



Chaitan Khosla

Director, ChEM-H, Wells H. Rauser and Harold M. Petiprin Professor in the School of Engineering and Professor of Chemistry and, by courtesy, of Biochemistry
Chemical Engineering

CONTACT INFORMATION

- **Administrative Contact**

Susan Haskins

Email shaskins@stanford.edu

Tel (650) 723-0640

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.

Recently, we initiated a collaborative program involving multiple Stanford laboratories (<http://med.stanford.edu/virx.html.html>) that is aimed at developing a fundamentally new approach to treating viral infections. As part of this initiative, we are developing an antiviral chemotherapy that modulates pyrimidine metabolism in the host, and also a platform to engineer immuno-modulatory glycolipids for the treatment of influenza.

ACADEMIC APPOINTMENTS

- Professor, Chemical Engineering
- Professor, Chemistry
- Professor (By courtesy), Biochemistry
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Director, Stanford ChEM-H

- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- 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

- Board Member, Protagonist Pharmaceuticals (2014 - present)
- Scientific Policy Committee Member, SLAC National Accelerator Laboratory (2014 - present)
- Consultant, Sitari Pharmaceuticals (2013 - present)

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.

Recently, we initiated a collaborative program involving multiple Stanford laboratories (<http://med.stanford.edu/virx.html.html>) that is aimed at developing a fundamentally new approach to treating viral infections. As part of this initiative, we are developing an antiviral chemotherapy that modulates pyrimidine metabolism in the host, and also a platform to engineer immuno-modulatory glycolipids for the treatment of influenza.

Teaching

COURSES

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)

2017-18

- Introduction to Chemical Engineering: CHEMENG 20, ENGR 20 (Spr)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)
- The Chemical Principles of Life I: CHEM 141 (Win)
- The Chemical Principles of Life II: CHEM 143 (Spr)

2016-17

- Introduction to Chemical Engineering: CHEMENG 20, ENGR 20 (Spr)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)
- The Chemical Principles of Life I: CHEM 141 (Win)
- The Chemical Principles of Life II: CHEM 143 (Spr)

2015-16

- Biochemistry I: BIO 188, CHEM 181, CHEMENG 181, CHEMENG 281 (Aut)
- Introduction to Chemical Engineering: CHEMENG 20 (Spr)
- Special Topics in Biocatalysis: CHEMENG 503 (Aut, Win, Spr, Sum)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Nancy Benner, Jacqueline Carozza, Corleone Delaveris, Anna Elleman, Shuo Han, Tim Horton, Niraj Sunil Mehta, Matthew Romei, Gergana Vandova, Payton Weidenbacher

Postdoctoral Faculty Sponsor

Dillon Cogan, Robert Lesniak, Qi Liu, Aleks Nivina, Kai Yuet

Doctoral Dissertation Advisor (AC)

Thomas Privalsky

Doctoral Dissertation Co-Advisor (AC)

Kaustabh Basu

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

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

Publications

PUBLICATIONS

- **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
- **In Vitro Reconstitution of Metabolic Pathways: Insights into Nature's Chemical Logic.** *Synlett : accounts and rapid communications in synthetic organic chemistry*
Lowry, B., Walsh, C. T., Khosla, C.
; 26 (8): 1008–25
- **Engineering of Chimeric Polyketide Synthases Using SYNZIP Docking Domains** *ACS CHEMICAL BIOLOGY*
Klaus, M., D'Souza, A. D., Nivina, A., Khosla, C., Grinninger, 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., Grinninger, M.
2019
- **From Active Sites to Machines: A Challenge for Enzyme Chemists** *ISRAEL JOURNAL OF CHEMISTRY*
Khosla, C.
2019; 59 (1-2): 37–40
- **In Vivo Measurement of Redox-Regulated TG2 Activity.** *Methods in molecular biology (Clifton, N.J.)*
Melkonian, A. V., Weng, N., Palanski, B. A., Khosla, C.
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., Sevillano, 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
- **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., Sevillano, 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., Uevirojnangkoon, 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., Stencl-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-?
 - **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., Garg, A., Khosla, C., 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., Palanski, B. A., Kloeck, C., Khosla, C., Cui, B.
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., Jiang, T. X., Xie, K. T., Kuo, J., Doctorov, E., Zehnder, A., Khosla, C., 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.
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
- **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
- **Gluten Introduction, Breastfeeding, and Celiac Disease: Back to the Drawing Board.** *American journal of gastroenterology*
Lebwohl, B., Murray, J. A., Verdú, E. F., Crowe, S. E., Dennis, M., Fasano, A., Green, P. H., Guandalini, S., Khosla, C.
2016; 111 (1): 12-14
- **An unprecedented dual antagonist and agonist of human Transglutaminase 2.** *Bioorganic & medicinal chemistry letters*
Yi, M. C., Palanski, B. A., Quintero, S. A., Plugis, N. M., Khosla, C.
2015; 25 (21): 4922-4926
- **Quo vadis, enzymology?** *NATURE CHEMICAL BIOLOGY*
Khosla, C.
2015; 11 (7): 438-441
- **Therapeutic approaches for celiac disease** *BEST PRACTICE & RESEARCH IN CLINICAL GASTROENTEROLOGY*
Plugis, N. M., Khosla, C.
2015; 29 (3): 503-521
- **Therapeutic approaches for celiac disease.** *Best practice & research. Clinical gastroenterology*
Plugis, N. M., Khosla, C.
2015; 29 (3): 503-521
- **In Vitro Reconstitution of Metabolic Pathways: Insights into Nature's Chemical Logic** *SYNLETT*
Lowry, B., Walsh, C. T., Khosla, C.
2015; 26 (8): 1008-1025
- **Discovery of Potent and Specific Dihydroisoxazole Inhibitors of Human Transglutaminase 2** *JOURNAL OF MEDICINAL CHEMISTRY*
Kloock, C., Herrera, Z., Albertelli, M., Khosla, C.
2014; 57 (21): 9042-9064
- **Discovery of potent and specific dihydroisoxazole inhibitors of human transglutaminase 2.** *Journal of medicinal chemistry*
Klöck, C., Herrera, Z., Albertelli, M., Khosla, C.
2014; 57 (21): 9042-9064
- **Role of hypoxia-induced transglutaminase 2 in pulmonary artery smooth muscle cell proliferation** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Penumatsa, K. C., Toksoz, D., Warburton, R. R., Hilmer, A. J., Liu, T., Khosla, C., Comhair, S. A., Fanburg, B. L.
2014; 307 (7): L576-L585
- **Role of hypoxia-induced transglutaminase 2 in pulmonary artery smooth muscle cell proliferation.** *American journal of physiology. Lung cellular and molecular physiology*
Penumatsa, K. C., Toksoz, D., Warburton, R. R., Hilmer, A. J., Liu, T., Khosla, C., Comhair, S. A., Fanburg, B. L.
2014; 307 (7): L576-85
- **Generation of food-grade recombinant Lactobacillus casei delivering Myxococcus xanthus prolyl endopeptidase** *APPLIED MICROBIOLOGY AND BIOTECHNOLOGY*
Alvarez-Sieiro, P., Cruz Martin, M., Redruello, B., del Rio, B., Ladero, V., Palanski, B. A., Khosla, C., Fernandez, M., Alvarez, M. A.
2014; 98 (15): 6689-6700
- **Generation of food-grade recombinant Lactobacillus casei delivering Myxococcus xanthus prolyl endopeptidase.** *Applied microbiology and biotechnology*
Alvarez-Sieiro, P., Martin, M. C., Redruello, B., del Rio, B., Ladero, V., Palanski, B. A., Khosla, C., Fernandez, M., Alvarez, M. A.
2014; 98 (15): 6689-6700
- **Elucidation of the Cryptic Epimerase Activity of Redox-Inactive Ketoreductase Domains from Modular Polyketide Synthases by Tandem Equilibrium Isotope Exchange** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Garg, A., Xie, X., Keatinge-Clay, A., Khosla, C., Cane, D. E.

2014; 136 (29): 10190-10193

- **Comparative Analysis of the Substrate Specificity of trans- versus cis-Acyltransferases of Assembly Line Polyketide Synthases** *BIOCHEMISTRY*
Dunn, B. J., Watts, K. R., Robbins, T., Cane, D. E., Khosla, C.
2014; 53 (23): 3796-3806
- **Comparative analysis of the substrate specificity of trans- versus cis-acyltransferases of assembly line polyketide synthases.** *Biochemistry*
Dunn, B. J., Watts, K. R., Robbins, T., Cane, D. E., Khosla, C.
2014; 53 (23): 3796-3806
- **Use of transmission electron microscopy to identify nanocrystals of challenging protein targets** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Stevenson, H. P., Makhov, A. M., Calero, M., Edwards, A. L., Zeldin, O. B., Mathews, I. I., Lin, G., Barnes, C. O., Santamaria, H., Ross, T. M., Soltis, S. M., Khosla, C., Nagarajan, et al
2014; 111 (23): 8470-8475
- **Dihydroisoxazole inhibitors of Anopheles gambiae seminal transglutaminase AgTG3** *MALARIA JOURNAL*
Le, B. V., Kloeck, C., Schatz, A., Nguyen, J. B., Kakani, E. G., Catteruccia, F., Khosla, C., Baxter, R. H.
2014; 13
- **Architectures of Whole-Module and Bimodular Proteins from the 6-Deoxyerythronolide B Synthase** *JOURNAL OF MOLECULAR BIOLOGY*
Edwards, A. L., Matsui, T., Weiss, T. M., Khosla, C.
2014; 426 (11): 2229-2245
- **Assembly line polyketide synthases: mechanistic insights and unsolved problems.** *Biochemistry*
Khosla, C., Herschlag, D., Cane, D. E., Walsh, C. T.
2014; 53 (18): 2875-2883
- **The initiation ketosynthase (FabH) is the sole rate-limiting enzyme of the fatty acid synthase of Synechococcus sp. PCC 7002.** *Metabolic engineering*
Kuo, J., Khosla, C.
2014; 22: 53-59
- **Rationale for Using Social Media to Collect Patient-Reported Outcomes in Patients with Celiac Disease.** *Journal of gastrointestinal & digestive system*
Park, K., Harris, M., Khavari, N., Khosla, C.
2014; 4 (1)
- **Computational identification and analysis of orphan assembly-line polyketide synthases** *JOURNAL OF ANTIBIOTICS*
O'Brien, R. V., Davis, R. W., Khosla, C., Hillenmeyer, M. E.
2014; 67 (1): 89-97
- **Elevated Transglutaminase 2 Activity Is Associated with Hypoxia-Induced Experimental Pulmonary Hypertension in Mice** *ACS CHEMICAL BIOLOGY*
DiRaimondo, T. R., Kloeck, C., Warburton, R., Herrera, Z., Penumatsa, K., Toksoz, D., Hill, N., Khosla, C., Fanburg, B.
2014; 9 (1): 266-275
- **Dihydroisoxazole inhibitors of Anopheles gambiae seminal transglutaminase AgTG3.** *Malaria journal*
Le, B. V., Klöck, C., Schatz, A., Nguyen, J. B., Kakani, E. G., Catteruccia, F., Khosla, C., Baxter, R. H.
2014; 13: 210-?
- **Metabolic Flux between Unsaturated and Saturated Fatty Acids Is Controlled by the FabA:FabB Ratio in the Fully Reconstituted Fatty Acid Biosynthetic Pathway of Escherichia coli** *BIOCHEMISTRY*
Xiao, X., Yu, X., Khosla, C.
2013; 52 (46): 8304-8312
- **In vitro reconstitution and analysis of the 6-deoxyerythronolide B synthase.** *Journal of the American Chemical Society*
Lowry, B., Robbins, T., Weng, C., O'Brien, R. V., Cane, D. E., Khosla, C.
2013; 135 (45): 16809-16812
- **Coupled Methyl Group Epimerization and Reduction by Polyketide Synthase Ketoreductase Domains. Ketoreductase-Catalyzed Equilibrium Isotope Exchange** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Garg, A., Khosla, C., Cane, D. E.
2013; 135 (44): 16324-16327

