

## Elisa T. Zhang

Departments of Physiology & Membrane Biology and Obstetrics & Gynecology  
University of California, Davis

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### Education

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Ph.D. in Molecular and Cell Biology University of California, Berkeley	2009-2015
A.B. <i>magna cum laude</i> in Molecular and Cellular Biology Harvard College	2004-2008

### Research Experience

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Jul. 2024 – present	Assistant Professor Department of Physiology and Membrane Biology Department of Obstetrics and Gynecology University of California, Davis
2020 – 2024	Postdoctoral Researcher Advisor: Dr. Calvin J. Kuo Topic: Organoid models of the uterine endometrium and maternal-fetal interface
2016 – 2020	A.P. Giannini Foundation Postdoctoral Researcher Advisor: Dr. Julie C. Baker Topic: Impact of uterine injury on the maternal-fetal interface
2009-2015	Ph.D. Candidate and Postdoctoral Associate UC Berkeley and HHMI Advisor: Dr. Robert Tjian Thesis topic: Structural and biochemical characterization of the XPC DNA repair complex and embryonic stem cell transcriptional co-activator
2008 – 2009	Fulbright Fellow European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany Advisor: Dr. Andreas Ladurner Topic: X-ray crystallography of the FACT histone chaperone complex
2006 – 2008	Harvard College Research Program (HCRP) Fellow Advisor: Dr. Tom Maniatis Thesis: Distinct sets of mRNA targets exhibit differential miRNA dose responses
2005 - 2006	Undergraduate research student Advisor: Dr. Sam Kunes Topic: Hedgehog signaling in <i>Drosophila melanogaster</i> eye and brain development
2001 - 2004	High school research student, Science Enrichment Program for Students Barrow Neurological Institute and Arizona State University Advisor: Dr. Thomas A. Day Topic: UV-induced Antarctic and Sonoran Desert plant degradation

### Awards and Honors

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2024	HHMI Freeman Hrabowski Award Finalist (competition ongoing until June, 2025)
2024	UC Davis Travel Grant
2024	2 <sup>nd</sup> place winner, Stanford Postdoc Symposium
2023	Selected Speaker: Ethel Browne Harvey Postdoctoral Seminar Series, SDB
2018	Henzl-Gabor Young Women in Science Fund for Postdoctoral Scholars Travel Award

2017	A.P. Giannini Foundation Postdoctoral Fellowship
2017	NIH F32 Postdoctoral Fellowship – 6 <sup>th</sup> percentile score (declined)
2017	SPARK scholar, Stanford University
2017	Dean's Postdoctoral Fellowship, Stanford University
2017	Chan-Zuckerberg Biohub Human Cell Atlas grant
2016	Child Health Research Institute Postdoctoral Award & Grant, Stanford University
2015	UC Berkeley Alan J. Bearden Award for the outstanding dissertation on a biophysical topic
2012	UC Berkeley Outstanding Graduate Student Instructor Award
2009	NSF Graduate Research Fellow
2009	UC Berkeley Distinguished Fellow
2008	Fulbright Research Fellow
2008	Thomas Temple Hoopes Prize for Outstanding Senior Thesis
2006	Radcliffe Fellowship
2006	Fellow, Harvard Program for Research in Science and Engineering (PRISE)
2006-2008	Fellow, Harvard College Research Program
2005	Lung Kong Tin Yee Scholar
2004	U.S. Presidential Scholar
2004	National Merit Scholar
2004	Association for Women in Science Educational Foundation Award
2003	Harvard University Book Award

## **Publications and Preprints**

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1. **E.T. Zhang** (2024). Mouse Surgical Model of Mechanical Uterine Injury and Subsequent Embryo Defects. *Current Protocols in Mouse Biology*. doi.org/ 10.1002/cpz1.1044
2. **E.T. Zhang**, K.L. Wells, A.J. Bergman, E.E. Ryan, L.M. Steinmetz, J.C. Baker (2024). Uterine injury during diestrus leads to embryo spacing defects and perturbations in the COX pathway in subsequent pregnancies. *Biology of Reproduction*. doi.org/10.1093/biolre/loae001  
  
