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EDUCATION AND TRAINING

2011 – 2015 Postdoctoral Fellow, Cancer Genetics, MIT (Mentor: Phillip A. Sharp)

2013 – 2015 Visiting Postdoctoral Fellow, Genome Engineering, Broad Institute (Supervisor: Feng Zhang)

2007 - 2011 PhD (6/11/2011), Evolutionary Genetics, The University of Chicago, Chicago, IL (Advisor: Manyuan Long)

2009 Visiting student, Biology, Stanford University, Stanford, CA (Supervisor: Liquan Luo)

2007 MS (6/7/2007), Evolutionary Genetics, Computational Biology, The University of Chicago, Chicago, IL

2004 B.S. (7/1/2004), Biological Sciences, Peking University, Beijing China (Thesis Advisor: Jianguo Chen)

Honors and Awards (~50, selected):

Awards received as PI:

Pershing Square Sohn Prize for Young Investigators in Cancer Research (2021); DoD KCRP IDA (2021); DoD PRMRP COVID-19 IIRA; ACGT Fellow (2020); Blavatnik Innovator Award (2020); DoD BCRP Era of Hope Scholar (2020); UChicago MBSAA Distinguished Alumni Award for Early Achievement (2020); Yale Cancer Center Basic Science Research Prize (2020); Blavatnik Innovator Award (2019); MIT TR 35 Innovators (Pioneers, Regional, 2019); NIH Director's New Innovator Award (DP2, 2018); Sontag Foundation Distinguished Scientist Award (2018); Ludwig Foundation Award (2018); AACR NextGen Award for Transformative Cancer Research (2017); Bohmfalk Scholar (2017); V Scholar (2017); CRI CLIP Award (2017); BCA Exceptional Research Award (2017); DoD LCRP Idea Development Award (2017); TMKF Award for Innovative/Translation Cancer Research (2017); St. Baldrick's Foundation Award (2016); MRA Young Investigator Award (2016); Yale Innovation Award (2016); Dale Frey Award for Breakthrough Scientists (2015);

Awards received in training:

Damon Runyon Cancer Research Fellowship (2012); Keystone Symposia NSF Scholarship (2014); Chair's Special Award, Best Presentation, Gordon Research Conf. (2011); Best Dissertation Award, UChicago (2011); National Science Foundation DDIG Award (2009); Paragon of exceptional student PKU (2004); Novozyme Fellowship (2003); Youlong Fellowship; Chun-Tsung Scholar (2002).

Trainees' awards as mentor:

CRI Irvington Fellowship (Wang); RJ Anderson Fellowship (Wang). RC Revson Postdoctoral Fellowship (Dai); Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (F31) (Codina); Ruth L. Kirschstein National Research Service Award (NRSA) Individual Fellowship for Students at Institutions with NIH-Funded Institutional Predoctoral Dual-Degree Training Programs (Parent F30) (Chow); Lo Fellowship for Excellence in Stem Cell Research (Renauer).

Peer reviewer services (~100, selected):

Grant reviewer:

Various NIH/NCI Study Sections (e.g. CII, IOR); Medical Research Council UK; Breast Cancer Now; Mary Kay Foundation; St' Baldrick's Foundation; Cancer Research UK; Israeli Ministry of Science and Technology; HK

Innovation and Technology Commission; European Research Council (ERC); AACR; Yale Internal awards; Swiss National Science Foundation (SNSF).

Journal reviewer:

Nature, Cell, Nature Medicine, Nature Biotechnology, Nature Immunology, Nature Biomed Eng, Nature Neurosc, Nature Protocol, Nature Cancer, Nature Rev Genet, Nature Struct and Mol Bio, Nature Comm, Cancer Cell, Immunity, Cell Reports, Molecular Cell, JCI, Genes Dev, GBE, Genetics, J Tox, JCT, Sci Rep, OncoTargets, Vascular Cell, BJC; Genome Research, Genome Biology, Plos Biology, eLife, Cell Genomics, J Virology, etc

Editorial Board: Translational Oncology, Biomedical Research International.

