

Danwei Huangfu, CV

Associate Member (& Associate Professor)
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Training & Education

2005-2010 Postdoctoral Fellow, Harvard University, Cambridge, MA, US
(Advisor: Dr. Douglas A. Melton)
2005 Ph.D. in Neuroscience, Weill Graduate School of Medical Sciences, Cornell University,
New York, NY, US
(Advisor: Dr. Kathryn V. Anderson)
1997 B.S. with Honors in Genetics, Fudan University, Shanghai, China

Academic Positions & Appointments

2016-pres. Associate Member, Developmental Biology Program, Sloan Kettering Institute, New
York, NY, US
2016-pres. Associate Professor, Cell and Developmental Biology Program, Weill Graduate School
of Medical Sciences, Cornell University, New York, NY, US
2010-2016 Assistant Member, Developmental Biology Program, Sloan Kettering Institute, New
York, NY, US
2010-2016 Assistant Professor, Cell and Developmental Biology Program, Weill Graduate School
of Medical Sciences, Cornell University, New York, NY, US

Honors & Awards

2014 Young Investigator Award, Santa Cruz Developmental Biology Meeting
2012-2014 March of Dimes Birth Defects Foundation Basil O'Connor Starter Scholar
2011-2014 Louis V. Gerstner Jr. Investigator
2010 Award from Harvard Catalyst & InnoCentive Prize for the winning submission to the Ideation
Challenge on "What Do We Not Know to Cure Type 1 Diabetes"
2006-2009 Helen Hay Whitney Postdoctoral fellowship
2004 The Julian R. Rachele Prize in recognition of the best graduate student research paper for 2003-
2004, Weill Graduate School of Medical Sciences, Cornell University
2004 Frank Lappin Horsfall, Jr. Fellowship for Distinguished Achievement, Memorial Sloan Kettering
Cancer Center
2002 The Keystone Symposium Travel Scholarship for the Development of the Spinal Cord and Neural
Crest meeting
1996 Bao Steel Corp. Scholarship, Fudan University
1993-1997 People's Scholarship, Fudan University
1990-1997 Shu Ping (Soh Bing) Scholarship

Bibliography

Research papers

Vardhana SA, Arnold PK, Rosen BP, Chen Y, Carey BW, **Huangfu D**, Carmona-Fontaine C, Thompson CB, and
Finley LWS. Glutamine independence is a selectable feature of pluripotent stem cells. **Nature
Metabolism** 2019;1(7):676-687.

