a zebrafish model of granulin deficiency to identify *in vivo* the role of granulin during myeloid cell development.
- 2017-2022 **PI, NIH-NIDDK K01 Mentored Research Scientist Career Development Award**, postdoctoral award to support my postdoctoral research while transitioning to an independent position. \$698,750.

## Publications

List of all publications: <https://www.ncbi.nlm.nih.gov/myncbi/raquel.espin%20palazon.1/bibliography/public/>

	All	Since 2019
<b>Citations</b>	<b>1033</b>	<b>637</b>
<b>h-index from Google Scholar:</b>	<b>12</b>	<b>11</b>
<b>i10-index from Google Scholar:</b>	<b>12</b>	<b>12</b>

*Impact Factors from Thomson Reuters (2024)*

Cheng X, Barakat R, Pavani G, Usha M K, Calderon R, Snella E, Gorden A, Zhang Y, Gadue P, French D, Dorman K, Fidanza A, Campbell C and **Espín-Palazón R**. Nod1-dependent NF- $\kappa$ B activation initiates hematopoietic stem cell specification in response to small Rho GTPases. *Nature Communications*. **2023**. Nov 23;14(1):7668. doi: 10.1038/s41467-023-43349-1. PMID: 37996457; PMCID: PMC10667254

Barakat R, Campbell C, **Espín-Palazón R**. Identification of Transcription Factor Binding Sites by Cleavage Under Target and Release Using Nuclease in Zebrafish. *Zebrafish* **2022** 19(3):104-108. DOI: 10.1089/zeb.2021.0082. PMID: 35704898 PMCID: PMC9246268

Campbell C., Fursova O, Cheng X, Snella E, McCune A, Li L, Solchenberger B, Schmid B, Sahoo D, Morton M, Traver D, and **Espín-Palazón R**. A zebrafish model of granulin deficiency reveals essential roles in myeloid cell differentiation. *Blood Advances* **2021**. Feb 9;5(3):796-811. DOI: 10.1182/bloodadvances.2020003096. PMCID: PMC7876888.

Campbell C, Lancman JJ, **Espín-Palazón R**, Matalonga J, He J, Graves A, Zeng X, Mishra R, Huisken J, Traver D, Dong DS. In vivo lineage conversion of vertebrate muscle into early endoderm-like cells. Under review in *Nature Communications*. *BioRxiv* **2019**. doi: <https://doi.org/10.1101/722967>

**Espín-Palazón R**, Weijts B., Mulero V., Traver D. Proinflammatory Signals as Fuel for the Fire of Hematopoietic Stem Cell Emergence. Review article. *Trends Cell Biol* **2018** Sep 4. pii: S0962-8924(17)30140-X. doi: 10.1016/j.tcb.2017.08.003. PMID: 28882414.

van der Vaart M, Svoboda O, Weijts BG, **Espín-Palazón R**, Sapp V, Pietri T, Bagnat M, Muotri AR, Traver D. Mecp2 regulates *tnfa* during zebrafish embryonic development and acute inflammation. *Dis Model Mech* **2017**. Oct 9. pii: dmm.026922. doi: 10.1242/dmm.026922. PMID: 28993314.

**Espín-Palazón R\***, Martínez-López A.\*, Roca F. J., López-Muñoz A., Falco A., Meseguer J., Estepa A., Mulero V. TNF impairs rhabdoviral clearance by inhibiting the host autophagic antiviral response. *Plos Pathogens* **2016**. PMID: 27351838.

**Espín-Palazón R**, Traver D. The NF- $\kappa$ B family: Key players during embryonic development and HSC emergence. Review article. *Experimental hematology* **2016**. PMID: 27132652.