- **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
- **Expanding the Fluorine Chemistry of Living Systems Using Engineered Polyketide Synthase Pathways** *SCIENCE*
Walker, M. C., Thuronyi, B. W., Charkoudian, L. K., Lowry, B., Khosla, C., Chang, M. C.
2013; 341 (6150): 1089-1094
- **Dietary gluten triggers concomitant activation of CD4(+) and CD8(+) alpha beta T cells and gamma delta T cells in celiac disease** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Han, A., Newell, E. W., Glanville, J., Fernandez-Becker, N., Khosla, C., Chien, Y., Davis, M. M.
2013; 110 (32): 13073-13078
- **Dietary gluten triggers concomitant activation of CD4+ and CD8+ αβ T cells and γδ T cells in celiac disease.** *Proceedings of the National Academy of Sciences of the United States of America*
Han, A., Newell, E. W., Glanville, J., Fernandez-Becker, N., Khosla, C., Chien, Y., Davis, M. M.
2013; 110 (32): 13073-13078
- **CYP3A4-Catalyzed Simvastatin Metabolism as a Non-Invasive Marker of Small Intestinal Health in Celiac Disease.** *American journal of gastroenterology*
Morón, B., Verma, A. K., Das, P., Taavela, J., Dafik, L., DiRaimondo, T. R., Albertelli, M. A., Kraemer, T., Mäki, M., Khosla, C., Rogler, G., Makharia, G. K.
2013; 108 (8): 1344-1351
- **Discovery and Mechanism of Type III Secretion System Inhibitors** *ISRAEL JOURNAL OF CHEMISTRY*
May, A. E., Khosla, C.
2013; 53 (8): 577-587
- **Nonproteinogenic Amino Acid Building Blocks for Nonribosomal Peptide and Hybrid Polyketide Scaffolds** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Walsh, C. T., Brien, R. V., Khosla, C.
2013; 52 (28): 7098-7124
- **Stereochemistry of Reductions Catalyzed by Methyl-Epimerizing Ketoreductase Domains of Polyketide Synthases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
You, Y., Khosla, C., Cane, D. E.
2013; 135 (20): 7406-7409
- **Gluten-sensitive enteropathy coincides with decreased capability of intestinal T cells to secrete IL-17 and IL-22 in a macaque model for celiac disease** *CLINICAL IMMUNOLOGY*
Xu, H., Feely, S. L., Wang, X., Liu, D. X., Borda, J. T., Dufour, J., Li, W., Aye, P. P., Doxiadis, G. G., Khosla, C., Veazey, R. S., Sestak, K.
2013; 147 (1): 40-49
- **Mechanism and Specificity of an Acyltransferase Domain from a Modular Polyketide Synthase** *BIOCHEMISTRY*
Dunn, B. J., Cane, D. E., Khosla, C.
2013; 52 (11): 1839-1841
- **Analysis and Refactoring of the A-74528 Biosynthetic Pathway** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Fitzgerald, J. T., Charkoudian, L. K., Watts, K. R., Khosla, C.
2013; 135 (10): 3752-3755
- **Selective Inhibition of Extracellular Thioredoxin by Asymmetric Disulfides** *JOURNAL OF MEDICINAL CHEMISTRY*
DiRaimondo, T. R., Plugis, N. M., Jin, X., Khosla, C.
2013; 56 (3): 1301-1310
- **Engineering the acyltransferase substrate specificity of assembly line polyketide synthases.** *Journal of the Royal Society, Interface / the Royal Society*
Dunn, B. J., Khosla, C.
2013; 10 (85): 20130297-?
- **Regulation of the activities of the mammalian transglutaminase family of enzymes.** *Protein science*
Klöck, C., Khosla, C.
2012; 21 (12): 1781-1791

- **Regulation of the activities of the mammalian transglutaminase family of enzymes** *PROTEIN SCIENCE*
Kloeck, C., Khosla, C.
2012; 21 (12): 1781-1791
- **Molecular Insights into the Biosynthesis of Guadinomine: A Type III Secretion System Inhibitor** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Holmes, T. C., May, A. E., Zaleta-Rivera, K., Ruby, J. G., Skewes-Cox, P., Fischbach, M. A., DeRisi, J. L., Iwatsuki, M., Omura, S., Khosla, C.
2012; 134 (42): 17797-17806
- **Natural product inhibitors of glucose-6-phosphate translocase** *MEDCHEMCOMM*
Charkoudian, L. K., Farrell, B. P., Khosla, C.
2012; 3 (8): 926-931
- **Precursor Directed Biosynthesis of an Orthogonally Functional Erythromycin Analogue: Selectivity in the Ribosome Macrolide Binding Pocket** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Harvey, C. J., Puglisi, J. D., Pande, V. S., Cane, D. E., Khosla, C.
2012; 134 (29): 12259-12265
- **Role of transglutaminase 2 in celiac disease pathogenesis** *SEMINARS IN IMMUNOPATHOLOGY*
Klock, C., DiRaimondo, T. R., Khosla, C.
2012; 34 (4): 513-522
- **Role of a Conserved Arginine Residue in Linkers between the Ketosynthase and Acyltransferase Domains of Multimodular Polyketide Synthases** *BIOCHEMISTRY*
Yuzawa, S., Kapur, S., Cane, D. E., Khosla, C.
2012; 51 (18): 3708-3710
- **Resolving Multiple Protein-Peptide Binding Events: Implication for HLA-DQ2 Mediated Antigen Presentation in Celiac Disease** *CHEMISTRY-AN ASIAN JOURNAL*
Wang, J., Jin, X., Liu, J., Khosla, C., Xia, J.
2012; 7 (5): 992-999
- **Combinatorial biosynthesis of polyketides - a perspective** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Wong, F. T., Khosla, C.
2012; 16 (1-2): 117-123
- **Interferon-gamma Activates Transglutaminase 2 via a Phosphatidylinositol-3-Kinase-Dependent Pathway: Implications for Celiac Sprue Therapy** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
DiRaimondo, T. R., Kloeck, C., Khosla, C.
2012; 341 (1): 104-114
- **Interferon- γ activates transglutaminase 2 via a phosphatidylinositol-3-kinase-dependent pathway: implications for celiac sprue therapy.** *journal of pharmacology and experimental therapeutics*
DiRaimondo, T. R., Klöck, C., Khosla, C.
2012; 341 (1): 104-114
- **Reprogramming a module of the 6-deoxyerythronolide B synthase for iterative chain elongation** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kapur, S., Lowry, B., Yuzawa, S., Kenthirapalan, S., Chen, A. Y., Cane, D. E., Khosla, C.
2012; 109 (11): 4110-4115
- **Activation and Inhibition of Transglutaminase 2 in Mice** *PLOS ONE*
Dafik, L., Albertelli, M., Stammaes, J., Sollid, L. M., Khosla, C.
2012; 7 (2)
- **ORAL ENZYME THERAPY FOR CELIAC SPRUE** *METHODS IN ENZYMOLOGY, VOL 502: PROTEIN ENGINEERING FOR THERAPEUTICS, PT A*
Bethune, M. T., Khosla, C.
2012; 502: 241-271
- **In vitro and in vivo activity of frenolicin B against Plasmodium falciparum and P berghei** *JOURNAL OF ANTIBIOTICS*
Fitzgerald, J. T., Henrich, P. P., O'Brien, C., Krause, M., Ekland, E. H., Mattheis, C., Sa, J. M., Fidock, D., Khosla, C.

2011; 64 (12): 799-801

- **Engineered biosynthesis of the antiparasitic agent frenolicin B and rationally designed analogs in a heterologous host** *JOURNAL OF ANTIBIOTICS*
Fitzgerald, J. T., Ridley, C. P., Khosla, C.
2011; 64 (12): 759-762
- **In vitro reconstitution and steady-state analysis of the fatty acid synthase from Escherichia coli** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Yu, X., Liu, T., Zhu, F., Khosla, C.
2011; 108 (46): 18643-18648
- **Activation of Extracellular Transglutaminase 2 by Thioredoxin** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Jin, X., Stammaes, J., Klock, C., DiRaimondo, T. R., Sollid, L. M., Khosla, C.
2011; 286 (43): 37866-37873
- **Structural and Biochemical Studies of the Hedamycin Type II Polyketide Ketoreductase (HedKR): Molecular Basis of Stereo- and Regiospecificities** *BIOCHEMISTRY*
Javidpour, P., Das, A., Khosla, C., Shiou-Chuan Tsai, S. C.
2011; 50 (34): 7426-7439
- **Analysis of the Ketosynthase-Chain Length Factor Heterodimer from the Fredericamycin Polyketide Synthase** *CHEMISTRY & BIOLOGY*
Szu, P., Govindarajan, S., Meehan, M. J., Das, A., Don D Nguyen, D. D., Dorrestein, P. C., Minshull, J., Khosla, C.
2011; 18 (8): 1021-1031
- **Structure and Mechanism of the trans-Acting Acyltransferase from the Disorazole Synthase** *BIOCHEMISTRY*
Wong, F. T., Jin, X., Mathews, I. I., Cane, D. E., Khosla, C.
2011; 50 (30): 6539-6548
- **Probing the interactions of an acyl carrier protein domain from the 6-deoxyerythronolide B synthase** *PROTEIN SCIENCE*
Charkoudian, L. K., Liu, C. W., Capone, S., Kapur, S., Cane, D. E., Togni, A., Seebach, D., Khosla, C.
2011; 20 (7): 1244-1255
- **Novel chemo-sensitizing agent, ERW1227B, impairs cellular motility and enhances cell death in glioblastomas** *JOURNAL OF NEURO-ONCOLOGY*
Yuan, L., Holmes, T. C., Watts, R. E., Khosla, C., Broekelmann, T. J., Mecham, R., Zheng, H., Izaguirre, E. W., Rich, K. M.
2011; 103 (2): 207-219
- **Novel therapies for coeliac disease** *JOURNAL OF INTERNAL MEDICINE*
Sollid, L. M., Khosla, C.
2011; 269 (6): 604-613
- **Acylideneoxindoles: a new class of reversible inhibitors of human transglutaminase 2.** *Bioorganic & medicinal chemistry letters*
Klöck, C., Jin, X., Choi, K., Khosla, C., Madrid, P. B., Spencer, A., Raimundo, B. C., Boardman, P., Lanza, G., Griffin, J. H.
2011; 21 (9): 2692-2696
- **Acylideneoxindoles: A new class of reversible inhibitors of human transglutaminase 2** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Kloek, C., Jin, X., Choi, K., Khosla, C., Madrid, P. B., Spencer, A., Raimundo, B. C., Boardman, P., Lanza, G., Griffin, J. H.
2011; 21 (9): 2692-2696
- **Chemistry and Biology of Macrolide Antiparasitic Agents** *JOURNAL OF MEDICINAL CHEMISTRY*
Lee, Y., Choi, J. Y., Fu, H., Harvey, C., Ravindran, S., Roush, W. R., Boothroyd, J. C., Khosla, C.
2011; 54 (8): 2792-2804
- **Dihydroisoxazole Analogs for Labeling and Visualization of Catalytically Active Transglutaminase 2** *CHEMISTRY & BIOLOGY*
Dafik, L., Khosla, C.
2011; 18 (1): 58-66
- **Improved precursor-directed biosynthesis in E. coli via directed evolution** *JOURNAL OF ANTIBIOTICS*
Lee, H. Y., Harvey, C. J., Cane, D. E., Khosla, C.
2011; 64 (1): 59-64

