



James K. Chen

Professor of Chemical and Systems Biology, of Developmental Biology and of Chemistry

 NIH Biosketch available Online

 Curriculum Vitae available Online

CONTACT INFORMATION

• Administrative Contact

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Bio

BIO

James Chen received his A.B. and Ph.D. degrees in Chemistry and Chemical Biology from Harvard, and he completed his postdoctoral studies at the Department of Molecular Biology and Genetics at Johns Hopkins. He joined the Stanford faculty in 2003, and his research interests span organic chemistry, chemical biology, developmental biology, and cancer biology.

The Chen lab investigates the molecular mechanisms that underlie tissue patterning and tumorigenesis, guided by chemical principles and enabled by chemical technologies. For example, the Chen group has developed small-molecule inhibitors of Hedgehog signaling, a biochemical pathway that is required for multiple aspects of embryonic development and contributes to human cancer. Among these compounds are the first specific inhibitors of cytoplasmic dyneins, microtubule motors that regulate a signaling organelle called the primary cilium. Members of the lab have also synthesized photoactivatable antisense oligonucleotides that allow gene expression to be suppressed with spatiotemporal precision. By applying these tools in zebrafish embryos, they have elucidated the transcriptional programs that regulate formation of the notochord, somites, and other mesodermal tissues.

Most recently, the Chen group collaborated with the Harbury lab to devise new methods for time-resolved lanthanide microscopy. This approach takes advantage of the long-lived photoluminescence of lanthanide chelates, and it enables ultrasensitive, autofluorescence-free imaging of whole organisms. Current research interests in the lab include small-molecule modulators of stem cell metabolism, optogenetic tools for controlling developmental signaling pathways, spermiogenesis, and male contraception.

ACADEMIC APPOINTMENTS

- Professor, Chemical and Systems Biology
- Professor, Developmental Biology
- Professor, Chemistry
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute

- Faculty Fellow, Stanford ChEM-H
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Chair, Department of Chemical and Systems Biology, Stanford University School of Medicine, (2016- present)
- Executive Committee Member, ChEM-H Institute, (2012- present)
- Director, Advisory Committee for the Scholarly Concentrations Program in the Molecular Basis of Medicine, (2012- present)
- Faculty Director, Stanford High-Throughput Bioscience Center, (2003- present)
- Member, Medical Scientist Training Program Admissions Committee, (2004- present)
- Executive Committee Member, Stanford University School of Medicine Faculty Senate, (2012-2016)
- Alternate Member, Stanford University Administrative Panel on Laboratory Animal Care, (2012-2014)
- Departmental Representative, Stanford Biosciences Committee on Graduate Admissions and Policy, (2012-2014)

HONORS AND AWARDS

- Rocek Lectureship in Chemical Biology, University of Illinois at Chicago (2019)
- NSF INSPIRE Award, NSF (2013-2017)
- Innovation Award, Alex's Lemonade Stand Foundation (2013-2015)
- Nature SciCafe Award for Outstanding Research Achievement, Nature Biotechnology and Nature Medicine (2009)
- NIH Director's Pioneer Award, NIH (2008-2013)
- American Cancer Society Research Scholar Award, American Cancer Society (2008-2011)
- Brain Tumor Society Award, Brain Tumor Society/Rachel Molly Markoff Foundation (2006-2008)
- Astellas USA Foundation Award, Astella USA Foundation (2005-2006)
- Terman Fellow, Stanford University (2005-2008)
- Basil O'Connor Starter Scholar Research Award, March of Dimes (2005-2007)
- Kimmel Scholar Award, Sidney Kimmel Foundation for Cancer Research (2004-2006)
- W. Barry Wood, Jr. Research Award, Johns Hopkins School of Medicine (2003)
- American Cancer Society Postdoctoral Fellowship, American Cancer Society (2002-2003)
- Damon Runyon-Walter Winchell Postdoctoral Fellowship, Damon Runyon Cancer Research Foundation (1999-2002)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editorial Board, Zebrafish (2008 - present)
- Editorial Board, Cell Chemical Biology (2009 - present)
- Scientific Advisory Board, Vibliome Therapeutics (2019 - present)

PROFESSIONAL EDUCATION

- A.B., Harvard College , Chemistry (1991)
- Ph.D., Harvard University , Chemistry and Chemical Biology (1998)
- Postdoctoral Fellow, Johns Hopkins School of Medicine , Molecular Biology and Genetics (2003)

