

Stanford



Chaitan Khosla

Wells H. Rauser and Harold M. Petiprin Professor and Professor of Chemistry and, by courtesy, of Biochemistry
Chemical Engineering

CONTACT INFORMATION

- **Administrative Contact**

Susan Haskins

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Bio

BIO

Research in this laboratory focuses on problems where deep insights into enzymology and metabolism can be harnessed to improve human health.

For the past two decades, we have studied and engineered enzymatic assembly lines called polyketide synthases that catalyze the biosynthesis of structurally complex and medicinally fascinating antibiotics in bacteria. An example of such an assembly line is found in the erythromycin biosynthetic pathway. Our current focus is on understanding the structure and mechanism of this polyketide synthase. At the same time, we are developing methods to decode the vast and growing number of orphan polyketide assembly lines in the sequence databases.

For more than a decade, we have also investigated the pathogenesis of celiac disease, an autoimmune disorder of the small intestine, with the goal of discovering therapies and related management tools for this widespread but overlooked disease. Ongoing efforts focus on understanding the pivotal role of transglutaminase 2 in triggering the inflammatory response to dietary gluten in the celiac intestine.

ACADEMIC APPOINTMENTS

- Professor, Chemical Engineering
- Professor, Chemistry
- Professor (By courtesy), Biochemistry
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Institute Scholar, Sarafan ChEM-H
- Director, Innovative Medicines Accelerator (IMA)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Baker Family Director, Stanford ChEM-H, (2012-2020)
- Director, Innovative Medicines Accelerator, (2020- present)

HONORS AND AWARDS

- Member, National Academy of Sciences (2020)
- Arthur C. Cope Scholar Award, American Chemical Society (2009)
- Member, National Academy of Engineering (2009)
- Professional Progress Award, American Institute of Chemical Engineers (2008)
- Member, American Academy of Arts and Sciences (2007)
- Fellow, American Association for the Advancement of Science (2006)
- Pure Chemistry Award, American Chemical Society (2000)
- Alan T. Waterman Award, National Science Foundation (1999)
- Eli Lilly Award in Biological Chemistry, American Chemical Society (1999)
- Allan P. Colburn Award, American Institute of Chemical Engineers (1997)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Scientific Policy Committee Member, SLAC National Accelerator Laboratory (2014 - 2020)

PROFESSIONAL EDUCATION

- Postdoc, John Innes Centre, U.K. , Genetics (1992)
- PhD, California Institute of Technology , Chemical Engineering (1990)

LINKS

- <https://web.stanford.edu/group/khosla/cgi-bin/>: <https://web.stanford.edu/group/khosla/cgi-bin/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research in this laboratory focuses on problems where deep insights into enzymology and metabolism can be harnessed to improve human health.

For the past two decades, we have studied and engineered enzymatic assembly lines called polyketide synthases that catalyze the biosynthesis of structurally complex and medicinally fascinating antibiotics in bacteria. An example of such an assembly line is found in the erythromycin biosynthetic pathway. Our current focus is on understanding the structure and mechanism of this polyketide synthase. At the same time, we are developing methods to decode the vast and growing number of orphan polyketide assembly lines in the sequence databases.

For more than a decade, we have also investigated the pathogenesis of celiac disease, an autoimmune disorder of the small intestine, with the goal of discovering therapies and related management tools for this widespread but overlooked disease. Ongoing efforts focus on understanding the pivotal role of transglutaminase 2 in triggering the inflammatory response to dietary gluten in the celiac intestine.