- **Molecular recognition between ketosynthase and acyl carrier protein domains of the 6-deoxyerythronolide B synthase** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kapur, S., Chen, A. Y., Cane, D. E., Khosla, C.
2010; 107 (51): 22066-22071
- **Stereospecificity of the Dehydratase Domain of the Erythromycin Polyketide Synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Valenzano, C. R., You, Y., Garg, A., Keatinge-Clay, A., Khosla, C., Cane, D. E.
2010; 132 (42): 14697-14699
- **A Balancing Act for Taxol Precursor Pathways in E. coli** *SCIENCE*
Liu, T., Khosla, C.
2010; 330 (6000): 44-45
- **In Living Color: Bacterial Pigments as an Untapped Resource in the Classroom and Beyond** *PLOS BIOLOGY*
Charkoudian, L. K., Fitzgerald, J. T., Khosla, C., Champlin, A.
2010; 8 (10)
- **Thematic Minireview Series on Antibacterial Natural Products: New Tricks for Old Dogs** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Khosla, C.
2010; 285 (36): 27499-27499
- **Redox Regulation of Transglutaminase 2 Activity** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Stamnaes, J., Pinkas, D. M., Fleckenstein, B., Khosla, C., Sollid, L. M.
2010; 285 (33): 25402-25409
- **Mechanism and Engineering of Polyketide Chain Initiation in Fredericamycin Biosynthesis** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Das, A., Szu, P., Fitzgerald, J. T., Khosla, C.
2010; 132 (26): 8831-?
- **Cloning, Sequencing, Heterologous Expression, and Mechanistic Analysis of A-74528 Biosynthesis** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Zaleta-Rivera, K., Charkoudian, L. K., Ridley, C. P., Khosla, C.
2010; 132 (26): 9122-9128
- **Quantitative analysis and engineering of fatty acid biosynthesis in E. coli** *METABOLIC ENGINEERING*
Liu, T., Vora, H., Khosla, C.
2010; 12 (4): 378-386
- **Characterization of transglutaminase type II role in dendritic cell differentiation and function** *JOURNAL OF LEUKOCYTE BIOLOGY*
Matic, I., Sacchi, A., Rinaldi, A., Melino, G., Khosla, C., Falasca, L., Piacentini, M.
2010; 88 (1): 181-188
- **Novel aspects of quantitation of immunogenic wheat gluten peptides by liquid chromatography-mass spectrometry/mass spectrometry** *JOURNAL OF CHROMATOGRAPHY A*
Sealey-Voyksner, J. A., Khosla, C., Voyksner, R. D., Jorgenson, J. W.
2010; 1217 (25): 4167-4183
- **Inhibition of Tubulogenesis and of Carcinogen-mediated Signaling in Brain Endothelial Cells Highlight the Antiangiogenic Properties of a Mumbaistatin Analog** *CHEMICAL BIOLOGY & DRUG DESIGN*
Tahanian, E., Lord-Dufour, S., Das, A., Khosla, C., Roy, R., Annabi, B.
2010; 75 (5): 481-488
- **Visualization of Transepithelial Passage of the Immunogenic 33-Residue Peptide from alpha-2 Gliadin in Gluten-Sensitive Macaques** *PLOS ONE*
Mazumdar, K., Alvarez, X., Borda, J. T., Dufour, J., Martin, E., Bethune, M. T., Khosla, C., Sestak, K.
2010; 5 (4)
- **Protein-Protein Recognition between Acyltransferases and Acyl Carrier Proteins in Multimodular Polyketide Synthases** *BIOCHEMISTRY*
Wong, F. T., Chen, A. Y., Cane, D. E., Khosla, C.
2010; 49 (1): 95-102
- **Genetic Engineering of Escherichia coli for Biofuel Production** *ANNUAL REVIEW OF GENETICS, VOL 44*

- Liu, T., Khosla, C.
2010; 44: 53-69
- **The Biochemical Basis for Stereochemical Control in Polyketide Biosynthesis** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Valenzano, C. R., Lawson, R. J., Chen, A. Y., Khosla, C., Cane, D. E.
2009; 131 (51): 18501-18511
 - **In Vivo and In Vitro Analysis of the Hedamycin Polyketide Synthase** *CHEMISTRY & BIOLOGY*
Das, A., Khosla, C.
2009; 16 (11): 1197-1207
 - **Structures and Mechanisms of Polyketide Synthases** *JOURNAL OF ORGANIC CHEMISTRY*
Khosla, C.
2009; 74 (17): 6416-6420
 - **Noninflammatory Gluten Peptide Analogs as Biomarkers for Celiac Sprue** *CHEMISTRY & BIOLOGY*
Bethune, M. T., Crespo-Bosque, M., Bergseng, E., Mazumdar, K., Doyle, L., Sestak, K., Sollid, L. M., Khosla, C.
2009; 16 (8): 868-881
 - **Modular Biocatalysts** *AICHE JOURNAL*
Khosla, C.
2009; 55 (8): 1926-1929
 - **A Food-Grade Enzyme Preparation with Modest Gluten Detoxification Properties** *PLOS ONE*
Ehren, J., Moron, B., Martin, E., Bethune, M. T., Gray, G. M., Khosla, C.
2009; 4 (7)
 - **Interferon-gamma Released by Gluten-Stimulated Celiac Disease-Specific Intestinal T Cells Enhances the Transepithelial Flux of Gluten Peptides** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Bethune, M. T., Siegel, M., Howles-Banerji, S., Khosla, C.
2009; 329 (2): 657-668
 - **Biosynthesis of Aromatic Polyketides in Bacteria** *ACCOUNTS OF CHEMICAL RESEARCH*
Das, A., Khosla, C.
2009; 42 (5): 631-639
 - **Revisiting the modularity of modular polyketide synthases** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Khosla, C., Kapur, S., Cane, D. E.
2009; 13 (2): 135-143
 - **Evidence for Transcriptional Regulation of the Glucose-6-Phosphate Transporter by HIF-1 alpha: Targeting G6PT with Mumbaistatin Analogs in Hypoxic Mesenchymal Stromal Cells** *STEM CELLS*
Lord-Dufour, S., Copland, I. B., Levros, L., Post, M., Das, A., Khosla, C., Galipeau, J., Rassart, E., Annabi, B.
2009; 27 (3): 489-497
 - **THE DIVERSITY OF NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY** *NATO Advanced Study Institute on Biophysics and the Challenges of Emerging Threats*
Liu, C. W., Alekseyev, V. Y., Allwardt, J. R., Bankovich, A. J., Cade-Menun, B. J., Davis, R. W., Du, L., Garcia, K. C., Herschlag, D., Khosla, C., Kraut, D. A., Li, Q., Null, et al
SPRINGER.2009: 65-81
 - **Protein engineering of improved prolyl endopeptidases for celiac sprue therapy** *PROTEIN ENGINEERING DESIGN & SELECTION*
Ehren, J., Govindarajan, S., Moron, B., Minshull, J., Khosla, C.
2008; 21 (12): 699-707
 - **Overproduction of free fatty acids in E. coli: Implications for biodiesel production** *METABOLIC ENGINEERING*
Lu, X., Vora, H., Khosla, C.
2008; 10 (6): 333-339
 - **Tissue transglutaminase 2 expression in meningiomas** *JOURNAL OF NEURO-ONCOLOGY*
Yuan, L., Behdad, A., Siegel, M., Khosla, C., Higashikubo, R., Rich, K. M.

2008; 90 (2): 125-132

- **Stereospecificity of ketoreductase domains 1 and 2 of the tylactone modular polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Castonguay, R., Valenzano, C. R., Chen, A. Y., Keatinge-Clay, A., Khosla, C., Cane, D. E.
2008; 130 (35): 11598-?
- **Biochemistry - Fit for an enzyme** *NATURE*
Kapur, S., Khosla, C.
2008; 454 (7206): 832-833
- **Toward the Assessment of Food Toxicity for Celiac Patients: Characterization of Monoclonal Antibodies to a Main Immunogenic Gluten Peptide** *PLOS ONE*
Moron, B., Bethune, M. T., Comino, I., Manyani, H., Ferragud, M., Lopez, M. C., Cebolla, A., Khosla, C., Sousa, C.
2008; 3 (5)
- **Mechanism based protein crosslinking of domains from the 6-deoxyerythronolide B synthase** *9th Tetrahedron Symposium on Challenges in Organic and Bioorganic Chemistry*
Kapur, S., Worthington, A., Tang, Y., Cane, D. E., Burkart, M. D., Khosla, C.
PERGAMON-ELSEVIER SCIENCE LTD.2008: 3034-38
- **Transepithelial Transport and Enzymatic Detoxification of Gluten in Gluten-Sensitive Rhesus Macaques** *PLOS ONE*
Bethune, M. T., Ribka, E., Khosla, C., Sestak, K.
2008; 3 (3)
- **Extracellular Transglutaminase 2 Is Catalytically Inactive, but Is Transiently Activated upon Tissue Injury** *PLOS ONE*
Siegel, M., Strnad, P., Watts, R. E., Choi, K., Jabri, B., Omary, M. B., Khosla, C.
2008; 3 (3)
- **Evolution of polyketide synthases in bacteria** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Ridley, C. P., Lee, H. Y., Khosla, C.
2008; 105 (12): 4595-4600
- **A Non-Human Primate Model for Gluten Sensitivity** *PLOS ONE*
Bethune, M. T., Borda, J. T., Ribka, E., Liu, M., Phillippi-Falkenstein, K., Jandacek, R. J., Doxiadis, G. G., Gray, G. M., Khosla, C., Sestak, K.
2008; 3 (2)
- **Parallels between pathogens and gluten peptides in celiac sprue** *PLOS PATHOGENS*
Bethune, M. T., Khosla, C.
2008; 4 (2)
- **Transglutaminase 2 undergoes a large conformational change upon activation** *PLOS BIOLOGY*
Pinkas, D. M., Strop, P., Brunger, A. T., Khosla, C.
2007; 5 (12): 2788-2796
- **Stereospecificity of ketoreductase domains of the 6-deoxyerythronolide B synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Castonguay, R., He, W., Chen, A. Y., Khosla, C., Cane, D. E.
2007; 129 (44): 13758-13769
- **Cyclic and dimeric gluten peptide analogues inhibiting DQ2-mediated antigen presentation in celiac disease** *BIOORGANIC & MEDICINAL CHEMISTRY*
Xia, J., Bergseng, E., Fleckenstein, B., Siegel, M., Kim, C., Khosla, C., Sollid, L. M.
2007; 15 (20): 6565-6573
- **Solution structure and proposed domain-domain recognition interface of an acyl carrier protein domain from a modular polyketide synthase** *PROTEIN SCIENCE*
Aleksyev, V. Y., Liu, C. W., Cane, D. E., Puglisi, J. D., Khosla, C.
2007; 16 (10): 2093-2107
- **Structure-based design of alpha-amido aldehyde containing gluten peptide analogues as modulators of HLA-DQ2 and transglutaminase 2** *BIOORGANIC & MEDICINAL CHEMISTRY*
Siegel, M., Xia, J., Khosla, C.
2007; 15 (18): 6253-6261