PATENTS

- J. K. Chen, T. S. Kato, and A. E. Ondrus. "United States Patent 9,611,276 Imidazo bicyclic iminium compounds as antitumor agents", Leland Stanford Junior University, Apr 4, 2017

- J. K. Chen, S. Sinha, I. Shestopalov, and X. Ouyang. "United States Patent 7,923,562 Photocleavable linker methods and compositions", Leland Stanford Junior University, Apr 11, 2011
- P. A. Beachy, J. K. Chen, and A. J. N. Taipale. "United States Patent 7,655,674 Modulators of the Hedgehog signaling pathway, compositions and uses related thereto.", Johns Hopkins University, Feb 2, 2010
- P. A. Beachy, J. K. Chen, and A. J. N. Taipale. "United States Patent 7,476,661 Regulators of the Hedgehog pathway, compositions and uses related thereto.", Johns Hopkins University, Jan 13, 2009
- P. A. Beachy, J. K. Chen, and A. J. N. Taipale. "United States Patent 7,098,196 Regulators of the Hedgehog pathway, compositions and uses related thereto.", Johns Hopkins University, Aug 29, 2006

LINKS

- Chen Laboratory Website: <http://chen.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Chen laboratory integrates chemistry and developmental biology to investigate the molecular mechanisms that control tissue formation, regeneration, and malignancy. Our research group is currently focused on three major areas: (1) small-molecule and genetic regulators of Hedgehog signaling; (2) chemical tools for studying tissue patterning at the molecular and systems levels; and (3) animal models of development and cancer.

Our interest in the Hedgehog pathway arises from its critical role in the embryonic patterning of multiple tissues. Aberrant Hedgehog pathway activation in children and adults is also linked to several cancers, including those of the skin, brain, and blood. Since the cellular events that transduce the Hedgehog signal from the cell surface to the nucleus are not well understood, we have pursued genetic and small-molecule screens for new Hedgehog pathway modulators with novel modes of action. These studies will provide insights into the basic mechanisms of Hedgehog signal transduction, as well as targets and chemical leads for new therapies.

Our efforts to develop new tools for in vivo biology have focused on the zebrafish models, exploiting the rapid ex utero development, amenability to both chemical and genetic perturbations, and optical transparency of this vertebrate. For example, we have developed caged antisense oligonucleotides and photoactivatable proteins that afford precise spatiotemporal control of developmental signaling pathways. We have also devised new methods for time-resolved lanthanide microscopy, enabling ultrasensitive, autofluorescence-free imaging. In conjunction with genetic approaches, these chemical technologies can open new windows into the molecular mechanisms that control vertebrate development and physiology.

Most recently, we have initiated studies of spermatogenesis using rodent models. Our investigations explore how the testis-specific kinase HIPK4 promotes male fertility, and our findings indicate that this signaling protein is required for spermatid elongation. Our goals are to elucidate how this kinase and its substrates regulate the cytoskeletal forces that remodel the spermatid nucleus and to develop HIPK4-specific inhibitors. In principle, such antagonists could provide safe and reversible male contraception.

Teaching

COURSES

2019-20

- Chemical and Systems Biology Pizza Talks: CSB 224 (Aut, Win, Spr, Sum)
- Research Seminar: CSB 270 (Aut, Win, Spr)
- Responsible conduct, rigor, and reproducibility in research: CSB 272 (Aut)

2018-19

- Chemical and Systems Biology Pizza Talks: CSB 224 (Win, Spr, Sum)

2017-18

- Chemical and Systems Biology Pizza Talks: CSB 224 (Win, Spr)
- Concepts and Applications in Chemical Biology: CSB 260 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Kyle Kovary, Hannah Moeller, Hyun Shin Park

Scholarly Concentration Director

Megan Garland, Cesar Lopez Angel, Zahra Sayyid

Postdoctoral Faculty Sponsor

Zhiping Feng, Taylor Johnson, Bhagyesh Sarode

Doctoral Dissertation Advisor (AC)

Marisa Hom, Patricia Nano

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)
- Chemical and Systems Biology (Phd Program)
- Developmental Biology (Phd Program)