Public presentations (~100, selected):

Meeting presentations:

Keystone Symposia – Gene editing; Bi-annual Cancer Symposiums, CSHL – BoG, BoC, SysBio etc; Cell Mapping Initiative; World Cancer Congress (keynote); MRA; Annual CRISPR Congress; WPC; Molecular Tricon; GTCC - Big Data Bioinformatics; Human Translational Immunology; Kavli Workshop; IBIO-2015; Broad-E Workshop; Jackson lab; Drosophila Research Conference; Gordon Conference (Best Talk); CBC Symposium; SMBE; Lyon Workshop; Chun-Tsung Symposium; Sontag Foundation;

Invited talk at institutions:

FHCRC, UCinc, UCSD, MSKCC, UTexas, UToronto/SickKids (keynote), DFCI; Harvard; UNC; Boston University; UC Berkeley; UChicago; UCSF; UIUC; MD Anderson; Stanford; U. Geneva; IMP, Vienna; Harvard Medical School; MIT; Caltech; UC Berkeley; UC Davis; NCSU; CAS; HKU; Cornell; WSU; Yale; U. Cambridge; OIST, Japan; SYSU; NIH/NCI; NIH/NIDA;

Invited talk at pharma/biotech:

Pfizer, Takeda, GSK, Novozyme, World Pharma Week, Discovery OnTarget, OPT Congress, DDW.

Media coverage (multiple, selected):

New Scientist, The Scientist, Guardian, Science news, Science Daily, Mail Online, EurekAlert, GEN, BioIT World, USA news, Science 360, MIT news, UChicago news, Broad news, Yale news, Nature Reviews Genetics, etc

Educational, service and training activities:

Teaching:

Genetics 760; Intro Sys Bio; Cell Bio; EE35800; EE35900; Croucher Science Summer Course.

Faculty service:

Systems Biology Institute SAB; Institutional Space Committee; Departmental Retreat Organizer; Committee on grad student education, Yale Genetics; BBS program, MCGD and Immunobiology tracks, RIP, GSS; Department Retreat organizer, student recruit, faculty recruit, etc.

Mentoring (~60 past and current trainees):

Postdoctoral:

Fang Z, Dai WL, Suzuki K, Verma N, Zhou Q, Li L, Bai MZ, Ren P, Clark P, Han Q, Liao C, Zhou AXY, Peng VL, Yang QJ, Wang GC, Zhu LY, Bai ZG, Du YY, Ye LP, Dai XY, Errami Y, Zhang L; etc.

Graduate:

Zhang VY, Zhou J, Shen J, Milet A, Zhang YQ, Park JJ, Dong M, Codina A, Dong W, Guzman C, Chow R, Renauer P, Barish S, Park J, Niu L, Zhang WY; etc

Baccurate / Master:

Lin QS, Li S, Du A, He E, Zhang YZ, Yue J, Lee W, Chen K, Lam S, Martinez M, Zhang S, Kim H, Awadalla M, etc.

Industry / biotech startup: EvolveImmune Therapeutics (Founder, SAB)

Invited talk at pharma/biotech: Pfizer, Takeda, GSK, Novozyme, World Pharma Week, Discovery OnTarget, OPT Congress, DDW.