*Preprint: E.T. Zhang*, K.L. Wells, L.M. Steinmetz, J.C. Baker (2022). Uterine injury during diestrus leads to embryo spacing defects and perturbations in the COX pathway in subsequent pregnancies. *bioRxiv*. doi.org/10.1101/2022.03.15.484521
3. **E.T. Zhang**, R.L. Hannibal, K.M. Badillo-Rivera, K. McGowan, J.H.T. Song, X. Zhu, G. Meinhardt, M. Knöfler, J. Pollheimer, A.E. Urban, A. Folkins, D.J. Lyell, J.C. Baker (2021). PRG2 and AQPEP are misexpressed in fetal membranes in placenta previa and percreta. *Biology of Reproduction*. 105(1):244-257.  
  
*Preprint: E.T. Zhang*, R.L. Hannibal, K.M. Badillo-Rivera, K. McGowan, J.H.T. Song, X. Zhu, O. Kleinfeld, A. Folkins, J.C. Baker (2020). PRG2 and AQPEP are misexpressed in fetal membranes in placenta previa and percreta. *bioRxiv*. doi.org/10.1101/2020.08.14.248807.
4. R. Polak, **E.T. Zhang**, C.J. Kuo. Organoid 2.0: advances in human organoid systems representing the immune microenvironment of cancers. *Nature Reviews Cancer*. 24:523–539.
5. A.J.M. Santos, V.v. Unen, Z. Lin, N. Ha, A. Batish, J.E. Chan, S.M. Chirieleison, Q. Mu, J.L. Cedano, A. Guh-Siesel, M. Tomaske, **E.T. Zhang**, S.S. Choi, A. Christophersen, A. Baghdasaryan, K.E. Yost, K. Karlsson, A. Ha, J. Li, H. Dai, Z.M. Sellers, H.Y. Chang, J.C.Y. Dunn, B.M. Zhang, E.D. Mellins, L.M. Sollid, N.Q. Fernandez-Becker, M.M. Davis, C.J. Kuo. A human autoimmune organoid model reveals IL-7 function in celiac disease. *Nature*. 632:401–410.
6. M.A. Nieves-Colón\*, K.M. Badillo Rivera\*, K. Sandoval Mendoza, V. Villanueva Dávalos, L.E. Enriquez Lencinas, J.W. Chen, **E.T. Zhang**, A. Sockell, P. Ortiz Tello, G.M. Hurtado, R. Condori Salas, R. Cebrecos, J.C. Manzaneda Choque, F.P. Manzaneda Choque, G.P. Yábar Pilco, E. Rawls, C. Eng, S. Huntsman, E.G. Burchard, G. Poletti, C. Gallo, C.D. Bustamante, J.C. Baker, C.R. Gignoux, G.L. Wojcik, A. Moreno-Estrada (2022). Clotting factor genes are associated with preeclampsia in high altitude pregnant women in the Peruvian Andes. *AJHG*. 109(6):1117-1139.

*Preprint:* K.M. Badillo Rivera\*, M.A. Nieves-Colón\*, K.Sandoval Mendoza, V. Villanueva Dávalos, L.E. Enriquez Lencinas, J.W. Chen, **E.T. Zhang**, A. Sockell, P. Ortiz Tello, G.M. Hurtado, R. Condori Salas, R. Cebrecos, J.C. Manzaneda Choque, F.P. Manzaneda Choque, G.P. Yábar Pilco, E. Rawls, C. Eng, S. Huntsman, E.G. Burchard, G. Poletti, C. Gallo, C.D. Bustamante, J.C. Baker, C.R. Gignoux, G.L. Wojcik, A. Moreno-Estrada (2021). Clotting factor genes are associated with preeclampsia in high altitude pregnant women in the Peruvian Andes. *medRxiv*. doi.org/10.1101/2021.05.20.21257549.  
\*Equal contribution.