Publications

PUBLICATIONS

- **Basal constriction during midbrain-hindbrain boundary morphogenesis is mediated by Wnt5b and focal adhesion kinase.** *Biology open*
Gutzman, J. H., Graeden, E., Brachmann, I., Yamazoe, S., Chen, J. K., Sive, H.
2018
- **Correcting glucose-6-phosphate dehydrogenase deficiency with a small-molecule activator.** *Nature communications*
Hwang, S., Mruk, K., Rahighi, S., Raub, A. G., Chen, C., Dorn, L. E., Horikoshi, N., Wakatsuki, S., Chen, J. K., Mochly-Rosen, D.
2018; 9 (1): 4045
- **A CRISPR-based screen for Hedgehog signaling provides insights into ciliary function and ciliopathies.** *Nature genetics*
Breslow, D. K., Hoogendoorn, S., Kopp, A. R., Morgens, D. W., Vu, B. K., Kennedy, M. C., Han, K., Li, A., Hess, G. T., Bassik, M. C., Chen, J. K., Nachury, M. V.
2018; 50 (3): 460–71
- **Ultrasensitive optical imaging with lanthanide lumiphores.** *Nature chemical biology*
Cho, U., Riordan, D. P., Ciepla, P., Kocherlakota, K. S., Chen, J. K., Harbury, P. B.
2018; 14 (1): 15–21
- **Illuminating developmental biology through photochemistry** *NATURE CHEMICAL BIOLOGY*
Kowalik, L., Chen, J. K.
2017; 13 (6): 587-598
- **Reviving Vibration Energy Harvesting and Self-Powered Sensing by a Triboelectric Nanogenerator** *Joule*
Chen, J., Wang, Z. L.
2017; 1 (3): 480–521
- **Discovery of novel determinants of endothelial lineage using chimeric heterokaryons** *Elife*
Wong, W. T., Matrone, G., Tomolaga, S. A., Au, K. F., Meng, S., Yamazoe, S., Sieveking, D., Chen, K., Burns, D. M., Chen, J. K., Blau, H. M., Cooke, J. P.
2017; 6: e23588

- **A novel missense variant in the GLI3 zinc finger domain in a family with digital anomalies** *Am. J. Med. Genet. A*
Crapster, J. A., Hudgins, L., Chen, J. K., Gomez-Ospina, N.
2017; 173: 3221-3225
- **Hyaluronic acid synthesis is required for zebrafish tail fin regeneration** *PLoS One*
Ouyang, X., Panetta, N. J., Talbott, M. D., Payumo, A. Y., Halluin, C., Longaker, M. T., Chen, J. K.
2017; 12: e0171898
- **Chemical structure-guided design of dynapyrazoles, cell-permeable dynein inhibitors with a unique mode of action** *Elife*
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, et al
2017; 6: e25174
- **An inducible long noncoding RNA amplifies DNA damage signaling.** *Nature genetics*
Schmitt, A. M., Garcia, J. T., Hung, T., Flynn, R. A., Shen, Y., Qu, K., Payumo, A. Y., Peres-da-Silva, A., Broz, D. K., Baum, R., Guo, S., Chen, J. K., Attardi, et al
2016; 48 (11): 1370-1376
- **Tbx16 regulates hox gene activation in mesodermal progenitor cells.** *Nature chemical biology*
Payumo, A. Y., McQuade, L. E., Walker, W. J., Yamazoe, S., Chen, J. K.
2016; 12 (9): 694-701
- **I only have eye for ewe: the discovery of cyclopamine and development of Hedgehog pathway-targeting drugs** *NATURAL PRODUCT REPORTS*
Chen, J. K.
2016; 33 (5): 595-601
- **Control of inflammation by stromal Hedgehog pathway activation restrains colitis** *Proc. Natl. Acad. Sci. U. S. A.*
Lee, J. J., Rothenberg, M. E., Seeley, E. S., Zimdahl, B., Kawano, S., Lu, W., Shin, K., Sakata-Kato, T., Chen, J. K., Diehn, M., Clarke, M. F., Beachy, P. A.
2016; 113: E7545-E7553
- **Cytoplasmic Dynein Antagonists with Improved Potency and Isoform Selectivity** *ACS CHEMICAL BIOLOGY*
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., Chen, et al
2016; 11 (1): 53-60
- **Optochemical Dissection of T-box Gene-Dependent Medial Floor Plate Development.** *ACS chemical biology*
Payumo, A. Y., Walker, W. J., McQuade, L. E., Yamazoe, S., Chen, J. K.
2015; 10 (6): 1466-1475
- **Thinking big with small molecules** *JOURNAL OF CELL BIOLOGY*
Mruk, K., Chen, J. K.
2015; 209 (1): 7-9
- **Sequential gene silencing using wavelength-selective caged morpholino oligonucleotides.** *Angewandte Chemie (International ed. in English)*
Yamazoe, S., Liu, Q., McQuade, L. E., Deiters, A., Chen, J. K.
2014; 53 (38): 10114-10118
- **Stromal response to Hedgehog signaling restrains pancreatic cancer progression.** *Proceedings of the National Academy of Sciences of the United States of America*
Lee, J. J., Perera, R. M., Wang, H., Wu, D., Liu, X. S., Han, S., Fitamant, J., Jones, P. D., Ghanta, K. S., Kawano, S., Nagle, J. M., Deshpande, V., Boucher, et al
2014; 111 (30): E3091-100
- **Arhgap36-dependent activation of Gli transcription factors.** *Proceedings of the National Academy of Sciences of the United States of America*
Rack, P. G., Ni, J., Payumo, A. Y., Nguyen, V., Crapster, J. A., Hovestadt, V., Kool, M., Jones, D. T., Mich, J. K., Firestone, A. J., Pfister, S. M., Cho, Y., Chen, et al
2014; 111 (30): 11061-11066
- **Direct kinetochore-spindle pole connections are not required for chromosome segregation** *JOURNAL OF CELL BIOLOGY*
Sikirzhitski, V., Magidson, V., Steinman, J. B., He, J., Le Berre, M., Tikhonenko, I., Ault, J. G., McEwen, B. F., Chen, J. K., Sui, H., Pie, M., Kapoor, T. M., Khodjakov, et al
2014; 206 (2): 231-243

