

JAMES KENNETH CHEN

Herbert and Marguerite Jauch Professor
Professor and Chair, Department of Chemical and Systems Biology
Professor, Department of Developmental Biology
Professor, Department of Chemistry

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EDUCATION

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| Harvard College , Cambridge, MA | 1987 – 1991 |
| A. B. degree in Chemistry, <i>Summa cum laude</i> | |
| Research Advisor: George M. Whitesides | |
| Harvard University , Cambridge, MA | 1991 – 1998 |
| Ph.D. degree in Chemistry and Chemical Biology | |
| Research Advisor: Stuart L. Schreiber | |
| Marine Biological Laboratory , Woods Hole, MA | Summer 1998 |
| <i>Embryology: Concepts and Techniques in Modern Developmental Biology</i> | |
| Johns Hopkins School of Medicine , Baltimore, MD | 1999 – 2003 |
| Postdoctoral Fellow, Department of Molecular Biology and Genetics | |
| Research Advisor: Philip A. Beachy | |

PROFESSIONAL EXPERIENCE

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| <u>Department of Chemical and Systems Biology, Stanford University, Stanford, CA</u> | |
| Assistant Professor | 2003 – 2010 |
| Associate Professor | 2010 – 2016 |
| Professor | 2016 – present |
| Chair | 2016 – present |
| <u>Department of Developmental Biology, Stanford University, Stanford, CA</u> | |
| Associate Professor | 2012 – 2016 |
| Professor | 2016 – present |
| <u>Department of Chemistry, Stanford University, Stanford, CA</u> | |
| Assistant Professor (by courtesy) | 2003 – 2010 |
| Associate Professor (by courtesy) | 2010 – 2016 |
| Professor (by courtesy) | 2016 – 2019 |
| Professor | 2019 – present |

HONORS AND AWARDS

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| Harvard University Certification of Distinction in Teaching | 1991 |
| National Science Foundation Predoctoral Fellowship | 1991 – 1994 |
| American Chemical Society Organic Chemistry Predoctoral Fellowship | 1994 – 1995 |
| Damon Runyon-Walter Winchell Postdoctoral Fellowship | 1999 – 2002 |
| American Cancer Society Postdoctoral Fellowship | 2002 – 2003 |
| W. Barry Wood, Jr. Research Award, Johns Hopkins School of Medicine | 2003 |
| Kimmel Scholar Award, Sidney Kimmel Foundation for Cancer Research | 2004 – 2006 |
| Basil O'Connor Starter Scholar Research Award, March of Dimes Foundation | 2005 – 2007 |

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| Terman Fellow, Stanford University | 2005 – 2008 |
| Astellas USA Foundation Award | 2005 |
| Faculty Fellow, Stanford School of Medicine | 2006 |
| Brain Tumor Society/Rachel Molly Markoff Research Chair | 2006 – 2008 |
| American Cancer Society Research Scholar Award | 2008 – 2011 |
| NIH Director's Pioneer Award | 2008 – 2013 |
| Nature SciCafe Award for Outstanding Research Achievement | 2009 |
| Alex's Lemonade Stand Foundation Innovation Award | 2013 – 2015 |
| NSF INSPIRE Award | 2013 – 2017 |
| Rocek Lectureship in Chemical Biology, University of Illinois at Chicago | 2019 |
| Herbert and Marguerite Jauch Professorship, Stanford University | 2019 |

PROFESSIONAL SERVICE AND MEMBERSHIPS (STANFORD UNIVERSITY)

Institute Memberships

| | |
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| Associate Member , Stanford Institute for Stem Cell Biology and Regenerative Medicine | 2003 – present |
| Member , Bio-X, Stanford University | 2003 – present |
| Member , Stanford Cancer Institute | 2005 – present |
| Associate Member , Stanford Digestive Disease Center | 2009 – 2012 |
| Fellow , Stanford ChEM-H Institute | 2013 – present |
| Member , Child Health Research Institute | 2013 – present |
| Member , Stanford Neurosciences Institute | 2017 – present |

Graduate Education and Training

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|---|----------------------|
| Member , Quantitative Chemical Biology Program Steering Committee, Stanford School of Medicine | 2004 – 2009 |
| Member , Medical Scientist Training Program Admissions Committee, Stanford School of Medicine | 2004 – present |
| Member , Advisory Committee for the Scholarly Concentrations Program in the Molecular Basis of Medicine, Stanford School of Medicine | 2006 – present |
| Director , Advisory Committee for the Scholarly Concentrations Program in the Molecular Basis of Medicine, Stanford School of Medicine | 2011 – present |
| Faculty Mentor , Stanford Clinical and Translational Networking Program | 2010 |
| Departmental Representative , Stanford Biosciences Committee on Graduate Admissions and Policy | 2012 – 2014 |
| Advisor , Stanford Biosciences Grant Writing Academy | 2014, 2017 – present |
| Member , Graduate Student Advisory Committee, Chemical and Systems Biology Stanford School of Medicine | 2016 – present |
| Co-Program Director , Molecular Pharmacology Training Program Stanford School of Medicine | 2021 – present |

Administrative Activities

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| Faculty Director , High-Throughput Bioscience Center, Stanford School of Medicine | 2003 – present |
| Member , Stanford School of Medicine Faculty Diversity Committee | 2004 – 2005 |
| Departmental Representative , Stanford School of Medicine Faculty Senate | 2005 – 2006 2009 – 2016 |
| Steering Committee Member , Stanford School of Medicine Faculty Senate | 2012 – 2016 |
| Alternate Member , Stanford Administrative Panel on Laboratory Animal Care | 2012 – 2014 |
| Co-Organizer , Stanford Chemical Biology Symposium | 2012 – 2014 |
| Executive Committee Member , Stanford ChEM-H Institute | 2013 – present |
| Member, Radiation Oncology Faculty Search Committee , Stanford School of Medicine | 2013 |

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| Chair, Junior Faculty Search Committee , Stanford ChEM-H Institute | 2013 |
| Executive Committee Member , Stanford School of Medicine Faculty Senate | 2014 – 2016 |
| Co-Chair, Junior Faculty Search Committee , Stanford ChEM-H Institute | 2015 |
| Member, Pediatric Chair Search Committee , Stanford School of Medicine | 2015 |
| Member, Junior Faculty Search Committee , Stanford ChEM-H Institute | 2018 |
| Chair of the Basic Science Chairs , Stanford School of Medicine | 2020 – present |
| Member, Search Committee for the Senior Associate Dean of Graduate Education and Postdoctoral Affairs , Stanford School of Medicine | 2020 |
| Member, Service Center Advisory Board , Stanford School of Medicine | 2020 – present |
| Faculty Lead , High-Throughput Screening, Innovative Medicines Accelerator, Stanford University | 2021 – present |

PROFESSIONAL SERVICE AND MEMBERSHIPS (NATIONAL AND INTERNATIONAL)

Society Memberships

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| Member , American Chemical Society | 1989 – present |
| Member , Society for Developmental Biology | 2009 – present |
| Member , International Zebrafish Society | 2016 – present |
| Member , Zebrafish Disease Models Society | 2017 – present |

Editorial Board Memberships

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| Editorial Board Member , <i>Zebrafish</i> | 2008 – present |
| Editorial Board Member , <i>Cell Chemical Biology</i> | 2009 – present |

Industrial Activities

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| Consultant , Infinity Pharmaceuticals | 2004 |
| Consultant , Fate Therapeutics | 2008 – 2011 |
| Scientific Advisor Board Member , Vibliome Therapeutics | 2017 – present |