7. **E.T. Zhang**, Y. He, P. Grob, Y.W. Fong, E. Nogales, R. Tjian (2015) Architecture of the human XPC DNA repair and Stem Cell Coactivator Complex. *PNAS*. 112(48):14817-22.
8. C. Cattoglio, **E.T. Zhang**, I. Grubisic, K. Chiba, Y.W. Fong, R. Tjian (2015) Functional and mechanistic studies of XPC DNA-repair complex as transcriptional coactivator in embryonic stem cells. *PNAS*. 112(18):E2317-26.
9. S.C. Knight, L. Xie, W. Deng, B. Guglielmi, L.B. Witkowsky, L. Bosanac, **E.T. Zhang**, M. El Beheiry, J.-B. Masson, M. Dahan, Z. Liu, J. Doudna, R. Tjian (2015) Dynamics of CRISPR-Cas9 Genome Interrogation in Living Cells. *Science*. 350(6262):823-826.
10. M. Hondele\*, T. Stuwe\*, M. Hassler, F. Halbach, A. Bowman, **E.T. Zhang**, B. Nijmeijer, C. Kotthoff, V. Rybin, S. Amlacher, E. Hurt, A.G. Ladurner (2013) Structural basis of histone H2A-H2B recognition by the essential chaperone FACT. *Nature* 499:111-114.
11. T. Chu, M. Chiu, **E. Zhang**, S. Kunes (2006) A C-terminal motif targets Hedgehog to axons, coordinating assembly of the Drosophila eye and brain. *Dev Cell* 10:635-646.
12. T.A. Day, **E.T. Zhang**, C.T. Ruhland (2007) Exposure to solar UV-B radiation accelerates mass and lignin loss of *Larrea tridentata* in the Sonoran Desert. *Plant Ecology* 193: 185-194.

## **Manuscripts**

1. N. Ng, **E.T. Zhang**. Model of Mechanical Uterine Injury in the Mouse. Journal of Visualized Experiments. Submitted.
2. S. Miller, D.J. Lyell, I. Maric, S. Lancaster, K. Sylvester, K. Contrepolis, S. Kruger, J. Burgess, D. Stevenson, N. Aghaeepour, E.T. Zhang, K. Badillo Rivera, N. Moretti, R. Silver, B.D. Einerson, K. Bianco. Predicting Placenta Accreta Spectrum through Machine Learning Utilizing Metabolomic and Lipidomic Profiling and Clinical Characteristics. Manuscript in Preparation.
3. **E.T. Zhang**, J.L. Cedano, M.R. Strug, K.N. Manzanares, A.V.-K. Tran, K.S. Kolahi, C.J. Kuo. Modeling Endometrial Cancer Using Human Organoids. Manuscript in Preparation.

## **Presentations**

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Invited Talk: “Modeling the uterus and maternal-fetal interface in health and disease: womb for improvement.” The Feinstein Institutes for Medical Research, July 2024. Manhasset, NY.

Invited Talk: “Modeling the uterus and maternal-fetal interface in health and disease: womb for improvement.” American Society for Reproductive Immunology Conference, May 2024. Houston, TX.

Invited Talk: “Modeling endometrial cancer using genetically engineered primary organoids.” Stanford Hematology-Oncology Retreat, Sept. 2023. Asilomar, CA.

Invited Talk: “Modeling the Maternal-Fetal Interface in Health and Disease: Womb for Improvement” UC Davis, Dept. of Physiology and Membrane Biology, Aug. 2023. Davis, CA.

Invited Talk: "Uterine injury during diestrus leads to placental and embryonic defects in future pregnancies in mice"  
Society for Developmental Biology, Ethel Browne Harvey Postdoctoral Seminar Series, May 2023. Palo Alto, CA via Zoom.

Invited Talk: "Organoid models of the human uterine endometrium."  
Stanford/UNC NIH/NIAID Biomimetic U19 Research Center, October 2022. Palo Alto, CA via Zoom.

Invited Talk: "Womb for Improvement: Modeling the Maternal-Fetal Interface in Health and Disease"  
Stanford School of Medicine, Dept. of OB/GYN and Dunlevie Maternal-Fetal Medicine Center, Mar. 2022. Palo Alto, CA via Zoom.