- **General method for regulating protein stability with light.** *ACS chemical biology*
Bonger, K. M., Rakhit, R., Payumo, A. Y., Chen, J. K., Wandless, T. J.
2014; 9 (1): 111-115
- **Nitroreductase-activatable morpholino oligonucleotides for in vivo gene silencing.** *ACS chemical biology*
Yamazoe, S., McQuade, L. E., Chen, J. K.
2014; 9 (9): 1985-90
- **In vivo imaging of Hedgehog pathway activation with a nuclear fluorescent reporter** *PLoS One*
Mich, J. K., Payumo, A. Y., Rack, P. G., Chen, J. K.
2014; 9: e103661
- **Post-transcriptional mechanisms contribute to Etv2 repression during vascular development** *DEVELOPMENTAL BIOLOGY*
Moore, J. C., Sheppard-Tindell, S., Shestopalov, I. A., Yamazoe, S., Chen, J. K., Lawson, N. D.
2013; 384 (1): 128-140
- **The stanford institute for chemical biology.** *ACS chemical biology*
Chen, J. K., Du Bois, J., Glenn, J., Herschlag, D., Khosla, C.
2013; 8 (9): 1860-1861
- **Centrosome repositioning in T cells is biphasic and driven by microtubule end-on capture-shrinkage** *JOURNAL OF CELL BIOLOGY*
Yi, J., Wu, X., Chung, A. H., Chen, J. K., Kapoor, T. M., Hammer, J. A.
2013; 202 (5): 779-792
- **Diacylglycerol promotes centrosome polarization in T cells via reciprocal localization of dynein and myosin II** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Liu, X., Kapoor, T. M., Chen, J. K., Huse, M.
2013; 110 (29): 11976-11981
- **Functional inhibition of UQCRB suppresses angiogenesis in zebrafish.** *Biochemical and biophysical research communications*
Cho, Y. S., Jung, H. J., Seok, S. H., Payumo, A. Y., Chen, J. K., Kwon, H. J.
2013; 433 (4): 396-400
- **Emerging technologies in molecular imaging: new windows into biology.** *Current opinion in chemical biology*
Chen, J. K., Kikuchi, K.
2013
- **Small-molecule inhibitors of the AAA plus ATPase motor cytoplasmic dynein** *NATURE*
Firestone, A. J., Weinger, J. S., Maldonado, M., Barlan, K., Langston, L. D., O'Donnell, M., Gelfand, V. I., Kapoor, T. M., Chen, J. K.
2012; 484 (7392): 125-129
- **The BAH domain of ORC1 links H4K20me2 to DNA replication licensing and Meier-Gorlin syndrome** *NATURE*
Kuo, A. J., Song, J., Cheung, P., Ishibe-Murakami, S., Yamazoe, S., Chen, J. K., Patel, D. J., Gozani, O.
2012; 484 (7392): 115-?
- **Spatiotemporal resolution of the Ntla transcriptome in axial mesoderm development** *NATURE CHEMICAL BIOLOGY*
Shestopalov, I. A., Pitt, C. L., Chen, J. K.
2012; 8 (3): 270-276
- **Cyclic Caged Morpholinos: Conformationally Gated Probes of Embryonic Gene Function** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Yamazoe, S., Shestopalov, I. A., Provost, E., Leach, S. D., Chen, J. K.
2012; 51 (28): 6908-6911
- **Roles of Hedgehog pathway components and retinoic acid signalling in specifying zebrafish ventral spinal cord neurons** *DEVELOPMENT*
England, S., Batista, M. F., Mich, J. K., Chen, J. K., Lewis, K. E.
2011; 138 (23): 5121-5134
- **Hedgehog and retinoic acid signaling cooperate to promote motoneurogenesis in zebrafish** *DEVELOPMENT*
Mich, J. K., Chen, J. K.
2011; 138 (23): 5113-5119

