Edward Boyi Chuong

Curriculum Vitae

Assistant Professor
University of Colorado Boulder
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https://chuonglab.colorado.edu
Google scholar: https://scholar.google.com/citations?user=VLibLeMAAAAJ&hl=en

Education and Positions

Education

2007 - 2013 Ph.D. Genetics, Stanford University School of Medicine
2003 - 2007 B.S. Bioengineering: Bioinformatics, University of California, San Diego

Research positions

2018 - current **Assistant Professor**
Packard Fellow
BioFrontiers Institute
Department of Molecular, Cellular, and Developmental Biology
University of Colorado Boulder

2013 - 2018 **Postdoctoral fellow**
HHMI fellow of the Jane Coffin Childs Memorial Fund
Department of Human Genetics (Advisors: Dr. Cedric Feschotte, Dr. Nels Elde)
University of Utah School of Medicine
Endogenous retroviruses and immune evolution

2007 - 2013 **Graduate student**
NSF Graduate Research Fellow
Department of Genetics (Advisor: Dr. Julie Baker)
Stanford University School of Medicine
Placenta development and evolution

Research focuses: Genomics, innate immunity, transposable elements, gene regulation

Honors and Awards

2024	CU Boulder Graduate School's Outstanding Faculty Mentor Award
2023	Regeneron Young Investigator Award, International Cytokine and Interferon Society
2022	Kavli Frontiers of Science Fellow of the National Academy of Sciences
2020 - 2025	Packard Fellowship for Science and Engineering
2019 - 2021	Sloan Research Fellow in computational and evolutionary molecular biology
2018 – 2029	NIH Maximizing Investigators' Research Award (R35) for Early Stage Investigators
2018 - 2021	Boettcher Foundation Webb-Waring Biomedical Research Award
2018 - 2021	Marvin H. Caruthers Endowed Chair for Early Career Faculty
2014 - 2017	HHMI Postdoctoral Fellowship from the Jane Coffin Childs Memorial Fund
2009	International Federation of Placenta Associations Highly Commended New Investigator
2008 - 2011	NSF Graduate Research Fellowship
2007	UCSD School of Engineering Distinguished Leadership and Service Award
2006	UCSD Chancellor's Research Scholarship
2006	Barry M. Goldwater Scholarship

Publications

Chuong lab members in bold; Asterisk (*): co-corresponding; carat (^) co-first

Publications as faculty (2018 and later)

9 primary research papers published as corresponding/co-corresponding author since joining CU faculty in 2018

Peer reviewed manuscripts

Citation counts according to Google Scholar as of January 2024

Reference	**# citations**
Hsieh J, Danis EP, Owens CR, Parrish JK, Nowling NL, Wolin AR, Purdy SC, Rosenbaum SR, **Ivancevic AM**, **Chuong EB**, Ford HL, Jedlicka P. Dependence of PAX3-FOXO1 chromatin occupancy on ETS1 at important disease-promoting genes exposes new targetable vulnerability in Fusion-Positive Rhabdomyosarcoma. *Oncogene* (2024). doi: 10.1038/s41388-024-03201-2	-
Pasquesi GIM, Allen H, Ivancevic A, Barbachano-Guerrero A, **Joyner O,** Guo K, **Simpson DM, Gapin K, Horton I, Nguyen L,** Yang Q, Warren CJ, Florea LD, Bitler BG, Santiago ML, Sawyer SL, **Chuong EB.** Regulation of human interferon signaling by transposon exonization. *Cell* (2024) doi:10.1016/j.cell.2024.11.016 [highlighted by *Nature Reviews Immunology* and *Molecular Cell*]	-
Nguyen LL^, Watson ZL^, Ortega R, Woodruff E, Jordan K, Iwanaga R, Yamamoto T, Bailey C, **Jeong AD**, To F, Guntupalli S, Behbakht K, Gibaja V, Arnoult N, **Chuong EB***, Bitler B. EHMT/G9A inhibition promotes regression of therapy-resistant ovarian cancer tumors in a CD8 T cell-dependent manner. *Molecular Cancer Research* (2024). [co-corresponding; Nguyen co-mentored by Chuong and Bitler]	-
Kablefleisch T, McKay S, […], **Chuong EB**, […] , Rosen BD. The Ruminant Telomere-to-Telomere (RT2T) Consortium. *Nature Genetics* (2024) Aug;56(8):1566-1573. doi: 10.1038/s41588-024-01835-2. [Perspective]	-
Ivancevic A, Simpson DM, Joyner OM, Bagby SM, **Nguyen LL**, Bitler BG, Pitts TM, **Chuong EB.** Endogenous retroviruses mediate transcriptional rewiring in response to oncogenic signaling in colorectal cancer. *Science Advances* (2024) May 17. doi:10.1126/sciadv.ado1218	-
Dziulko A, **Allen H**, **Chuong EB**. An endogenous retrovirus regulates tumor-specific expression of the immune transcriptional regulator SP140. *Human Molecular Genetics* (2024) May 15:ddae084. doi: 10.1093/hmg/ddae084	-
Nguyen LL^, Watson ZL^, Ortega R, Woodruff ER, Jordan KR, Iwanaga R, Yamamoto TM, Bailey CA, To F, **Jeong AD**, Guntupalli SR, Behbakht K, Gibaja V, Arnoult N, Cocozaki A, **Chuong EB***, Bitler BG*. Combining EHMT and PARP Inhibition: A Strategy to Diminish Therapy-Resistant Ovarian Cancer Tumor Growth while Stimulating Immune Activation. *Molecular Cancer Therapeutics* (2024). May 8. doi: 10.1158/1535-7163.MCT-23-0613 [co-corresponding; Nguyen co-mentored by Chuong and Bitler]	-