Peer-Review Activities

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| Reviewer , NIH Study Section (Innovative Technologies for the Molecular Analysis of Cancer) | 2005 – 2006 |
| Reviewer , Wellcome Trust/DBT India Alliance Early Career Fellowships | 2009 |
| Reviewer , NIH Special Emphasis Panel (ZRG1 BDA-A 52R: hESC Challenge Grant) | 2009 |
| Reviewer , NIH Study Section (PAR-08-138: Zebrafish Screens) | 2010 |
| Reviewer , NIH Study Section (PAR-08-139: Tools for Zebrafish Research) | 2010 |
| Member , NIH Development-1 Study Section (DEV1) | 2010 – 2012 |
| Reviewer , ChemThem Chemical Biology | 2011 |
| Reviewer , NSF CAREER Award | 2011, 2013 – 2015 |
| Reviewer , NIH Study Section (PAR-11-221 and PAR-13-305: Collaborative Interdisciplinary Team Science in NIDDK Research Areas) | 2013 – 2014 |
| Reviewer , American Institute for Cancer Research | 2013 |
| Reviewer , NIH Special Emphasis Panel (PA-11-184: T32 NRSA Institutional Research Training Grants and PA-14-044: K01 Mentored Research Scientist Development Award) | 2015 |
| Reviewer , NIH Synthetic and Biological Chemistry B Study Section (SBCB) | 2015 |
| Reviewer , NIH Special Emphasis Panel (ZRG1 BCMB-A 51R: NIH Transformative Research Awards) | 2018 |
| Reviewer , NIH Synthetic and Biological Chemistry A Study Section (SBCA) | 2018 |
| Reviewer , NIH Synthetic and Biological Chemistry B Study Section (SBCB) | 2021 |
| Manuscript Reviewer , <i>Accounts of Chemical Research</i> , <i>ACS Central Science</i> , <i>ACS Chemical Biology</i> , <i>ACS Medicinal Chemistry Letters</i> , <i>Angewandte Chemie</i> , <i>Bioorganic Medicinal Chemistry</i> , <i>Bioorganic Medicinal Chemistry Letters</i> , <i>Chem</i> , <i>Chemical Science</i> , <i>Clinical Cancer Research</i> , | |

Cancer Research, Cell, Cell Chemical Biology, Chembiochem, Chemical Reviews, Development, Developmental Biology, Disease Models and Mechanisms, eLife, Journal of the American Chemical Society, Journal of Cell Science, Journal of Medicinal Chemistry, Journal of Organic Chemistry, Molecular Cancer Research, Molecules, Nature, Nature Chemical Biology, Nature Communications, Nature Structural and Molecular Biology, PLoS Biology, PLoS Genetics, PLoS ONE, Proceedings of the National Academy of Sciences U. S. A., Science, Science Translational Medicine, Scientific Reports

Other Professional Service

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| Discussion Leader , Bioorganic Gordon Research Conference | 2007 |
| Workshop Co-Chair , 8 th International Conference on Zebrafish Development and Genetics | 2008 |
| Research Committee Member , American Heart Association, Western States Affiliate | 2012 – 2016 |
| Co-Instructor , Introduction to Chemical Biology Short Course, University of São Paulo, São Paulo, Brazil | 2012, 2014, 2015 |
| Co-Editor , Molecular imaging section in <i>Current Opinion in Chemical Biology</i> | 2013 |
| Panelist , NIH Workshop (From Tank to Bedside: Zebrafish and Translational Research) | 2013 |
| Panelist , Chemical Biology Workshop, 7 th Strategic Conference of Zebrafish Investigators | 2017 |
| Co-Organizer , 2017 Society for Developmental Biology West Coast Meeting | 2017 |

PUBLICATIONS (PEER-REVIEWED)

1. Chu, Y.-H., **Chen, J. K.**, and Whitesides, G. M. (1993) Affinity electrophoresis in multisectional polyacrylamide slab gels is a useful and convenient technique for measuring binding constants of aryl sulfonamides to bovine carbonic anhydrase B. *Anal. Chem.* 65: 1314-1322.
2. **Chen, J. K.**, Lane, W. S., Brauer, A. W., Tanaka, A., and Schreiber, S. L. (1993) Biased combinatorial libraries: novel ligands for the SH3 domain of phosphatidylinositol 3-kinase. *J. Am. Chem. Soc.* 115: 12591-12592.
3. Yu, H., **Chen, J. K.**, Feng, S., Dalgarno, D., Brauer, A. W., and Schreiber, S. L. (1994) Structural basis for the binding of proline-rich peptides to SH3 domains. *Cell* 76: 933-945.
4. Gomez, F. A., **Chen, J. K.**, Tanaka, A., Schreiber, S. L., and Whitesides, G. M. (1994) Affinity capillary electrophoresis: insights into the binding of SH3 domains by peptides derived from an SH3-binding protein. *J. Org. Chem.* 59: 2885-2886.
5. **Chen, J. K.** and Schreiber, S. L. (1994) SH3 domain-mediated dimerization of an N-terminal fragment of the phosphatidylinositol 3-kinase p85 subunit. *Bioorg. Med. Chem. Lett.* 4: 1755-1760.
6. Feng, S., **Chen, J. K.**, Yu, H., Simon, J. A., and Schreiber, S. L. (1994) Two binding orientations for peptides to the Src SH3 domain: development of a general model for SH3-ligand interactions. *Science* 266: 1241-1247.
7. Combs, A. P., Kapoor, T. M., Feng, S., **Chen, J. K.**, Daude-Snow, L. F., Schreiber, S. L. (1996) Protein structure-based design of combinatorial libraries: discovery of non-peptide binding elements to the Src SH3 domain. *J. Am. Chem. Soc.* 118: 287-288.
8. Liang, J., **Chen, J. K.**, Schreiber, S. L., and Clardy, J. (1996) Crystal structure of PI3K SH3 domain at 2.0 Å resolution. *J. Mol. Biol.* 257: 632-643.
9. **Chen, J. K.**, Lane, W. S., and Schreiber, S. L. (1999) The identification of myriocin-binding proteins. *Chem. Biol.* 6: 221-235.
10. Taipale, J., **Chen, J. K.**, Cooper, M. K., Wang, B., Mann, R. K., Milenkovic, L., Scott, M. P., and Beachy, P. A. (2000) The effects of oncogenic mutations in Smoothed and Patched can be reversed by cyclopamine. *Nature* 406: 1005-1009.
11. Berman, D. M., Karhadkar, S. S., Hallahan, A. R. Pritchard, J. I., Eberhart, C. G., Watkins, D. N., **Chen, J. K.**, Cooper, M. K., Taipale, J., Olson, J. M., and Beachy, P. A. (2002) Medulloblastoma growth inhibition by Hedgehog pathway blockade. *Science* 297: 1559-1561.