Invited Talk: "Endometrial Organoids in Health and Disease."  
Stanford Placental Club, May 2021. Palo Alto, CA via Zoom.

Invited Talk: "Implantation and placentation in an injured uterus: conflict and compromise at the maternal-fetal interface."  
Harvard T.H. Chan School of Public Health, Department of Environmental Health, April 2020. Cambridge, MA. Palo Alto, CA via Zoom.

Invited Talk: "The placenta: conflict and compromise at the maternal-fetal interface and implications for neurodevelopment."  
University of Pennsylvania, Lifespan Brain Institute, March 2019. Philadelphia, PA.

Invited Talk: "Placenta accreta: breaching the maternal-fetal interface."  
International Federation of Placental Associations (IFPA) Conference, Aug. 2017. Manchester, UK.

Talk: "Implantation and placentation in a novel mouse model of uterine injury."  
Placenta and Maternal-Fetal Interface Virtual Seminar Series, Sept. 2020. Palo Alto, CA via Zoom.

## **Poster Presentations and Abstracts**

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Poster Presentation: "Uterine injury leads to placental and embryonic defects in future pregnancies."  
International Federation of Placental Associations (IFPA). September 2024. Montreal, Canada.

Poster Presentation: "Uterine injury leads to placental and embryonic defects in future pregnancies."  
Society for the Study of Reproduction. July 2024. Dublin, Ireland.

Poster Presentation: "Uterine injury leads to placental and embryonic defects in future pregnancies."  
Society for Developmental Biology. July 2024. Atlanta, GA.

Invited Poster Presentation: "Molecular and cellular characterization of placenta previa and accreta."  
Maternal and Child Health Research Institute Symposium, Stanford University. Nov. 2018. Palo Alto, CA.

Poster Abstract: "Clotting factor genes are associated with preeclampsia in high altitude pregnant women in the Peruvian Andes."  
Midwest Population Genetics Meeting. August 2021. University of Wisconsin Madison.

Poster Presentation: "Molecular and cellular characterization of placenta previa and accreta."  
Society for Reproductive Investigation Annual Meeting. March 2019. Paris, France.

Poster Presentation: “Functional characterization and modeling of placental invasiveness at the maternal-fetal interface.”

Keystone Symposium: Maternal-Fetal Crosstalk: Harmony vs. Conflict. Oct. 2017. Washington, DC.

Poster Presentation: “RNA in transcriptional regulation: the pluripotency factors SOX2 and XPC (SCC).” Bay Area RNA Club Meeting, July 2015. San Francisco, CA.

Poster Presentation: “Structural and biochemical insights on the XPC complex, a transcriptional co-activator required for embryonic stem cell pluripotency.”

Keystone Symposium: Transcriptional and Epigenetic Influences on Stem Cell States, March 2015. Steamboat Springs, CO.

Poster Presentation: “Structural and biochemical insights on the XPC complex, a transcriptional co-activator required for embryonic stem cell pluripotency.”

12<sup>th</sup> Annual Advanced Imaging Methods Workshop, February 2015. Berkeley, CA.

Invited Poster Presentation: “Electron microscopy structures of the XPC DNA repair complex, a transcriptional co-activator in embryonic stem cells.”

HHMI Investigator Meeting, September 2014. Janelia Research Campus, Ashburn, VA.

Poster: “Structural insights on the XPC DNA repair complex, a stem-cell-specific transcriptional co-activator.”

CSHL Mechanisms of Eukaryotic Transcription Meeting, August 2013. Cold Spring Harbor, NY.