PUBLICATIONS (annotated)

*** = co-first authors; † = corresponding authors**

Chow RD and **Chen S[†]**. The aging transcriptome and cellular landscape of the human lung in relation to SARS-CoV-2. *BioRxiv* (preprint) 2020. doi: 10.1101/2020.04.07.030684. **Nature Communications (2021)**

Yuan S*, Peng L*, Park JJ, Hu Y, Devarkar SC, Dong MB, Wu S, **Chen S[†]**, Lomakin I[†] and Xiong Y[†]. Nonstructural protein 1 of SARS-CoV-2 is a potent pathogenicity factor redirecting host protein synthesis machinery toward viral RNA. *BioRxiv* 2020. doi: doi.org/10.1101/2020.08.09.243451 **Molecular Cell. (2020)** DOI: <https://doi.org/10.1016/j.molcel.2020.10.034>

Wang G*, Chow RD*, Zhu L*, Bai Z*, Ye L, Zhang F, Renauer RA, Dong MB, Dai X, Zhang X, Du Y, Cheng Y, Niu L, Chu Z, Kim K, Liao C, Clark P, Errami Y and **Chen S[†]**. CRISPR-GEMM pooled mutagenic screening identifies KMT2D as a major modulator of immune checkpoint blockade. **Cancer Discovery (2020)** published on September 4, 2020; doi: 10.1158/2159-8290.CD-19-1448

Chow RD*, Chen JS*, Shen J, and **Chen S[†]**. pegFinder: A pegRNA designer for CRISPR prime editing. *BioRxiv* (preprint) 2020. doi: 10.1101/2020.05.06.081612. **Nature Biomedical Engineering (2020)** DOI: <https://doi.org/10.1038/s41551-020-00622-8>

Wang G*, Chow RD*, Bai Z, Zhu L, Errami Y, Dai X, Dong MB, Ye L, Zhang X, Renauer RA, Park JJ, Shen L, Ye H, Fuchs CS, and **Chen S[†]**. Multiplexed activation of endogenous genes by CRISPRa elicits potent anti-tumor immunity. **Nature Immunology (2019)** Oct 14. doi: 10.1038/s41590-019-0500-4.

Ye L*, Park JJ*, Dong MB*, Yang Q, Chow RD, Peng L, Guo J, Dai X, Wang G, Errami Y, and **Chen S[†]**. In vivo AAV-Sleeping Beauty hybrid CRISPR screening system identified membrane targets for CD8 T cell engineering against glioblastoma. **Nature Biotechnology (2019)** Sep 23. doi: 10.1038/s41587-019-0246-4.

Dong M*, Wang G*, Chow RD*, Ye L*, Zhu L, Dai X, Park J, Kim H, Errami Y, Guzman C, Zhou X, Chen K, Renauer P, Du Y, Shen J, Lam S, Zhou J, Lannin DR, Herbst RS and **Chen S[†]**. Systematic identification of immunotherapy targets using genome-scale CRISPR screens in cytotoxic CD8 T cells in vivo. **Cell (2019)** Aug 22;178(5):1189-1204.e23. doi: 10.1016/j.cell.2019.07.044.

Dai X*, Park JJ*, Du Y, Kim RK, Wang G, Errami Y and **Chen S[†]**. One-step generation of modular CAR-T with AAV-Cpf1. **Nature Methods (2019)** Mar;16(3):247-254. doi: 10.1038/s41592-019-0329-7. Epub 2019 Feb 25.

Chow RD*, Wang G*, Ye L*, Codina A, Kim RK, Shen L, Dong M, Errami Y and **Chen S[†]**. High-density in vivo profiling of metastatic double knockouts through CRISPR-Cpf1. **Nature Methods (2019)** May;16(5):405-408. doi: 10.1038/s41592-019-0371-5. Epub 2019 Apr 8. *Note: early version deposited to BioRxiv as: Ryan D. Chow, Guangchuan Wang, Adan Codina, Lupeng Ye, and Sidi Chen †. Mapping in vivo genetic interactomics through Cpf1 crRNA array screening. (BioRxiv 2017 doi: <https://doi.org/10.1101/153486>)*

Codina A*, Renauer P*, Wang G*, Chow RD*, Park JJ, Ye H, Zhang K, Dong M, Gassaway B, Ye L, Errami Y, Shen L, Chang A, Jain D, Herbst RS, Bosenberg M, Rinehart J, Fan R and **Chen S[†]**. Convergent identification and interrogation of tumor-intrinsic factors that modulate cancer immunity in vivo. **Cell Systems (2019)** 2019 Feb 27;8(2):136-151.e7. doi: 10.1016/j.cels.2019.01.004. Epub 2019 Feb 20.