12. **Chen, J. K.**, Taipale, J., Cooper, M. K., and Beachy, P. A. (2002) Inhibition of Hedgehog signaling by direct binding of cyclopamine to Smoothed. *Genes Dev.* 16: 2743-2748.
13. **Chen, J. K.**, Taipale, J., Young, K. E., Maiti, T., and Beachy, P. A. (2002) Small molecule modulation of Smoothed activity. *Proc. Natl. Acad. Sci. U. S. A.* 99: 14071-14076.
14. Chen, W., Ren, X., Nelson, C. D., Barak, L. S., **Chen, J. K.**, Beachy, P. A., de Sauvage, F., and Lefkowitz, R. J. (2004) Activity-dependent internalization of Smoothed mediated by beta-Arrestin 2 and GRK2. *Science* 306: 2257-2260.
15. Sinha, S. and **Chen, J. K.** (2006) Purmorphamine activates the Hedgehog pathway by targeting Smoothed. *Nat. Chem. Biol.* 2: 29-30.
16. Meloni, A. R., Fralish, G. B., Kelly, P., Salahpour, A., **Chen, J. K.**, Wechsler-Reya, R. J., Lefkowitz, R. J. and Caron, M. G. (2006) Smoothed signal transduction is promoted by G-protein coupled receptor kinase 2. *Mol. Cell. Biol.* 26: 7550-7560.
17. Esengil, H., Chang, V., Mich, J. K., and **Chen, J. K.** (2007) Small-molecule regulation of zebrafish gene expression. *Nat. Chem. Biol.* 3: 154-155.
18. Shestopalov, I. A., Sinha, S., and **Chen, J. K.** (2007) Light-controlled gene silencing in zebrafish embryos. *Nat. Chem. Biol.* 3: 650-651.
19. Esengil, H. and **Chen, J. K.** (2008) Gene regulation technologies for zebrafish. *Mol. BioSystems* 4: 300-308.
20. Shestopalov, I. A. and **Chen, J. K.** (2008) Chemical technologies for probing embryonic development. *Chem. Soc. Rev.* 37: 1294-1307.
21. Low, W.-C., Wang, C., Pan, Y., Huang, X.-Y., **Chen, J. K.**, and Wang, B. (2008) The decoupling of Smoothed from G-alpha-i proteins has little effect on Gli3 protein processing and Hedgehog-regulated chick neural tube patterning. *Dev. Biol.* 321: 188-196.
22. Stanton, B. Z., Peng, L. F., Maloof, N., Nakai, K., Wang, X., Herlihy, K. M., Duffner, J. L., Taveras, K. M., Hyman, J. M., Lee, S. W., Koehler, A. N., **Chen, J. K.**, Fox, J. L., Mandinova, A., and Schreiber, S. L. (2009) A small molecule that binds Hedgehog and blocks its signaling in human cells. *Nat. Chem. Biol.* 5: 154-156.
23. Cupido, T., Rack, P. G., Firestone, A. J., Hyman, J. M., Han, K., Sinha, S., Ocasio, C. A., and **Chen, J. K.** (2009) The imidazopyridine derivative JK184 reveals dual roles for microtubules in Hedgehog signaling. *Angew. Chem. Int. Ed.* 48: 2321-2324.
24. Mich, J.K., Blaser, H., Thomas, N. A., Firestone, A. J., Yelon, D., Raz, E., and **Chen, J. K.** (2009) Germ cell migration in zebrafish is cyclopamine-sensitive but Smoothed-independent. *Dev. Biol.* 328:342-354.
25. Yang, H., Xiang, J., Wang, N., Zhao, Y., Hyman, J., Jiang, J., **Chen, J. K.**, Yang, Z., and Lin, S. (2009) Converse conformational control of Smoothed activity by structurally related small molecules. *J. Biol. Chem.* 284: 20876-20884.
26. Hyman, J. M., Firestone, A. J., Heine, V. M., Zhao, Y., Ocasio, C. A., Han, K., Sun, M., Rack, P. G., Sinha, S., Wu, J. J., Solow-Cordero, D. E., Jiang, J., Rowitch, D. H., and **Chen, J. K.** (2009) Small-molecule inhibitors reveal multiple strategies for Hedgehog pathway blockade. *Proc. Natl. Acad. Sci. U. S. A.* 106: 14132-14137.
27. Ouyang, X., Shestopalov, I. A., Sinha, S., Zheng, G., Pitt, C. L. W., Li, W.-H., Olson, A. J., and **Chen, J. K.** (2009) Versatile synthesis and rational design of caged morpholinos. *J. Am. Chem. Soc.* 131: 13255-13269.
28. Firestone, A. J. and **Chen, J. K.** (2010) Controlling destiny through chemistry: Small-molecule regulators of cell fate. *ACS Chem. Biol.* 5: 15-34.
29. Shestopalov, I. A. and **Chen, J. K.** (2010) Oligonucleotide-based tools for studying zebrafish development. *Zebrafish* 7: 31-40.
30. Ouyang, X. and **Chen, J. K.** (2010) Synthetic strategies for studying embryonic development. *Chem. Biol.* 17: 590-606.
31. Clanton, J.A., Shestopalov, I., **Chen, J. K.**, and Gamse, J. T. (2011) Lineage labeling of zebrafish cells with laser uncageable fluorescein dextran. *J. Vis. Exp.* doi: 10.3791/2672

32. Sakata, T. and **Chen, J. K.** (2011) Chemical 'Jekyll and Hyde's: Small-molecule inhibitors of developmental signaling pathways. *Chem. Soc. Rev.* 40: 4318-4331.
33. Park, K.-S., Martelotto, L. G., Peifer, M., Sos, M. L., Karnezis, A. N., Mahjoub, M. R., Bernard, K., Conklin, J., Szczepny, A., Yuan, J., Guo, R., Opsina, B., Falzon, J., Bennett, S., Brown, T. J., Markovic, A., Devereux, W. L., Ocasio, C. A., **Chen, J. K.**, Stearns, T., Thomas, R. K., Dorsch, M., Buonamici, S., Watkins, D. N., Peacock, C. D., and Sage, J. (2011) A crucial requirement for Hedgehog signalling in small cell lung cancer. *Nature Med.* 17: 1504-1508.
34. Heine, V. M., Griveau, A., Chapin, C., Ballard, P. L., **Chen, J. K.**, and Rowitch, D. H. (2011) Small-molecule Smoothed agonist prevents glucocorticoid-induced neonatal cerebellar injury. *Science Transl. Med.* 3: 105ra104.
35. Hillman, R. T., Feng, B. Y., Ni, J., Woo, W.-M., Milenkovic, L., Hayden Gephart, M. G., Teruel, M. N., Oro, A. E., **Chen, J. K.**, and Scott, M. P. (2011) Neuropilins are positive regulators of Hedgehog signal transduction. *Genes Dev.* 25: 2333-2346.
36. Mich, J.K. and **Chen, J.K.** (2011) Hedgehog and retinoic acid signalling cooperate to promote motoneurogenesis in zebrafish. *Development* 138: 5113-5119.
37. England, S., Batista, M. F., Mich, J. K., **Chen, J. K.**, and Lewis, K. E. (2011) Roles of Hedgehog pathway components and retinoic acid signalling in specifying zebrafish ventral spinal cord neurons. *Development* 138: 5121-5134.
38. Shestopalov, I. A., Pitt, C. L. W., and **Chen, J. K.** (2012) Spatiotemporal resolution of the Ntla transcriptome in axial mesoderm development. *Nat. Chem. Biol.* 8: 270-276.
39. Kuo, A. J., Song, J., Cheung, P., Ishibe-Murakami, S., Yamazoe, S., **Chen, J. K.**, Patel, D. J., and Gozani, O. (2012) ORC1 BAH domain links H4K20me2 to DNA replication licensing and Meier-Gorlin syndrome. *Nature* 484: 115-119.
40. Firestone, A. J., Weinger, J. S., Maldonado, M., Barlan, K., Langston, L. D., O'Donnell, M. D., Gelfand, V. I., Kapoor, T. M.*, and **Chen, J. K.*** (2012) Small-molecule inhibitors of the AAA+ ATPase motor cytoplasmic dynein. *Nature* 484: 125-129.
41. Yamazoe, S., Shestopalov, I. A., Provost, E., Leach, S. D., and **Chen, J. K.** (2012) Cyclic caged morpholinos: Conformationally gated probes of embryonic gene function. *Angew. Chem. Int. Ed.* 51: 6908-6911.
42. Cho, Y. S., Jung, H. J., Soek S. H., Payumo, A. Y., **Chen, J. K.**, and Kwon, H. J. (2013) Functional inhibition of UQCRB suppresses angiogenesis in zebrafish. *Biochem. Biophys. Res. Comm.* 433: 396-400.
43. Liu, X., Kapoor, T. M., **Chen, J. K.**, Huse, M. (2013) Diacylglycerol promotes centrosome polarization in T cells via reciprocal localization of dynein and myosin II. *Proc. Natl. Acad. Sci. U. S. A.* 110: 11976-11981.
44. Yi, J., Wu, X., Chung, A. H., **Chen, J. K.**, Kapoor, T. M., and Hammer, J. A. (2013) Centrosome repositioning in T cells is biphasic and driven by microtubule end-on capture-shrinkage. *J. Cell. Biol.* 202: 779-92.
45. Moore, J. C., Sheppard, S., Shestopalov, I. A., Yamazoe, S., **Chen, J. K.**, and Lawson, N. (2013) Post-translational mechanisms contribute to Etv2 repression during vascular development. *Dev. Biol.* 384: 128-140.
46. Bonger, K. M., Rakhit, R., Payumo, A. Y., **Chen, J. K.**, and Wandless, T. J. (2014) A general method for regulating protein stability with light. *ACS Chem. Biol.* 9: 111-115.
47. Sikirzhyski, V., Magidson, V., Steinman, J, He, J., LeBerre, M., Tikhonenko, I., Ault, J. G., McEwen, B. F., **Chen, J. K.**, Sui, H., Piel, M., Kapoor, T. M., and Khodjakov, A. (2014) Direct kinetochore-spindle pole connections are not required for chromosome segregation. *J. Cell Biol.* 206: 231-243.
48. Mich, J. K., Payumo, A. Y., Rack, P. G., and **Chen, J. K.** (2014) In vivo imaging of Hedgehog pathway activation with a nuclear fluorescent reporter. *PLoS One* 9:e103661.
49. Lee, J. J., Perera, R. M., Wang, H., Wu, D.-C., Liu, X. S., Han, S., Fitamant, J., Jones, P. D., Ghanta, K. S., Kawano, S., Nagle, J. M., Deshpande, V., Boucher, Y., Kato, T., Chen, J. K., Willmann, J. K., Bardeesy, N., and Beachy, P. A. (2014) Stromal response to Hedgehog signaling restrains pancreatic cancer progression. *Proc. Natl. Acad. Sci. U. S. A.* 111: E3091-E3100.