- Lee K[‡], Cho H[‡], Rickert RW, Li QV, Pulecio J, Leslie CS[#], and **Huangfu D[#]**. FOXA2 Is Required for Enhancer Priming during Pancreatic Differentiation. **Cell Reports** 2019;28(2):382-393.
- Li QV, Dixon G, Verma V, Rosen BP, Gordillo M, Luo R, Xu C, Wang Q, Soh C-L, Yang D, Crespo M, Shukla A, Xiang Q, Dundar F, Zumbo P, Witkin M, Koche R, Betel D, Chen S, Massagué J, Garippa R, Evans T, Beer MA[#], and **Huangfu D[#]**. Genome-scale Screens Uncover JNK/JUN signaling as a Key Barrier from Pluripotency to Human Endoderm Differentiation. **Nature Genetics** 2019;51(6):999-1010.
- Teijeiro V[‡], Yang D[‡], Majumdar S, González F, Rickert RW, Xu C, Koche R, Verma N, Lai EC, and **Huangfu D**. DICER1 is essential for self-renewal of human embryonic stem cells. **Stem Cell Reports** 2018;11(3):616-625.
- Amin S, Cook B, Zhou T, Ghazizadeh Z, Lis R, Zhang T, Khalaj M, Crespo M, Perera M, Xiang JZ, Zhu Z, Tomishima M, Liu C, Naji A, Evans T, **Huangfu D[#]**, and Chen S[#]. Discovery of a Drug Candidate for GLIS3-Associated Diabetes. **Nature Communications** 2018;11;9(1):2681.
- Verma N, Pan H, Doré LC, Shukla A, Li QV, Pelham-Webb B, Teijeiro V, González F, Krivtsov A, Chang C-J, Papapetrou EP, He C, Elemento O[#], and **Huangfu D[#]**. TET proteins safeguard bivalent promoters from *de novo* methylation in human embryonic stem cells. **Nature Genetics** 2018;50(1):83-95.
- Shi Z-D[‡], Lee K[‡], Yang D[‡], Amin S, Verma N, Li QV, Zhu Z, Soh C-L, Kumar R, Evans T, Chen S[#], and **Huangfu D[#]**. Genome editing in hPSCs reveals GATA6 haploinsufficiency and a genetic interaction with GATA4 in human pancreatic development. **Cell Stem Cell** 2017;20(5):675-688. PMC5419850.
- Wang Q, Zou Y, Nowotschin S, Kim SY, Li QV, Soh C-L, Su J, Zhang C, Shu W, Xi Q, **Huangfu D**, Hadjantonakis AK, and Massagué J. The p53 family coordinates Wnt and Nodal Inputs in mesendodermal differentiation of embryonic stem cells. **Cell Stem Cell** 2017;20(1):70-86. PMC5218926.
- Zhu Z, Li QV, Lee K, Rosen BP, González F, Soh C-L, and **Huangfu D**. Genome editing of lineage determinants in human pluripotent stem cells reveals mechanisms of pancreatic development and diabetes. **Cell Stem Cell** 2016;18(6):755-768. PMC4892994.
- Zhu Z[‡], Verma N[‡], González F, Shi Z-D, and **Huangfu D**. A CRISPR/Cas-mediated selection-free knockin in human embryonic stem cells. **Stem Cell Reports** 2015;4(6):1103-1111. PMC4471821.
- Kotini AG, Chang CJ, Boussaad I, Delrow JJ, Dolezal EK, Nagulapally AB, Perna F, Fishbein GA, Klimek VM, Hawkins RD, **Huangfu D**, Murry CE, Graubert T, Nimer SD, and Papapetrou EP. Functional analysis of a chromosomal deletion associated with myelodysplastic syndromes using isogenic human induced pluripotent stem cells. **Nature Biotechnology** 2015;33(6):646-655. PMCID: PMC4464949.
- González F[‡], Zhu Z[‡], Shi Z.-D[‡], Lelli K, Verma N, Li QV, and **Huangfu D**. An iCRISPR platform for rapid, multiplexable, and inducible genome editing in human pluripotent stem cells. **Cell Stem Cell** 2014;15(2):215-226. PMCID: PMC4127112. (Selected by *Cell Stem Cell* in the **Best of 2014** collection)
- González F, Georgieva D, Vanoli F, Shi Z-D, Stadtfeld M, Ludwig T, Jasin M[#], and **Huangfu D[#]**. Homologous Recombination DNA Repair Genes Play a Critical Role in Reprogramming to a Pluripotent State. **Cell Reports** 2013;3(3):651-660. PMID: 23478019. PMCID: PMC4315363.
- Salpeter SJ, Klein AM, **Huangfu D**, Grimsby J, and Dor Y. Glucose and aging control the quiescence period that follows pancreatic beta cell replication. **Development** 2010;137(19):3205-13. PMCID: PMC2934733.
- Ichida JK, Blanchard J, Lam K, Son EY, Chung JE, Egli D, Loh KM, Carter AC, Di Giorgio FP, Koszka K, **Huangfu D**, Akutsu H, Liu DR, Rubin LL, and Eggan K. A Small-Molecule Inhibitor of Tgf-beta Signaling Replaces Sox2 in Reprogramming by Inducing Nanog. **Cell Stem Cell** 2009;5(5):491-503. PMCID: PMC3335195.
- Huangfu D**, Osafune K, Maehr R, Guo W, Eijkelenboom A, Chen S, Muhlestein W, and Melton DA. Induction of pluripotent stem cells from primary human fibroblasts with only Oct4 and Sox2. **Nature Biotechnology** 2008;26(11):1269-1275.
- Huangfu D**, Maehr R, Guo W, Eijkelenboom A, Snitow M, Chen AE, and Melon DA. Induction of pluripotent stem cells by defined factors is greatly improved by small-molecule compounds. **Nature Biotechnology** 2008;26(7):795-797.
- Brennan K., **Huangfu D**, and Melton DA. All beta Cells Contribute Equally to Islet Growth and Maintenance. **PLoS Biology** 2007;5(7):e163.