Buttler C, Ramirez D, Dowell RD, **Chuong EB**. An intronic LINE-1 regulates IFNAR1 expression in human immune cells. *Mobile DNA* (2023) Nov 30;14(1):20. doi: 10.1186/s13100-023-00308-3. 3

Ramirez D, **Chuong EB**, Dowell RD. Nascent transcription upon interferon-α2 stimulation on human and rhesus macaque lymphoblastoid cell lines. *BMC Research Notes* (2023) -

Horton I*, Kelly CJ*, Dziulko A, Simpson DM, Chuong EB. Mouse B2 SINE elements function as IFN-inducible enhancers. *eLIFE* (2023) May 9:12:e82617. doi: 10.7554/eLife.82617. 10

McMellen A, Yamamoto T, Qamar L, Sanders B, **Nguyen LL**, Chavez DO, Bapa J, Berning A, Post M, Johnson J, Behbakht K, Nurmemmedov E, **Chuong EB**, Bitler BG. ATF6-mediated signaling contributes to PARP inhibitor resistance in ovarian cancer. *Molecular Cancer Research* (2022) Jan 3;21(1):3-13. doi: 10.1158/1541-7786.MCR-22-0102. 7

Kelly CJ, Chitko-McKown C**, Chuong EB.** Ruminant-specific retrotransposons shape regulatory evolution of bovine immunity. *Genome Research* (2022) Aug 10;32(8):1474-1486. doi: 10.1101/gr.276241.121. 17

Pasquesi GIM, Kelly CJ, Ordonez A, Chuong EB. Transcriptional dynamics of transposable elements in the type I IFN response in Myotis lucifugus cells. *Mobile DNA* (2022) Sep 6;13(1):22. doi: 10.1186/s13100-022-00277-z 3

Perry BW, Gopalan SS, **Pasquesi GIM**, Schield DR, Westfall AK, Smith CF, Koludarov I, Chippindale PT, Pellegrino MW, **Chuong EB**, Mackessy SP, Castoe TC. Snake venom gene expression is coordinated by novel regulatory architecture and the integration of multiple co-opted vertebrate pathways. *Genome Research* (2022) Jun;32(6):1058-1073. doi: 10.1101/gr.276251.121. 13

Buttler CA, Chuong EB. Emerging roles for endogenous retroviruses in immune epigenetic regulation. *Immunological Reviews* (2022) Jan;305(1):165-178. doi: 10.1111/imr.13042 [Review article] 23

Ivancevic A, **Chuong EB**. Transposable elements teach T cells new Tricks. *PNAS* (2020) Apr 28;117(17):9145-9147. doi: 10.1073/pnas.2004493117. [Commentary] 13

Branco M, **Chuong EB**. Crossroads between transposons and gene regulation. *Phil. Trans. R. Soc. B* (2020) Mar 30;375(1795):20190330. doi: 10.1098/rstb.2019.0330. [Commentary] 19

Raviram R, Rocha PP, Luo VM, Swanzey E, Miraldi ER, **Chuong EB**, Feschotte C, Bonneau R, Skok JA. Analysis of 3D genomic interactions identifies candidate host genes that transposable elements potentially regulate. *Genome Biology* (2019) Dec 13;19(1):216. doi: 10.1186/s13059-018-1598-7 44