50. Rack, P. G., Ni, J., Payumo, A. Y., Nguyen, V., Crapster, J. A., Novestadt, V., Kool, M., Jones, D. T. W., Mich, J. K., Firestone, A. J., Pfister, S. M., Cho, Y.-J., and **Chen, J. K.** (2014) Arhgap36-dependent activation of Gli transcription factors. *Proc. Natl. Acad. Sci. U. S. A.* 111: 11061-11066.
51. Yamazoe, S., Liu, Q., McQuade, L. E., Deiters, A.*, and **Chen, J. K.*** (2014) Sequential gene silencing using wavelength-selective caged morpholinos. *Angew. Chem. Int. Ed.* 53: 10114-10118.
52. Yamazoe, S., McQuade, L. E., and **Chen, J. K.** (2014) Nitroreductase-activated caged morpholino oligonucleotides for in vivo gene silencing. *ACS Chem. Biol.* 9: 1985-1990.
53. Payumo, A. Y., Walker, W. J., McQuade, L. E., Yamazoe, S., and **Chen, J. K.** (2015) Optochemical dissection of T-box gene-dependent medial floor plate development. *ACS Chem. Biol.* 10: 1466-75.
54. See, S. K., Hoogendoorn, S., Chung, A. H., Ye, F., Steinman, J. B., Sakata-Kato, T., Miller, R. M., Cupido, T., Zalyte, R., Carter, A. P., Nachury, M. V., Kapoor, T. M., and **Chen, J. K.** (2016) Cytoplasmic dynein antagonists with improved potency and isoform selectivity. *ACS Chem. Biol.* 11: 53-60.
55. **Chen, J. K.** (2016) I only have eye for ewe: the discovery of cyclopamine and development of Hedgehog pathway-targeting drugs. *Nat. Prod. Rep.* 33: 595-601.
56. Payumo, A. Y., McQuade, L. E., Walker, W. J., Yamazoe, S., and **Chen, J. K.** (2016) Tbx16 regulates *hox* gene activation in mesodermal progenitor cells. *Nat. Chem. Biol.* 12: 694-701.
57. Schmitt, A. M., Garcia, J. T., Hung, T., Flynn, R. A., Shen, Y., Qu, K., Payumo, A. Y., Peres-da-Silva, A., Kenzelmann Broz, D., Baum, R., Guo, S., **Chen, J. K.**, Attardi, L. D., and Chang, H. Y. (2016) An inducible long noncoding RNA amplifies DNA damage signaling. *Nat. Genet.* 48: 1370-1376.
58. Lee, J., Rothenberg, M., Seeley, E. S., Zimdahl, B., Kawano, S., Lu, W. J., Shin, K., Sakata-Kato, T., **Chen, J. K.**, Diehn, M., Clarke, M., and Beachy, P. A. (2016) Control of inflammation by stromal Hedgehog pathway activation restrains colitis. *Proc. Natl. Acad. Sci. U. S. A.* 113: E7545-E7553.
59. Ouyang, X., Panetta, N. J., Talbott, M. D., Payumo, A. Y., Halluin, C., Longaker, M. T., and **Chen, J. K.** (2017) Hyaluronic acid synthesis is required for zebrafish tail fin regeneration. *PLoS ONE* 12: e0171898.
60. Wong, W. T., Tian, X., Matrone, G., Tomoiaga, S. A., Au, K. F., Meng, S., Yamazoe, S., Chen, K., Burns, D. M., **Chen, J. K.**, Blau, H. M., and Cooke, J. P. (2017) Discovery of novel determinants of endothelial lineage using chimeric heterokaryons. *eLife* 6: e323588.
61. Kowalik, L. and **Chen, J. K.** (2017) Illuminating developmental biology through photochemistry. *Nat. Chem. Biol.* 13: 587-598.
62. Steinman, J. B., Santarossa, C. C., Miller, R. M., Yu, L. S., Serpinskaya, A. S., Furukawa, H., Morimoto S., Tanaka, Y., Nishitani, M., Asano, M., Zalyte, R., Ondrus, A. E., Johnson, A. G., Fan Y., Nachury M. V., Fukase, Y., Aso, K., Foley, M. A., Gelfand, V. I., **Chen, J. K.**, Carter, A. P. and Kapoor, T. M. (2017) Chemical structure-guided design of dynapyrazoles, cell-permeable dynein inhibitors with a unique mode of action. *eLife* 6: e25174.
63. Crapster, J. A., Hudgins L., **Chen, J. K.**, and Gomez-Ospina, N. (2017) A novel missense variant of the GLI3 zinc finger domain in a family with digital anomalies. *Am. J. Med. Genet. A.* 173: 3221-3225.
64. Cho, U., Riordan, D. P., Ciepla, P., Kocherlakota, K. S., **Chen, J. K.***, and Harbury, P. B.* (2018) Ultrasensitive optical imaging with lanthanide lumiphores. *Nat. Chem. Biol.* 14: 15-21.
65. Breslow, D. K.*, Hoogendoorn, S., Kopp, A. R., Morgens, D. W., Vu, B. K., Han, K., Li, A., Hess, G. T., Bassik, M C., **Chen, J. K.***, and Nachury, M. V.* (2018) A CRISPR-based screen for Hedgehog signaling provides insights into ciliary function and ciliopathies. *Nat. Genet.* 50: 460-471.
66. Hwang, S., Mruk, K., Rahighi, S., Raub, A. G., Chen, C.-H., Dorn, L. E., Horikoshi, N., Wataksuki, S., **Chen, J. K.**, and Mochly-Rosen, D. (2018) Correcting glucose-6-phosphate dehydrogenase (G6PD) deficiency with a small molecule activator. *Nat. Commun.* 9: 4045.
67. Gutzman, J. H., Graeden, E., Brachmann, I., Yamazoe, S., **Chen, J. K.**, and Sive, H. (2018) Basal constriction during midbrain-hindbrain boundary morphogenesis is mediated by Wnt5b and focal adhesion kinase. *Biol. Open* 7: bio034520.
68. Crapster, J. A.*, Rack, P. G., Hellmann, Z. J., Behr, B., Li, Y., Lin, J., Zeng, H., and **Chen, J. K.*** (2020) HIPK4 is essential for mammalian spermiogenesis. *eLife* 9:e50209.

