Stanford



Marius Wernig

Professor of Pathology and, by courtesy, of Chemical and Systems Biology

Pathology - Pathology Stem Cell Institute

Curriculum Vitae available Online

Bio

BIO

Dr. Wernig is a Professor in the Departments of Pathology and Chemical and Systems Biology and Co-Director of the Institute for Stem Cell Biology and Regenerative Medicine at Stanford University. He graduated with an M.D. Ph.D. from the Technical University of Munich where he trained in developmental genetics in the lab of Rudi Balling. After completing his residency in Neuropathology and General Pathology at the University of Bonn, he then became a postdoctoral fellow in the lab of Dr. Rudolf Jaenisch at the Whitehead Institute for Biomedical Research/ MIT in Cambridge, MA.

He received an NIH Pathway to Independence Award, the Cozzarelli Prize for Outstanding Scientific Excellence from the National Academy of Sciences U.S.A., the Outstanding Investigator Award from the International Society for Stem Cell Research, the New York Stem Cell Foundation Robertson Stem Cell Prize, and more recently was awarded the Ogawa-Yamanaka Stem Cell Prize presented by the Gladstone Institutes and has been named a HHMI Faculty Scholar.

Dr. Wernig's lab is interested in pluripotent stem cell biology and the molecular determinants of neural cell fate decisions. His laboratory was the first to generate functional neuronal cells reprogrammed directly from skin fibroblasts, which he termed induced neuronal (iN) cells. The lab is now working on identifying the molecular mechanisms underlying induced lineage fate changes, the phenotypic consequences of disease-causing mutations in human neurons and other neural lineages as well as the development of novel therapeutic gene targeting and cell transplantation-based strategies for a variety of monogenetic diseases.

ACADEMIC APPOINTMENTS

- Professor, Pathology - Pathology Stem Cell Institute
- Professor (By courtesy), Chemical and Systems Biology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Institute for Stem Cell Biology and Regenerative Medicine
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Faculty Senate, Department of Pathology, (2017- present)

- Assistant Professor, Institute for Stem Cell Biology and Regenerative Medicine, (2008-2014)

HONORS AND AWARDS

- Ogawa-Yamanaka Stem Cell Prize, The Gladstone Institutes (2018)
- HHMI Faculty Scholar Award, Howard Hughes Medical Institute (2016)
- New York Stem Cell Foundation Robertson Stem Cell Prize, New York Stem Cell Foundation (2014)
- The Outstanding Young Investigator Award, International Society for Stem Cell Research (2013)
- Ascina Award, Republic of Austria (2010)
- Cozzarelli Prize for Outstanding Scientific Excellence, National Academy of Sciences USA (2009)
- New Scholar in Aging, Ellison Medical Foundation (2010)
- Robertson Investigator Award, New York Stem Cell Foundation (2010)
- Donald E. and Delia B. Baxter Faculty Scholarship, Stanford University (2009)
- Margaret and Herman Sokol Award, Biomedical Research (2007)
- Longterm fellowship Human Frontiers Science Program Organisation, HFSP (2004-2006)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Society for Neuroscience (2003 - present)
- Member, International Society for Stem Cell Research (2004 - present)
- Editorial Board Member, Cell Stem Cell (2012 - present)
- Editorial Board Member, Stem Cell Reports (2013 - present)
- Member, Program Committee, Society for Neuroscience (2016 - present)
- Chair, Program Committee, International Society for Stem Cell Research (2017 - present)

PROFESSIONAL EDUCATION

- M.D., Technical University of Munich , Medicine (2000)

LINKS

- Wernig Laboratory: http://www.werniglab.org

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our laboratory is generally interested in the molecular mechanisms that determine specific cell fates.

Recently, we have identified a pool of transcription factors that are sufficient to convert skin fibroblasts directly into functional neuronal cells that we termed induced neuronal (iN) cells. This was a surprising finding and indicated that direct lineage reprogramming may be applicable to many somatic cell types and many different directions. Indeed, following our work others have identified transcription factors that could induce cardiomyocytes, blood progenitors, and hepatocytes from fibroblasts.

