

# Stanford

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## Camilla Kao

Senior Faculty Administrator, Biochemistry

### Bio

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#### BIO

The oldest of three children of immigrants from Taiwan, Camilla Kao was born in Midland, Michigan, and spent the latter years of her youth in Lake Jackson, Texas. Both towns were sites of the Dow Chemical Company, where her father worked for his entire career before retiring. Cammy and her brothers followed their father's footsteps by studying chemical engineering sequentially in college, the three of them at Rice University. Cammy diverged from the pattern of her family by studying biological topics for her doctoral and postdoctoral research, with Chaitan Khosla (1992 to 1997) and Patrick O. Brown (1997 to 2000), respectively, at Stanford.

The combination of her undergraduate and graduate training in mathematics, physics, chemistry, engineering, and biology, and her professional experience as a Stanford faculty member of chemical engineering between 2000 and 2006, prepared her well for her current position years later as Senior Faculty Administrator in the Department of Biochemistry. In this capacity, Cammy assists the faculty of biochemistry in diverse roles that take advantage of her familiarity with science and with the demands of academia on Stanford faculty.

#### HONORS AND AWARDS

- Amersham Pharmacia Biotech & Science Prize for Young Scientists, Regional Prize for North America, Amersham Pharmacia Biotech and Science Magazine (1998)
- Jay Bailey Young Investigator Award, Metabolic Engineering (2004)
- NSF Career Award, National Science Foundation (2001)
- Damon Runyon-Walter Winchell Postdoctoral Research Fellowship, Damon Runyon Cancer Research Foundation (1997-2000)
- Life Sciences Research Foundation (LSRF) Postdoctoral Fellowship, Life Sciences Research Foundation (1997, declined)
- The American Chemical Society Division of Biotechnology Peterson Award, The American Chemical Society (1997)
- The Gerald J. Lieberman Fellowship, Stanford University (1996-1997)
- The DoD National Defense Science and Engineering Graduate Fellowship, The Department of Defense (1992-1995)

#### EDUCATION AND CERTIFICATIONS

- Ph.D., Stanford University, Chemical Engineering (1997)
- B.S., Magna Cum Laude, Rice University, Chemical Engineering (1992)

#### PATENTS

- C. Khosla, G. Ashley, C. Kao, R. McDaniel. "United States Patent 6,984,515 Macrolide Analogs", Leland Stanford Junior University, Jan 10, 2006
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 6,969,611 Methods to Prepare Cells Comprising Heterologous Polyketide Synthase Expression Systems", Leland Stanford Junior University, Nov 29, 2005
- C. Khosla, R. Pieper, G. Luo, D.E. Cane, C. Kao. "United States Patent 6,710,189 Method to Produce Novel Polyketides", Leland Stanford Junior University, Mar 23, 2004

- C. Khosla, R. Pieper, G. Luo, D.E. Cane, C. Kao. "United States Patent 6,500,960 Method to Produce Novel Polyketides", Leland Stanford Junior University, Dec 31, 2002
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 6,461,838 Recombinant Production of Novel Polyketides", Leland Stanford Junior University, Oct 8, 2002
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, C. Kao. "United States Patent 6,399,382 Recombinant Production of Novel Polyketides", Leland Stanford Junior University, Jun 4, 2002
- C. Khosla, R. Pieper, G. Luo, D.E. Cane, C. Kao. "United States Patent 6,274,560 Cell-free synthesis of polyketides", Leland Stanford Junior University, Aug 14, 2001
- C. Khosla, R. Pieper, G. Luo, D.E. Cane, C. Kao. "United States Patent 6,261,816 Method to Produce Novel Polyketides", Leland Stanford Junior University, Jul 17, 2001
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 6,077,696 Recombinant Production of Novel Polyketides", Leland Stanford Junior University, Jun 20, 2000
- C. Khosla, R. Pieper, G. Luo, D.E. Cane, C. Kao. "United States Patent 6,066,721 Method to Produce Novel Polyketides", Leland Stanford Junior University, May 23, 2000
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 5,962,290 Recombinant Production of Novel Polyketides", Leland Stanford Junior University, Oct 5, 1999
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 5,712,146 Recombinant Combinatorial Genetic Library of Novel Polyketides", Leland Stanford Junior University, Jan 27, 1998
- C. Khosla, D.A. Hopwood, S. Ebert-Khosla, R. McDaniel, H. Fu, C. Kao. "United States Patent 5,672,491 Recombinant Production of Novel Polyketides", Leland Stanford Junior University, Sep 30, 1997

## PERSONAL INTERESTS

Cammy enjoys writing and taking photographs.