CLINICAL TRIALS

- COVID-19 Outpatient Pragmatic Platform Study (COPPS) - Master Protocol, Recruiting
- COVID-19 Outpatient Pragmatic Platform Study (COPPS) - Camostat Sub-Protocol, Not Recruiting

Teaching

COURSES

2021-22

- Special Topics in Biocatalysis: CHEMENG 503 (Aut)

2020-21

- Graduate Practical Training: CHEMENG 299 (Sum)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)

2019-20

- Graduate Practical Training: CHEMENG 299 (Sum)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)

2018-19

- Graduate Practical Training: CHEMENG 299 (Sum)
- Interdisciplinary Approaches to Human Health Research: BIO 193, BIOE 193, CHEM 113, CHEMENG 193 (Win)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)
- The Chemical Principles of Life II: CHEM 143 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Xujun Cao, Sriya Chitti, Pablo Elvira, Catherine Garrison, L Handy, Alby Joseph, Catherine Liou, Rachel Mardjuki, Niraj Mehta, Harrison Rahn, Prima Dewi Sinawang, Brian Zhong

Postdoctoral Faculty Sponsor

Dillon Cogan, Siavash Mashayekh, Fu Chen Yang

Doctoral Dissertation Advisor (AC)

Harrison Besser, Krystal Brodsky, Nina Fatuzzo, Katarina Guzman, Jake Hsu, Shreya Kishore, Elise Loppinet, Thomas Privalsky, Agnele Sewa, Alex Soohoo

Doctoral Dissertation Co-Advisor (AC)

Katie Antilla, Kaustabh Basu, Julieta Gomez-Frittelli, Robert Lee

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biochemistry (Phd Program)
- Biophysics (Phd Program)

Publications

PUBLICATIONS

- **Favipiravir for treatment of outpatients with asymptomatic or uncomplicated COVID-19: a double-blind randomized, placebo-controlled, phase 2 trial.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Holubar, M., Subramanian, A., Purington, N., Hedlin, H., Bunning, B., Walter, K. S., Bonilla, H., Boumis, A., Chen, M., Clinton, K., Dewhurst, L., Epstein, C., Jagannathan, et al
2022
- **KIR+CD8+ T cells suppress pathogenic T cells and are active in autoimmune diseases and COVID-19.** *Science (New York, N.Y.)*
Li, J., Zaslavsky, M., Su, Y., Guo, J., Sikora, M. J., van Unen, V., Christophersen, A., Chiou, S., Chen, L., Li, J., Ji, X., Wilhelmy, J., McSween, et al