- Huangfu D** and Anderson KV. Cilia and Hedgehog responsiveness in the mouse. *Proc Natl Acad Sci U S A* 2005;102(32):11325-11330. (cover image)
- Garcia-Garcia MJ, Eggenschwiler JT, Caspary T, Alcorn HL, Wyler MR, **Huangfu D**, Rakeman AS, Lee JD, Feinberg EH, Timmer JR, and Anderson KV. Analysis of mouse embryonic patterning and morphogenesis by forward genetics. *Proc Natl Acad Sci U S A* 2005;102(17):5913-5919.
- Huangfu D**, Liu A, Rakeman AS, Murcia NS, Niswander L, and Anderson KV. Hedgehog signalling in the mouse requires intraflagellar transport proteins. *Nature* 2003;426(6962):83-87.
- Caspary T, Garcia-Garcia MJ, **Huangfu D**, Eggenschwiler JT, Wyler MR, Rakeman AS, Alcorn HL, and Anderson KV. Mouse Dispatched homolog1 is required for long-range, but not juxtacrine, Hh signaling. *Current Biology* 2002;12(18):1628-1632.

Reviews and Commentaries

- Li QV[‡], Rosen BP[‡], and **Huangfu D**. Decoding pluripotency: Genetic screens to interrogate the acquisition, maintenance, and exit of pluripotency. *Wiley Interdiscip Rev Syst Biol Med* 2019;e1464.
- Shukla A and **Huangfu D**. Decoding the noncoding genome via large-scale CRISPR. *Current Opinion in Genetics & Development* 2018;52:70-76.
- Odorico J, Markmann J, Melton D, Greenstein J, Hwa A, Nostro C, Rezanian A, Oberholzer J, Pipeleers D, Yang L, Cowan C, **Huangfu D**, Egli D, Ben-David U, Vallier L, Grey ST, Tang Q, Roep B, Ricordi C, Naji A, Orlando G, Anderson DG, Poznansky M, Ludwig B, Tomei A, Greiner DL, Graham M, Carpenter M., Migliaccio G, D'Amour K., Hering B., Piemonti L, Berney T, Rikels M, Kay T, and Adams A. Report of the Key Opinion Leaders Meeting on Stem Cell-Derived Beta Cells. *Transplantation* 2018;102(8):1223-1229.
- Pulecio J, Verma N, Mejia-Ramirez E, **Huangfu D**[#], and Raya R[#]. CRISPR/Cas9-based engineering of the epigenome. *Cell Stem Cell* 2017;21(4):431-447.
- Shi Z-D, Soh C-L, Zhu Z, and **Huangfu D**. Genome editing and directed differentiation of hPSCs for interrogating lineage determinants in human pancreatic development. *J Vis Exp* 2017Mar 5;(121). PMID: 28287608.
- Verma N[‡], Zhu Z[‡], and **Huangfu D**. CRISPR/Cas-mediated knockin in human pluripotent stem cells. *Methods in Mol Biol* 2017;1513:119-140.
- Soh C-L and **Huangfu D**. CRISPR/Cas9-mediated mutagenesis of human pluripotent stem cells in defined xeno-free E8 medium. *Methods in Mol Biol* 2017;1498:57-78.
- González F[#] and **Huangfu D**[#]. Mechanisms underlying the formation of induced pluripotent stem cells. *Wiley Interdiscip Rev Dev Biol* 2016;5(1):39-65. PMCID: PMC4715477.
- Zhu Z, González F, and **Huangfu D**. The iCRISPR Platform for Rapid Genome Editing in Human Pluripotent Stem Cells. *Methods in Enzymology* 2014;546:215-250. PMCID: PMC4418970.
- Benitah SA, Bracken A, Dou Y, **Huangfu D**, Ivanova N, Koseki H, Laurent L, Lim DA, Meshorer E, Pombo A, Sander M, Xu GL. Stem cell epigenetics: looking forward. *Cell Stem Cell* 2014;14(6):706-709. PMID: 25032261.
- Shi Z-D, González F, and **Huangfu D**. Chapter 9, Chemicals Facilitating Reprogramming. *Chemical Biology in Regenerative Medicine: Bridging Stem Cells and Future Therapies* (2014, eds Hong CC, Ao AS and Hao J, John Wiley & Sons, Ltd, Chichester, UK) 141-162.
- Zhu Z[#] and **Huangfu D**[#]. Human pluripotent stem cells: an emerging model in developmental biology. *Development* 2013;140(4):705-717. PMCID: 3557771.
- Huangfu D** and Anderson KV. Signaling from Smo to Ci/Gli: conservation and divergence of Hedgehog pathways from Drosophila to vertebrates. *Development* 2006;133(1):3-14. PMID: 16339192.

