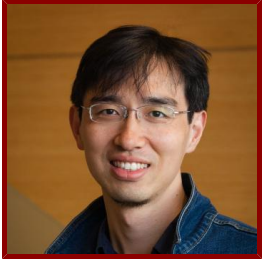


Stanford



Le Cong

Assistant Professor of Pathology (Pathology Research) and of Genetics

Bio

BIO

Dr. Cong is leading a group in the Department of Pathology and Genetics at Stanford School of Medicine to pursue novel technology for scalable genome editing and single-cell genomics, and accompanying computational approaches inspired by data science. His group has a focus on studying immunology in the context of cancer and neuroscience.

He obtained his BS with highest honor from Tsinghua University studying Electronic Engineering and then Biology, his Ph.D. from Harvard Medical School co-advised by Drs. Feng Zhang and George Church. He completed doctoral work primarily in Dr. Feng Zhang's laboratory, where he published seminal studies on harnessing CRISPR/Cas9 for gene editing, including the most highly-cited paper in CRISPR field, with cumulative citation over 15,000 times. He has obtained over 20 issued patents as co-inventor, and his work led to one of the first FDA-approved clinical trials employing viral delivery of CRISPR/Cas9 for in vivo gene therapy. His later work applied single-cell RNA-seq to cancer drug discovery under Dr. Aviv Regev at the Broad Institute with Drs. Tyler Jacks and Vijay Kuchroo.

Dr. Cong was a Howard Hughes Medical Institute (HHMI) International Fellow, a Cancer Research Institute (CRI) Irvington Fellow, and was selected as Forbes 30 Under 30 Asia list of young innovators, MIT TechReview TR35 China, and 2019 "Top 10 under 40" by GEN (Genetic Engineering & Biotechnology News).

ACADEMIC APPOINTMENTS

- Assistant Professor, Pathology
- Assistant Professor, Genetics
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Donald and Delia Baxter Foundation Faculty Scholar, Baxter Foundation (2019)
- CRI Irvington Fellow, Cancer Research Institute
- HHMI International Fellow, Howard Hughes Medical Institute

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Genome Editing and New Investigator Committee Member, American Society of Gene & Cell Therapy (ASGCT) (2019 - present)

PROFESSIONAL EDUCATION

- PhD, Harvard University, Harvard Medical School. , Biological and Biomedical Sciences (2014)
- LHB, Harvard Medical School. , Certificate in Leder Human Biology and Translational Medicine

- B.S., Tsinghua University , Biological Sciences, Electronic Engineering (2009)

COMMUNITY AND INTERNATIONAL WORK

- Neuro-engineering and Gene-editing., Cold Spring Harbor Laboratory

PATENTS

- Feng Zhang, Le Cong, Patrick Hsu, Fei Ann Ran. "United States Patent 8,906,616 Engineering of systems, methods and optimized guide compositions for sequence manipulation"
- Le Cong, Feng Zhang. "United States Patent 8,932,814 CRISPR-Cas nickase systems, methods and compositions for sequence manipulation in eukaryotes."
- Feng Zhang, LeCong, Randall Platt, Neville Sanjana, Fei Ann Ran. "United States Patent 8,993,233 Engineering and optimization of systems, methods and compositions for sequence manipulation with functional domains"
- Cong, Egloff, Garraway, Grandis, Lander, Stransky, Tward, Zhang.. "United States Patent 9,370,551. Compositions and methods of treating head and neck cancer."
- Le Cong, Feng Zhang, Patrick Hsu, Fei Ann Ran. "United States Engineering of systems, methods and optimized guide compositions for sequence manipulation."

Teaching

COURSES

2020-21

- Advanced Genetics: GENE 205 (Win)

2019-20

- Advanced Genetics: GENE 205 (Win)
- Foundations in Experimental Biology: BIOS 200 (Aut)

2018-19

- Advanced Genetics: GENE 205 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Ravi Dinesh, Chengkun Wang

Doctoral Dissertation Advisor (AC)

Jason Cheng, Yuanhao Qu

Doctoral Dissertation Co-Advisor (AC)

Nicholas Hughes

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)
- Biology (School of Humanities and Sciences) (Phd Program)
- Cancer Biology (Phd Program)
- Genetics (Phd Program)
- Stem Cell Biology and Regenerative Medicine (Phd Program)

Publications

PUBLICATIONS

- **Adeno-associated viral vector-mediated immune responses: Understanding barriers to gene delivery.** *Pharmacology & therapeutics*

Nidetz, N. F., McGee, M. C., Tse, L. V., Li, C., Cong, L., Li, Y., Huang, W.