We are now focussing on two major aspects of iN and iPS cell reprogramming:
(i) we are fascinated by the puzzle how a hand full of transcription factors can so efficiently reprogram the entire epigenome of a cell so that it changes identity. To that end we are applying genome-wide expression analysis, chromatin immunoprecipitation, protein biochemistry, proteomics and functional screens.

(ii) it is equally exciting to now use reprogramming methods as tools to study or treat certain diseases. iPS cells have the great advantage that they can easily be genetically manipulated rendering them ideal for treating monogenetic disorders when combined with cell transplantation-based therapies. In particular we are working on Dystrophic Epidermolysis Bullosa in collaboration with Stanford's Dermatology Department. An exciting application of iN cell technology will be to try modeling neurological diseases in vitro. We perform both mouse and human experiments hoping to identify quantifiable phenotypes correlated with genotype and in a second step evaluate whether this assay could be used to discover novel drugs improve the disease progression.

CLINICAL TRIALS

- Characteristics of Patients With Recessive Dystrophic Epidermolysis Bullosa, Recruiting
- Study to Create Potential Cell-Based Therapies to Treat Human Disease and Disability, Not Specified
- Study to Create Potential Cell-Based Therapies to Treat Human Disease and Disability, Not Specified

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Zoe Cook, Matthew Matrongolo

Postdoctoral Faculty Sponsor

Kirill Chesnov, Wanhua Li, Xiaolong Ma, Maxime Teixeira, Alexandra de la Porte

Doctoral Dissertation Advisor (AC)

Kit Vodehnal

Doctoral Dissertation Co-Advisor (AC)

Emma O'Connell, Duo Sun

Postdoctoral Research Mentor

Mohit Rastogi

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (PhD Program)
- Neurosciences (PhD Program)
- Stem Cell Biology and Regenerative Medicine (PhD Program)

Publications

PUBLICATIONS

- **Structure of the complex of C1q-like 3 protein with adhesion-GPCR BAI3.** *Communications biology*
  Miao, Y., Wang, H., Jude, K. M., Wang, J., Wang, J., Wernig, M., Südhof, T. C.
  2025; 8 (1): 693

- **Proteostasis and lysosomal repair deficits in transdifferentiated neurons of Alzheimer's disease.** *Nature cell biology*
  Chou, C. C., Vest, R., Prado, M. A., Wilson-Grady, J., Paulo, J. A., Shibuya, Y., Moran-Losada, P., Lee, T. T., Luo, J., Gygi, S. P., Kelly, J. W., Finley, D., Wernig, et al
  2025

- **Author Correction: Endocytosis in the axon initial segment maintains neuronal polarity.** *Nature*
  Eichel, K., Uenaka, T., Belapurkar, V., Lu, R., Cheng, S., Pak, J. S., Taylor, C. A., Südhof, T. C., Malenka, R., Wernig, M., Özkan, E., Perrais, D., Shen, et al

2025

- **Proteostasis and lysosomal repair deficits in transdifferentiated neurons of Alzheimer's disease.** *bioRxiv : the preprint server for biology*
  Chou, C. C., Vest, R., Prado, M. A., Wilson-Grady, J., Paulo, J. A., Shibuya, Y., Moran-Losada, P., Lee, T. T., Luo, J., Gygi, S. P., Kelly, J. W., Finley, D., Wernig, et al
  2025

- **Distinct mechanisms control the specific synaptic functions of Neuroligin 1 and Neuroligin 2.** *EMBO reports*
  Wang, J., Sudhof, T., Wernig, M.
  2025

- **A fast and responsive voltage indicator with enhanced sensitivity for unitary synaptic events.** *Neuron*
  Hao, Y. A., Lee, S., Roth, R. H., Natale, S., Gomez, L., Taxidis, J., O'Neill, P. S., Villette, V., Bradley, J., Wang, Z., Jiang, D., Zhang, G., Sheng, et al
  2024

- **RAPIDASH: Tag-free enrichment of ribosome-associated proteins reveals composition dynamics in embryonic tissue, cancer cells, and macrophages.** *Molecular cell*
  Susanto, T. T., Hung, V., Levine, A. G., Chen, Y., Kerr, C. H., Yoo, Y., Oses-Prieto, J. A., Fromm, L., Zhang, Z., Lantz, T. C., Fujii, K., Wernig, M., Burlingame, et al
  2024