2022: eabi9591

- **Fragment antigen binding domains (Fabs) as tools to study assembly-line polyketide synthases.** *Synthetic and systems biotechnology*
Guzman, K. M., Khosla, C.
1800; 7 (1): 506-512
- **An efficient urine peptidomics workflow identifies chemically defined dietary gluten peptides from patients with celiac disease.** *Nature communications*
Palanski, B. A., Weng, N., Zhang, L., Hilmer, A. J., Fall, L. A., Swaminathan, K., Jabri, B., Sousa, C., Fernandez-Becker, N. Q., Khosla, C., Elias, J. E.
2022; 13 (1): 888
- **Early non-neutralizing, afucosylated antibody responses are associated with COVID-19 severity.** *Science translational medicine*
Chakraborty, S., Gonzalez, J. C., Sievers, B. L., Mallajosyula, V., Chakraborty, S., Dubey, M., Ashraf, U., Cheng, B. Y., Kathale, N., Tran, K. Q., Scallan, C., Sinnott, A., Cassidy, et al
1800: eabm7853
- **Solution Structure and Conformational Flexibility of a Polyketide Synthase Module.** *JACS Au*
Klaus, M., Rossini, E., Linden, A., Paithankar, K. S., Zeug, M., Ignatova, Z., Urlaub, H., Khosla, C., Kofinger, J., Hummer, G., Grininger, M.
1800; 1 (12): 2162-2171
- **Prospects for Antibacterial Discovery and Development** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Privalsky, T. M., Soohoo, A. M., Wang, J., Walsh, C. T., Wright, G. D., Gordon, E. M., Gray, N. S., Khosla, C.
2021; 143 (50): 21127-21142
- **Properties of a "Split-and-Stuttering" Module of an Assembly Line Polyketide Synthase** *JOURNAL OF ORGANIC CHEMISTRY*
Guzman, K. M., Yuet, K. P., Lynch, S. R., Liu, C. W., Khosla, C.
2021; 86 (16): 11100-11106
- **An Unusual "OR" Gate for Allosteric Regulation of Mammalian Transglutaminase 2 in the Extracellular Matrix** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Melkonian, A., Loppinet, E., Martin, R., Porteus, M., Khosla, C.
2021; 143 (28): 10537-10540
- **The COVID-19 Outpatient Pragmatic Platform Study (COPPS): Study design of a multi-center pragmatic platform trial.** *Contemporary clinical trials*
Bunning, B., Hedlin, H., Purington, N., Sundaram, V., Kapphahn, K., Weng, Y., Cunanan, K., Maldonado, Y., Singh, U., Khosla, C., O'Hara, R., Nicolls, M., Springman, et al
2021: 106509
- **GRINS: Genetic elements that recode assembly-line polyketide synthases and accelerate their diversification** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Nivina, A., Paredes, S., Fraser, H. B., Khosla, C.
2021; 118 (26)
- **GRINS: Genetic elements that recode assembly-line polyketide synthases and accelerate their diversification.** *Proceedings of the National Academy of Sciences of the United States of America*
Nivina, A., Herrera Paredes, S., Fraser, H. B., Khosla, C.
2021; 118 (26)
- **50 Years Ago in The Journal of Pediatrics: Association of Type 1 Diabetes Mellitus and Celiac Disease: Then and Now.** *The Journal of pediatrics*
Ni, J., Khosla, C., Maahs, D. M.
2021; 230: 70
- **Association of Type 1 Diabetes Mellitus and Celiac Disease: Then and Now** *JOURNAL OF PEDIATRICS*
Ni, J., Khosla, C., Maahs, D. M.
2021; 230: 70
- **Peginterferon Lambda-1a for treatment of outpatients with uncomplicated COVID-19: a randomized placebo-controlled trial.** *Nature communications*
Jagannathan, P. n., Andrews, J. R., Bonilla, H. n., Hedlin, H. n., Jacobson, K. B., Balasubramanian, V. n., Purington, N. n., Kamble, S. n., de Vries, C. R., Quintero, O. n., Feng, K. n., Ley, C. n., Winslow, et al
2021; 12 (1): 1967
- **Mapping the catalytic conformations of an assembly-line polyketide synthase module.** *Science (New York, N.Y.)*