70. Hom, M. E., Ondrus, A. E., Sakata-Kato, T., Rack, P. G., and **Chen, J. K.** (2020) Bicyclic imidazolium inhibitors of Gli transcription factor activity. *ChemMedChem* 15: 1044-1049.
71. Cho, U.* and **Chen, J. K.*** (2020) Lanthanide-based optical probes of biological systems. *Cell Chem. Biol.* 27: 921-936.
72. Mruk, K.*, Ciepla, P., Piza, P. A., Alnaqib, M. A., and **Chen, J. K.*** (2020) Targeted cell ablation in zebrafish using optogenetic transcriptional control. *Development*, 147: dev183640.
73. Xu, J., Zheng, X., Feng, Z., Lu, Z., Zhang, Z., Huang, W., Li, Y., Vuckovic, D., Li, Y., Dai, S., Chen, G., Wang, K., Wang, H., **Chen, J. K.**, Mitch, W., and Cui, Y. (2021) Organic wastewater treatment by single-atom catalyst and electrolytically produced H₂O₂. *Nat. Sustain.* 4: 233-241.
74. Nano, P. R., Johnson, T. K., Kudo, T., Mooney, N. A., Ni, J., Demeter, J., Jackson, P. K., and **Chen, J.K.** (2021) Structure-activity mapping of ARHGAP36 reveals regulatory roles for its GAP homology and C-terminal domains. *PLoS One* 16: e0251684.

PUBLICATIONS (NON-PEER-REVIEWED)

75. Prime, K. L., Chu, Y.-H., Schmid, W., Seto, C. T., **Chen, J. K.**, Spaltenstein, A., Zerkowski, J., and Whitesides, G. M. (1992) Molecular recognition in gels, monolayers, and solids. In "Macromolecular Assemblies in Polymeric Systems" (P. Stroeve and A. C. Balazs, Eds). ACS Symposium Series 493. American Chemical Society, Washington, DC, pp. 228-239.
76. **Chen, J. K.** and Schreiber, S. L. (1995) Combinatorial synthesis and multidimensional NMR: an approach to understanding protein-ligand interactions. *Angew. Chem. Int. Ed. Engl.* 34: 953-969.
77. **Chen, J.K.** (2008) Fish 'n clicks. *Nat. Chem. Biol.* 4: 391-392.
78. **Chen, J.K.** and Hurlstone, A. F. (2008) Targeted and conditional gene expression workshop, 8th International Conference on Zebrafish Development and Genetics. *Zebrafish* 5: 193-195.
79. Firestone, A. J. and **Chen, J. K.** (2011) Small-molecule inhibitors of the Hedgehog pathway. In "Hedgehog signaling activation in human cancer and its clinical applications" (J. Xie, Ed.) Springer, New York, NY, pp. 163-186.
80. Shestopalov, I. A. and **Chen, J. K.** (2011) Spatiotemporal control of embryonic gene expression using caged morpholinos. In "The Zebrafish: Genetics, Genomics, and Informatics, 3rd Edition" (H. W. Detrich, M. Westerfield, and L. I. Zon, Eds.) Methods in Cell Biology Series, Elsevier Academic Press, San Diego, CA, pp. 151-172.
81. **Chen, J. K.** and Kikuchi, K. (2013) Emerging technologies in molecular imaging: new windows into biology. *Curr. Opin. Chem. Biol.* 17: 635-636.
82. **Chen, J. K.**, Du Bois, J., Glenn, J., Herschlag, D., and Khosla, C. (2013). The Stanford Institute for Chemical Biology. *ACS Chem. Biol.* 8: 1860-1861.
83. Mruk, K. and **Chen, J. K.** (2015) Thinking big with small molecules. *J. Cell Biol.* 209: 7-9.
84. Pattanayak, S., Vázquez-Maldonado, L. A., Deiters, A.*, and **Chen, J. K.*** (2019) Combinatorial control of gene function with wavelength-selective caged morpholinos. *Methods Enzymol.* 624: 69-88.
85. Ciepla, P., Cho, U., and **Chen, J. K.** (2020) trLRET microscopy: ultrasensitive imaging of lanthanide luminophores. *Methods Enzymol.* 640: 225-248.

PATENTS

1. Beachy, P. A., **Chen, J. K.**, and Taipale, A. J. N. Regulators of the Hedgehog pathway, compositions and uses related thereto. U.S. Patent 7,098,196. August 29, 2006.
2. Beachy, P. A., **Chen, J. K.**, and Taipale, A. J. N. Regulators of the Hedgehog pathway, compositions and uses related thereto. U.S. Patent 7,476,661. January 13, 2009.
3. Beachy, P. A., **Chen, J. K.**, and Taipale, A. J. N. Modulators of the Hedgehog signaling pathway, compositions and uses related thereto. U.S. Patent 7,655,674. February 2, 2010.
4. **Chen, J. K.**, Sinha, S., Shestopalov, I., and Ouyang, X. Photocleavable linker methods and compositions. U. S. Patent 7,923,562. April 11, 2011.

5. **Chen, J. K.**, Kapoor, T. M., Firestone, A. J., and Weinger, J. S. Quinazolinone inhibitors of dynein. U. S. Patent 9,145,376. September 29, 2015.
6. **Chen, J. K.**, Kato, T. S. and Ondrus, A. E. Imidazo bicyclic iminium compounds as antitumor agents. U.S. Patent 9,611,276. April 4, 2017.