- **Restoring hippocampal glucose metabolism rescues cognition across Alzheimer's disease pathologies.** *Science (New York, N.Y.)*
  Minhas, P. S., Jones, J. R., Latif-Hernandez, A., Sugiura, Y., Durairaj, A. S., Wang, Q., Mhatre, S. D., Uenaka, T., Crapser, J., Conley, T., Ennerfelt, H., Jung, Y. J., Liu, et al
  2024; 385 (6711): eabm6131

- **A scalable and cGMP-compatible autologous organotypic cell therapy for Dystrophic Epidermolysis Bullosa.** *Nature communications*
  Neumayer, G., Torkelson, J. L., Li, S., McCarthy, K., Zhen, H. H., Vangipuram, M., Mader, M. M., Gebeyehu, G., Jaouni, T. M., Jacków-Malinowska, J., Rami, A., Hansen, C., Guo, et al
  2024; 15 (1): 5834

- **Author Correction: Myt1l safeguards neuronal identity by actively repressing many non-neuronal fates.** *Nature*
  Mall, M., Kareta, M. S., Chanda, S., Ahlenius, H., Perotti, N., Zhou, B., Grieder, S. D., Ge, X., Drake, S., Ang, C. E., Walker, B. M., Vierbuchen, T., Fuentes, et al
  2024

- **Human tNeurons reveal aging-linked proteostasis deficits driving Alzheimer's phenotypes.** *Research square*
  Chou, C. C., Vest, R., Prado, M. A., Wilson-Grady, J., Paulo, J. A., Shibuya, Y., Moran-Losada, P., Lee, T. T., Luo, J., Gygi, S. P., Kelly, J. W., Finley, D., Wernig, et al
  2024

- **Myeloid cell replacement is neuroprotective in chronic experimental autoimmune encephalomyelitis.** *Nature neuroscience*
  Mader, M. M., Napole, A., Wu, D., Atkins, M., Scavetti, A., Shibuya, Y., Foltz, A., Hahn, O., Yoo, Y., Danziger, R., Tan, C., Wyss-Coray, T., Steinman, et al
  2024

- **Generation of human excitatory forebrain neurons by cooperative binding of proneural NGN2 and homeobox factor EMX1.** *Proceedings of the National Academy of Sciences of the United States of America*
  Ang, C. E., Olmos, V. H., Vodehnal, K., Zhou, B., Lee, Q. Y., Sinha, R., Narayanaswamy, A., Mall, M., Chesnov, K., Dominicus, C. S., Sudhof, T., Wernig, M.
  2024; 121 (11): e2308401121

- **Biphasic regulation of epigenetic state by matrix stiffness during cell reprogramming.** *Science advances*
  Song, Y., Soto, J., Wong, S. Y., Wu, Y., Hoffman, T., Akhtar, N., Norris, S., Chu, J., Park, H., Kelkhoff, D. O., Ang, C. E., Wernig, M., Kasko, et al
  2024; 10 (7): eadk0639

- **Stress response silencing by an E3 ligase mutated in neurodegeneration.** *Nature*
  Haakonsen, D. L., Heider, M., Ingersoll, A. J., Vodehnal, K., Witus, S. R., Uenaka, T., Wernig, M., Rapé, M.
  2024

- **RAPIDASH: A tag-free enrichment of ribosome-associated proteins reveals compositional dynamics in embryonic tissues and stimulated macrophages.** *bioRxiv : the preprint server for biology*

Susanto, T. T., Hung, V., Levine, A. G., Kerr, C. H., Yoo, Y., Chen, Y., Oses-Prieto, J. A., Fromm, L., Fujii, K., Wernig, M., Burlingame, A. L., Ruggero, D., Barna, et al
2023

- **Integrative analyses highlight functional regulatory variants associated with neuropsychiatric diseases.** *Nature genetics*
  Guo, M. G., Reynolds, D. L., Ang, C. E., Liu, Y., Zhao, Y., Donohue, L. K., Siprashvili, Z., Yang, X., Yoo, Y., Mondal, S., Hong, A., Kain, J., Meservey, et al
  2023

