

# Danwei Huangfu, CV

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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

- 2020-pres. Member, Developmental Biology Program, Sloan Kettering Institute, New York, NY, US
- 2020-pres. Professor, Cell and Developmental Biology Program, Weill Graduate School of Medical Sciences, Cornell University, New York, NY, US
- 2016-2020 Associate Member, Developmental Biology Program, Sloan Kettering Institute, New York, NY, US
- 2016-2020 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](#)

- Dixon G<sup>‡</sup>, Pan H<sup>‡</sup>, Yang D, Rosen BP, Jashari T, Verma N, Pulecio J, Caspi I, Lee K, Stransky S, Glezer A, Liu C, Rivas M, Kumar R, Lan Y, Torregroza I, He C, Sidoli S, Evans T, Elemento O<sup>#</sup>, **Huangfu D<sup>#</sup>**. QSER1 protects DNA methylation valleys from de novo methylation. *Science*. 2021 Apr 9;372(6538):eabd0875.
- 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<sup>‡</sup>, Cho H<sup>‡</sup>, Rickert RW, Li QV, Pulecio J, Leslie CS<sup>#</sup>, and **Huangfu D<sup>#</sup>**. 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<sup>#</sup>, and **Huangfu D<sup>#</sup>**. 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<sup>‡</sup>, Yang D<sup>‡</sup>, 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, Najj A, Evans T, **Huangfu D<sup>#</sup>**, and Chen S<sup>#</sup>. Discovery of a Drug Candidate for GLIS3-Associated Diabetes. *Nature Communications* 2018;11;9(1):2681.
- Verma N<sup>‡</sup>, Pan H<sup>‡</sup>, Doré LC, Shukla A, Li QV, Pelham-Webb B, Teijeiro V, González F, Krivtsov A, Chang C-J, Papapetrou EP, He C, Elemento O<sup>#</sup>, and **Huangfu D<sup>#</sup>**. TET proteins safeguard bivalent promoters from de novo methylation in human embryonic stem cells. *Nature Genetics* 2018;50(1):83-95.
- Shi Z-D<sup>‡</sup>, Lee K<sup>‡</sup>, Yang D<sup>‡</sup>, Amin S, Verma N, Li QV, Zhu Z, Soh C-L, Kumar R, Evans T, Chen S<sup>#</sup>, and **Huangfu D<sup>#</sup>**. 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<sup>1</sup>, Verma N<sup>1</sup>, 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<sup>1</sup>, Zhu Z<sup>1</sup>, Shi Z.-D<sup>1</sup>, 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<sup>#</sup>, and **Huangfu D**<sup>#</sup>. 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 Melton 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](#)

Beer MA<sup>#</sup>, Shigaki D, and **Huangfu D**<sup>#</sup>. Enhancer predictions and genome-wide regulatory circuits. *Annual Review of Genomics & Human Genetics* 2020;21:37-54.

Li QV<sup>#</sup>, Rosen BP<sup>#</sup>, and **Huangfu D**. Decoding pluripotency: Genetic screens to interrogate the acquisition, maintenance, and exit of pluripotency. *Wiley Interdiscip Rev Syst Biol Med* 2020;12(1):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, Reznia 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**<sup>#</sup>, and Raya R<sup>#</sup>. 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<sup>#</sup>, Zhu Z<sup>#</sup>, 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<sup>#</sup> and **Huangfu D**<sup>#</sup>. Mechanisms underlying the formation of induced pluripotent stem cells. *Wiley Interdiscip Rev Dev Biol* 2016;5(1):39-65. PMID: 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. PMID: 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<sup>#</sup> and **Huangfu D**<sup>#</sup>. 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>).

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