- **Neuropilins are positive regulators of Hedgehog signal transduction** *GENES & DEVELOPMENT*
Hillman, R. T., Feng, B. Y., Ni, J., Woo, W., Milenkovic, L., Gephart, M. G., Teruel, M. N., Oro, A. E., Chen, J. K., Scott, M. P.
2011; 25 (22): 2333-2346
- **A crucial requirement for Hedgehog signaling in small cell lung cancer** *NATURE MEDICINE*
Park, K., Martelotto, L. G., Peifer, M., Sos, M. L., Karnezis, A. N., Mahjoub, M. R., Bernard, K., Conklin, J. F., Szczepny, A., Yuan, J., Guo, R., Ospina, B., Falzon, et al
2011; 17 (11): 1504-U1506
- **A Small-Molecule Smoothened Agonist Prevents Glucocorticoid-Induced Neonatal Cerebellar Injury** *SCIENCE TRANSLATIONAL MEDICINE*
Heine, V. M., Griveau, A., Chapin, C., Ballard, P. L., Chen, J. K., Rowitch, D. H.
2011; 3 (105)
- **Lineage Labeling of Zebrafish Cells with Laser Uncagable Fluorescein Dextran** *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*
Clanton, J. A., Shestopalov, I. A., Chen, J. K., Gamse, J. T.
2011
- **Chemical 'Jekyll and Hyde's: small-molecule inhibitors of developmental signaling pathways** *CHEMICAL SOCIETY REVIEWS*
Sakata, T., Chen, J. K.
2011; 40 (8): 4318-4331
- **Spatiotemporal Control of Embryonic Gene Expression Using Caged Morpholinos** *ZEBRAFISH: GENETICS, GENOMICS AND INFORMATICS, 3RD EDITION*
Shestopalov, I. A., Chen, J. K.
2011; 104: 151-172
- **Lineage labeling of zebrafish cells with laser uncagable fluorescein dextran.** *Journal of visualized experiments : JoVE*
Clanton, J. A., Shestopalov, I., Chen, J. K., Gamse, J. T.
2011
- **Synthetic Strategies for Studying Embryonic Development** *CHEMISTRY & BIOLOGY*
Ouyang, X., Chen, J. K.
2010; 17 (6): 590-606
- **Oligonucleotide-Based Tools for Studying Zebrafish Development** *ZEBRAFISH*
Shestopalov, I. A., Chen, J. K.
2010; 7 (1): 31-40
- **Controlling Destiny through Chemistry: Small-Molecule Regulators of Cell Fate** *ACS CHEMICAL BIOLOGY*
Firestone, A. J., Chen, J. K.
2010; 5 (1): 15-34
- **Versatile Synthesis and Rational Design of Caged Morpholinos** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Ouyang, X., Shestopalov, I. A., Sinha, S., Zheng, G., Pitt, C. L., Li, W., Olson, A. J., Chen, J. K.
2009; 131 (37): 13255-13269
- **Small-molecule inhibitors reveal multiple strategies for Hedgehog pathway blockade** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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, et al
2009; 106 (33): 14132-14137
- **Converse Conformational Control of Smoothened Activity by Structurally Related Small Molecules** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Yang, H., Xiang, J., Wang, N., Zhao, Y., Hyman, J., Li, S., Jiang, J., Chen, J. K., Yang, Z., Lin, S.
2009; 284 (31): 20876-20884
- **Germ cell migration in zebrafish is cyclopamine-sensitive but Smoothened-independent** *DEVELOPMENTAL BIOLOGY*
Mich, J. K., Blaser, H., Thomas, N. A., Firestone, A. J., Yelon, D., Raz, E., Chen, J. K.
2009; 328 (2): 342-354