- **Insights and applications of direct neuronal reprogramming.** *Current opinion in genetics & development*
  Schaukowitch, K., Janas, J. A., Wernig, M.
  2023; 83: 102128

- **Ascl1 and Ngn2 convert mouse embryonic stem cells to neurons via functionally distinct paths.** *Nature communications*
  Vainorius, G., Novatchkova, M., Michlits, G., Baar, J. C., Raupach, C., Lee, J., Yelagandula, R., Wernig, M., Elling, U.
  2023; 14 (1): 5341

- **Transdifferentiation: A Novel Tool for Disease Modeling and Translational Applications in Alzheimer's Disease**
  Chou, C., Vest, R., Prado, M. A., Wilson-Grady, J., Paulo, J. A., Shibuya, Y., Moran-Losada, P., Lee, T., Luo, J., Gygi, S. P., Kelly, J. W., Finley, D. P., Wernig, et al
  WILEY.2023: S205-S206

- **Efficient generation of functional neurons from mouse embryonic stem cells via neurogenin-2 expression.** *Nature protocols*
  Liu, Y., Wang, J., Südhof, T. C., Wernig, M.
  2023

- **A cell therapy approach to restore microglial Trem2 function in a mouse model of Alzheimer's disease.** *Cell stem cell*
  Yoo, Y., Neumayer, G., Shibuya, Y., Marc-Daniel Mader, M., Wernig, M.
  2023; 30 (8): 1043-1053.e6

- **Astrocytic Neuroligins Are Not Required for Synapse Formation or a Normal Astrocyte Cytoarchitecture.** *bioRxiv : the preprint server for biology*
  Golf, S. R., Trotter, J. H., Nakahara, G., Südhof, T. C.
  2023

- **Augmentation of a neuroprotective myeloid state by hematopoietic cell transplantation.** *bioRxiv : the preprint server for biology*
  Marc-Daniel Mader, M., Napole, A., Wu, D., Shibuya, Y., Scavetti, A., Foltz, A., Atkins, M., Hahn, O., Yoo, Y., Danziger, R., Tan, C., Wyss-Coray, T., Steinman, et al
  2023

- **A scalable, GMP-compatible, autologous organotypic cell therapy for Dystrophic Epidermolysis Bullosa.** *bioRxiv : the preprint server for biology*
  Neumayer, G., Torkelson, J. L., Li, S., McCarthy, K., Zhen, H. H., Vangipuram, M., Jackow, J., Rami, A., Hansen, C., Guo, Z., Gaddam, S., Pappalardo, A., Li, et al
  2023

- **The autism risk factor CHD8 is a chromatin activator in human neurons and functionally dependent on the ERK-MAPK pathway effector ELK1.** *Scientific reports*
  Haddad Derafshi, B., Danko, T., Chanda, S., Batista, P. J., Litzenburger, U., Lee, Q. Y., Ng, Y. H., Sebin, A., Chang, H. Y., Sudhof, T. C., Wernig, M.
  2022; 12 (1): 22425

- **Lineage plasticity dictates responsiveness to anti-GD2 therapy in neuroblastoma.**
  Mabe, N. W., Huang, M., Schaefer, D. A., Dalton, G. N., Digiovanni, G., Alexe, G., Geraghty, A. C., Khalid, D., Mader, M. M., Sheffer, M., Linde, M. H., Ly, N., Rotiroti, et al
  AMER ASSOC CANCER RESEARCH.2022

- **Lineage plasticity dictates responsiveness to anti-GD2 therapy in neuroblastoma.**
  Mabe, N. W., Huang, M., Schaefer, D. A., Dalton, G. N., Digiovanni, G., Alexe, G., Geraghty, A. C., Khalid, D., Mader, M. M., Sheffer, M., Linde, M. H., Ly, N., Rotiroti, et al
  AMER ASSOC CANCER RESEARCH.2022: 3