Research papers and reviews (Submitted and preprints)

- de Lichtenberg K.H., Funa N.S., Nakic N., Ferrer J., Zhu J., **Huangfu D**, and Serup P. Genome-wide identification of HES1 target genes uncover novel roles for HES1 in pancreatic development. *bioRxiv* (doi: <https://doi.org/10.1101/335869>).

[‡]: Equal contribution first-authors; #: Shared corresponding authors

Invited Presentations (Seminars & Meetings)

2019

December (seminar) The Eli & Edythe Broad Center of Regeneration Medicine and Stem Cell Research University of California at San Francisco, Jonah Platt Stem Cell Seminar Lecture Series, San Francisco, CA.
September The 2nd Macau Stem Cell Symposium Program. Macau, China.
September The 1st Mini Symposium on Frontier Stem Cell Research. Guangzhou, China.
September Cold Spring Harbor Laboratory meeting on Stem Cell Biology. Cold Spring Harbor, NY, US.
September (seminar) Kimmel Stem Cell Center NYU School of Medicine, Stem Cell Club series, New York, NY, US.
July Plenary lecture at the 17th World Congress of the International Pancreas & Islet Transplant Association. Lyon, France.
June Gordon Research Conference - Pancreatic Diseases: Understanding cell behavior and environmental influences. Newry, ME, US.
February Keystone meeting - Genome Engineering: From Mechanisms to Therapies. British Columbia, Canada.

2018

October 2018 World Life Science Conference. Beijing, China.
October (seminar) The University of Hongkong, Research seminar, Hongkong, China.
October Institute for Basic Science (IBS) - Nature Conference on Frontiers in Genome Engineering. Beijing, China.
October The UCSD Institute for Genomic Medicine (IGM) biennial symposium on Genome and Transcriptome Engineering. La Jolla, CA, US.
July (seminar) Regeneron, Research seminar, Tarrytown, NY, US.
June The International Society for Stem Cell Research (ISSCR) 2018 annual meeting. Melbourne, Australia.
May (seminar) University of Chicago Section of Endocrinology, Diabetes and Metabolism Seminar Series. Chicago, IL, US.
May The Cold Spring Harbor-Asia (CSH-A) International Symposium on "Stem Cells: From Basic Biology to Disease Therapy". Suzhou, China.
February (seminar) Center for iPS Cell Research and Application (CiRA), Kyoto University. Kyoto, Japan.
February The 9th Takeda Science Foundation Symposium on PharmaSciences. Osaka, Japan.
February Keystone meeting - Frontiers in Islet Biology and Diabetes. Keystone, CO, US.
January Keystone meeting - Precision Genome Editing with Programmable Nucleases. Keystone, CO, US.

2017

October (seminar) Vanderbilt University Center for Stem Cell Biology Seminar Series, Nashville, TN, US.
September (seminar) University of Toronto Department of Molecular Genetics Seminar Series, Toronto, Canada.
July Cold Spring Harbor Laboratory meeting on Genome Engineering: The CRISPR/Cas9 Revolution. Cold Spring Harbor, NY.
February 2017 International Society for Stem Cell Research (ISSCR) International Symposium. Basel, Switzerland.