Chuong EB. The placenta goes viral: retroviruses control gene expression in pregnancy. *PLOS Biology* (2018) Oct 9;16(10):e3000028. doi: 10.1371/journal.pbio.3000028 [Commentary] 94

Publications prior to 2018 prior to faculty position

Guernsey MW, **Chuong EB**, Cornelis G, Renfree MB*, Baker JC*. Molecular conservation of marsupial and eutherian placentation and lactation. *eLIFE* (2017) 6:e27450 [covered by perspectives in *eLIFE* and Nature News] 46

Chuong EB, Elde NC, Feschotte C. Regulatory activities of transposable elements: from conflicts to benefits. *Nature Reviews Genetics* (2017) 18: 71-86	1187
Yu Y, Yarrington RM, **Chuong EB**, Elde NC, Stillman DJ. Disruption of promoter memory by synthesis of a long noncoding RNA. *PNAS* (2016) 113: 9575-9580	28
Chuong EB, Elde NC*, Feschotte C*. Regulatory evolution of innate immunity through co-option of endogenous retroviruses. *Science* (2016) 351: 1083-1087 [covered by perspectives in *Science* and *Current Biology*]	888
Hannibal RL, **Chuong EB**, Mulia JR, Gilbert DM, Valouev A, Baker JC. Copy number variation is a fundamental aspect of the placental genome. *PLOS Genetics* (2014) 10(5): e1004290	78
Wills AE, Gupta R, **Chuong EB**, Baker JC. Chromatin immunoprecipitation and deep sequencing in Xenopus tropicalis and Xenopus laevis. *Methods* (2014) 66(3):410-21.	11
Chuong EB, Feschotte C. Transposons up the dosage. *Science* (2013) 342 (6160):812-813. [Commentary]	3
Chuong EB, Hannibal RL, Green SL, Baker JC. Evolutionary perspectives into placental biology and disease. *Applied & Translational Genomics* (2013) 2:64-69	18
Chuong EB. Retroviruses facilitate the rapid evolution of the mammalian placenta. *Bioessays* (2013) 35:10 853-861	109
Chuong EB, Rumi MA, Soares MJ, Baker JC. Endogenous retroviruses function as species-specific enhancer elements in the placenta. *Nature Genetics* (2013) 45: 325-329. [covered by perspective in *Biology of Reproduction*]	437
Yoon SJ, Wills AE, **Chuong EB**, Gupta R, Baker JC. HEB and E2A function as SMAD/FOXH1 cofactors. *Genes and Development* (2011) 25: 1654-1661.	74
Kim SW^, Yoon SJ^, **Chuong EB^**, Oyolu CB, Wills AE, Gupta R, Baker JC. Chromatin and transcriptional signatures for Nodal signaling during endoderm formation in hESCs. *Developmental Biology* (2011) 357 (2):495-504 [co-first; conducted all genomics analysis]	158
Chuong EB, Tong W, Hoekstra HE. Maternal-fetal conflict: Rapidly evolving proteins in the rodent placenta. *Molecular Biology and Evolution* (2010) 27 (6):1221-1225	50
Turner LM, **Chuong EB**, Hoekstra HE. Comparative analysis of testis protein evolution in rodents. *Genetics* (2008) 179: 2075-2089.	77

Book chapters

Simpson DM, Chuong EB. Genetic knockout of TE insertions by CRISPR-Cas9. *Transposable Elements. Methods in Molecular Biology, vol 2607* (2022) doi:10.1007/978-1-0716-2883-6_17

Patents

Pasquesi GIM, Chuong EB. REGULATION OF TYPE I IFN SIGNALING BY TARGETING A DECOY RECEPTOR. US Prov App No 63/339,572.
Provisional patent filed 5/9/2022

Presentations

14 invited conference talks and 9 seminars since joining CU faculty in 2018.