Grainger, S.\*, Richter, J.\*, **Espín-Palazón, R**, Pouget, C., Lonquich, B., Wirth, S., Grassme, K.S., Herzog, W., Swift, M.R., Weinstein, B.M., Traver, D. and Willert, K., Wnt9a is required for the aortic amplification of nascent hematopoietic stem cells. *Cell Rep*. **2016**, 17(6):1595-1606. PMID:27806298

Butko E., Distel M., Pouget C., Weijts B., Kobayashi I., Ng K., Mosimann C., Poulain F. B., McPherson A., Ni C-W, Stachura D. L., Del Cid N., **Espín-Palazón R**, Lawson N. D., Dorsky R., Clements W. K., and Traver D. Gata2b is a restricted early regulator of hemogenic endothelium in the zebrafish embryo. *Development* **2015**. PMID: 25758220.

Candel S., Sepulcre M. P., **Espín-Palazón R.**, Tyrkalska S. D., de Oliveira S., Meseguer J., Mulero V. Md1 and Rp105 regulate innate immunity and viral resistance in zebrafish. *Developmental & Comparative Immunology* **2015**. PMID: 25681741.

Candel S\*, De Oliveira S\*, López-Muñoz A, García-Moreno D, **Espín-Palazón R**, Tyrkalska SD, Cayuela ML, Renshaw SA, Corbalán-Vélez R, Vidal-Abarca I, Tsai HJ, Meseguer J, Sepulcre MP, Mulero V. Tnfa signaling through Tnfr2 protects skin against oxidative stress-induced inflammation. *PLoS Biology* **2014**. PMID: 24802997.

**Espín-Palazón R**, Stachura DL, Campbell CA, García-Moreno D, Del Cid N, Kim AD, Candel S, Meseguer J, Mulero V, Traver D. Proinflammatory signaling regulates hematopoietic stem cell emergence. *Cell* **2014**. PMID: 25416946.

Stachura DL\*, Svoboda O\*, Campbell C, **Espín-Palazón R**, Lau RP, Zon LI, Bartunek P, Traver D. The zebrafish granulocyte colony-stimulating factors (Gcsfs): 2 paralogous cytokines and their roles in hematopoietic development and maintenance. *Blood* **2013**. PMID: 24128862.

**Espín-Palazón R\***, Roca F J\*, Candel S, Sepulcre M P, González-Rosa J M, Alcaraz-Pérez F, Meseguer J, Cayuela M L, Mercader N, Mulero V. Tumour necrosis factor receptors regulate endothelial cell survival and vascular homeostasis through a caspase-8, caspase-2 and P53 apoptotic program that bypasses caspase-3. *Disease Models and Mechanisms* **2013**. PMID: 22956347.

### **Manuscripts currently under revision**

Clyde A. Campbell, Rodolfo Calderon, Giulia Pavani, Radwa Barakat, Fang Liu, Xiaoyi Cheng, Xiyu Peng, Karin Dorman, Jeffrey J. Essner, Maura McGrail, Paul Gadue, Deborah L. French, **Espín-Palazón R**. Oscillatory signaling dynamics dictate the developmental progression of hematopoietic stem cells. *Under revision at Nature Communications*.

### **Invited talks**

2024

- Albert Einstein College of Medicine. Department of Developmental and Molecular Biology. April 9<sup>th</sup>. “A matter of timing: cell signaling dynamics during hematopoietic stem cell development”.

2023

- Invited featured speaker at 16<sup>th</sup> Zebrafish Disease Models Society Meeting (ZDM16). 2-5 Oct. Durham, NC. “Unveiling the inflammatory network that drives blood stem cell formation”
- Cincinnati Children’s Hospital. September 11<sup>th</sup>. “Uncovering inflammatory dynamics during Hematopoietic Stem Cell development”
- The Children’s Hospital of Philadelphia. July 24<sup>th</sup>. “Deconstructing inflammatory dynamics during Hematopoietic Stem Cell development”
- Biomedical Research Institute of Murcia (IMIB), Spain. June, 30. “Oscillatory NF-kB dynamics control hematopoietic stem cell specification”
- Department of Biomedical Sciences at ISU. Iowa State University. Feb 23<sup>rd</sup>. “Unveiling the inflammatory network that drives blood stem cell formation”

2022

- Scientific Workshop on Myeloid Development celebrated at the 64th American Society of Hematology (ASH). New Orleans, USA Dec 8-13<sup>th</sup>. “Deconstructing inflammatory dynamics during Hematopoietic Stem Cell development”
- 15th International Zebrafish Disease Models Society meeting (ZDM15). Sheffield, UK Sep 5-8th. (Declined).