2019; 107453

- **Take Risks and Constantly Challenge the Status Quo** *STEM CELLS AND DEVELOPMENT*
Cong, L.
2019
- **Combined Computational-Experimental Approach to Explore the Molecular Mechanism of SaCas9 with a Broadened DNA Targeting Range** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Luan, B., Xu, G., Feng, M., Cong, L., Zhou, R.
2019; 141 (16): 6545–52
- **IL-33 Signaling Alters Regulatory T Cell Diversity in Support of Tumor Development.** *Cell reports*
Li, A., Herbst, R. H., Canner, D., Schenkel, J. M., Smith, O. C., Kim, J. Y., Hillman, M., Bhutkar, A., Cuoco, M. S., Rappazzo, C. G., Rogers, P., Dang, C., Jerby-Arnon, et al
2019; 29 (10): 2998–3008.e8
- **Efficient Generation of Transcriptomic Profiles by Random Composite Measurements.** *Cell*
Cleary, B., Cong, L., Cheung, A., Lander, E. S., Regev, A.
2017; 171 (6): 1424–36.e18
- **A Distinct Gene Module for Dysfunction Uncoupled from Activation in Tumor-Infiltrating T Cells** *CELL*
Singer, M., Wang, C., Cong, L., Marjanovic, N. D., Kowalczyk, M. S., Zhang, H., Nyman, J., Sakuishi, K., Kurtulus, S., Gennert, D., Xia, J., Kwon, J. Y., Nevin, et al
2016; 166 (6): 1500-?
- **In vivo gene editing in dystrophic mouse muscle and muscle stem cells** *SCIENCE*
Tabebordbar, M., Zhu, K., Cheng, J. K., Chew, W. L., Widrick, J. J., Yan, W. X., Maesner, C., Wu, E. Y., Xiao, R., Ran, F. A., Cong, L., Zhang, F., Vandenberghe, et al
2016; 351 (6271): 407-411
- **RBPJ Controls Development of Pathogenic Th17 Cells by Regulating IL-23 Receptor Expression.** *Cell reports*
Meyer Zu Horste, G., Wu, C., Wang, C., Cong, L., Pawlak, M., Lee, Y., Elyaman, W., Xiao, S., Regev, A., Kuchroo, V. K.
2016; 16 (2): 392–404
- **Definitive localization of intracellular proteins: Novel approach using CRISPR-Cas9 genome editing, with glucose 6-phosphate dehydrogenase as a model.** *Analytical biochemistry*
Spencer, N. Y., Yan, Z., Cong, L., Zhang, Y., Engelhardt, J. F., Stanton, R. C.
2016; 494: 55–67
- **Crystal Structure of Staphylococcus aureus Cas9** *CELL*
Nishimasu, H., Cong, L., Yan, W. X., Ran, F. A., Zetsche, B., Li, Y., Kurabayashi, A., Ishitani, R., Zhang, F., Nureki, O.
2015; 162 (5): 1113-1126
- **In vivo genome editing using Staphylococcus aureus Cas9** *NATURE*
Ran, F. A., Cong, L., Yan, W. X., Scott, D. A., Gootenberg, J. S., Kriz, A. J., Zetsche, B., Shalem, O., Wu, X., Makarova, K. S., Koonin, E. V., Sharp, P. A., Zhang, et al
2015; 520 (7546): 186-U98
- **Genome engineering using CRISPR-Cas9 system.** *Methods in molecular biology (Clifton, N.J.)*
Cong, L., Zhang, F.
2015; 1239: 197-217
- **Sequence determinants of improved CRISPR sgRNA design.** *Genome research*
Xu, H., Xiao, T., Chen, C. H., Li, W., Meyer, C. A., Wu, Q., Wu, D., Cong, L., Zhang, F., Liu, J. S., Brown, M., Liu, X. S.
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- **Global microRNA depletion suppresses tumor angiogenesis.** *Genes & development*
Chen, S., Xue, Y., Wu, X., Le, C., Bhutkar, A., Bell, E. L., Zhang, F., Langer, R., Sharp, P. A.
2014; 28 (10): 1054–67

- **Multiplex Genome Engineering Using CRISPR/Cas Systems** *SCIENCE*
Cong, L., Ran, F. A., Cox, D., Lin, S., Barretto, R., Habib, N., Hsu, P. D., Wu, X., Jiang, W., Marraffini, L. A., Zhang, F.
2013; 339 (6121): 819-823
- **Optical control of mammalian endogenous transcription and epigenetic states.** *Nature*
Konermann, S., Brigham, M. D., Trevino, A. E., Hsu, P. D., Heidenreich, M., Cong, L., Platt, R. J., Scott, D. A., Church, G. M., Zhang, F.
2013; 500 (7463): 472–76
- **Comprehensive interrogation of natural TALE DNA-binding modules and transcriptional repressor domains** *NATURE COMMUNICATIONS*
Cong, L., Zhou, R., Kuo, Y., Cunniff, M., Zhang, F.
2012; 3
- **A transcription activator-like effector toolbox for genome engineering.** *Nature protocols*
Sanjana, N. E., Cong, L., Zhou, Y., Cunniff, M. M., Feng, G., Zhang, F.
2012; 7 (1): 171–92
- **Efficient construction of sequence-specific TAL effectors for modulating mammalian transcription** *NATURE BIOTECHNOLOGY*
Zhang, F., Cong, L., Lodato, S., Kosuri, S., Church, G. M., Arlotta, P.
2011; 29 (2): 149-U90