- **A scaleable manufacturing process for pro-EP-B2, a cysteine protease from barley indicated for Celiac Sprue** *BIOTECHNOLOGY AND BIOENGINEERING*
Vora, H., McIntire, J., Kumar, P., Deshpande, M., Khosla, C.
2007; 98 (1): 177-185
- **Combination enzyme therapy for gastric digestion of dietary gluten in patients with celiac sprue** *GASTROENTEROLOGY*
Gass, J., Bethune, M. T., Siegel, M., Spencer, A., Khosla, C.
2007; 133 (2): 472-480
- **Transglutaminase 2 inhibitors and their therapeutic role in disease states** *PHARMACOLOGY & THERAPEUTICS*
Siegel, M., Khosla, C.
2007; 115 (2): 232-245
- **Structure-activity relationships of semisynthetic mumbaistatin analogs** *BIOORGANIC & MEDICINAL CHEMISTRY*
Lee, T. S., Das, A., Khosla, C.
2007; 15 (15): 5207-5218
- **Structural and mechanistic analysis of protein interactions in module 3 of the 6-deoxyerythronolide B synthase** *CHEMISTRY & BIOLOGY*
Tang, Y., Chen, A. Y., Kim, C., Cane, D. E., Khosla, C.
2007; 14 (8): 931-943
- **Structure-based dissociation of a type I polyketide synthase module** *CHEMISTRY & BIOLOGY*
Chen, A. Y., Cane, D. E., Khosla, C.
2007; 14 (7): 784-792
- **Enhancement of dietary protein digestion by conjugated bile acids** *GASTROENTEROLOGY*
Gass, J., Vora, H., Hofmann, A. F., Gray, G. M., Khosla, C.
2007; 133 (1): 16-23
- **Transglutaminase 2 inhibitor, KCC009, disrupts fibronectin assembly in the extracellular matrix and sensitizes orthotopic glioblastomas to chemotherapy** *ONCOGENE*
Yuan, L., Siegel, M., Choi, K., Khosla, C., Miller, C. R., Jackson, E. N., Pivnicka-Worms, D., Rich, K. M.
2007; 26 (18): 2563-2573
- **Antibiotic production from the ground up** *NATURE BIOTECHNOLOGY*
Katz, L., Khosla, C.
2007; 25 (4): 428-429
- **Transglutaminase 2 regulates mallory body inclusion formation and injury-associated liver enlargement** *GASTROENTEROLOGY*
Strnad, P., Harada, M., Siegel, M., Terkeltaub, R. A., Graham, R. M., Khosla, C., Omary, M. B.
2007; 132 (4): 1515-1526
- **Substrate tolerance of module 6 of the epothilone synthetase** *BIOCHEMISTRY*
Tse, M. L., Watts, R. E., Khosla, C.
2007; 46 (11): 3385-3393
- **Bioassay-Guided evolution of glycosylated macrolide antibiotics in Escherichia coli** *PLOS BIOLOGY*
Lee, H. Y., Khosla, C.
2007; 5 (2): 243-250
- **Synthesis and biological activity of novel pyranopyrones derived from engineered aromatic polyketides** *ACS CHEMICAL BIOLOGY*
Ridley, C. P., Khosla, C.
2007; 2 (2): 104-108
- **Prolyl endopeptidases** *CELLULAR AND MOLECULAR LIFE SCIENCES*
Gass, J., Khosla, C.
2007; 64 (3): 345-355
- **Structure and mechanism of the 6-deoxyerythronolide B synthase** *ANNUAL REVIEW OF BIOCHEMISTRY*
Khosla, C., Tang, Y., Chen, A. Y., Schnarr, N. A., Cane, D. E.
2007; 76: 195-221

- **Structure-activity relationship analysis of the selective inhibition of transglutaminase 2 by dihydroisoxazoles** *JOURNAL OF MEDICINAL CHEMISTRY*
Watts, R. E., Siegel, M., Khosla, C.
2006; 49 (25): 7493-7501
- **Structural and functional studies on SCO1815: A beta-ketoacyl-acyl carrier protein reductase from *Streptomyces coelicolor* A3(2)** *BIOCHEMISTRY*
Tang, Y., Lee, H. Y., Tang, Y., Kim, C., Mathews, I., Khosla, C.
2006; 45 (47): 14085-14093
- **Effect of barley endoprotease EP-B2 on gluten digestion in the intact rat** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Gass, J., Vora, H., Bethune, M. T., Gray, G. M., Khosla, C.
2006; 318 (3): 1178-1186
- **Production of ansamycin polyketide precursors in *Escherichia coli*** *JOURNAL OF ANTIBIOTICS*
Rude, M. A., Khosla, C.
2006; 59 (8): 464-470
- **The 2.7-angstrom crystal structure of a 194-kDa homodimeric fragment of the 6-deoxyerythronolide B synthase** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Tang, Y., Kim, C., Mathews, I. I., Cane, D. E., Khosla, C.
2006; 103 (30): 11124-11129
- **Heterologous expression, purification, refolding, and structural-functional characterization of EP-B2, a self-activating barley cysteine endoprotease** *CHEMISTRY & BIOLOGY*
Bethune, M. T., Strop, P., Tang, Y., Sollid, L. M., Khosla, C.
2006; 13 (6): 637-647
- **Investigating nonribosomal peptide and polyketide biosynthesis by direct detection of intermediates on > 70 kDa polypeptides by using Fourier-transform mass spectrometry** *CHEMBIOCHEM*
Hicks, L. M., Mazur, M., Miller, L. M., Dorrestein, P. C., Schnarr, N. A., Khosla, C., Kelleher, N. L.
2006; 7 (6): 904-907
- **Rational design of combination enzyme therapy for celiac sprue** *CHEMISTRY & BIOLOGY*
Siegel, M., Bethune, M. T., Gass, J., Ehren, J., Xia, J., Johannsen, A., Stuge, T. B., Gray, G. M., Lee, P. P., Khosla, C.
2006; 13 (6): 649-658
- **Pharmacologic transglutaminase inhibition attenuates drug-primed liver hypertrophy but not Mallory body formation** *FEBS LETTERS*
Strnad, P., Siegel, M., Toivola, D. M., Choi, K., Kosek, J. C., Khosla, C., Omary, M. B.
2006; 580 (9): 2351-2357
- **Extender unit and acyl carrier protein specificity of ketosynthase domains of the 6-deoxyerythronolide B synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Chen, A. Y., Schnarr, N. A., Kim, C. Y., Cane, D. E., Khosla, C.
2006; 128 (9): 3067-3074
- **Inhibition of HLA-DQ2-mediated antigen presentation by analogues of a high affinity 33-residue peptide from alpha 2-gliadin** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Xia, J., Siegel, M., Bergseng, E., Sollid, L. M., Khosla, C.
2006; 128 (6): 1859-1867
- **Macrolactonization to 10-deoxymethynolide catalyzed by the recombinant thioesterase of the picromycin/methymycin polyketide synthase** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
He, W. G., Wu, J. Q., Khosla, C., Cane, D. E.
2006; 16 (2): 391-394
- **Trapping transient protein-protein interactions in polyketide biosynthesis** *ACS CHEMICAL BIOLOGY*
Schnarr, N. A., Khosla, C.
2006; 1 (11): 679-680
- **Modular polyketide synthases: Investigating intermodular communication using 6 deoxyerythronolide B synthase module 2** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Moffet, D. A., Khosla, C., Cane, D. E.

2006; 16 (1): 213-216

- **Fermentation, purification, formulation, and pharmacological evaluation of a prolyl endopeptidase from *Myxococcus xanthus*: Implications for Celiac sprue therapy** *BIOTECHNOLOGY AND BIOENGINEERING*
Gass, J., Ehren, J., Strohmeier, G., Isaacs, I., Khosla, C.
2005; 92 (6): 674-684
- **Polyketide double bond biosynthesis. Mechanistic analysis of the dehydratase-containing module 2 of the picromycin/methymycin polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Wu, J. Q., Zaleski, T. J., Valenzano, C., Khosla, C., Cane, D. E.
2005; 127 (49): 17393-17404
- **Orthogonal protein interactions in spore pigment producing and antibiotic producing polyketide synthases** *JOURNAL OF ANTIBIOTICS*
Lee, T. S., Khosla, C., Tang, Y.
2005; 58 (10): 663-666
- **Engineered biosynthesis of aklanonic acid analogues** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Lee, T. S., Khosla, C., Tang, Y.
2005; 127 (35): 12254-12262
- **Analysis of covalently bound polyketide intermediates on 6-deoxyerythronolide B synthase by tandem proteolysis-mass spectrometry** *BIOCHEMISTRY*
Schnarr, N. A., Chen, A. Y., Cane, D. E., Khosla, C.
2005; 44 (35): 11836-11842
- **Identification and analysis of multivalent proteolytically resistant peptides from gluten: Implications for Celiac Sprue** *JOURNAL OF PROTEOME RESEARCH*
Shan, L., Qiao, S. W., Arentz-Hansen, H., Molberg, O., Gray, G. M., Sollid, L. M., Khosla, C.
2005; 4 (5): 1732-1741
- **Tissue transglutaminase 2 inhibition promotes cell death and chemosensitivity in glioblastomas** *MOLECULAR CANCER THERAPEUTICS*
Yuan, L., Choi, K. H., Khosla, C., Zheng, X., Higashikubo, R., Chicoine, M. R., Rich, K. M.
2005; 4 (9): 1293-1302
- **Biological chemistry: Just add chlorine** *NATURE*
Schnarr, N. A., Khosla, C.
2005; 436 (7054): 1094-1095
- **Stereochemical assignment of intermediates in the rifamycin biosynthetic pathway by precursor-directed biosynthesis** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Hartung, I. V., Rude, M. A., Schnarr, N. A., Hunziker, D., Khosla, C.
2005; 127 (32): 11202-11203
- **Effect of pretreatment of food gluten with prolyl endopeptidase on gluten-induced malabsorption in celiac sprue** *CLINICAL GASTROENTEROLOGY AND HEPATOLOGY*
Pyle, G. G., Paaso, B., Anderson, B. E., Allen, D. D., Marti, T., Li, Q., Siegel, M., Khosla, C., Gray, G. M.
2005; 3 (7): 687-694
- **Low-dose gluten challenge in celiac sprue: Malabsorptive and antibody responses** *CLINICAL GASTROENTEROLOGY AND HEPATOLOGY*
Pyle, G. G., Paaso, B., Anderson, B. E., Allen, D., Marti, T., Khosla, C., Gray, G. M.
2005; 3 (7): 679-686
- **Main chain hydrogen bond interactions in the binding of proline-rich gluten peptides to the Celiac disease-associated HLA-DQ2 molecule** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Bergseng, E., Xia, J., Kim, C. Y., Khosla, C., Sollid, L. M.
2005; 280 (23): 21791-21796
- **A new route to designer antibiotics** *SCIENCE*
Khosla, C., Tang, Y.
2005; 308 (5720): 367-368
- **Chemistry and biology of dihydroisoxazole derivatives: Selective inhibitors of human transglutaminase 2** *CHEMISTRY & BIOLOGY*