Conference and symposium presentations

2025	Bellairs, Barbados	The Barbados Workshop on Pangenome Graphs [invited speaker]
2025	Heidelberg, Germany	EMBO Mobile Genomes conference [invited speaker]
2025	Easton, MA	Gordon Research Conference: Molecular Mechanisms in Evolution [invited speaker]
2025	Belfast, Ireland	Genetics Society UK Epigenetics-2025: From Mechanisms to Disease [invited speaker]
2024	Cold Spring Harbor, NY	CSHL Transposable Elements [invited speaker]
2023	Whistler, BC Canada	Keystone Symposia on Transposable elements [invited speaker]
2023	Athens, Greece	International Cytokine and Interferon Society [Accepted talk]
2022	Boulder, CO	Colorado Molecular Cellular Oncology Retreat
2022	Asilomar, CA	Forbeck Forum: Cancer and Genomic Dark Matter [invited speaker]
2021	Palm Springs, CA	Keystone Non-Coding RNAs: Biology and Applications [invited speaker]
2020	Portland, OR (virtual)	OHSU Epigenetics Symposium [invited speaker]
2019	Boulder, CO	Colorado Chromatin and Genome Regulation meeting (Boulder, CO)
2019	Rancho Mirage, CA	FASEB Mobile DNA in Mammalian Genomes [invited speaker]
2019	Chicago, IL	Society for Investigative Dermatology [Young Investigator Lecture, Satellite Epigenetics Symposium]
2018	Pingree Park, CO	Rocky Mountain Virology Conference [talk]
2017	Geneva, Switzerland	European Society of Human Reproduction and Embryology [invited speaker]
2017	New Haven, CT	Jane Coffin Childs Memorial Fund Symposium [talk]
2017	Kyoto, Japan	Kyoto University 15th International Student Seminar [Graduate student invited speaker]
2017	Bellairs, Barbados	Workshop on Transposable Elements and Gene Regulation [invited speaker]
2016	Salt Lake City, UT	University of Utah Molecular Evolution Symposium [talk]
2015	West Palm Beach, FL	FASEB Mobile DNA in Mammalian Genomes [talk]
2015	Rio Mar, Puerto Rico	CSHL Systems Biology: Global Regulation of Gene Expression [talk]
2014	Salt Lake City, UT	University of Utah Molecular Evolution Symposium [talk]
2013	Chicago, IL	Society of Molecular Biology and Evolution [invited speaker]
2012	Stanford, CA	Stanford Genome Training Grant Symposium [talk]
2011	Geilo, Norway	International Federation of Placenta Associations [talk]
2009	Adelaide, Australia	International Federation of Placenta Associations [talk]

2005	Fairbanks, AK	Society for the Study of Evolution [talk]

Invited seminars

2025	Donnelly Centre, University of Toronto *[student invitation]*	Department of Molecular Genetics
2024	University of Colorado Anschutz Medical Center, Aurora, CO	Division of Reproductive Sciences
2023	University of Pennsylvania, PA	Paris-Philly Retroelement Interest group (virtual)
2023	University of Colorado Colorado Springs	Biology Seminar series
2022	University of California Berkeley, Berkeley, CA	MCB Seminar series
2022	University of California Santa Barbara, Santa Barbara, CA *[student invitation]*	MCDB Seminar series
2022	USDA Agricultural Research Service, Clay Center, NE	Clay Center NE Seminar series
2022	University of Colorado Anschutz Medical Center, Aurora, CO	Department of Pediatrics Perinatal-Neonatal Research Conference
2020	University of Colorado Anschutz Medical Center, Aurora, CO	Cancer Center Symposium series
2019	University of Colorado Anschutz Medical Center, Aurora, CO	Cancer Center Symposium series
2018	University of Nevada Las Vegas, Las Vegas, NV	School of Life Sciences
2018	University of Colorado Boulder, Boulder, CO	BioFrontiers Institute
2017	Fred Hutchinson Cancer Research Center, Seattle, WA	Computational Biology program
2017	University of Texas Southwestern, Dallas, TX	Green Center for Reproductive Sciences
2017	University of California Berkeley, Berkeley, CA	Department of Molecular and Cellular Biology
2017	University of Massachusetts Medical School, Worcester, MA	Program in Molecular Medicine
2016	University of California Los Angeles, Los Angeles, CA	Department of Human Genetics
2014	National Taiwan University, Taipei, Taiwan	Department of Obstetrics

National / International Scientific Service

Journal editor

2024 - present	PLOS Genetics (Editorial Board Member)
2022 June	PLOS Genetics (Guest editor)
2020 Feb	Proceedings of the Royal Society B (Guest editor; Themed issue on Transposons and Gene regulation)

Peer reviewer for over 65 manuscripts for journals including *Nature, Cell, Science, eLIFE, Nature Genetics, PNAS, Genome Research, Molecular Biology and Evolution, PLOS Genetics, Mobile DNA,* and others