## **Peer Review**

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Ad hoc reviewer, Biology of Reproduction

Ad hoc reviewer, American Journal of Reproductive Immunology

Ad hoc reviewer, Molecular Human Reproduction

Ad hoc reviewer, PLoS One

Ad hoc reviewer, BioEssays

## **Advisory Boards**

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Scientific Advisor, Avestria Ventures

2019 - present

## **Membership in Professional Associations**

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Society for Reproductive Investigation

2024 – present

Society for the Study of Reproduction

2019 – present

Society for Developmental Biology

2019 – present

## **Teaching Experience**

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2012, 2013

Instructor: Biological Sciences Discipline Cluster workshop  
Teaching Conference for First-Time Graduate Student Instructors

2013

Instructor: Grading Strategies workshop  
GSI Teaching & Resource Center

2013

Developer: iBiology.org - iBioseminar Teaching Tools accompanying “The Molecular Biology of Gene Regulation”

2011	Graduate Student Instructor MCB 102: Survey of Biochemistry and Molecular Biology Outstanding Graduate Student Instructor Award, 2012
2010	Graduate Student Instructor MCB 110: Molecular Biology: Macromolecular Synthesis and Cellular Function

## **Mentoring Training and Experience**

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2025	Compass Leadership and Management Training and Mentoring Program NIH
2024	New Faculty Bootcamp Society for Developmental Biology
2018	Mentoring Skills Workshop Stanford Teaching and Mentoring Academy
2016	Team Science Workshop Stanford Office of Postdoctoral Affairs
2016	Improv for Communication for Postdocs Stanford Office of Postdoctoral Affairs
2024	Nathan Ng Junior Specialist, Zhang lab
2024	Zeena Alzanoon Undergraduate, Zhang lab
2024	Ella Siruno Undergraduate, Zhang lab
2024	Madelyn Mauro Stanford M.D. student
2023	Alex Guh-Siesel Harvard undergraduate research student
2023	Lauren Guh-Siesel High school research student
2021-2024	Jose L. Cedano California Institute for Regenerative Medicine (CIRM) Bridges scholar
2021-2023	Karla N. Manzanares Garcia Stanford undergraduate research student
2021-present	Alexis V.-K. Tran Stanford Institutes of Medicine Summer Research Research Program (SIMR) student Stanford undergraduate research student
2017-2020	Kay C. Kobak PhD student
2020	Alanna L. Pyke PhD student; Stanford ADVANCE Summer Institute: Journal Club
2017-2019	Keyla M. Badillo Rivera PhD student
2019	Kelly A. Tomins PhD rotation student

2018	Chloe Starbird High school research student
2018	Kevin Wickham Stanford Summer Research Program (SSRP) undergraduate student
2017	Calvin G. Ludwig Stanford Summer Research Program (SSRP) undergraduate student
2017	Anima Shrestha Stanford undergraduate research student

## **Other Related Experience**

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2023	Co-Investigator, NIH NCI R01 (submitted)
2023	Stanford Dunlevie Center for Maternal-Fetal Health Seed Grant
2021	Stanford Cancer Institute Innovation Award
2020	Stanford Maternal Child Health and Research Institute (MCHRI) Pilot Grant
2020	Stanford Women's Health and Sex Differences Center (WHSDM) Seed Grant

## **Professional Service & Leadership**

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UC Davis MCIP Graduate Program Admissions Committee	2024-2025
Stanford Dept. of Genetics Retreat Postdoctoral Committee Member and Organizer	2019
Founder and organizer, Stanford Biosciences Postdoctoral Journal Club	2018-present
Founder and organizer, Stanford Biosciences Postdoctoral Lunch Club	2018-present
Mentor, Stanford First-Generation/Low-Income Student Program	2016-2019
Co-organizer, Stanford Postdoctoral Alumni Network Initiative	2017-2018
President, UC Berkeley Dept. of MCB Graduate Student Organization	2014-2015
Vice-President, UC Berkeley Dept. of MCB Graduate Student Organization	2012-2013
Co-founder and co-organizer, UC Berkeley and CHORI Stem Cell Journal Club	2011-2015
UC Berkeley MCB Divisional Student Representative	2013-2015
Organizer, UC Berkeley MCB Thesis Evening Research Presentations	2012-2013
Student representative, UC Berkeley MCB Graduate Affairs Committee	2011-2013
Student representative, UC Berkeley MCB Graduate Admissions Committee	2011-2012
Delegate, UC Berkeley Graduate Assembly	2010-2011
Founder & President, Harvard University Biological Sciences Society (HUBSS)	2005-2008