

Edward Boyi Chuong, PhD

Personal Information

Assistant Professor
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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**

Marvin H. Caruthers Endowed Chair for Early Career Faculty
Packard Fellow
Sloan Research Fellow
Boettcher Investigator
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
University of Utah School of Medicine
Endogenous retroviruses and immune regulatory evolution

2007 - 2013 **Graduate student**

NSF Graduate Research Fellow
Department of Genetics
Stanford University School of Medicine
Placenta development and evolution

Research focuses: Evolutionary and functional genomics, innate immunity, transposable elements, endogenous retroviruses

Honors and Awards

2020 Packard Fellowship for Science and Engineering
2019 Sloan Research Fellow in computational and evolutionary molecular biology
2018 NIH Maximizing Investigators' Research Award (R35) for early stage investigators
2018 Boettcher Foundation Webb-Waring Biomedical Research Award
2018 Marvin H. Caruthers Endowed Chair for Early Career Faculty
2016 Immunogenomics Conference, NIH travel award
2014 HHMI Postdoctoral Fellowship from the Jane Coffin Childs Memorial Fund
2014 Damon Runyon Postdoctoral Fellowship (regretfully declined)
2014 Life Sciences Research Foundation, Postdoctoral Fellowship finalist
2009 International Federation of Placenta Associations Highly Commended New Investigator
2008 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
2005 Amylin Pharmaceuticals Research Scholarship
2005 Phi Beta Kappa

Publications

	# citations (Google Scholar)
Chuong lab members in bold Star (*) - equal contribution [F1000] - recommended by Faculty of 1000	
Ivancevic A, Chuong EB. Transposable elements teach T cells new Tricks. <i>PNAS</i> (2020) 117: 9145-9147	1
Branco M, Chuong EB. Crossroads between transposons and gene regulation. <i>Phil. Trans. R. Soc. B</i> (2020) 375 :20190330	1
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. <i>Genome Biology</i> (2019) 19:216	13
Chuong EB. The placenta goes viral: retroviruses control gene expression in pregnancy. <i>PLOS Biology</i> (2018) 16(10): e3000028	17
Guernsey MW, Chuong EB , Cornelis G, Renfree MB*, Baker JC*. Molecular conservation of marsupial and eutherian placentation and lactation. <i>eLIFE</i> (2017) 6:e27450 [covered by perspectives in <i>eLIFE</i> and Nature News]	13
Chuong EB , Elde NC, Feschotte C. Regulatory activities of transposable elements: from conflicts to benefits. <i>Nature Reviews Genetics</i> (2017) 18: 71-86	555
Yu Y, Yarrington RM, Chuong EB , Elde NC, Stillman DJ. Disruption of promoter memory by synthesis of a long noncoding RNA. <i>PNAS</i> (2016) 113: 9575-9580 [F1000]	14
Chuong EB , Elde NC*, Feschotte C*. Regulatory evolution of innate immunity through co-option of endogenous retroviruses. <i>Science</i> (2016) 351: 1083-1087 [F1000] [covered by perspectives in <i>Science</i> and <i>Current Biology</i>]	428
Hannibal RL, Chuong EB , Mulia JR, Gilbert DM, Valouev A, Baker JC. Copy number variation is a fundamental aspect of the placental genome. <i>PLOS Genetics</i> (2014) 10(5): e1004290	54
Wills AE, Gupta R, Chuong EB , Baker JC. Chromatin immunoprecipitation and deep sequencing in <i>Xenopus tropicalis</i> and <i>Xenopus laevis</i> . <i>Methods</i> (2014) 66(3):410-21.	9
Chuong EB , Feschotte C. Transposons up the dosage. <i>Science</i> (2013) 342 (6160):812-813.	3
Chuong EB , Hannibal RL, Green SL, Baker JC. Evolutionary perspectives into placental biology and disease. <i>Applied & Translational Genomics</i> (2013) 2:64-69	12
Chuong EB. Retroviruses facilitate the rapid evolution of the mammalian placenta. <i>Bioessays</i> (2013) 35:10 853-861	66

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. 254
 [covered by perspective in *Biology of Reproduction*]

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. 66

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):495-504 130

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 36

Turner LM, **Chuong EB**, Hoekstra HE. Comparative analysis of testis protein evolution in rodents. *Genetics* (2008) 179: 2075-2089. 64