INVITED LECTURES

1. Symposium on Drug Discovery through Chemical Genomics, Reverse Proteomics Research Institute (Tokyo, Japan). September 30, 2003.
2. Exploratory Research Laboratories, Fujisawa Pharmaceuticals Co., Ltd. (Tsukuba City, Japan). October 1, 2003.
3. Developmental Biology Seminar Series, Center for Developmental Biology, RIKEN (Kobe, Japan). October 3, 2003.
4. Organic Chemistry Seminar, Department of Chemistry, Stanford University (Stanford, CA). October 15, 2003.
5. Cardiovascular Research Center Seminar Series, Massachusetts General Hospital (Charlestown, MA). November 25, 2003.
6. Beyond Genome 2005 Conference: Future of Medicine (San Francisco, CA). June 16, 2005.
7. 1st Annual Strategic Conference of Zebrafish Investigators (Mount Desert Island Biological Laboratory, Salisbury Cove, ME), September 17, 2005.
8. Pacificchem 2005 Congress (Honolulu, HI). December 16, 2005.
9. Discovery on Target 2006 Conference: Chemogenomics (Boston, MA). October 24, 2006.
10. 2nd Annual Strategic Conference of Zebrafish Investigators (Asilomar, CA). February 3, 2007.
11. China-USA Early Career Workshop on Chemical Biology (Shanghai, China). May 22, 2007.
12. Bio-organic Gordon Conference (Andover, NH). June 11, 2007.
13. Chemistry and Biochemistry Seminar Series, Department of Chemistry and Biochemistry, University of Delaware (Newark, DE). February 13, 2008.
14. Biochemistry and Molecular Biology Seminar Series, Department of Biochemistry and Molecular Biology, Mayo Clinic (Rochester, MN). March 4, 2008.
15. Medicinal Chemistry Seminar Series, Department of Medicinal Chemistry, University of Michigan (Ann Arbor, MI). March 13, 2008.
16. Pharmacology and Molecular Sciences Seminar Series, Department of Pharmacology and Molecular Sciences, Johns Hopkins University School of Medicine (Baltimore, MD). March 19, 2008.
17. Hedgehog Signaling in Development and Disease, Stanford School of Medicine (Stanford, CA). June 22, 2008.
18. 8th International Conference on Zebrafish Development and Genetics, University of Wisconsin-Madison (Madison, WI). June 26, 2008.
19. Neuroscience Consortium Cutting Edge Seminar, National Institute on Drug Abuse, National Institutes of Health (Bethesda, MD). August 14, 2008.
20. Department of Biology Seminar Series, Department of Biology, Indiana University (Bloomington, IN). October 2, 2008.
21. Technogeek Seminar Series, Division of Translational Research, University of Texas-Southwestern Medical Center (Dallas, TX). November 4, 2008.
22. 2008 RIKEN Conference on Chemical Biology (Narita, Japan). November 13, 2008.
23. Gene Inactivation Workshop, 3rd Annual Strategic Conference of Zebrafish Investigators (Asilomar, CA). January 27, 2009.
24. Chemical Biology Seminar Series, Department of Chemistry, University of Illinois at Urbana-Champaign (Urbana, IL). February 5, 2009.
25. MCDB Seminar Series, Department of Molecular, Cell, and Developmental Biology, University of California-Los Angeles (Los Angeles, CA). February 26, 2009.

26. Lectures in the Chemical Sciences, Organic Chemistry Seminar, Department of Chemistry and Chemical Biology, Harvard University (Cambridge, MA). March 10, 2009.
27. Biophysics/Chemistry and Chemical Biology Seminar Series, University of California-San Francisco (San Francisco, CA). March 20, 2009.
28. 237th American Chemical Society National Meeting (Salt Lake City, UT). March 25, 2009.
29. MCDB Seminar Series, Department of Molecular, Cellular, and Developmental Biology, Yale University (New Haven, CT). April 8, 2009.
30. 100th Annual American Association for Cancer Research Meeting (Denver, CO). April 18, 2009.
31. San Francisco Nature SciCafe, Gladstone Institute, University of California-San Francisco (San Francisco, CA). April 24, 2009.
32. Chemical Biology Seminar Series, Rockefeller University (New York City, NY). May 6, 2009.
33. Genentech (South San Francisco, CA). June 16, 2009.
34. Exelixis (South San Francisco, CA). June 26, 2009.
35. 6th European Zebrafish Genetics and Development Meeting (Rome, Italy). July 17, 2009.
36. Pfizer (La Jolla, CA). July 29, 2009.
37. 10th International Conference on Systems Biology, Stanford University (Stanford, CA). September 1, 2009.
38. Center for Biosciences Seminar, Karolinska Institutet (Stockholm, Sweden). October 6, 2009.
39. Genes and Development Seminar Series, National Institute for Medical Research-Mill Hill (London, United Kingdom). October 8, 2009.
40. Molecular Biology and Biochemistry Seminar Series, University of California-Irvine (Irvine, CA). February 26, 2010.
41. 239th American Chemical Society National Meeting (San Francisco, CA). March 22, 2010.
42. 9th International Conference on Zebrafish Development and Genetics, University of Wisconsin-Madison (Madison, WI). June 17, 2010.
43. 2nd Biennial 'Chemical Insights into Biological Processes' Symposium, Molecular Discovery Program/National Cancer Institute, Hood College (Frederick, MD). August 10, 2010.
44. 2010 YBRI International Symposium, Yonsei University (Seoul, South Korea). October 20, 2010.
45. Organic Seminar Series, University of Colorado-Boulder (Boulder, CO). October 25, 2010.
46. Biochemistry and Molecular Biophysics Seminar Series, Columbia University Medical Center (New York City, NY). November 18, 2010.
47. New Frontiers of Functional Nucleic Acids: Chemistry, Biology, and Applications, Pacificchem 2010 (Honolulu, HI). December 19, 2010.
48. Technology Blast Session, 4th Annual Strategic Conference of Zebrafish Investigators (Asilomar, CA). January 30, 2011.
49. Organic Seminar Series, Colorado State University (Fort Collins, CO). February 21, 2011.
50. ACS Chemical Biology Lecture: Symposium in honor of Stuart L. Schreiber, 241st American Chemical Society National Meeting (Anaheim, CA). March 29, 2011.
51. Biochemistry Colloquium. University of Wisconsin-Madison (Madison, WI). April 11, 2011.
52. Gladstone Institute of Cardiovascular Disease/Cardiovascular Research Institute Seminar Series, University of California-San Francisco (San Francisco, CA). April 18, 2011.
53. Biochemistry and Molecular Pharmacology Seminar Series, University of Massachusetts-Worcester (Worcester, MA). May 4, 2011.
54. 14th Yale Chemical Biology Symposium. Yale University (New Haven, CT). May 13, 2011.
55. Gradient Sensing and Cell Migration Gordon Conference. (Les Diablerets, Switzerland). June 9, 2011.
56. Development and Aging Seminar Series, Burnham Medical Research Institute (La Jolla, CA). July 14, 2011.
57. A New Wave of Chemical Genomics Symposium, Kinki University (Osaka, Japan). September 24, 2011.
58. 11th iCeMS International Symposium: Chemical Control of Cells, Kyoto University (Kyoto, Japan). December 6, 2011.