Chow RD and **Chen S[†]**. Sno-derived RNAs are prevalent molecular markers of cancer immunity. **Oncogene, 2018** DOI - 10.1038/s41388-018-0420-z

Ye L*, Wang C*, Hong L, Sun N, Chen D, **Chen S[†]** and Han F[†]. Programmable DNA Repair with CRISPRa/Enhanced Homology-Directed Repair Efficiency with a Single Cas9. **Cell Discovery (2018)** doi: 10.1038/s41421-018-0049-7.

Chow RD, Kim HR, **Chen S**[†]. Programmable sequential mutagenesis by inducible Cpf1 crRNA array inversion. **Nature Communications**. 2018 May 15;9(1):1903. doi: 10.1038/s41467-018-04158-z.

Chow RD and **Chen S**[†]. Cancer CRISPR screens *in vivo*. **(Cover story)**
Trends In Cancer. 2018 May;4(5):349-358. doi: 10.1016/j.trecan.2018.03.002.. Review. PMID: 29709259

Chow RD*, Guzman CD*, Wang G*, Schmidt F*, Youngblood MW, Ye L, Errami Y, Dong MB, Martinez MA, Zhang S, Renauer P, Bilguvar K, Gunel M, Sharp PA, Zhang F, Platt RJ[†], **Chen S**[†]. AAV-mediated direct *in vivo* CRISPR screen identifies functional suppressors in glioblastoma.
Nature Neuroscience, 20, 1329–1341 (2017) doi:10.1038/nn.4620

Wang G*, Chow RD*, Ye L, Guzman CD, Dai X, Dong MB, Zhang F, Sharp PA, Platt RJ[†], and **Chen S**[†]. Mapping a Functional Cancer Genome Atlas of Tumor Suppressors in Mouse Liver Using AAV-CRISPR Mediated Direct *in vivo* Screening. **(2018) Science Advances**. (# = co-first authors) *Note: early version deposited to BioRxiv as: Pooled AAV-CRISPR Screen with Targeted Amplicon Sequencing. BioRxiv (2017) doi: <https://doi.org/10.1101/153643>*

Pyzocha N[†] and **Chen S**[†]. Diverse Class 2 CRISPR-Cas Effector Proteins for Genome Engineering Applications. **ACS Chemical Biology**. 2017 Nov 9. doi: 10.1021/acscchembio.7b00800. PMID: 29121460

Chen S*, Sanjana NE*, Zheng K, Shalem O, Lee K, Shi X, Scott DA, Song J, Pan JQ, Weissleder R, Lee H, Zhang F, Sharp PA. Genome-wide CRISPR Screen in a Mouse Model of Tumor Growth and Metastasis.
Cell. 2015 Mar 12;160(6):1246-60. doi: 10.1016/j.cell.2015.02.038. Epub 2015 Mar 5. **(Cell Best of 2015)**

Platt RJ*, **Chen S***, Zhou Y, Yim MJ, Swiech L, Kempton HR, Dahlman JE, Parnas O, Eisenhaure TM, Jovanovic M, Graham DB, Jhunjhunwala S, Heidenreich M, Xavier RJ, Langer R, Anderson DG, Hacohen N, Regev A, Feng G, Sharp PA, Zhang F. CRISPR-Cas9 knockin mice for genome editing and cancer modeling.
Cell. 2014 Oct 9;159(2):440-55. doi: 10.1016/j.cell.2014.09.014. Epub 2014 Sep 25. **(Cell cover story)**

Xue W*, **Chen S***, Yin H*, Tammela T, Papagiannakopoulos T, Joshi NS, Cai W, Yang G, Bronson R, Crowley DG, Zhang F, Anderson DG, Sharp PA, Jacks T. CRISPR-mediated direct mutation of cancer genes in the mouse liver.**Nature**. 2014 Oct 16;514(7522):380-4. doi: 10.1038/nature13589. Epub 2014 Aug 6.