- Cogan, D. P., Zhang, K., Li, X., Li, S., Pintilie, G. D., Roh, S. H., Craik, C. S., Chiu, W., Khosla, C.
2021; 374 (6568): 729-734
- **SARS-CoV-2 subgenomic RNA kinetics in longitudinal clinical samples** *Open Forum Infectious Diseases*
Verma, R., Kim, E., Martinez, G., Jagannathan, ., Rustagi, A., Parsonnet, J., Bonilla, H., Khosla, C., Holubar, M., Subramanian, A., Singh, ., Maldonado, Y., Blish, et al
2021
 - **Structure and Mechanism of the Ketosynthase-Chain Length Factor Didomain from a Prototypical Polyunsaturated Fatty Acid Synthase.** *Biochemistry*
Santin, O., Yuet, K., Khosla, C., Moncalian, G.
2020
 - **Antibody Probes of Module 1 of the 6-Deoxyerythronolide B Synthase Reveal an Extended Conformation During Ketoreduction.** *Journal of the American Chemical Society*
Cogan, D. P., Li, X., Sevellano, N., Mathews, I. I., Matsui, T., Craik, C. S., Khosla, C.
2020
 - **Challenges and opportunities for engineering assembly-line polyketide biosynthesis in Escherichia coli.** *Metabolic engineering communications*
Yuet, K. P., Khosla, C.
2020; 10: e00106
 - **When the Quest for a Cure Is Personal** *CELL*
Gordon, L., Khosla, C., Fajgenbaum, D.
2020; 181 (1): 19
 - **Complete Reconstitution and Deorphanization of the 3 MDa Nocardiosis-Associated Polyketide Synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Yuet, K. P., Liu, C. W., Lynch, S. R., Kuo, J., Michaels, W., Lee, R. B., McShane, A. E., Zhong, B. L., Fischer, C. R., Khosla, C.
2020; 142 (13): 5952–57
 - **IL-15, gluten and HLA-DQ8 drive tissue destruction in coeliac disease.** *Nature*
Abadie, V., Kim, S. M., Lejeune, T., Palanski, B. A., Ernest, J. D., Tastet, O., Voisine, J., Discepolo, V., Marietta, E. V., Hawash, M. B., Ciszewski, C., Bouziat, R., Panigrahi, et al
2020
 - **Genome-wide analysis of targets of macrolide antibiotics in mammalian cells.** *The Journal of biological chemistry*
Gupta, A., Okesli-Armlovich, A., Morgens, D., Bassik, M. C., Khosla, C.
2020
 - **Enhancing the Antiviral Efficacy of RNA-Dependent RNA Polymerase Inhibition by Combination with Modulators of Pyrimidine Metabolism.** *Cell chemical biology*
Liu, Q. n., Gupta, A. n., Okesli-Armlovich, A. n., Qiao, W. n., Fischer, C. R., Smith, M. n., Carette, J. E., Bassik, M. C., Khosla, C. n.
2020
 - **Evolution and Diversity of Assembly-Line Polyketide Synthases** *CHEMICAL REVIEWS*
Nivina, A., Yuet, K. P., Hsu, J., Khosla, C.
2019; 119 (24): 12524–47
 - **Latiglutenase Treatment for Celiac Disease: Symptom and Quality of Life Improvement for Seropositive Patients on a Gluten-Free Diet.** *GastroHep*
Syage, J. A., Green, P. H., Khosla, C., Adelman, D. C., Sealey-Voyksner, J. A., Murray, J. A.
2019; 1 (6): 293–301
 - **Discovery of small molecule inhibitors of human uridine-cytidine kinase 2 by high-throughput screening.** *Bioorganic & medicinal chemistry letters*
Okesli-Armlovich, A., Gupta, A., Jimenez, M., Auld, D., Liu, Q., Bassik, M. C., Khosla, C.
2019
 - **Tunable Enzymatic Synthesis of the Immunomodulator Lipid IVA To Enable Structure-Activity Analysis** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Sankaranarayanan, K., Antaris, X. X., Palanski, B. A., El Gamal, A., Kao, C. M., Fitch, W. L., Fischer, C. R., Khosla, C.
2019; 141 (24): 9474–78