2016

October American Society of Human Genetics (ASHG) meeting. Vancouver, Canada.

September The Company of Biologists Workshop - From Stem Cells to Human Development, Southbridge, MA, US.

September Key Opinion Leaders Meeting on Stem Cell Derived Beta Cells organized by International Pancreas and Islet Transplant Association (IPITA), JDRF in collaboration with the Helmsley Charitable Trust, and the Harvard Stem Cell Institute. Boston, MA, US.

September (seminar) University of Colorado School of Medicine, Barbara Davis Center for Diabetes Seminar Series, Denver, CO, US.

August (seminar) Columbia University Center for Human Development (CCHD) Seminar Series, New York, NY, US.

August Cold Spring Harbor Laboratory meeting on Genome Engineering: The CRISPR/Cas9 Revolution. Cold Spring Harbor, NY, US.

June (seminar) Danish Stem Cell Center (DanStem) Seminar Series, Copenhagen, Denmark.

June American Diabetes Association's 76th Scientific Sessions. New Orleans, LA, US.

May American Society of Gene & Cell Therapy 19th Annual Meeting. Washington, DC, US.

2015

December (seminar) Mount Sinai School of Medicine, Department of Developmental and Regenerative Biology Seminar Series, New York, NY, US.

October The International Society for Stem Cell Research (ISSCR) and Cold Spring Harbor-Asia (CSH-A) International Symposium on "Stem Cells: From Basic Biology to Disease Therapy". Suzhou, China.

October (seminar) Fudan University, Research seminar, Shanghai, China.

October (seminar) Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Research seminar, Shanghai, China.

October (seminar) Tsinghua University, Research seminar, Beijing, China.

September Cold Spring Harbor Laboratory meeting on Genome Engineering: The CRISPR/Cas Revolution. Cold Spring Harbor, NY, US.

September Cell Symposium on Stem Cell Epigenetics. Sitges, Spain.

August UC Berkeley 3rd Annual Symposium on Re-writing genomes: A new era in genome engineering. Berkeley, CA, US.

July Gordon Research Conference – Pancreatic Diseases, From Molecules and Patients. South Hadley, MA, US.

May University of Pennsylvania Symposium on genome editing in stem cells. Philadelphia, PA, US.

April (seminar) Albert Einstein College of Medicine of Yeshiva University, Einstein-Sinai Diabetes Research Center Seminar Series, Bronx, NY, US.

March (seminar) Columbia University, Stem Cell Seminar Series. New York, NY, US.

March Cystic Fibrosis Foundation Therapeutics workshop - Application of Stem Cells for CF Therapy. Bethesda, MD, US.

February Keystone meeting - Endoderm Lineages in Development and Disease. Keystone, CO, US.

January Keystone meeting - Precision Genome Engineering and Synthetic Biology. Big Sky, MT, US.

2014

December (seminar) Cornell University, Stem Cell Program Seminar Series. Ithaca, NY

November 13th Annual Gene Therapy Symposium for Heart, Lung, and Blood Diseases. Focus Topic: Genomic Editing. Sonoma, CA, US.

October Cambridge Healthtech Institute's 11th annual conference on Genome Editing for Functional Genomics Screens. Boston, MA, US.

September The Company of Biologists Workshop - From Stem Cells to Human Development, Surrey, UK.

August Santa Cruz Developmental Biology Meeting. Santa Cruz, CA, US.
(Young Investigator Award Talk)

2013 and prior 2013 Gordon Conference - Pancreatic Diseases, From Molecules and Patients. South Hadley, MA, US.

2013 Keystone meeting - Stem Cell Regulation in Homeostasis and Disease, Banff, Alberta, Canada.

2012 World iPS Cell Summit, Boston, MA, US.

2012 The Sixth Annual New Jersey Stem Cell Research Symposium, Bridgewater, Marriott, NJ, US.

2011 (seminar) New York University, Department of Biology Seminar Program, New York, NY, US.

2010 North-East Regional Meeting of the Society of Developmental Biology, Woods Hole, MA, US.

2005 Gordon Research Conference, Cilia, Mucus and Mucociliary Interactions, Santa Ynez Valley CA, US.