- **Tip60-mediated H2A.Z acetylation promotes neuronal fate specification and bivalent gene activation.** *Molecular cell*
  Janas, J. A., Zhang, L., Luu, J. H., Demeter, J., Meng, L., Marro, S. G., Mall, M., Mooney, N. A., Schaukowitch, K., Ng, Y. H., Yang, N., Huang, Y., Neumayer, et al
  2022
- **Directly induced human retinal ganglion cells mimic fetal RGCs and are neuroprotective after transplantation invivo.** *Stem cell reports*
  Luo, Z., Chang, K., Wu, S., Sun, C., Xia, X., Nahmou, M., Bian, M., Wen, R. R., Zhu, Y., Shah, S., Tanasa, B., Wernig, M., Goldberg, et al
  2022
- **MICROGLIA REPLACEMENT CHANGES THE TRANSCRIPTIONAL PROFILE OF TUMOR ASSOCIATED MYELOID CELLS IN MURINE MODELS OF BRAIN MALIGNANCIES**
  Mader, M., Rodrigues, A., Chernikova, S., Wong, Z., Wang, Y., Petritsch, C., Wernig, M., Gephart, M.
  OXFORD UNIV PRESS INC.2022: 290
- **Synaptogenic effect of APP-Swedish mutation in familial Alzheimer's disease.** *Science translational medicine*
  Zhou, B., Lu, J. G., Siddu, A., Wernig, M., Sudhof, T. C.
  2022; 14 (667): eabn9380
- **Generation of functional human oligodendrocytes from dermal fibroblasts by direct lineage conversion.** *Development (Cambridge, England)*
  Tanabe, K., Nobuta, H., Yang, N., Ang, C. E., Huie, P., Jordan, S., Oldham, M. C., Rowitch, D. H., Wernig, M.
  2022; 149 (20)
- **Endocytosis in the axon initial segment maintains neuronal polarity.** *Nature*
  Eichel, K., Uenaka, T., Belapurkar, V., Lu, R., Cheng, S., Pak, J. S., Taylor, C. A., Sudhof, T. C., Malenka, R., Wernig, M., Ozkan, E., Perrais, D., Shen, et al
  2022
- **Transition to a mesenchymal state in neuroblastoma confers resistance to anti-GD2 antibody via reduced expression of ST8SIA1.** *Nature cancer*
  Mabe, N. W., Huang, M., Dalton, G. N., Alexe, G., Schaefer, D. A., Geraghty, A. C., Robichaud, A. L., Conway, A. S., Khalid, D., Mader, M. M., Belk, J. A., Ross, K. N., Sheffer, et al
  2022
- **Myt1l haploinsufficiency leads to obesity and multifaceted behavioral alterations in mice.** *Molecular autism*
  Wohr, M., Fong, W. M., Janas, J. A., Mall, M., Thome, C., Vangipuram, M., Meng, L., Sudhof, T. C., Wernig, M.
  2022; 13 (1): 19
- **Is hypoimmunogenic stem cell therapy safe in times of pandemics?** *Stem cell reports*
  Matheus, F., Raveh, T., Oro, A. E., Wernig, M., Drukker, M.
  2022
- **Treatment of a genetic brain disease by CNS-wide microglia replacement.** *Science translational medicine*
  Shibuya, Y., Kumar, K. K., Mader, M. M., Yoo, Y., Ayala, L. A., Zhou, M., Mohr, M. A., Neumayer, G., Kumar, I., Yamamoto, R., Marcoux, P., Liou, B., Bennett, et al
  2022; 14 (636): eabl9945
- **Collagen VI regulates motor circuit plasticity and motor performance by cannabinoid modulation.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
  Lam, D. D., Williams, R. H., Lujan, E., Tanabe, K., Huber, G., Saw, N. L., Merl-Pham, J., Salminen, A. V., Lohse, D., Spendiff, S., Plastini, M. J., Zech, M., Lochmuller, et al
  1800
- **Somatic Lineage Reprogramming.** *Cold Spring Harbor perspectives in biology*
  Shelby, H., Shelby, T., Wernig, M.
  2021
- **RTN4/NoGo-receptor binding to BAI adhesion-GPCRs regulates neuronal development.** *Cell*
  Wang, J., Miao, Y., Wicklein, R., Sun, Z., Wang, J., Jude, K. M., Fernandes, R. A., Merrill, S. A., Wernig, M., Garcia, K. C., Sudhof, T. C.
  2021
- **Efficient generation of dopaminergic induced neuronal cells with midbrain characteristics.** *Stem cell reports*