2021

- NIH-NHLBI Workshop on Developmental Hematopoiesis. *Inflammatory signals drive neutrophil development*.
- University of Salamanca. Microbiology and molecular biology graduate program. <https://doctorado.usal.es/es/doctorado/microbiolog%C3%ADa-y-gen%C3%A9tica-molecular>

Un nuevo modelo de deficiencia de granulina en pez cebrá revela su papel esencial en hematopoyesis

- Biological Sciences Club. Iowa State University. Feb 17. Zebra-fishing for the cure of blood disorders
- Zebrafish Disease Models Society meeting (ZDM14). Oct 11. A Zebrafish Model of Granulin Deficiency Reveals Essential Roles in Myeloid Cell Differentiation
- 63th American Society of Hematology (ASH) Annual Meeting. Myeloid workshop. Dec 9-16th. (Declined).

2019

- American Society of Hematology; K2R program. December 8th, 2019. Orlando, Florida.

2018

- University of Murcia. Murcia, Spain. "Granulin drives myeloid cell development *in vivo*".

2017

- Zebrafish Disease Models Society 10 (ZDM10). Immunology RIG. San Diego, CA (USA). August 5-8, 2017. TNF impairs rhabdoviral clearance by inhibiting the host autophagic antiviral response.
- Zebrafish Disease Models Society 10 (ZDM10). Hematology-RIG-Inflammation. San Diego, CA (USA). August 5-8, 2017. *Pro-inflammatory signals as fuel for the fire of hematopoietic stem cell emergence*.

2014

- Stem cell biology in regeneration: Mechanistic insights from the Zebrafish. San Diego, CA (USA). 7 November, 2014. 17, 2013. "Hematopoietic stem cell emergence is regulated by pro-inflammatory signaling".

2013

- Zebrafish Disease Models Society 10 (ZDM6). Immunology RIG. Murcia, Spain. July 14-17, 2013. *"Pro-inflammatory signals drive hematopoietic stem cell development"*.

### **Other professional experience and memberships**

2024 **Proposal Reviewer**. National Institutes of Health Peer Review Committee – Study section: BBHV (Basic Biology of Blood, Heart and Vasculature). R21, R03 and R01 applications.

2023-2024 Local **Organizing Committee (LOC) Member** for the International Society of Experimental Hematology Meeting that will take place in Chicago, 29 August-01 Sep 2024. One-year term.

2023-present **Proposal Reviewer** for NIH-NIDDK Innovative Science Accelerator (ISAC) Program that funds high-risk/high reward projects to support cutting-edge research and accelerate true innovation.

2023 **Proposal Reviewer**. National Institutes of Health Peer Review Committee – Study section: Hemostasis, Thrombosis, Blood Cells and Transfusion (HTBT). R21, R15 and R01 applications.

2023 **International Expert Thesis Dissertation Reviewer**. PhD student: Joaquin Canton Sandoval. University of Murcia, Spain

2023 **International Expert Thesis Dissertation Reviewer**. PhD student: Elena Naranjo Sanchez. University of Murcia, Spain

2023-present **Member**, American Society of Hematology (ASH).

2023-present **Reviewer**, *Nature Communications*, *eLife* and *JoVE*.

2022-present **Review editor** for the editorial board of *Frontiers in Hematology*.

2022-present **Reviewer**, *EMBO Journal*.

2021-present **Reviewer**, *Frontiers in Cell and Developmental Biology*.