59. Addressing the Challenges of Drug Discovery—Novel Targets, New Chemical Space, and Emerging Approaches. Keystone Symposium (Tahoe City, CA). March 20, 2012.
60. American Association for Cancer Research Special Conference on Chemical Systems Biology (Boston, MA). June 30, 2012.
61. EMBO Workshop on Single Cell Physiology. École Normale Supérieure (Paris, France). July 25, 2012.
62. Vanderbilt Institute of Chemical Biology Annual Student Symposium, Vanderbilt University (Nashville, TN). August 9, 2012.
63. Cell Biology Seminar Series, University of Georgia (Athens, GA). October 16, 2012.
64. Chemistry Seminar Series, North Carolina State University (Raleigh, NC). November 2, 2012.
65. Brazilian Biosciences National Laboratory (Campinas, Brazil). November 26, 2012.
66. Department of Biochemistry, University of São Paulo (São Paulo, Brazil). November 30, 2012.
67. Chemical Biology Seminar Series, Princeton University (Princeton, NJ). March 20, 2013.
68. Cutting Symposium: SPARK at Stanford, Stanford University (Stanford, CA). March 27, 2013.
69. Chemistry Colloquium Series, Brown University (Providence, RI). April 25, 2013.
70. Institute of Chemical Sciences and Engineering, École Polytechnique Fédérale de Lausanne (Lausanne, Switzerland). July 15, 2013.
71. Scripps-Florida (Jupiter, FL). November 7, 2013.
72. Pharmacology Seminar Series, University of Texas-Southwestern Medical Center (Dallas, TX). December 13, 2013.
73. Medulloblastoma in the Mountains 2 (St. Moritz, Switzerland). January 14, 2014.
74. Society for Laboratory Automation and Screening 2014 Conference (San Diego, CA). January 21, 2014.
75. Sanford-Burnham Medical Research Institute (La Jolla, CA). March 17, 2014.
76. Pharmaceutical Sciences and Pharmacogenomics Seminar Series, University of California-San Francisco (San Francisco, CA). April 8, 2014.
77. Brazilian Biosciences National Laboratory (Campinas, Brazil). May 22, 2014.
78. Federal University of Rio Grande do Norte (Natal, Brazil). May 23, 2014.
79. Hedgehog 2014 Meeting (Ann Arbor, MI). August 6, 2014.
80. Department of Biochemistry, University of São Paulo (São Paulo, Brazil). October 9, 2014.
81. Institute for Biophysical Dynamics Interdisciplinary Research Seminar Series, University of Chicago (Chicago, IL). November 4, 2014.
82. 6th Strategic Conference of Zebrafish Investigators (Asilomar Conference Center, Pacific Grove, CA), January 19, 2015.
83. Medulloblastoma in the Mountains 3 (Lake Tahoe, CA). February 9, 2015.
84. Society for Developmental Biology West Coast Meeting (Fish Camp, CA). March 25, 2015.
85. 9th European Zebrafish Meeting (Oslo, Norway). June 30, 2015.
86. 2nd Zebrafish for Personalized/Precision Medicine Conference (Toronto, Canada). September 25, 2015.
87. Introduction to Chemical Biology Workshop, University of São Paulo (São Paulo, Brazil). October 2, 2015.
88. In Vivo Chemical Strategies for Functional and Translational Studies of Biological Networks and Pathways, Pacificchem 2015 (Honolulu, HI). December 19, 2015.
89. Medulloblastoma in the Mountains 4 (Waterville Valley, NH). January 25, 2016.
90. Academic Drug Discovery 2016 (Cambridge, UK). March 22, 2016.
91. Chemistry Colloquia, University of Pittsburgh (Pittsburgh, PA). September 29, 2016.
92. Medulloblastoma in the Mountains 5 (Steamboat Springs, CO). January 24, 2017.
93. Chemical Tools for Complex Biological Systems, HHMI/Janelia (Ashburn, VA). April 25, 2017.
94. Developmental and Cell Biology Seminar Series, University of California-Irvine (Irvine, CA). November 9, 2017.
95. Molecular and Cell Biology Seminar Series, University of California-Merced (Merced, CA). December 5, 2017.

96. Medulloblastoma in the Mountains 6 (Pra Loup, France). January 23, 2018.
97. Organic Chemistry Seminar Series, Caltech (Pasadena, CA). February 21, 2018.
98. Organic Chemistry Seminar Series, University of Washington (Seattle, WA). March 29, 2018.
99. Bridge Medicines (New York City, NY). June 8, 2018.
100. Medulloblastoma in the Mountains 7 (Whistler, Canada). February 5, 2019.
101. Pharmacology and Molecular Sciences Seminar Series, Johns Hopkins School of Medicine (Baltimore, MD). April 4, 2019.
102. Rocek Distinguished Lectureship Series, University of Illinois-Chicago (Chicago, IL). May 16-17, 2019.
103. Drug Discovery Research Interest Group, Zebrafish Disease Models 2019 (Boston, MA). July 16, 2019.
104. 2019 NICHD Contraceptive Development Meeting (Houston TX). November 5, 2019.
105. Medulloblastoma in the Mountains 8 (Obergurgl, Austria). January 11, 2020.
106. Chemical Biology and Therapeutics Symposium (virtual), St. Jude Children's Hospital (Memphis, TN). September 25, 2020.
107. Chemical Physiology and Biochemistry Seminar Series (virtual), Oregon Health and Science University (Portland, OR). April 6, 2021

TEACHING

Cancer Biology 280: Journal club

Fall Quarter of 2003, Spring Quarter of 2011, Fall Quarter of 2015

Chemical and Systems Biology 210: Cell signaling (formerly Signaling networks and pathways)

Winter Quarters of 2006, 2007, 2009, 2010, 2012, 2013, 2014, 2015, 2016, and 2017

Chemical and Systems Biology 220: The chemistry of biological processes

Fall Quarters of 2004, 2005, and 2007; Spring Quarters of 2009 and 2015

Chemical and Systems Biology 260: Concepts and applications in chemical biology (formerly Quantitative chemical biology)

Spring Quarters of 2006, 2008, 2010, 2012, 2014, 2016, 2018, and 2020

Chemistry 111: Exploring chemical research at Stanford

Winter Quarter of 2006

Developmental Biology 210: Logic and circuitry of multicellular development

Spring Quarters of 2014, 2015, 2017, and 2018

Medicine 217: Medico-technological frontiers of digestive diseases

Spring Quarters of 2004, 2005, and 2006

Microbiology and Immunology 215: Principles of biological technologies

Spring Quarters of 2014 and 2015

Molecular Pharmacology 240: Drug discovery

Spring Quarter of 2005

Molecular Pharmacology 270: Research seminar

Fall Quarters of 2003 and 2004

Pathology 290: Pediatric non-malignant hematology and stem cell biology

Winter Quarter of 2015

Surgery 690: It's all in the head: understanding diversity, development and deformities of the face

Winter Quarters of 2007 and 2008

MENTORSHIP

Graduate Students

| | |
|-----------------------|-------------|
| John K. Mich | 2004 – 2010 |
| Ari J. Firestone | 2004 – 2011 |
| Ilya A. Shestopalov | 2005 – 2011 |
| Paul G. Rack | 2005 – 2012 |
| Xiaohu (Shawn) Ouyang | 2006 – 2013 |
| Alexander Y. Payumo | 2009 – 2015 |
| Andrew H. Chung | 2011 – 2014 |
| Ukrae Cho | 2011 – 2016 |
| Patricia Nano | 2014 – 2021 |
| Marisa E. Hom | 2015 – 2020 |

Postdoctoral Fellows

| | |
|--------------------|----------------|
| Surajit Sinha | 2003 – 2006 |
| Joel M. Hyman | 2006 – 2010 |
| Cory A. Ocasio | 2007 – 2011 |
| Brian Y. Feng | 2007 – 2011 |
| Lindsey E. McQuade | 2010 – 2012 |
| Sayumi Yamazoe | 2010 – 2014 |
| Jun Ni | 2010 – 2017 |
| Lukasz Kowalik | 2011 – 2015 |
| Karen Mruk | 2012 – 2018 |
| Alison E. Ondrus | 2013 – 2016 |
| Sascha Hoogendoorn | 2013 – 2018 |
| J. Aaron Crapster | 2013 – 2019 |
| Sankha Pattanayak | 2015 – 2019 |
| Paulina Ciepla | 2015 – 2019 |
| Zhiping Feng | 2017 – present |
| Taylor K. Johnson | 2017 – present |
| Bhagyesh Sarode | 2019 – present |
| Steven M. Swick | 2020 – present |
| Thomas E. Bearrood | 2021 – present |

Undergraduate Students

| | |
|--------------------|-------------|
| Erin Atkinson | 2003 – 2005 |
| Anna Cho | 2003 – 2004 |
| Parmita Dalal | 2004 |
| Mark Sun | 2005 – 2007 |
| Albert S. Chiou | 2006 – 2007 |
| Cameron L. W. Pitt | 2007 – 2010 |
| Jennifer Casabar | 2009 – 2010 |
| Maya D. Talbott | 2010 – 2013 |
| Whitney J. Walker | 2012 – 2014 |
| Patrick C. Lee | 2013 – 2014 |

| | |
|----------------------|-------------|
| Zane J. Hellmann | 2015 – 2016 |
| Zachary C. Rosenthal | 2015 – 2017 |
| Patrick A. Piza | 2016 – 2018 |
| Mohammad Alnaqib | 2016 – 2020 |
| Spencer Guo | 2017 |
| Khan, Danielle | 2017 |
| Ashley M. Riley | 2018 |
| Olivia W. Gugliemini | 2018 – 2019 |