Ng, Y. H., Chanda, S., Janas, J. A., Yang, N., Kokubu, Y., Sudhof, T. C., Wernig, M.
2021

- **Rapid protocol for induced retinal ganglion cell differentiation from human stem cells**
  Luo, Z., Chang, K., Tanasa, B., Wernig, M., Goldberg, J. L.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021

- **Cross-platform validation of neurotransmitter release impairments in schizophrenia patient-derived NRXN1-mutant neurons.** *Proceedings of the National Academy of Sciences of the United States of America*
  Pak, C., Danko, T., Mirabella, V. R., Wang, J., Liu, Y., Vangipuram, M., Grieder, S., Zhang, X., Ward, T., Huang, Y. A., Jin, K., Dexheimer, P., Bardes, et al
  2021; 118 (22)

- **Cell-type-specific profiling of human cellular models of fragile X syndrome reveal PI3K-dependent defects in translation and neurogenesis.** *Cell reports*
  Raj, N., McEachin, Z. T., Haroussеau, W., Zhou, Y., Zhang, F., Merritt-Garza, M. E., Taliaferro, J. M., Kalinowska, M., Marro, S. G., Hales, C. M., Berry-Kravis, E., Wolf-Ochoa, M. W., Martinez-Cerdeno, et al
  2021; 35 (2): 108991

- **Optogenetic manipulation of cellular communication using engineered myosin motors.** *Nature cell biology*
  Zhang, Z., Denans, N., Liu, Y., Zhulyn, O., Rosenblatt, H. D., Wernig, M., Barna, M.
  2021

- **H3.3-K27M drives neural stem cell-specific gliomagenesis in a human iPSC-derived model.** *Cancer cell*
  Haag, D., Mack, N., Benites Goncalves da Silva, P., Statz, B., Clark, J., Tanabe, K., Sharma, T., Jager, N., Jones, D. T., Kawauchi, D., Wernig, M., Pfister, S. M.
  2021

- **Comparison of Acute Effects of Neurotoxic Compounds on Network Activity in Human and Rodent Neural Cultures.** *Toxicological sciences : an official journal of the Society of Toxicology*
  Saavedra, L. n., Wallace, K. n., Freudenrich, T. F., Mall, M. n., Mundy, W. R., Davila, J. n., Shafer, T. J., Wernig, M. n., Haag, D. n.
  2021; 180 (2): 295–312

- **Pro-neuronal activity of Myod1 due to promiscuous binding to neuronal genes.** *Nature cell biology*
  Lee, Q. Y., Mall, M., Chanda, S., Zhou, B., Sharma, K. S., Schaukowitch, K., Adrian-Segarra, J. M., Grieder, S. D., Kareta, M. S., Wapinski, O. L., Ang, C. E., Li, R., Sudhof, et al
  2020

- **Cdk1 Controls Global Epigenetic Landscape in Embryonic Stem Cells.** *Molecular cell*
  Michowski, W. n., Chick, J. M., Chu, C. n., Kolodziejczyk, A. n., Wang, Y. n., Suski, J. M., Abraham, B. n., Anders, L. n., Day, D. n., Dunkl, L. M., Li Cheong Man, M. n., Zhang, T. n., Laphanuwat, et al
  2020

- **APPROACHES TO TRANSCRIPTOME ANALYSIS OF HUMAN INDUCED NEURONS IN CO-CULTURE WITH MURINE GLIA TO MODEL FUNCTIONAL SYNAPSES**
  Purmann, C., Zhang, X., Pak, C., Huang, Y., Pattni, R., Grieder, S., Wernig, M., Levinson, D., Aronow, B., Sudhof, T., Urban, A.
  ELSEVIER.2019: S172–S173

- **In vitro modeling of the bipolar disorder and schizophrenia using patient-derived induced pluripotent stem cells with copy number variations of PCDH15 and RELN.** *eNeuro*
  Ishii, T., Ishikawa, M., Fujimori, K., Maeda, T., Kushima, I., Arioka, Y., Mori, D., Nakatake, Y., Yamagata, B., Nio, S., Kato, T. A., Yang, N., Wernig, et al
  2019

- **Differential Signaling Mediated by ApoE2, ApoE3, and ApoE4 in Human Neurons Parallels Alzheimer's Disease Risk.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
  Huang, Y. A., Zhou, B., Nabet, A. M., Wernig, M., Sudhof, T. C.
  2019

- **Stem cell-derived retinal ganglion cell differentiation and its transplantation**
  Chang, K., Wu, S., Li, L., Sun, C., Xia, X., Knasel, C., Nahmou, M., Wernig, M., Goldberg, J. L.

ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019

- **Neuroligin-4 Regulates Excitatory Synaptic Transmission in Human Neurons.** *Neuron*
  Marro, S. G., Chanda, S., Yang, N., Janas, J. A., Valperga, G., Trotter, J., Zhou, B., Merrill, S., Yousif, I., Shelby, H., Vogel, H., Kalani, M. Y., Sudhof, et al
  2019

- **Reversible Disruption of Specific Transcription Factor-DNA Interactions Using CRISPR/Cas9.** *Molecular cell*
  Shariati, S. A., Dominguez, A., Xie, S., Wernig, M., Qi, L. S., Skotheim, J. M.
  2019; 74 (3): 622

- **Reversible Disruption of Specific Transcription Factor-DNA Interactions Using CRISPR/Cas9** *MOLECULAR CELL*
  Shariati, S., Dominguez, A., Xie, S., Wernig, M., Qi, L. S., Skotheim, J. M.
  2019; 74 (3): 622-+

- **Global DNA methylation remodeling during direct reprogramming of fibroblasts to neurons.** *eLife*
  Luo, C., Lee, Q. Y., Wapinski, O., Castanon, R., Nery, J. R., Mall, M., Kareta, M. S., Cullen, S. M., Goodell, M. A., Chang, H. Y., Wernig, M., Ecker, J. R.
  2019; 8

- **TFAP2C- and p63-Dependent Networks Sequentially Rearrange Chromatin Landscapes to Drive Human Epidermal Lineage Commitment.** *Cell stem cell*
  Li, L., Wang, Y., Torkelson, J. L., Shankar, G., Pattison, J. M., Zhen, H. H., Fang, F., Duren, Z., Xin, J., Gaddam, S., Melo, S. P., Piekos, S. N., Li, et al
  2019

- **The novel lncRNA lnc-NR2F1 is pro-neurogenic and mutated in human neurodevelopmental disorders.** *eLife*
  Ang, C. E., Ma, Q., Wapinski, O. L., Fan, S., Flynn, R. A., Lee, Q. Y., Coe, B., Onoguchi, M., Olmos, V. H., Do, B. T., Dukes-Rimsky, L., Xu, J., Tanabe, et al
  2019; 8

- **Heterogeneity in old fibroblasts is linked to variability in reprogramming and wound healing.** *Nature*
  Mahmoudi, S. n., Mancini, E. n., Xu, L. n., Moore, A. n., Jahanbani, F. n., Hebestreit, K. n., Srinivasan, R. n., Li, X. n., Devarajan, K. n., Prélot, L. n., Ang, C. E., Shibuya, Y. n., Benayoun, et al
  2019; 574 (7779): 553–58

- **Oligodendrocyte Death in Pelizaeus-Merzbacher Disease Is Rescued by Iron Chelation.** *Cell stem cell*
  Nobuta, H. n., Yang, N. n., Ng, Y. H., Marro, S. G., Sabeur, K. n., Chavali, M. n., Stockley, J. H., Killilea, D. W., Walter, P. B., Zhao, C. n., Huie, P. n., Goldman, S. A., Kriegstein, et al
  2019; 25 (4): 531–41.e6

- **Modeling Alzheimer's disease with human iPS cells: advancements, lessons, and applications.** *Neurobiology of disease*
  Essayan-Perez, S. n., Zhou, B. n., Nabet, A. M., Wernig, M. n., Huang, Y. A.
  2019: 104503

- **Direct Reprogramming of Human Neurons Identifies MARCKSL1 as a Pathogenic Mediator of Valproic Acid-Induced Teratogenicity.** *Cell stem cell*
  Chanda, S. n., Ang, C. E., Lee, Q. Y., Ghebrial, M. n., Haag, D. n., Shibuya, Y. n., Wernig, M. n., Südhof, T. C.
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