Chen S*, Xue Y*, Wu X, Le C, Bhutkar A, Bell EL, Zhang F, Langer R, Sharp PA. Global microRNA depletion suppresses tumor angiogenesis. **Genes and Development**. 2014 May 15;28(10):1054-67. doi: 10.1101/gad.239681.114.

Chen S, Krinsky BH, Long M. New genes as drivers of phenotypic evolution. **Nat Rev Genet**. 2013 Sep;14(9):645-60. doi: 10.1038/nrg3521. Review.

Chen S*, Ni X*, Krinsky BH, Zhang YE, Vibranovski MD, White KP, Long M. Reshaping of global gene expression networks and sex-biased gene expression by integration of a young gene. **EMBO J**. 2012 Jun 13;31(12):2798-809. doi: 10.1038/emboj.2012.108. Epub 2012 Apr 27. PubMed PMID: 22543869;

Chen S, Spletter M, Ni X, White KP, Luo L, Long M. Frequent recent origination of brain genes shaped the evolution of foraging behavior in *Drosophila*. **Cell Rep**. 2012 Feb 23;1(2):118-32. doi: 10.1016/j.celrep.2011.12.010. Epub 2012 Feb 16. PubMed PMID: 22832161

Chen S, Zhang YE, Long M. New genes in *Drosophila* quickly become essential. **Science**. 2010 Dec 17;330(6011):1682-5. doi: 10.1126/science.1196380. PubMed PMID: 21164016.

Complete list of publications at:

<https://pubmed.ncbi.nlm.nih.gov/?term=sidi+chen>

Google Scholar:

<https://scholar.google.com/citations?user=2jFfuT8AAAAJ&hl=en&oi=ao>

Patents (~17, selected):

US Provisional 2020 (Inventors: **Chen S**, Dai X, Du Y, Park J);
PCT2019/US2018/62/719,205 (Inventors: **Chen S**, Ye L, Park J, Dong M, Chow R);
PCT2019/US2018/62/790,622 (Inventors: **Chen S**, Dai X);
PCT2019/US2018 (Inventors: **Chen S**, Chow R, Wang G);
PCT2019/US2018/62/713,217/805,585 (Inventors: **Chen S**, Ye L);
PCT2018/US2017/027967 (Inventors: **Chen S**, Dong, M);
PCT/ WO2018160999 (Inventors: **Chen S**, Chow RD);
PCT/ WO2018161009 (Inventors: **Chen S**, Chow RD, Guzman CD, Platt RJ);
US62/521,600 (Inventors: **Chen S**, Chow RD);
PCT/WO2016049024 (Inventors: Sharp PA, Zhang F, Platt RJ, **Chen S**);
PCT/WO2016108926 (Inventors: **Chen S**, Platt RJ, Sanjana NE, Sharp PA, Zhang F)

Grant funding:

Department of Defense
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The Mary Kay Foundation (TMKF)
Ludwig Family Foundation
Melanoma Research Alliance (MRA)
St. Baldrick's Foundation
Breast Cancer Alliance (BCA)
American Cancer Society (ACS)
Cancer Research Institute (CRI)
American Association for Cancer Research (AACR)
Damon Runyon Cancer Research Foundation (DRCRF)
The V Foundation
Chenevert Family Foundation
Pershing Square Sohn Cancer Research Alliance
Alliance for Cancer Gene Therapy (ACGT)
Blavatnik Family Foundation
Juvenile Diabetes Research Foundation (JDRF)
Alliance for Lupus Research (LRA)