Research Assistants/Associates

| | |
|----------------------|----------------|
| Vicky Chang | 2003 – 2004 |
| Hanife Esengil | 2004 – 2007 |
| Kiran Kocherlakota | 2008 – 2011 |
| Tomoyo S. Kato | 2010 – 2013 |
| Stephanie K. See | 2011 – 2014 |
| Patrick C. Lee | 2014 – 2015 |
| Caroline Halluin | 2015 – 2018 |
| Zane J. Hellmann | 2016 – 2017 |
| Zachary C. Rosenthal | 2017 – 2018 |
| Hannah M. Ryon | 2018 – 2020 |
| John Solitro | 2019 |
| Austen D. Le | 2019 – present |
| Cody R. Marshall | 2020 – present |
| Jehan Keval | 2020 – present |

FUNDING (ACTIVE)

R35 GM127030 4/2018 – 3/2023

NIH/NIGMS

“Chemical tools for developmental biology”

Role: PI

N/A

11/2017 – 10/2021 (NCX)

Male Contraception Initiative

“Development of selective HIPK4 kinase inhibitors as viable non-hormonal male contraceptives”

Role: co-I (PI: Flynn, G.)

N/A

8/2019 – 8/2021

Stanford Cancer Institute-Goldman Sachs Foundation

“Targeting cancer stem cell metabolism with aldehyde dehydrogenase antagonists”

Role: PI

R61 HD099720

9/2019 – 8/2021

NIH/NICHD

“Development of allosteric HIPK4 inhibitors as non-hormonal male contraceptives”

Role: co-PI (co-PI: Chung, T.)

R21 HD100933

2/2020 – 1/2022

NIH/NICHD

“A transposon-based strategy for optogenetic engineering”

Role: PI

Cancer Innovation Award 3/2021 – 2/2022
Stanford Cancer Institute
“Targeting pancreatic cancer with ALDH1B1 antagonists”
Role: PI

R01 CA244334
NIH/NCI 6/2021 – 5/2026
“Targeting colorectal cancer stem cells with ALDH1B1 antagonists”
Role: PI

T32 GM136631 7/2021 – 6/2026
NIH/NIGMS
“Molecular Pharmacology Training Program”
Role: co-PD (co-PD: Bogoy, M.)

FUNDING (COMPLETED)

Beckman-Ludwig Translational Program in Cancer Research 1/2004 – 12/2005
Stanford University
“Isolation and characterization of novel Hedgehog antagonists for therapy of gastrointestinal malignancies”
Role: co-PI (PI: Kuo, C. J.)

OTL Research Incentive Award 6/2004 – 8/2006
Stanford University
“Constitutive and conditional gene silencing in zebrafish”
Role: PI

Kimmel Scholar Award 7/2004 – 6/2006
Sidney Kimmel Foundation for Cancer Research
“Chemical and genetic studies of the Hedgehog pathway”
Role: PI

Basil O’Connor Starter Scholar Research Award 2/2005 – 1/2007
March of Dimes Foundation
“Photochemical regulation of zebrafish gene expression for embryological studies”
Role: PI

R01 GM072600 7/2005 – 6/2010
NIH/NIGMS
“Chemical regulation of zebrafish gene expression”
Role: PI

Gift Funds to the Stanford High-Throughput Bioscience Center 8/2005
Anonymous Donor
“Stanford High-Throughput Bioscience Center”
Role: PI

Terman Fellow Award 9/2005 – 8/2008
Stanford University
“Spatiotemporal control of zebrafish gene expression”
Role: PI

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| Astellas USA Foundation Award Astellas USA Foundation Role: PI | 11/2005 – 10/2006 |
| Brain Tumor Society Award Brain Tumor Society/Rachel Molly Markoff Foundation “Novel Hedgehog pathway antagonists as potential medulloblastoma therapeutics” Role: PI | 9/2006 – 8/2008 |
| RSG-08-041-01-DDC (ACS Research Scholar Award) American Cancer Society “Hedgehog signaling and vertebrate germ cell migration” Role: PI | 1/2008 – 12/2012 |
| 1-FY-08-433 March of Dimes Foundation “No-tail patterning of the zebrafish mesoderm” Role: PI | 6/2008 – 5/2012 |
| DP1 HD075622 (NIH Director’s Pioneer Award) NIH/NICHD “Chemical embryology: Technologies for manipulating and visualizing development” Role: PI | 9/2008 – 7/2014 |
| R01 CA136574 NIH/NCI “Hedgehog pathway blockade by Gli antagonists” Role: PI | 12/2008 – 11/2014 |
| R01 GM087292 NIH/NIGMS “Deciphering T-box gene-dependent mesoderm development with synthetic probes” Role: PI | 7/2010 – 6/2015 |
| R03 MH094195 NIH/NIMH “A high-throughput screen for small-molecule antagonists of Gli function” Role: PI | 4/2011 – 3/2013 |
| Spectrum Pilot Grant Stanford SPARK “Small-molecule antagonists of cytoplasmic dynein” Role: PI | 1/2013 – 12/2013 |
| Innovation Award Alex’s Lemonade Stand Foundation “Next-generation therapies for Hedgehog pathway-dependent tumors” Role: PI | 7/2013 – 6/2015 |

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| Discovery Innovation Fund Award Stanford University "Optogenetic probe discovery through molecular evolution" Role: PI | 8/2013 – 7/2014 |
| CHE-1344038 (NSF INSPIRE Award) NSF "Lanthanide-based probes for visualizing RNAs and proteins in live organisms" Role: PI | 10/2013 – 09/2017 |
| Translational Research Award Stanford Cancer Institute "Gli antagonists for Hedgehog-dependent cancers" Role: co-I (PI: Oro, A. E.) | 4/2014 – 3/2016 |
| Translational Research Program Pilot Grant Stanford SPARK "Small-molecule antagonists of cytoplasmic dynein" Role: PI | 6/2014 – 5/2015 |
| R21 HD078385 NIH/NICHD "Chemical genetic dissection of Hipk4-dependent Hedgehog pathway activation" Role: PI | 9/2014 – 8/2017 |
| Stanford Innovation Project Award "Gli1-selective antagonists" Role: PI | 11/2014 – 2/2015 |
| R01 GM113100 NIH/NIGMS "Gli1-selective inhibitors of the Hedgehog signaling pathway" Role: PI | 7/2015 – 3/2018 |
| P50 GM107615 NIH/NIGMS "Systems biology of collective cell decisions" Role: co-I (PI: Ferrell, J. E.) | 9/2013 – 6/2018 |
| R01 GM108952 NIH/NIGMS "Development of lariat-shaped caged morpholinos for optochemical gene regulation" Role: PI | 8/2014 – 7/2018 |
| R01 GM112728 NIH/NIGMS "Chemically triggered morpholino antisense oligonucleotides" Role: co-I (PI: Deiters, A.) | 9/2015– 7/2018 |

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| N/A The Rachel Molly Markoff Foundation “Small-molecule modulators of ARHGAP36, a novel driver of pediatric neural cancers” Role: PI | 5/2017 – 4/2018 |
| N/A Weston Havens Foundation “Small-molecule inhibitors of colorectal cancer metabolism” Role: PI | 7/2018 – 6/2019 |
| Discovery Innovation Fund Award Stanford University “A transposon-based strategy for optogenetic engineering” Role: PI | 9/2018 – 8/2019 |
| Translational Research Program Pilot Grant Stanford SPARK “Small-molecule inhibitors of colorectal cancer metabolism” Role: PI | 7/2019 – 6/2020 |