- 2021 **Proposal Reviewer**. National Institutes of Health Peer Review Committee – Study section: BBHV (Basic Biology of Blood, Heart and Vasculature). R21 and R01 applications.
- 2021-present **Member**, American Association for the Advancement of Science (AAS).
- 2020, 2021 Poster and talk **judge** for graduate symposium iBIO1 and iBIO2 (organized by MCDB)
- 2015-present **Reviewer**, *Blood Advances journal*.
- 2018 **Judge** for The 64th Annual Greater San Diego Science and Engineering Fair, March 14, 2018. Balboa Park Activity Center, San Diego, CA, USA.
- 2017-present **Member**, Zebrafish Diseases Models Society (ZDMS).
- 2017-present **Member**, International Society of Experimental Hematology (ISEH).
- 2017 **Organizer**. Zebrafish Disease Models Society 10 (ZDM10). San Diego, CA (USA). August 5-8, 2017.
- 2015-present **Member**, American Heart Association
- 2015-present **Reviewer**, *Stem Cells International scientific journal*.
- 2014-present **Reviewer**, *Molecular Immunology* scientific journal.
- 2011 **Organizer** of the XXIV Biology week for freshmen students of Bsc Biology. University of Murcia, Murcia, Spain.
- 2009 **Pedagogic Aptitude Certificate**, University of Murcia, Spain.
- 2009 **Certified Animal Cell Culturist**, Servicio de Apoyo a las Ciencias Experimentales (SACE), University of Murcia, Spain.
- 2009 **Certified Spectral Confocal Operator**, Completed Leica Operator Course, University of Barcelona, Spain.

### Participation in Scientific Meetings

- Espin-Palazon R. Oscillatory NF-kB signaling dynamics dictate the developmental progression of hematopoietic stem cells. 5<sup>th</sup> Annual Hematopoiesis G-20 Meeting. 10-13 Oct. Lake Geneva, Wisconsin. Oral presentation.
- Espin-Palazon R. Unveiling the inflammatory network that drives blood stem cell formation. 16th Zebrafish Disease Models Society Meeting (ZDM16). 2-5 Oct. Durham, NC. Oral presentation.
- Espin-Palazon R. Inflammatory factors orchestrate the birth of HSPCs through their oscillatory signaling dynamics. 17-20 August 2023. International Society of Experimental Hematology (ISEH). Oral presentation.
- Espin-Palazon R. A zebrafish model of granulins deficiency reveals essential roles in myeloid cell differentiation. 25-28 Aug 2021. International Society of Experimental Hematology (ISEH). Virtual poster.
- Espin-Palazon R. A zebrafish model of granulins deficiency reveals essential roles in myeloid cell differentiation. 21-23 April 2021. Hematopoiesis keystone symposium. Virtual poster.
- Espin-Palazon R. Granulins, revealed by single-cell RNA-sequencing of developing hematopoietic cells, drives macrophage and neutrophil differentiation. 20-23 Aug 2020. International Society of Experimental Hematology (ISEH). Virtual poster.
- Espin-Palazon R. American Society of Hematology; K2R program. December 8<sup>th</sup>, 2019. Orlando, Florida. Oral presentation (invited speaker).
- Espin-Palazon R, Xiaoyi Cheng, Clyde Campbell, Liangdao Li, Barbara Solchenberger, Bettina Schmid, Traver D. Zebra “Fishing” the Role of Granulins in Hematopoiesis. American Society of Hematology. December 7<sup>th</sup>-10<sup>th</sup>, 2019. Orlando, Florida. Poster.

Espín-Palazón R. Granulin, a novel modulator of the Pu.1/Gata1 lineage fate paradigm. SoCal zebrafish meeting. September 14<sup>th</sup>, 2018. California Institute of Technology. Pasadena, CA, USA. Oral presentation.

Espín-Palazón R, Li L, Campbell C, Solchenberger B, Schmid B, Traver D. Granulin, a novel modulator of the Pu.1/Gata1 lineage fate paradigm. 46<sup>th</sup> Annual scientific meeting International Society for Experimental Hematology (ISEH). 23-26 August 2018. Luskin Conference Center, UCLA; Los Angeles, California, USA. Poster.

Espín-Palazón R. Pro-inflammatory signals as fuel for the fire of hematopoietic stem cell emergence. Zebrafish Disease Models Society 10 (ZDM10). Hematology-RIG-Inflammation. San Diego, CA (USA). August 5-8, 2017. Oral presentation (invited speaker).