- **A small molecule that binds Hedgehog and blocks its signaling in human cells** *NATURE CHEMICAL BIOLOGY*
Stanton, B. Z., Peng, L. F., Maloof, N., Nakai, K., Wang, X., Duffner, J. L., Taveras, K. M., Hyman, J. M., Lee, S. W., Koehler, A. N., Chen, J. K., Fox, J. L., Mandinova, et al
2009; 5 (3): 154-156
- **The Imidazopyridine Derivative JK184 Reveals Dual Roles for Microtubules in Hedgehog Signaling** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Cupido, T., Rack, P. G., Firestone, A. J., Hyman, J. M., Han, K., Sinha, S., Ocasio, C. A., Chen, J. K.
2009; 48 (13): 2321-2324
- **Targeted and Conditional Gene Expression Workshop, 8th International Conference on Zebrafish Development and Genetics.** *Zebrafish*
Chen, J. K., Hurlstone, A. F.
2008; 5 (3): 193-195
- **The decoupling of Smoothed from G alpha(i) proteins has little effect on Gli3 protein processing and Hedgehog-regulated chick neural tube patterning** *DEVELOPMENTAL BIOLOGY*
Low, W., Wang, C., Pan, Y., Huang, X., Chen, J. K., Wang, B.
2008; 321 (1): 188-196
- **Fish 'n clicks** *NATURE CHEMICAL BIOLOGY*
Chen, J. K.
2008; 4 (7): 391-392
- **Gene regulation technologies in zebrafish** *MOLECULAR BIOSYSTEMS*
Esengil, H., Chen, J. K.
2008; 4 (4): 300-308
- **Chemical technologies for probing embryonic development** *CHEMICAL SOCIETY REVIEWS*
Shestopalov, I. A., Chen, J. K.
2008; 37 (7): 1294-1307
- **Light-controlled gene silencing in zebrafish embryos** *NATURE CHEMICAL BIOLOGY*
Shestopalov, I. A., Sinha, S., Chen, J. K.
2007; 3 (10): 650-651
- **Small-molecule regulation of zebrafish gene expression** *NATURE CHEMICAL BIOLOGY*
Esengil, H., Chang, V., Mich, J. K., Chen, J. K.
2007; 3 (3): 154-155
- **Smoothed signal transduction is promoted by G protein-coupled receptor kinase 2** *MOLECULAR AND CELLULAR BIOLOGY*
Meloni, A. R., Fralish, G. B., Kelly, P., Salahpour, A., Chen, J. K., Wechsler-Reya, R. J., Lefkowitz, R. J., Caron, M. G.
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Sinha, S., Chen, J. K.
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Chen, J. K., Taipale, J., Cooper, M. K., Beachy, P. A.
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- **Small molecule modulation of Smoothed activity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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- **Effects of oncogenic mutations in Smoothed and Patched can be reversed by cyclopamine** *NATURE*
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 - **The identification of myriocin-binding proteins (vol 6, pg 221, 1999)** *CHEMISTRY & BIOLOGY*
Chen, J. K., Lane, W. S., Schreiber, S. L.
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 - **Crystal structure of PI3K SH3 domain at 2.0 angstrom resolution** *JOURNAL OF MOLECULAR BIOLOGY*
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Chen, J. K., Schreiber, S. L.
1995; 34 (9): 953-969
 - **2 BINDING ORIENTATIONS FOR PEPTIDES TO THE SRC SH3 DOMAIN - DEVELOPMENT OF A GENERAL-MODEL FOR SH3-LIGAND INTERACTIONS** *SCIENCE*
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1994; 266 (5188): 1241-1247
 - **SH3 DOMAIN-MEDIATED DIMERIZATION OF AN N-TERMINAL FRAGMENT OF THE PHOSPHATIDYLINOSITOL 3-KINASE P85 SUBUNIT** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
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