Presentations

Conference and symposium presentations

May 2021	Palm Springs, CA	Keystone Non-Coding RNAs: Biology and Applications [invited speaker]
Oct 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 Skin Epigenetics Symposium]
2018	Pingree Park, CO	Rocky Mountain Virology Conference
2017	Geneva, Switzerland	European Society of Human Reproduction and Embryology
2017	New Haven, CT	Jane Coffin Childs Memorial Fund Symposium
2017	Kyoto, Japan	Kyoto University 15th International Student Seminar [Graduate student invited speaker]
2017	Bellairs, Barbados	Workshop on Transposable Elements and Gene Regulation
2016	Salt Lake City, UT	University of Utah Molecular Evolution Symposium
2015	West Palm Beach, FL	FASEB Mobile DNA in Mammalian Genomes
2015	Rio Mar, Puerto Rico	CSHL Systems Biology: Global Regulation of Gene Expression
2014	Salt Lake City, UT	University of Utah Molecular Evolution Symposium
2013	Chicago, IL	Society of Molecular Biology and Evolution
2012	Stanford, CA	Stanford Genome Training Grant Symposium
2011	Geilo, Norway	International Federation of Placenta Associations
2009	Adelaide, Australia	International Federation of Placenta Associations
2005	Fairbanks, AK	Society for the Study of Evolution

Invited seminars

2019	University of Colorado Anschutz Medical Center	Cancer Center Symposium series
2018	University of Nevada Las Vegas	School of Life Sciences
2018	University of Colorado Boulder	BioFrontiers Institute
2017	Fred Hutchinson Cancer Research Center	Computational Biology program
2017	University of Texas Southwestern	Green Center for Reproductive Sciences
2017	University of California Berkeley	Department of Molecular and Cellular Biology
2017	University of Massachusetts Medical School	Program in Molecular Medicine
2016	University of California Los Angeles	Department of Human Genetics
2014	National Taiwan University	Department of Obstetrics

Media coverage of scholarly work

“How the placenta evolved from an ancient virus” by Avir Mitra, *The Pulse* - NPR, January 2020
- <https://why.org/segments/the-placenta-went-viral-and-protomammals-were-born/>

“Jumping genes play a big role in what makes us human” by Tina Saey, *Science News*, May 2017 -
<https://www.sciencenews.org/article/jumping-genes-play-big-role-what-makes-us-human>

“Our Complicated Relationship With Viruses” by Chris Palmer, *Biomedical Beat* blog by NIH NIGMS, November 2016 - <https://biobeat.nigms.nih.gov/2016/11/our-complicated-relationship-with-viruses/>

“Everyone’s a little bit viral” interview with Vincent Rancaniello, *This Week in Virology* (TViV) podcast #382, March 2016 - <http://www.microbe.tv/twiv/twiv-382/>

“Study Finds Surprising Benefit of Viral DNA: Fighting Other Viruses” by Carl Zimmer, *New York Times*, March 2016 - <https://www.nytimes.com/2016/03/03/science/study-finds-surprising-benefit-of-viral-dna-fighting-other-viruses.html>

“How Viruses Infiltrated Our DNA and Supercharged Our Immune System” by Ed Yong, *The Atlantic*, March 2016 - <https://www.theatlantic.com/science/archive/2016/03/how-we-repurposed-viruses-to-defend-ourselves-from-viruses/471702/>

“Irony of Viruses” animated scientific video, *The Atlantic*, March 2016 -
<https://youtu.be/Opdp5L1bVAY>

“Ancient Viruses Hidden in Your DNA Fight Off New Viruses” by Sarah Zhang, *WIRED*, March 2016
<https://www.wired.com/2016/03/ancient-viruses-hidden-human-dna-fight-off-new-viruses/>

“Viral Remnants Help Regulate Human Immunity” by Jyoti Madhusoodanan, *The Scientist*, March 2016

<https://www.the-scientist.com/daily-news/viral-remnants-help-regulate-human-immunity-33932>

“Virus Genes in Human DNA May, Surprisingly, Help Us Fight Infections” by Brian Handwerk,
Smithsonian Magazine, March 2016

<https://www.smithsonianmag.com/science-nature/virus-genes-human-dna-may-surprisingly-help-us-fight-infections-180958276/>

“Intimate Parasites: Did Endogenous Retroviruses Drive Mammalian Placental Evolution?”

BioEssays featured video, September 2013 - <https://www.youtube.com/watch?v=-KFlLX0Wok>