- Choi, K., Siegel, M., Piper, J. L., Yuan, L., Cho, E., Strnad, P., Omary, B., Rich, K. M., Khosla, C.
2005; 12 (4): 469-475
- **Equilibrium and kinetic analysis of the unusual binding behavior of a highly immunogenic gluten peptide to HLA-DQ2** *BIOCHEMISTRY*
Xia, J., Sollid, L. M., Khosla, C.
2005; 44 (11): 4442-4449
 - **Structural and mechanistic analysis of two prolyl endopeptidases: Role of interdomain dynamics in catalysis and specificity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Shan, L., Mathews, I. I., Khosla, C.
2005; 102 (10): 3599-3604
 - **Future therapeutic options for celiac disease** *NATURE CLINICAL PRACTICE GASTROENTEROLOGY & HEPATOLOGY*
Sollid, L. M., Khosla, C.
2005; 2 (3): 140-147
 - **Tissue transglutaminase-mediated formation and cleavage of histamine-gliadin complexes: Biological effects and implications for celiac disease** *JOURNAL OF IMMUNOLOGY*
Qiao, S. W., Piper, J., Haraldsen, G., Oynebraten, I., Fleckenstein, B., Molberg, O., Khosla, C., Sollid, L. M.
2005; 174 (3): 1657-1663
 - **Chain elongation, macrolactonization, and hydrolysis of natural and reduced hexaketide substrates by the picromycin/methymycin polyketide synthase** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Wu, J. Q., He, W. G., Khosla, C., Cane, D. E.
2005; 44 (46): 7557-7560
 - **Prolyl endopeptidase-mediated destruction of T cell epitopes in whole gluten: Chemical and immunological characterization** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Marti, T., Molberg, O., Li, Q., Gray, G. M., Khosla, C., Sollid, L. M.
2005; 312 (1): 19-26
 - **Biochemical analysis of the substrate specificity of the beta-ketoacyl-acyl carrier protein synthase domain of module 2 of the erythromycin polyketide synthase** *BIOCHEMISTRY*
Wu, J. Q., Kinoshita, K., Khosla, C., Cane, D. E.
2004; 43 (51): 16301-16310
 - **Reconstituting modular activity from separated domains of 6-deoxyerythronolide B synthase** *BIOCHEMISTRY*
Kim, C. Y., Alekseyev, V. Y., Chen, A. Y., Tang, Y. Y., Cane, D. E., Khosla, C.
2004; 43 (44): 13892-13898
 - **Crystal structure of the beta-subunit of Acyl-CoA carboxylase: Structure-based engineering of substrate specificity** *BIOCHEMISTRY*
Diacovich, L., Mitchell, D. L., Pham, H., Gago, G., Melgar, M. M., Khosla, C., Gramajo, H., Tsai, S. C.
2004; 43 (44): 14027-14036
 - **Engineered biosynthesis of polyketides in heterologous hosts** *18th International Symposium on Chemical Reaction Engineering*
Rude, M. A., Khosla, C.
PERGAMON-ELSEVIER SCIENCE LTD.2004: 4693-4701
 - **Comparative biochemical analysis of three bacterial prolyl endopeptidases: implications for coeliac sprue** *BIOCHEMICAL JOURNAL*
Shan, L., Martin, T., Sollid, L. M., Gray, G. M., Khosla, C.
2004; 383: 311-318
 - **Effect of prolyl endopeptidase on digestive-resistant gliadin peptides in vivo** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*
Piper, J. L., Gray, G. M., Khosla, C.
2004; 311 (1): 213-219
 - **An antibiotic factory caught in action** *NATURE STRUCTURAL & MOLECULAR BIOLOGY*
Keatinge-Clay, A., Maltby, D. A., Medzihradzky, K. F., Khosla, C., Stroud, R. M.
2004; 11 (9): 888-893
 - **Exploring the biosynthetic potential of bimodular aromatic polyketide synthases** *TETRAHEDRON*

- Tang, Y., Lee, T. S., Lee, H. Y., Khosla, C.
2004; 60 (35): 7659-7671
- **Reconstitution and characterization of a new desosaminyl transferase, EryCIII, from the erythromycin biosynthetic pathway** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Lee, H. Y., Chung, H. S., Hang, C., Khosla, C., Walsh, C. T., Kahne, D., Walker, S.
2004; 126 (32): 9924-9925
 - **Antigen presentation to celiac lesion-derived T cells of a 33-mer gliadin peptide naturally formed by gastrointestinal digestion** *JOURNAL OF IMMUNOLOGY*
Qiao, S. W., Bergseng, E., Molberg, O., Xia, J., Fleckenstein, B., Khosla, C., Sollid, L. M.
2004; 173 (3): 1757-1762
 - **The acyltransferase homologue from the initiation module of the R1128 polyketide synthase is an acyl-ACP thioesterase that edits acetyl primer units** *BIOCHEMISTRY*
Tang, Y., Koppisch, A. T., Khosla, C.
2004; 43 (29): 9546-9555
 - **Precursor-directed biosynthesis of epothilone in Escherichia coli** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Boddy, C. N., Hotta, K., Tse, M. L., Watts, R. E., Khosla, C.
2004; 126 (24): 7436-7437
 - **Structural basis for HLA-DQ2-mediated presentation of gluten epitopes in celiac disease** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kim, C. Y., Quarsten, H., Bergseng, E., Khosla, C., Sollid, L. M.
2004; 101 (12): 4175-4179
 - **Engineered biosynthesis of regioselectively modified aromatic polyketides using bimodular polyketide synthases.** *PLoS biology*
Tang, Y., Lee, T. S., Khosla, C.
2004; 2 (2): E31-?
 - **Engineered biosynthesis of regioselectively modified aromatic polyketides using bimodular polyketide synthases** *PLOS BIOLOGY*
Tang, Y., Lee, T. S., Khosla, C.
2004; 2 (2): 227-238
 - **Manipulation and analysis of polyketide synthases** *PROTEIN ENGINEERING*
Kumar, P., Khosla, C., Tang, Y.
2004; 388: 269-293
 - **Timeline - Metabolic engineering for drug discovery and development** *NATURE REVIEWS DRUG DISCOVERY*
Khosla, C., Keasling, J. D.
2003; 2 (12): 1019-1025
 - **Crystal structure of an Acyl-ACP dehydrogenase from the FK520 polyketide Biosynthetic pathway: Insights into extender unit biosynthesis** *JOURNAL OF MOLECULAR BIOLOGY*
Watanabe, K., Khosla, C., Stroud, R. M., Tsai, S. C.
2003; 334 (3): 435-444
 - **Enhancing the modularity of the modular polyketide synthases: Transacylation in modular polyketide synthases catalyzed by malonyl-CoA : ACP transacylase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kumar, P., Koppisch, A. T., Cane, D. E., Khosla, C.
2003; 125 (47): 14307-14312
 - **A switch for the transfer of substrate between nonribosomal peptide and polyketide modules of the rifamycin synthetase assembly line** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Admiraal, S. J., Khosla, C., Walsh, C. T.
2003; 125 (45): 13664-13665
 - **Precursor-directed polyketide biosynthesis in Escherichia coli** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Kinoshita, K., Pfeifer, B. A., Khosla, C., Cane, D. E.
2003; 13 (21): 3701-3704

- **Biosynthesis of yersiniabactin, a complex polyketide-nonribosomal peptide, using *Escherichia coli* as a heterologous host** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Pfeifer, B. A., Wang, C. C., Walsh, C. T., Khosla, C.
2003; 69 (11): 6698-6702
- **Understanding substrate specificity of polyketide synthase modules by generating hybrid multimodular synthases** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Watanabe, K., Wang, C. C., Boddy, C. N., Cane, D. E., Khosla, C.
2003; 278 (43): 42020-42026
- **Polyketide chain length control by chain length factor** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Tang, Y., Tsai, S. C., Khosla, C.
2003; 125 (42): 12708-12709
- **Structure-based mutagenesis of the Malonyl-CoA : Acyl carrier protein transacylase from *Streptomyces coelicolor*** *BIOCHEMISTRY*
Koppisch, A. T., Khosla, C.
2003; 42 (37): 11057-11064
- **Engineered biosynthesis of an ansamycin polyketide precursor in *Escherichia coli*** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Watanabe, K., Rude, M. A., Walsh, C. T., Khosla, C.
2003; 100 (17): 9774-9778
- **A specific role of the *Saccharopolyspora erythraea* thioesterase II gene in the function of modular polyketide synthases** *MICROBIOLOGY-SGM*
Hu, Z. H., Pfeifer, B. A., Chao, E., Murli, S., Kealey, J., Carney, J. R., Ashley, G., Khosla, C., Hutchinson, C. R.
2003; 149: 2213-2225
- **Ketosynthases in the initiation and elongation modules of aromatic polyketide synthases have orthogonal acyl carrier protein specificity** *BIOCHEMISTRY*
Tang, Y., Lee, T. S., Kobayashi, S., Khosla, C.
2003; 42 (21): 6588-6595
- **Expression and kinetic analysis of the substrate specificity of modules 5 and 6 of the picromycin/methymycin polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Yin, Y. F., Lu, H. X., Khosla, C., Cane, D. E.
2003; 125 (19): 5671-5676
- **Mechanistic analysis of acyl transferase domain exchange in polyketide synthase modules** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Hans, M., Hornung, A., Dziarnowski, A., Cane, D. E., Khosla, C.
2003; 125 (18): 5366-5374
- **Solution structure and backbone dynamics of the holo form of the frenolicin acyl carrier protein** *BIOCHEMISTRY*
Li, Q., Khosla, C., Puglisi, J. D., Liu, C. W.
2003; 42 (16): 4648-4657
- **Intermodular communication in modular polyketide synthases: Structural and mutational analysis of linker mediated protein-protein recognition** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kumar, P., Li, Q., Cane, D. E., Khosla, C.
2003; 125 (14): 4097-4102
- **Building-block selectivity of polyketide synthases** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Liou, G. F., Khosla, C.
2003; 7 (2): 279-284
- **Epothilone C macrolactonization and hydrolysis are catalyzed by the isolated thioesterase domain of epothilone polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Boddy, C. N., Schneider, T. L., Hotta, K., Walsh, C. T., Khosla, C.
2003; 125 (12): 3428-3429
- **Design, synthesis, and evaluation of gluten peptide analogs as selective inhibitors of human tissue transglutaminase** *CHEMISTRY & BIOLOGY*
Hausch, F., Halttunen, T., Maki, M., Khosla, C.