- **Engineering of Chimeric Polyketide Synthases Using SYNZIP Docking Domains** *ACS CHEMICAL BIOLOGY*
Klaus, M., D'Souza, A. D., Nivina, A., Khosla, C., Grininger, M.
2019; 14 (3): 426–33
- **Engineering of Chimeric Polyketide Synthases Using SYNZIP Docking Domains.** *ACS chemical biology*
Klaus, M., D'Souza, A. D., Nivina, A., Khosla, C., Grininger, M.
2019
- **From Active Sites to Machines: A Challenge for Enzyme Chemists.** *Israel journal of chemistry*
Khosla, C.
2019; 59 (1-2): 37-40
- **From Active Sites to Machines: A Challenge for Enzyme Chemists** *ISRAEL JOURNAL OF CHEMISTRY*
Khosla, C.
2019; 59 (1-2): 37–40
- **Substrates, inhibitors, and probes of mammalian transglutaminase 2.** *Analytical biochemistry*
Zhuang, R. n., Khosla, C. n.
2019: 113560
- **In Vivo Measurement of Redox-Regulated TG2 Activity** *FUNCTIONAL DISULPHIDE BONDS: METHODS AND PROTOCOLS*
Melkonian, A. V., Weng, N., Palanski, B. A., Khosla, C., Hogg, P.
2019; 1967: 263–74
- **In Vivo Measurement of Redox-Regulated TG2 Activity.** *Methods in molecular biology (Clifton, N.J.)*
Melkonian, A. V., Weng, N. n., Palanski, B. A., Khosla, C. n.
2019; 1967: 263–74
- **A tribute to Professor Jay Bailey: A pioneer in biochemical engineering** *AICHE JOURNAL*
Khosla, C., Clark, D. S., Chen, W.
2018; 64 (12): 4179–81
- **A Tribute to James E. Bailey** *AICHE JOURNAL*
Chen, W., Harold, M. P., Clark, D., Khosla, C.
2018; 64 (12): 4178
- **Discovery and Characterization of a Thioesterase-Specific Monoclonal Antibody That Recognizes the 6-Deoxyerythronolide B Synthase** *BIOCHEMISTRY*
Li, X., Sevallano, N., La Greca, F., Hsu, J., Mathews, I. I., Matsui, T., Craik, C. S., Khosla, C.
2018; 57 (43): 6201–8
- **Discovery and Characterization of a Thioesterase-Specific Monoclonal Antibody That Recognizes the 6-Deoxyerythronolide B Synthase.** *Biochemistry*
Li, X., Sevallano, N., La Greca, F., Hsu, J., Mathews, I. I., Matsui, T., Craik, C. S., Khosla, C.
2018
- **Interleukin 4 is inactivated via selective disulfide-bond reduction by extracellular thioredoxin** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Plugis, N. M., Weng, N., Zhao, Q., Palanski, B. A., Maecker, H. T., Habtezion, A., Khosla, C.
2018; 115 (35): 8781-8786
- **Interleukin 4 is inactivated via selective disulfide-bond reduction by extracellular thioredoxin.** *Proceedings of the National Academy of Sciences of the United States of America*
Plugis, N. M., Weng, N., Zhao, Q., Palanski, B. A., Maecker, H. T., Habtezion, A., Khosla, C.
2018
- **Cystamine and Disulfiram Inhibit Human Transglutaminase 2 via an Oxidative Mechanism** *BIOCHEMISTRY*
Palanski, B. A., Khosla, C.
2018; 57 (24): 3359–63
- **Structure-Function Analysis of the Extended Conformation of a Polyketide Synthase Module** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Li, X., Sevallano, N., La Greca, F., Deis, L., Liu, Y., Deller, M. C., Mathews, I. I., Matsui, T., Cane, D. E., Craik, C. S., Khosla, C.