## Publications

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### PUBLICATIONS

- **Why is safe science good science?** *Chem. Health Saf.*  
Kao, C. M., Kao, C., Furr, R.  
2018
- **A unifying principle for a researcher learning safety: reduce uncertainty!** *Chem. Health Saf.*  
Kao, C. M., Furr, R.  
2018
- **Spontaneous amplification of the actinorhodin gene cluster in *Streptomyces coelicolor* involving native insertion sequence IS466.** *J. Bacteriol.*  
Widenbrant, E. M., Tsai, H., Chen, C. W., Kao, C. M.  
2008
- **A key developmental regulator controls the synthesis of the antibiotic erythromycin in *Saccharopolyspora erythraea*.** *Proc. Natl. Acad. Sci. U S A.*  
Chng, C., Lum, A. M., Vroom, J. A., Kao, C. M.  
2008
- **Characterization of a large, stable, high-copy-number *Streptomyces* plasmid that requires stability and transfer functions for heterologous polyketide overproduction.** *Appl. Environ. Microbiol.*  
Fong, R., Hu, Z., Hutchinson, C., Huang, J., Cohen, S. N., Kao, C. M.  
2007
- ***Streptomyces coelicolor* undergoes spontaneous chromosomal end replacement.** *J. Bacteriol.*  
Widenbrant, E. M., Tsai, H., Chen, C. W., Kao, C. M.  
2007
- **Introduction of the foreign transposon Tn4560 in *Streptomyces coelicolor* leads to genetic instability near the native insertion sequence IS1649.** *J. Bacteriol.*  
Widenbrant, E. M., Kao, C. M.  
2007

- **Regional organization of gene expression in *Streptomyces coelicolor*.** *Gene*  
Karoonthaisiri, N., Weaver, D., Huang, J., Cohen, S. N., Kao, C. M.  
2005
- **Genome plasticity in *Streptomyces*: Identification of 1 Mb TIRs in the *S. coelicolor* A3(2) chromosome.** *Mol. Microbiol.*  
Weaver, D., Karoonthaisiri, N., Tsai, H., Huang, C., Ho, M., Gai, S., Patel, K. G., Huang, J., Cohen, S. N., Hopwood, D. A., Chen, C. W., Kao, C. M.  
2004
- **Reverse engineering of industrial pharmaceutical-producing actinomycete strains using DNA microarrays.** *Metabolic Engineering*  
Lum, A. M., Huang, J., Hutchinson, C., Kao, C. M.  
2004
- **Genomic expression programs in the response of yeast cells to environmental changes.** *Mol. Biol. Cell*  
Gasch, A. P., Spellman, P. T., Kao, C. M., Carmel-Harel, O., Eisen, M. B., Storz, G., Botstein, D., Brown, P. O.  
2000
- **Alcohol stereochemistry in polyketide backbones is controlled by the #-ketoreductase domains of modular polyketide synthases.** *J. Am. Chem. Soc.*  
Kao, C. M., McPherson, M., McDaniel, R. N., Fu, H., Cane, D. E., Khosla, C.  
1998
- **Gain of function mutagenesis of the erythromycin polyketide synthase. 2. Engineered biosynthesis of an eight-membered ring tetraketide lactone.** *J. Am. Chem. Soc.*  
Kao, C. M., McPherson, M., McDaniel, R. N., Fu, H., Cane, D. E., Khosla, C.  
1997
- **Engineered biosynthesis of structurally diverse tetraketides by a trimodular polyketide synthase.** *J. Am. Chem. Soc.*  
Kao, C. M., Luo, G., Katz, L., Cane, D. E., Khosla, C.  
1996
- **Evidence for two catalytically independent clusters of active sites in a functional modular polyketide synthase.** *Biochem.*  
Kao, C. M., Pieper, R., Cane, D. E., Khosla, C.  
1996
- **Manipulation of macrolide ring size by directed mutagenesis of a modular polyketide synthase.** *J. Am. Chem. Soc.*  
Kao, C. M., Luo, G., Katz, L., Cane, D. E., Khosla, C.  
1995
- **Engineered biosynthesis of a triketide lactone from an incomplete modular polyketide synthase.** *J. Am. Chem. Soc.*  
Kao, C. M., Luo, G., Katz, L., Cane, D. E., Khosla, C.  
1994
- **Engineered biosynthesis of a complete macrolactone in a heterologous host.** *Science*  
Kao, C. M., Katz, L., Khosla, C.  
1994