Espín-Palazón R. TNF impairs rhabdoviral clearance by inhibiting the host autophagic antiviral response. Zebrafish Disease Models Society 10 (ZDM10). Immunology RIG. San Diego, CA (USA). August 5-8, 2017. Oral presentation. (invited speaker).

Espín-Palazón R, Martínez-López A., Roca F. J., López-Muñoz A., Falco A., Meseguer J., Estepa A., Mulero V. TNF impairs rhabdoviral clearance by inhibiting the host autophagic antiviral response. Zebrafish Disease Models Society 10 (ZDM10). San Diego, CA (USA). August 5-8, 2017. Poster.

Espín-Palazón R, Stachura D., Campbell C., Garcia-Moreno D., Del Cid N., Mulero V., Traver D. Hematopoietic stem cell emergence is regulated by pro-inflammatory signaling. Stem cell biology in regeneration: Mechanistic insights from the Zebrafish. San Diego, CA (USA). 7 November, 2014. Oral presentation.

Espín-Palazón R, Stachura D., Campbell C., Garcia-Moreno D., Del Cid N., Mulero V., Traver D. Hematopoietic stem cell emergence is regulated by pro-inflammatory signaling. Zebrafish Disease Models 6. Murcia (Spain). 14-17 July, 2013. Oral presentation.

Espín-Palazón R, Stachura D., Candel S., Garcia-Moreno D., Traver D. Mulero V. Tumor necrosis factor alpha (Tnfa) plays an important role in zebrafish embryonic and adult hematopoiesis. 10th International Conference on zebrafish development and genetics. 10th International Conference on zebrafish development and genetics. University of Wisconsin-Madison. Madison, Wisconsin. USA. June 20-24, 2012. Poster.

Espín-Palazón R, Roca F. J., Candel S., Sepulcre M. P., Gonzalez-Rosa J. M., Alcaraz-Perez F., Meseguer J., Cayuela M. L., Mercader N., Mulero V. Tumor necrosis factor receptors regulate endothelial cell survival and vascular homeostasis. Zebrafish Disease Models 4. Edinburgh, Scotland; 2011. Poster.

Espín-Palazón R, Roca F. J., Falco A., Meseguer J., Estepa A., Mulero V. Fish TNF Increases the Susceptibility of EPC and ZF4 Cells to Infection with Spring Viremia of Carp Virus. 9<sup>th</sup> International Conference on Zebrafish Development and Genetics. Madison, Wisconsin, EEUU; 2010. Poster.

Espín-Palazón R, F.J. Roca, A. Falco, J. Meseguer, A. Estepa, V. Mulero. Fish TNF increases the susceptibility of EPC and ZF4 cells to infection with spring viremia of carp virus. 11th International Congress ISDCI 2009, Prague, Czech Republic; June 28-July 4, 2009. Poster.

Espín-Palazón R, Roca F.J., Candel S., Meseguer J., Mulero V. Inflammatory model development in Zebrafish and studies in the intermembrane proteolysis of the TNF on the regulation of the immune response. XII Congreso de la Sociedad Española de Biología Celular, Pamplona, España, 2007. Poster.