2003; 10 (3): 225-231

- **Catalysis, specificity, and ACP docking site of *Streptomyces coelicolor* malonyl-CoA : ACP transacylase** *STRUCTURE*
Keatinge-Clay, A. T., Shelat, A. A., Savage, D. F., Tsai, S. C., Miercke, L. J., O'Connell, J. D., Khosla, C., Stroud, R. M.
2003; 11 (2): 147-154
- **Quantitative analysis of loading and extender acyltransferases of modular polyketide synthases** *BIOCHEMISTRY*
Liou, G. F., Lau, J., Cane, D. E., Khosla, C.
2003; 42 (1): 200-207
- **Precursor-directed biosynthesis: Stereospecificity for branched-chain diketides of the beta-ketoacyl-ACP synthase domain 2 of 6-deoxyerythronolide B synthase** *HELVETICA CHIMICA ACTA*
Kinoshita, K., Khosla, C., Cane, D. E.
2003; 86 (12): 3889-3907
- **Circular dichroism and nuclear magnetic resonance spectroscopic analysis of immunogenic gluten peptides and their analogs** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Parrot, I., Huang, P. C., Khosla, C.
2002; 277 (47): 45572-45578
- **Crystal structure of the priming beta-ketosynthase from the R1128 polyketide biosynthetic pathway** *STRUCTURE*
Pan, H., Tsai, S. C., Meadows, E. S., Miercke, L. J., Keatinge-Clay, A. T., O'Connell, J., Khosla, C., Stroud, R. M.
2002; 10 (11): 1559-1568
- **Insights into channel architecture and substrate specificity from crystal structures of two macrocycle-forming thioesterases of modular polyketide synthases** *BIOCHEMISTRY*
Tsai, S. C., Lu, H. X., Cane, D. E., Khosla, C., Stroud, R. M.
2002; 41 (42): 12598-12606
- **Expression, site-directed mutagenesis, and steady state kinetic analysis of the terminal thioesterase domain of the methymycin/picromycin polyketide synthase** *BIOCHEMISTRY*
Lu, H. X., Tsai, S. C., Khosla, C., Cane, D. E.
2002; 41 (42): 12590-12597
- **Intestinal digestive resistance of immunodominant gliadin peptides** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Hausch, F., Shan, L., Santiago, N. A., Gray, G. M., Khosla, C.
2002; 283 (4): G996-G1003
- **Structural basis for gluten intolerance in Celiac sprue** *SCIENCE*
Shan, L., Molberg, O., Parrot, I., Hausch, F., Filiz, F., Gray, G. M., Sollid, L. M., Khosla, C.
2002; 297 (5590): 2275-2279
- **Engineering of molecular and cellular biocatalysts: Selected contributions by James E. Bailey** *BIOTECHNOLOGY AND BIOENGINEERING*
Dordick, J. S., Khosla, C.
2002; 79 (5): 490-495
- **Kinetic and structural analysis of a new group of acyl-CoA carboxylases found in *Streptomyces coelicolor* A3(2)** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Diacovich, L., Peiru, S., Kurth, D., Rodriguez, E., Podesta, F., Khosla, C., Gramajo, H.
2002; 277 (34): 31228-31236
- **Process and metabolic strategies for improved production of *Escherichia coli*-derived 6-deoxyerythronolide B** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Pfeifer, B., Hu, Z. H., Licari, P., Khosla, C.
2002; 68 (7): 3287-3292
- **Biochemistry-engineering interface in biochemical engineering** *AICHE JOURNAL*
Khosla, C.
2002; 48 (7): 1366-1368
- **Metabolic engineering of a methylmalonyl-CoA mutase-epimerase pathway for complex polyketide biosynthesis in *Escherichia coli*** *BIOCHEMISTRY*

- Dayem, L. C., Carney, J. R., Santi, D. V., Pfeifer, B. A., Khosla, C., Kealey, J. T.
2002; 41 (16): 5193-5201
- **The loading and initial elongation modules of rifamycin synthetase collaborate to produce mixed aryl ketide products-1** *BIOCHEMISTRY*
Admiraal, S. J., Khosla, C., Walsh, C. T.
2002; 41 (16): 5313-5324
 - **Quantitative analysis of the relative contributions of donor acyl carrier proteins, acceptor ketosynthases, and linker regions to intermodular transfer of intermediates in hybrid polyketide synthases** *BIOCHEMISTRY*
Wu, N., Cane, D. E., Khosla, C.
2002; 41 (15): 5056-5066
 - **High selectivity of human tissue transglutaminase for immunoactive gliadin peptides: Implications for Celiac Sprue** *BIOCHEMISTRY*
Piper, J. L., Gray, G. M., Khosla, C.
2002; 41 (1): 386-393
 - **Precursor-directed biosynthesis: Biochemical basis of the remarkable selectivity of the erythromycin polyketide synthase toward unsaturated triketides** *CHEMISTRY & BIOLOGY*
Cane, D. E., Kudo, F., Kinoshita, K., Khosla, C.
2002; 9 (1): 131-142
 - **Crystal structure of the macrocycle-forming thioesterase domain of the erythromycin polyketide synthase: Versatility from a unique substrate channel** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Tsai, S. C., Miercke, L. J., Krucinski, J., Gokhale, R., Chen, J. C., Foster, P. G., Cane, D. E., Khosla, C., Stroud, R. M.
2001; 98 (26): 14808-14813
 - **In vitro reconstitution and analysis of the chain initiating enzymes of the R1128 polyketide synthase** *BIOCHEMISTRY*
Meadows, E. S., Khosla, C.
2001; 40 (49): 14855-14861
 - **Malonyl-CoA : ACP transacylase from Streptomyces coelicolor has two alternative catalytically active nucleophiles** *BIOCHEMISTRY*
Dreier, J., Li, Q., Khosla, C.
2001; 40 (41): 12407-12411
 - **Molecular cloning and sequence analysis of the complestatin biosynthetic gene cluster** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Chiu, H. T., Hubbard, B. K., Shah, A. N., Eide, J., Fredenburg, R. A., Walsh, C. T., Khosla, C.
2001; 98 (15): 8548-8553
 - **Assessing the balance between protein-protein interactions and enzyme-substrate interactions in the channeling of intermediates between polyketide synthase modules** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Wu, N., Tsuji, S. Y., Cane, D. E., Khosla, C.
2001; 123 (27): 6465-6474
 - **Enhancing the atom economy of polyketide biosynthetic processes through metabolic engineering** *BIOTECHNOLOGY PROGRESS*
Lombo, F., Pfeifer, B., Leaf, T., Ou, S., Kim, Y. S., Cane, D. E., Licari, P., Khosla, C.
2001; 17 (4): 612-617
 - **Remarkably broad substrate tolerance of Malonyl-CoA synthetase, an enzyme capable of intracellular synthesis of polyketide precursors** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Pohl, N. L., Hans, M., Lee, H. Y., Kim, Y. S., Cane, D. E., Khosla, C.
2001; 123 (24): 5822-5823
 - **Erythromycin biosynthesis. The 4-pro-S hydride of NADPH is utilized for ketoreduction by both module 5 and module 6 of the 6-deoxyerythronolide B synthase** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Yin, Y. F., Gokhale, R., Khosla, C., Cane, D. E.
2001; 11 (12): 1477-1479
 - **The loading module of rifamycin synthetase is an adenylation-thiolation didomain with substrate tolerance for substituted benzoates** *BIOCHEMISTRY*
Admiraal, S. J., Walsh, C. T., Khosla, C.
2001; 40 (20): 6116-6123

- **Intellectual border: Two-way traffic** *CHEMICAL & ENGINEERING NEWS*
Khosla, C.
2001; 79 (13): 149-149
- **Precursor-directed biosynthesis of 16-membered macrolides by the erythromycin polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kinoshita, K., WILLIARD, P. G., Khosla, C., Cane, D. E.
2001; 123 (11): 2495-2502
- **Biosynthesis of complex polyketides in a metabolically engineered strain of E-coli** *SCIENCE*
Pfeifer, B. A., Admiraal, S. J., Gramajo, H., Cane, D. E., Khosla, C.
2001; 291 (5509): 1790-1792
- **Biosynthesis of polyketides in heterologous hosts** *MICROBIOLOGY AND MOLECULAR BIOLOGY REVIEWS*
Pfeifer, B. A., Khosla, C.
2001; 65 (1): 106-?
- **Intermodular communication in polyketide syntheses: Comparing the role of protein-protein interactions to those in other multidomain proteins** *BIOCHEMISTRY*
Tsuji, S. Y., Wu, N., Khosla, C.
2001; 40 (8): 2317-2325
- **Selective protein-protein interactions direct channeling of intermediates between polyketide synthase modules** *BIOCHEMISTRY*
Tsuji, S. Y., Cane, D. E., Khosla, C.
2001; 40 (8): 2326-2331
- **Structure-activity relationships within a family of selectively cytotoxic macrolide natural products** *ORGANIC LETTERS*
Salomon, A. R., Zhang, Y. B., Seto, H., Khosla, C.
2001; 3 (1): 57-59
- **Modular enzymes** *NATURE*
Khosla, C., Harbury, P. B.
2001; 409 (6817): 247-252
- **Apoptolidin, a selective cytotoxic agent, is an inhibitor of F0F1-ATPase** *CHEMISTRY & BIOLOGY*
Salomon, A. R., Voehringer, D. W., Herzenberg, L. A., Khosla, C.
2001; 8 (1): 71-80
- **Process development and metabolic engineering for the overproduction of natural and unnatural polyketides.** *Advances in biochemical engineering/biotechnology*
McDaniel, R., Licari, P., Khosla, C.
2001; 73: 31-52
- **Understanding and exploiting the mechanistic basis for selectivity of polyketide inhibitors of F0F1-ATPase** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Salomon, A. R., Voehringer, D. W., Herzenberg, L. A., Khosla, C.
2000; 97 (26): 14766-14771
- **Natural product biosynthesis: A new interface between enzymology and medicine** *JOURNAL OF ORGANIC CHEMISTRY*
Khosla, C.
2000; 65 (24): 8127-8133
- **Dissecting the chain length specificity in bacterial aromatic polyketide synthases using chimeric genes** *TETRAHEDRON*
Burson, K. K., Khosla, C.
2000; 56 (48): 9401-9408
- **Cloning, nucleotide sequence, and heterologous expression of the biosynthetic gene cluster for R1128, a non-steroidal estrogen receptor antagonist - Insights into an unusual priming mechanism** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Marti, T., Hu, Z. H., Pohl, N. L., Shah, A. N., Khosla, C.
2000; 275 (43): 33443-33448