2018; 140 (21): 6518–21

- **HEx: A heterologous expression platform for the discovery of fungal natural products** *SCIENCE ADVANCES*
Harvey, C. B., Tang, M., Schlecht, U., Horecka, J., Fischer, C. R., Lin, H., Li, J., Naughton, B., Cherry, J., Miranda, M., Li, Y., Chu, A. M., Hennessy, et al
2018; 4 (4): eaar5459
- **Endoplasmic reticulum-resident protein 57 (ERp57) oxidatively inactivates human transglutaminase 2** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Yi, M. C., Melkonian, A. V., Ousey, J. A., Khosla, C.
2018; 293 (8): 2640–49
- **Transglutaminase 2 in pulmonary and cardiac tissue remodeling in experimental pulmonary hypertension** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Penumatsa, K. C., Toksoz, D., Warburton, R. R., Kharnaf, M., Preston, I. R., Kapur, N. K., Khosla, C., Hill, N. S., Fanburg, B. L.
2017; 313 (5): L752–L762
- **Biosynthesis and structure-activity relationships of the lipid a family of glycolipids** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Xiao, X., Sankaranarayanan, K., Khosla, C.
2017; 40: 127–37
- **The Conformational Flexibility of the Acyltransferase from the Disorazole Polyketide Synthase Is Revealed by an X-ray Free-Electron Laser Using a Room-Temperature Sample Delivery Method for Serial Crystallography** *BIOCHEMISTRY*
Mathews, I. I., Allison, K., Robbins, T., Lyubimov, A. Y., Uervirojnangkoorn, M., Brunger, A. T., Khosla, C., DeMirci, H., McPhillips, S. E., Hollenbeck, M., Soltis, M., Cohen, A. E.
2017; 56 (36): 4751–56
- **Latiglutenase Improves Symptoms in Seropositive Celiac Disease Patients While on a Gluten-Free Diet** *DIGESTIVE DISEASES AND SCIENCES*
Syage, J. A., Murray, J. A., Green, P. R., Khosla, C.
2017; 62 (9): 2428–32
- **A B-Cell Gene Signature Correlates With the Extent of Gluten-Induced Intestinal Injury in Celiac Disease.** *Cellular and molecular gastroenterology and hepatology*
Garber, M. E., Saldanha, A., Parker, J. S., Jones, W. D., Kaukinen, K., Laurila, K., Lähdeaho, M., Khatri, P., Khosla, C., Adelman, D. C., Mäki, M.
2017; 4 (1): 1-17
- **C-Thiourea.** *ACS chemical biology*
Wibowo, A., Park, J. M., Liu, S., Khosla, C., Spielman, D. M.
2017
- **Elucidation of the Stereospecificity of C-Methyltransferases from trans-AT Polyketide Synthases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Xie, X., Khosla, C., Cane, D. E.
2017; 139 (17): 6102-6105
- **Human pyrimidine nucleotide biosynthesis as a target for antiviral chemotherapy.** *Current opinion in biotechnology*
Okesli, A., Khosla, C., Bassik, M. C.
2017; 48: 127-134
- **Heterologous expression of diverse propionyl-CoA carboxylases affects polyketide production in Escherichia coli.** *journal of antibiotics*
Vandova, G. A., O'Brien, R. V., Lowry, B., Robbins, T. F., Fischer, C. R., Davis, R. W., Khosla, C., Harvey, C. J., Hillenmeyer, M. E.
2017
- **Reovirus infection triggers inflammatory responses to dietary antigens and development of celiac disease** *SCIENCE*
Bouziat, R., Hinterleitner, R., Brown, J. J., Stencel-Baerenwald, J. E., Ikizler, M., Mayassi, T., Meisel, M., Kim, S. M., Discepolo, V., Pruijssers, A. J., Ernest, J. D., Iskarpatyoti, J. A., Costes, et al
2017; 356 (6333): 44-?
- **Exploring vectorial chain translocation in assembly line polyketide synthases**
Ostrowski, M., Khosla, C.
AMER CHEMICAL SOC.2017
- **Combinatorial enzymatic synthesis of lipid A analogs**
Sankar, K., Khosla, C.