## Teaching and Mentoring Activities

### *List courses taught at Iowa State University as Assistant Professor –*

<b>Semester</b>	<b>Course</b>		<b>% Effort</b>	<b>Credits</b>	<b>Enrollment</b>
F2023	GDCB 533	Advances in Dev Cell Biology	50%	3	17
	BIOL 499	Undergraduate Research	100%	3	1
	GDCB 699	Research/Thesis credits	100%		5
	GDCB 590	Special Topics	100%	1	5
S2023	BIOL 314	Principles of Molecular Biology	50%	3	161
	BIOL 499	Undergraduate Research	100%	3	1
	GDCB 699	Research/Thesis credits	100%		5
	GDCB 590	Special Topics	100%	1	5
F2022	GDCB 528	Advances in Molecular Cell Biology	50%	3	13
	BIOL 499	Undergraduate Research	100%	3	1
	GDCB 699	Research/Thesis credits	100%		5
	GDCB 590	Special Topics	100%	1	5
S2022	BIOL 314	Principles of Molecular Biology	50%	3	270
	GDCB 699	Research/Thesis credits	100%		3
F2021*	GDCB 533	Advances in Developmental Biology	10%	3	9
	BIOL 499	Undergraduate Research	100%	3	2
S2021	BIOL 314	Principles of Molecular Biology	50%	3	228
	GDCB 699	Research/Thesis credits	100%		3
F2020	GDCB 528	Advances in Molecular Cell Biology	50%	3	6
	BIOL 499	Undergraduate Research	100%	3	2
	GDCB 699	Research/Thesis credits	100%		2
S2020	GDCB 699	Research/Thesis credits	100%		2

### *Summary of the results of student evaluations-*

Semester and Year	Course #	Total Enrollment	% of Students Responding	Overall Rating of the course	Department Mean of Comparable Courses*	Overall Rating of Instructor	Department Mean of instructor for Comparable Courses*
F2023	GDCB533	17	70.59%	3.5	N/A	4.08	N/A
S2023	Biol 314	161	49.07%	4.03	3.86	4.53	4.03
F2022	GDCB528	13	84.62%	4.45	N/A	4.73	N/A
S2022	Biol 314	270	56.07%	4.09	4.12	4.33	4.26
S2021***	Biol 314	228	56.58%	3.83	4.12	3.93	na**
F2020	GDCB 528	6	66.67%	4.75	4.27	4.83	na**

\*Reflects the mean of other undergraduate level courses from 2020 to 2022. Scale is 1 to 5, with 5 best.  
N/A: data not yet available.

\*\* na, not assessed. During pandemic, instructors were not assessed. AY21-ISU eval used.

\*\*\* Biol314 was offered online during S2021 due to the onset of the pandemic. Instructors are not obligated to report their teaching evaluations for this semester.

## ***Mentoring in the Laboratory-***

List of the undergraduate, graduate, postdoctoral and staff members mentored on research projects:

<b>Name</b>	<b>Dates</b>	<b>Position</b>
Maliha Jahan#	S2023-current	Rotation student
Min Jung Kwon#	F2023	Rotation student
Samantha Birkeland#	S2024-current	Undergraduate researcher
Amelia K Case#	F2023-current	Undergraduate researcher
Jessica Tupy#	F2021-current	Undergraduate researcher
Inga Baldus#	F2021-current	Undergraduate researcher
Harkiran Ballagan#~	F2021-current	Undergraduate researcher
David Reynolds	S2021	Undergraduate researcher
Ashley Winterowd#	F2020	Undergraduate researcher
Corynn Klehm#	F2020	Undergraduate researcher
Abigail Gorden#@	S2020-Su2021	Undergraduate/graduate researcher
Amy Kraak#	S2020-current	Undergraduate researcher
Gabrielle Dubansky#	F2022-F2023	Master student
Anthony Sillman	S2022-current	PhD student
Rodolfo Calderon~	S2022-current	PhD student
Kari Kennedy#&	S2021-S2022	PhD student
Xiaoyi Cheng#	S2020-current	PhD student
Abbigail McCune#	S2020-current	PhD student
John Taylor	S2022-current	Technician
Oksana Fursova#	S2020-F2020	Technician
Liz Snella#	F2019-current	Technician
Radwa Barakat#	S2021-current	Postdoctoral fellow

#Female (Total 18)

~First-Generation or underprivileged students (total 2)

(Total 22 mentees in my laboratory)

## **Institutional Service**

2021-present Organizer of Cyzig (ISU zebrafish interest group meeting).

2020-present Study Ph.D. Program Committee Member. Current (3 students). Iowa State University.

2019-present Chair/Major Professor of Study Ph.D. Program Committee. Current (3 students). Iowa State University.

2019-present Molecular, Cellular, and Developmental Biology Graduate Program Admission Committee, GDCB, Iowa State University.

2019-present Departmental Seminar Committee, GDCB, Iowa State University.