- **Substrate specificity of the loading didomain of the erythromycin polyketide synthase** *BIOCHEMISTRY*
Lau, J., Cane, D. E., Khosla, C.
2000; 39 (34): 10514-10520
- **Analysis of the molecular recognition features of individual modules derived from the erythromycin polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Wu, N., Kudo, F., Cane, D. E., Khosla, C.
2000; 122 (20): 4847-4852
- **Isolation and characterization of the epothilone biosynthetic gene cluster from *Sorangium cellulosum*** *GENE*
Julien, B., Shah, S., Ziermann, R., Goldman, R., Katz, L., Khosla, C.
2000; 249 (1-2): 153-160
- **Directed transfer of large DNA fragments between *Streptomyces* species** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Hu, Z. H., Hopwood, D. A., Khosla, C.
2000; 66 (5): 2274-2277
- **Studies on the substrate specificity of loading end extender unit acyltransferase domains in the erythromycin polyketide synthase.**
Lau, J., Khosla, C.
AMER CHEMICAL SOC.2000: U158-U158
- **Mechanistic analysis of a type II polyketide synthase. Role of conserved residues in the beta-ketoacyl synthase-chain length factor heterodimer** *BIOCHEMISTRY*
Dreier, J., Khosla, C.
2000; 39 (8): 2088-2095
- **Role of linkers in communication between protein modules** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Gokhale, R. S., Khosla, C.
2000; 4 (1): 22-27
- **Cloning and heterologous expression of the epothilone gene cluster** *SCIENCE*
Tang, L., Shah, S., Chung, L., Carney, J., Katz, L., Khosla, C., Julien, B.
2000; 287 (5453): 640-642
- **Heterologous expression, purification, reconstitution and kinetic analysis of an extended type II polyketide synthase** *CHEMISTRY & BIOLOGY*
Zawada, R. J., Khosla, C.
1999; 6 (9): 607-615
- **A host-vector system for analysis and manipulation of rifamycin polyketide biosynthesis in *Amycolatopsis mediterranei*** *MICROBIOLOGY-SGM*
Hu, Z. H., Hunziker, D., Hutchinson, C. R., Khosla, C.
1999; 145: 2335-2341
- **Kinetic analysis of the actinorhodin aromatic polyketide synthase** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Dreier, J., Shah, A. N., Khosla, C.
1999; 274 (35): 25108-25112
- **Dissecting and exploiting intermodular communication in polyketide synthases** *SCIENCE*
Gokhale, R. S., Tsuji, S. Y., Cane, D. E., Khosla, C.
1999; 284 (5413): 482-485
- **Tolerance and specificity of recombinant 6-methylsalicylic acid synthase.** *Metabolic engineering*
Richardson, M. T., Pohl, N. L., Kealey, J. T., Khosla, C.
1999; 1 (2): 180-187
- **Tolerance and Specificity of Recombinant 6-Methylsalicylic Acid Synthase** *METABOLIC ENGINEERING*
Richardson, M. T., Pohl, N. L., Kealey, J. T., Khosla, C.
1999; 1 (2): 180-187
- **Dissecting the role of acyltransferase domains of modular polyketide synthases in the choice and stereochemical fate of extender units** *BIOCHEMISTRY*
Lau, J., Fu, H., Cane, D. E., Khosla, C.

1999; 38 (5): 1643-1651

- **Mechanism and specificity of the terminal thioesterase domain from the erythromycin polyketide synthase** *CHEMISTRY & BIOLOGY*
Gokhale, R. S., Hunziker, D., Cane, D. E., Khosla, C.
1999; 6 (2): 117-125
- **Precursor directed biosynthesis of novel 6-deoxyerythronolide B analogs containing non-natural oxygen substituents and reactive functionalities** *TETRAHEDRON LETTERS*
Hunziker, D., Wu, N., Kenoshita, K., Cane, D. E., Khosla, C.
1999; 40 (4): 635-638
- **Tolerance and specificity of polyketide synthases** *ANNUAL REVIEW OF BIOCHEMISTRY*
Khosla, C., Gokhale, R. S., Jacobsen, J. R., Cane, D. E.
1999; 68: 219-253
- **Synthesis and incorporation of an N-acetylcysteamine analogue of methylmalonyl-CoA by a modular polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Pohl, N. L., Gokhale, R. S., Cane, D. E., Khosla, C.
1998; 120 (43): 11206-11207
- **Biochemistry - Harnessing the biosynthetic code: Combinations, permutations, and mutations** *SCIENCE*
Cane, D. E., Walsh, C. T., Khosla, C.
1998; 282 (5386): 63-68
- **Dissecting the evolutionary relationship between 14-membered and 16-membered macrolides** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Jacobsen, J. R., Cane, D. E., Khosla, C.
1998; 120 (35): 9096-9097
- **Dissecting and manipulating substrate specificity of the acyltransferase domains of modular polyketide synthases.**
Lau, J., Khosla, C.
AMER CHEMICAL SOC.1998: U252-U252
- **Engineered biosynthesis of novel polyketides from Streptomyces spore pigment polyketide synthases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Yu, T. W., Shen, Y. M., McDaniel, R., Floss, H. G., Khosla, C., Hopwood, D. A., Moore, B. S.
1998; 120 (31): 7749-7759
- **Precursor-directed biosynthesis of 12-ethyl erythromycin** *BIOORGANIC & MEDICINAL CHEMISTRY*
Jacobsen, J. R., Keatinge-Clay, A. T., Cane, D. E., Khosla, C.
1998; 6 (8): 1171-1177
- **Erythromycin biosynthesis: The beta-ketoreductase domains catalyze the stereospecific transfer of the 4-pro-S hydride of NADPH** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McPherson, M., Khosla, C., Cane, D. E.
1998; 120 (13): 3267-3268
- **Spontaneous priming of a downstream module in 6-deoxyerythronolide B synthase leads to polyketide biosynthesis** *BIOCHEMISTRY*
Jacobsen, J. R., Cane, D. E., Khosla, C.
1998; 37 (14): 4928-4934
- **Alcohol stereochemistry in polyketide backbones is controlled by the beta-ketoreductase domains of modular polyketide synthases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kao, C. M., McPherson, M., McDaniel, R. N., Fu, H., Cane, D. E., Khosla, C.
1998; 120 (10): 2478-2479
- **Functional orientation of the acyltransferase domain in a module of the erythromycin polyketide synthase** *BIOCHEMISTRY*
Gokhale, R. S., Lau, J., Cane, D. E., Khosla, C.
1998; 37 (8): 2524-2528
- **Purification and in vitro reconstitution of the essential protein components of an aromatic polyketide synthase** *BIOCHEMISTRY*
Carreras, C. W., Khosla, C.
1998; 37 (8): 2084-2088

- **Primer unit specificity in rifamycin biosynthesis principally resides in the later stages of the biosynthetic pathways** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Hunziker, D., Yu, T. W., Hutchinson, C. R., Floss, H. G., Khosla, C.
1998; 120 (5): 1092-1093
- **New directions in metabolic engineering** *CURRENT OPINION IN CHEMICAL BIOLOGY*
Jacobsen, J. R., Khosla, C.
1998; 2 (1): 133-137
- **Gain of function mutagenesis of the erythromycin polyketide synthase .2. Engineered biosynthesis of eight-membered ring tetraketide lactone** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kao, C. M., McPherson, M., McDaniel, R. N., Fu, H., Cane, D. E., Khosla, C.
1997; 119 (46): 11339-11340
- **Molecular recognition of diketide substrates by a beta-ketoacyl-acyl carrier protein synthase domain within a bimodular polyketide synthase** *CHEMISTRY & BIOLOGY*
Chuck, J. A., McPherson, M., Huang, H., Jacobsen, J. R., Khosla, C., Cane, D. E.
1997; 4 (10): 757-766
- **Utilization of enzymatically phosphopantetheinylated acyl carrier proteins and acetyl-acyl carrier proteins by the actinorhodin polyketide synthase** *BIOCHEMISTRY*
Carreras, C. W., Gehring, A. M., Walsh, C. T., Khosla, C.
1997; 36 (39): 11757-11761
- **Engineered intermodular and intramodular polyketide synthase fusions** *CHEMISTRY & BIOLOGY*
McDaniel, R., Kao, C. M., Hwang, S. J., Khosla, C.
1997; 4 (9): 667-674
- **Precursor-directed biosynthesis of erythromycin analogs by an engineered polyketide synthase** *SCIENCE*
Jacobsen, J. R., Hutchinson, C. R., Cane, D. E., Khosla, C.
1997; 277 (5324): 367-369
- **Domain analysis of the molecular recognition features of aromatic polyketide synthase subunits** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Zawada, R. J., Khosla, C.
1997; 272 (26): 16184-16188
- **Gain-of-function mutagenesis of a modular polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McDaniel, R., Kao, C. M., Fu, H., Hevezi, P., Gustafsson, C., Betlach, M., Ashley, G., Cane, D. E., Khosla, C.
1997; 119 (18): 4309-4310
- **Structure, function and engineering of modular polyketide synthases**
Kao, C. M., Luo, G., Pieper, R., Cane, D. E., Khosla, C.
AMER CHEMICAL SOC.1997: 77-BIOT
- **Purification and characterization of bimodular and trimodular derivatives of the erythromycin polyketide synthase** *BIOCHEMISTRY*
Pieper, R., Gokhale, R. S., Luo, G. L., Cane, D. E., Khosla, C.
1997; 36 (7): 1846-1851
- **Rational design and engineered biosynthesis of a novel 18-carbon aromatic polyketide** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kramer, P. J., Zawada, R. J., McDaniel, R., Hutchinson, C. R., Hopwood, D. A., Khosla, C.
1997; 119 (4): 635-639
- **Harnessing the Biosynthetic Potential of Modular Polyketide Synthases.** *Chemical reviews*
Khosla, C.
1997; 97 (7): 2577-90
- **The chemistry and biology of fatty acid, polyketide, and nonribosomal peptide biosynthesis** *BIOORGANIC CHEMISTRY DEOXSUGARS, POLYKETIDES AND RELATED CLASSES: SYNTHESIS, BIOSYNTHESIS, ENZYMES*
Carreras, C. W., Pieper, R., Khosla, C.
1997; 188: 85-126