AMER CHEMICAL SOC.2017

- **Cholestyramine as a promising, strong anion exchange resin for direct capture of genetic biomarkers from raw pancreatic fluids** *BIOTECHNOLOGY AND BIOENGINEERING*
Hilmer, A. J., Jeffrey, R. B., Park, W. G., Khosla, C.
2017; 114 (4): 934-938
- **Mechanism and Stereochemistry of Polyketide Chain Elongation and Methyl Group Epimerization in Polyether Biosynthesis.** *Journal of the American Chemical Society*
Xie, X., Garg, A., Khosla, C., Cane, D. E.
2017; 139 (8): 3283-3292
- **Thioredoxin-1 Selectively Activates Transglutaminase 2 in the Extracellular Matrix of the Small Intestine: IMPLICATIONS FOR CELIAC DISEASE.** *journal of biological chemistry*
Plugis, N. M., Palanski, B. A., Weng, C., Albertelli, M., Khosla, C.
2017; 292 (5): 2000-2008
- **Elucidation of the Cryptic Methyl Group Epimerase Activity of Dehydratase Domains from Modular Polyketide Synthases Using a Tandem Modules Epimerase Assay.** *Journal of the American Chemical Society*
Xie, X. n., Garg, A. n., Khosla, C. n., Cane, D. E.
2017; 139 (28): 9507-10
- **Intracellular TG2 Activity Increases Microtubule Stability but is not Sufficient to Prompt Neurite Growth.** *Neuroscience bulletin*
Guo, S. n., Palanski, B. A., Kloeck, C. n., Khosla, C. n., Cui, B. n.
2017; 33 (1): 103-6
- **Genetic Mapping and Biochemical Basis of Yellow Feather Pigmentation in Budgerigars.** *Cell*
Cooke, T. F., Fischer, C. R., Wu, P. n., Jiang, T. X., Xie, K. T., Kuo, J. n., Doctorov, E. n., Zehnder, A. n., Khosla, C. n., Chuong, C. M., Bustamante, C. D.
2017; 171 (2): 427-39.e21
- **Celiac Disease: Lessons for and from Chemical Biology.** *ACS chemical biology*
Khosla, C. n.
2017; 12 (6): 1455-59
- **Cholestyramine as a promising, strong anion exchange resin for direct capture of genetic biomarkers from raw pancreatic fluids.** *Biotechnology and bioengineering*
Hilmer, A. J., Jeffrey, R. B., Park, W. G., Khosla, C.
2016
- **Partial In Vitro Reconstitution of an Orphan Polyketide Synthase Associated with Clinical Cases of Nocardiosis.** *ACS chemical biology*
Kuo, J., Lynch, S. R., Liu, C. W., Xiao, X., Khosla, C.
2016; 11 (9): 2636-2641
- **Roles of Conserved Active Site Residues in the Ketosynthase Domain of an Assembly Line Polyketide Synthase.** *Biochemistry*
Robbins, T., Kapilivsky, J., Cane, D. E., Khosla, C.
2016; 55 (32): 4476-4484
- **Protein-Protein Interactions, Not Substrate Recognition, Dominate the Turnover of Chimeric Assembly Line Polyketide Synthases.** *journal of biological chemistry*
Klaus, M., Ostrowski, M. P., Austerjost, J., Robbins, T., Lowry, B., Cane, D. E., Khosla, C.
2016; 291 (31): 16404-16415
- **Recognition of acyl carrier proteins by ketoreductases in assembly line polyketide synthases.** *journal of antibiotics*
Ostrowski, M. P., Cane, D. E., Khosla, C.
2016; 69 (7): 507-510
- **Structure and mechanism of assembly line polyketide synthases.** *Current opinion in structural biology*
Robbins, T., Liu, Y., Cane, D. E., Khosla, C.
2016; 41: 10-18
- **Editorial overview: Next-generation therapeutics: Breaking new ground and making a difference for patients** *CURRENT OPINION IN CHEMICAL BIOLOGY*

- Khosla, C., Baryza, J.
2016; 32: 58-59
- **Parallel shRNA and CRISPR-Cas9 screens enable antiviral drug target identification** *NATURE CHEMICAL BIOLOGY*
Deans, R. M., Morgens, D. W., Okesli, A., Pillay, S., Horlbeck, M. A., Kampmann, M., Gilbert, L. A., Li, A., Mateo, R., Smith, M., Glenn, J. S., Carette, J. E., Khosla, et al
2016; 12 (5): 361-?
 - **Epimerase and Reductase Activities of Polyketide Synthase Ketoreductase Domains Utilize the Same Conserved Tyrosine and Serine Residues.** *Biochemistry*
Xie, X., Garg, A., Keatinge-Clay, A. T., Khosla, C., Cane, D. E.
2016; 55 (8): 1179-1186
 - **A Turnstile Mechanism for the Controlled Growth of Biosynthetic Intermediates on Assembly Line Polyketide Synthases.** *ACS central science*
Lowry, B., Li, X., Robbins, T., Cane, D. E., Khosla, C.
2016; 2 (1): 14-20
 - **Thiol-Disulfide Exchange Reactions in the Mammalian Extracellular Environment** *ANNUAL REVIEW OF CHEMICAL AND BIOMOLECULAR ENGINEERING, VOL 7*
Yi, M. C., Khosla, C.
2016; 7: 197-222
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