- **6-deoxyerythronolide B synthase 1 is specifically acylated by a diketide intermediate at the beta-ketoacyl-acyl carrier protein synthase domain of module 2** *BIOCHEMISTRY*
Tsukamoto, N., Chuck, J. A., Luo, G. L., Kao, C. M., Khosla, C., Cane, D. E.
1996; 35 (48): 15244-15248
- **A new enzyme superfamily - The phosphopantetheinyl transferases** *CHEMISTRY & BIOLOGY*
Lambolot, R. H., Gehring, A. M., Flugel, R. S., Zuber, P., LaCelle, M., Marahiel, M. A., Reid, R., Khosla, C., Walsh, C. T.
1996; 3 (11): 923-936
- **Evolutionally guided enzyme design** *Biochemical Engineering IX - Interdisciplinary Foundations for Creating New Biotechnology*
Khosla, C., Caren, R., Kao, C. M., McDaniel, R., Wang, S. W.
JOHN WILEY & SONS INC.1996: 122-28
- **A functional chimeric modular polyketide synthase generated via domain replacement** *CHEMISTRY & BIOLOGY*
Bedford, D., Jacobsen, J. R., Luo, G. L., Cane, D. E., Khosla, C.
1996; 3 (10): 827-831
- **Specificity and versatility in erythromycin biosynthesis** *CHEMICAL SOCIETY REVIEWS*
Pieper, R., Kao, C., Khosla, C., Luo, G. L., Cane, D. E.
1996; 25 (5): 297-?
- **Engineered biosynthesis of structurally diverse tetraketides by a trimodular polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kao, C. M., Luo, G. L., Katz, L., Cane, D. E., Khosla, C.
1996; 118 (38): 9184-9185
- **Evidence for two catalytically independent clusters of active sites in a functional modular polyketide synthase** *BIOCHEMISTRY*
Kao, C. M., Pieper, R., Cane, D. E., Khosla, C.
1996; 35 (38): 12363-12368
- **Generation of polyketide libraries via combinatorial biosynthesis** *TRENDS IN BIOTECHNOLOGY*
Khosla, C., Zawada, R. J.
1996; 14 (9): 335-341
- **Erythromycin biosynthesis: Exploiting the catalytic versatility of the modular polyketide synthase** *BIOORGANIC & MEDICINAL CHEMISTRY*
Luo, G. L., Pieper, R., Rosa, A., Khosla, C., Cane, D. E.
1996; 4 (7): 995-999
- **Efficient synthesis of aromatic polyketides in vitro by the actinorhodin polyketide synthase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Carreras, C. W., Pieper, R., Khosla, C.
1996; 118 (21): 5158-5159
- **Engineered biosynthesis of novel polyketides: Regiospecific methylation of an unnatural substrate by the tcmO O-methyltransferase** *BIOCHEMISTRY*
Fu, H., Alvarez, M. A., Khosla, C., Bailey, J. E.
1996; 35 (21): 6527-6532
- **Combinatorial chemistry and biology: An opportunity for engineers** *CURRENT OPINION IN BIOTECHNOLOGY*
Khosla, C.
1996; 7 (2): 219-222
- **Engineered biosynthesis of novel polyketides: Properties of the whiE aromatase/cyclase** *NATURE BIOTECHNOLOGY*
Alvarez, M. A., Fu, H., Khosla, C., Hopwood, D. A., Bailey, J. E.
1996; 14 (3): 335-338
- **Deciphering the biosynthetic origin of the aglycone of the aureolic acid group of anti-tumor agents** *CHEMISTRY & BIOLOGY*
Blanco, G., Fu, H., Mendez, C., Khosla, C., Salas, J. A.
1996; 3 (3): 193-196
- **Erythromycin biosynthesis: Kinetic studies on a fully active modular polyketide synthase using natural and unnatural substrates** *BIOCHEMISTRY*
Pieper, R., EBERTKHOSLA, S., Cane, D., Khosla, C.
1996; 35 (7): 2054-2060

- **Antibiotic activity of polyketide products derived from combinatorial biosynthesis: Implications for directed evolution** *MOLECULAR DIVERSITY*
Fu, H., Khosla, C.
1996; 1 (2): 121-124
- **Engineering of novel polyketides - Progress and prospects** *13th International Enzyme Engineering Conference*
Kramer, P. J., Khosla, C.
NEW YORK ACAD SCIENCES.1996: 32-45
- **CELL-FREE SYNTHESIS OF POLYKETIDES BY RECOMBINANT ERYTHROMYCIN POLYKETIDE SYNTHASES** *NATURE*
Pieper, R., Luo, G. L., Cane, D. E., Khosla, C.
1995; 378 (6554): 263-266
- **MANIPULATION OF MACROLIDE RING SIZE BY DIRECTED MUTAGENESIS OF A MODULAR POLYKETIDE SYNTHASE** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kao, C. M., Luo, G. L., Katz, L., Cane, D. E., Khosla, C.
1995; 117 (35): 9105-9106
- **EXPRESSION OF A FUNCTIONAL FUNGAL POLYKETIDE SYNTHASE IN THE BACTERIUM STREPTOMYCES-COELICOLOR A3(2)** *JOURNAL OF BACTERIOLOGY*
Bedford, D. J., Schweizer, E., Hopwood, D. A., Khosla, C.
1995; 177 (15): 4544-4548
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - ANALYSIS OF TCMN FUNCTION IN TETRACENOMYCIN BIOSYNTHESIS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McDaniel, R., Hutchinson, C. R., Khosla, C.
1995; 117 (26): 6805-6810
- **ERYTHROMYCIN BIOSYNTHESIS - HIGHLY EFFICIENT INCORPORATION OF POLYKETIDE CHAIN ELONGATION INTERMEDIATES INTO 6-DEOXYERYTHRONOLIDE-B IN AN ENGINEERED STREPTOMYCES HOST** *JOURNAL OF ANTIBIOTICS*
Cane, D. E., Luo, G. G., Khosla, C., Kao, C. M., Katz, L.
1995; 48 (7): 647-651
- **RATIONAL DESIGN OF AROMATIC POLYKETIDE NATURAL-PRODUCTS BY RECOMBINANT ASSEMBLY OF ENZYMATIC SUBUNITS** *NATURE*
McDaniel, R., EBERTKHOSLA, S., Hopwood, D. A., Khosla, C.
1995; 375 (6532): 549-554
- **COMBINATORIAL BIOSYNTHESIS OF UNNATURAL NATURAL-PRODUCTS - THE POLYKETIDE EXAMPLE** *CHEMISTRY & BIOLOGY*
TSOI, C. J., Khosla, C.
1995; 2 (6): 355-362
- **ENGINEERED BIOSYNTHESIS OF A TRIKETIDE LACTONE FROM AN INCOMPLETE MODULAR POLYKETIDE SYNTHASE** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kao, C. M., Luo, G. L., Katz, L., Cane, D. E., Khosla, C.
1994; 116 (25): 11612-11613
- **Engineered biosynthesis of novel polyketides: evidence for temporal, but not regiospecific, control of cyclization of an aromatic polyketide precursor.** *Chemistry & biology*
Fu, H., Hopwood, D. A., Khosla, C.
1994; 1 (4): 205-210
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - ACT(VII) AND ACT(IV) GENES ENCODE AROMATASE AND CYCLASE ENZYMES, RESPECTIVELY** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McDaniel, R., EBERTKHOSLA, S., Hopwood, D. A., Khosla, C.
1994; 116 (24): 10855-10859
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - INFLUENCE OF A DOWNSTREAM ENZYME ON THE CATALYTIC SPECIFICITY OF A MINIMAL AROMATIC POLYKETIDE SYNTHASE** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
McDaniel, R., EBERTKHOSLA, S., Fu, H., Hopwood, D. A., Khosla, C.
1994; 91 (24): 11542-11546

- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - STEREOCHEMICAL COURSE OF 2 REACTIONS CATALYZED BY A POLYKETIDE SYNTHASE** *BIOCHEMISTRY*
Fu, H., McDaniel, R., Hopwood, D. A., Khosla, C.
1994; 33 (31): 9321-9326
- **ENGINEERED BIOSYNTHESIS OF A COMPLETE MACROLACTONE IN A HETEROLOGOUS HOST** *SCIENCE*
Kao, C. M., Katz, L., Khosla, C.
1994; 265 (5171): 509-512
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - DISSECTION OF THE CATALYTIC SPECIFICITY OF THE ACT KETOREDUCTASE** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Fu, H., EBERTKHOSLA, S., Hopwood, D. A., Khosla, C.
1994; 116 (10): 4166-4170
- **EFFICIENT SAMPLING OF PROTEIN-SEQUENCE SPACE FOR MULTIPLE MUTANTS** *BIO-TECHNOLOGY*
Caren, R., Morkeberg, R., Khosla, C.
1994; 12 (5): 517-520
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES - MANIPULATION AND ANALYSIS OF AN AROMATIC POLYKETIDE SYNTHASE WITH UNPROVED CATALYTIC SPECIFICITIES** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McDaniel, R., EBERTKHOSLA, S., Hopwood, D. A., Khosla, C.
1993; 115 (25): 11671-11675
- **ENGINEERED BIOSYNTHESIS OF NOVEL POLYKETIDES** *SCIENCE*
McDaniel, R., EBERTKHOSLA, S., Hopwood, D. A., Khosla, C.
1993; 262 (5139): 1546-1550
- **GENETIC CONSTRUCTION AND FUNCTIONAL-ANALYSIS OF HYBRID POLYKETIDE SYNTHASES CONTAINING HETEROLOGOUS ACYL CARRIER PROTEINS** *JOURNAL OF BACTERIOLOGY*
Khosla, C., McDaniel, R., EBERTKHOSLA, S., Torres, R., Sherman, D. H., Bibb, M. J., Hopwood, D. A.
1993; 175 (8): 2197-2204
- **TARGETED GENE REPLACEMENTS IN A STREPTOMYCES POLYKETIDE SYNTHASE GENE-CLUSTER - ROLE FOR THE ACYL CARRIER PROTEIN** *MOLECULAR MICROBIOLOGY*
Khosla, C., EBERTKHOSLA, S., Hopwood, D. A.
1992; 6 (21): 3237-3249
- **EXPRESSION OF INTRACELLULAR HEMOGLOBIN IMPROVES PROTEIN-SYNTHESIS IN OXYGEN-LIMITED ESCHERICHIA-COLI** *BIO-TECHNOLOGY*
Khosla, C., Curtis, J. E., DeModena, J., Rinas, U., Bailey, J. E.
1990; 8 (9): 849-853
- **EXPRESSION OF RECOMBINANT PROTEINS IN ESCHERICHIA-COLI USING AN OXYGEN-RESPONSIVE PROMOTER** *BIO-TECHNOLOGY*
Khosla, C., Curtis, J. E., BYDALEK, P., Swartz, J. R., Bailey, J. E.
1990; 8 (6): 554-558
- **STRATEGIES AND CHALLENGES IN METABOLIC ENGINEERING** *6TH CONF ON BIOCHEMICAL ENGINEERING*
Bailey, J. E., Birnbaum, S., Galazzo, J. L., Khosla, C., Shanks, J. V.
NEW YORK ACAD SCIENCES.1990: 1-15
- **EVIDENCE FOR PARTIAL EXPORT OF VITREOSCILLA HEMOGLOBIN INTO THE PERIPLASMIC SPACE IN ESCHERICHIA-COLI - IMPLICATIONS FOR PROTEIN FUNCTION** *JOURNAL OF MOLECULAR BIOLOGY*
Khosla, C., Bailey, J. E.
1989; 210 (1): 79-89
- **CHARACTERIZATION OF THE OXYGEN-DEPENDENT PROMOTER OF THE VITREOSCILLA HEMOGLOBIN GENE IN ESCHERICHIA-COLI** *JOURNAL OF BACTERIOLOGY*
Khosla, C., Bailey, J. E.
1989; 171 (11): 5995-6004
- **A NEW OXYGEN-REGULATED PROMOTER FOR THE EXPRESSION OF PROTEINS IN ESCHERICHIA-COLI** *BIOTECHNIQUES*

Hughes, D. E., Curtis, J. E., Khosla, C., Bailey, J. E.
1989; 7 (9): 1026-1028

- **HETEROLOGOUS EXPRESSION OF A BACTERIAL HEMOGLOBIN IMPROVES THE GROWTH-PROPERTIES OF RECOMBINANT ESCHERICHIA-COLI** *NATURE*

Khosla, C., Bailey, J. E.
1988; 331 (6157): 633-635