

Chu-Young Kim

1852 Hawthorne Street
El Paso, Texas 79902
U.S.A.

Tel: (915) 747-6935
Fax: (915) 747-5748
E-mail: ckim7@utep.edu

Professional Positions

Associate Professor	2016–present
Department of Chemistry and Biochemistry, University of Texas at El Paso	
Associate Professor	2015–2016
Department of Biological Sciences, National University of Singapore	
Assistant Professor	2006–2015
Department of Biological Sciences, National University of Singapore	

Education and Training

Postdoctoral Fellow (Advisor: Chaitan Khosla)	2001–2005
Department of Chemistry, Stanford University	
Ph.D. (Advisor: David W. Christianson)	1998–2001
Department of Chemistry, University of Pennsylvania	
M.S.E.	1996–1998
Department of Bioengineering, University of Pennsylvania	
B.A. (Advisor: Roald Hoffmann, John E. McMurry)	1992–1996
Department of Chemistry, Cornell University	

Research Interests

Structure and mechanism of enzymes involved in natural product drug biosynthesis,
development of aptamer based therapeutics and diagnostics.

Awards

Top Publication Award, National University of Singapore	2014
Top Publication Award, National University of Singapore	2013
Inspiring Research Mentor Award, National University of Singapore	2012
Young Scientist Award, National University of Singapore	2012
Inspiring Research Mentor Award, National University of Singapore	2011
Young Investigator Award, National University of Singapore	2006

Publications

1. Thanh-Binh Nguyen, Priya Jayaraman, Elin Bergseng, M. S. Madhusudhan, Chu-Young Kim, Ludvig Sollid. Unraveling the structural basis for the unusually rich association of human leukocyte antigen DQ2.5 with class-II-associated invariant chain peptides. *Journal of Biological Chemistry* 292, 9218-9228 (2017).
2. Suttinee Poolsup, Chu-Young Kim. Therapeutic applications of synthetic nucleic acid aptamers. *Current Opinion in Biotechnology* 48, 180-186 (2017).
3. Fong T. Wong, Kinya Hotta, Xi Chen, Minyi Fang, Kenji Watanabe, Chu-Young Kim. Epoxide hydrolase-lasalocid A structure provides mechanistic insight into polyether natural product biosynthesis. *Journal of the American Chemical Society* 137, 86-89 (2015).
4. Kinya Hotta, Ronan M. Keegan, Soumya Ranganathan, Minyi Fang, Jaclyn Bibby, Martyn D. Winn, Michio Sato, Mingzhu Lian, Kenji Watanabe, Daniel J. Rigden, and Chu-Young Kim. Conversion of a Disulfide Bond to a Thioacetal Group during Echinomycin Biosynthesis. *Angewandte Chemie International Edition* 53, 824-828 (2014).
5. Sathya Dev Unudurthi, Kinya Hotta, Chu-Young Kim. Engineering the Polyproline II Propensity of a Class II Major Histocompatibility Complex Ligand Peptide. *ACS Chemical Biology* 8, 2382-2387 (2013).
6. Kinya Hotta, Xi Chen, Robert S. Paton, Atsushi Minami, Hao Li, Kunchithapadam Swaminathan, Irimpan I. Mathews, Kenji Watanabe, Hideaki Oikawa, Kendall N. Houk, Chu-Young Kim. Enzymatic catalysis of anti-Baldwin ring-closure in polyether biosynthesis. *Nature* 483, 355-358 (2012).
7. Stig Tollefsen, Kinya Hotta, Xi Chen, Bjørg Simonsen, Kunchithapadam Swaminathan, Irimpan I. Mathews, Ludvig M. Sollid, Chu-Young Kim. Structural and functional studies of the *trans*-encoded HLA-DQ2.3 (DQA1*03:01/DQB1*02:01) protein molecule. *Journal of Biological Chemistry* 2012, 287, 13611-13619.
8. Michael Bodd, Chu-Young Kim, Knut E. Lundin, Ludvig M. Sollid. T-cell response to gluten in patients with HLA-DQ2.2 reveals requirement of peptide-MHC stability in celiac disease. *Gastroenterology* 142, 552-561 (2012).
9. Kinya Hotta, Chu-Young Kim, David T. Fox, Andrew T. Koppisch. Siderophore-mediated iron acquisition in *Bacillus anthracis* and related strains. *Microbiology* 156, 1918-1925 (2010).
10. Lars-Egil Fallang, Elin Bergseng, Kinya Hotta, Axel Berg-Larsen, Chu-Young Kim, Ludvig M. Sollid. Differences in the risk of celiac disease associated with HLA-DQ2.5 or HLA-DQ2.2 are related to sustained gluten antigen presentation. *Nature Immunology* 10, 1096-1101 (2009).
11. David T. Fox, Kinya Hotta, Chu-Young Kim, Andrew T. Koppisch. The missing link in Petrobactin biosynthesis: AsbF encodes a (-)-3-dehydroshikimate dehydratase. *Biochemistry* 47, 12251-12253 (2008).
12. Andrew T. Koppisch, Kinya Hotta, David T. Fox, Christy E. Ruggiero, Chu-Young Kim, Timothy Sanchez, Srinivas Iyer, Cindy C. Browder, Pat J. Unkefer, Clifford J. Unkefer. Biosynthesis of the 3,4-dihydroxybenzoate moieties of petrobactin by *Bacillus anthracis*. *Journal of Organic Chemistry* 73, 5759-5765 (2008).

13. Jiang Xia, Elin Bergseng, Burkhard Fleckenstein, Matthew Siegel, Chu-Young Kim, Chaitan Khosla, Ludvig M. Sollid. Cyclic and dimeric gluten peptide analogues inhibiting DQ2-mediated antigen presentation in celiac disease. *Bioorganic & Medicinal Chemistry* 15, 6565-6573 (2007).
14. Yinyan Tang, Alice Y. Chen, Chu-Young Kim, David E. Cane, Chaitan Khosla. Structural and Mechanistic Analysis of Protein Interactions in Module 3 of the 6-Deoxyerythronolide B Synthase. *Chemistry & Biology* 14, 931-943 (2007).
15. Yinyan Tang, Ho Young Lee, Yi Tang, Chu-Young Kim, Irimpan Mathews, Chaitan Khosla. Structural and Functional Studies on SCO1815: A b-Ketoacyl-Acyl Carrier Protein Reductase from Streptomyces coelicolorA3(2). *Biochemistry* 45, 14085-14093 (2006).
16. Yinyan Tang, Chu-Young Kim, Irimpan I. Mathews, David E. Cane, Chaitan Khosla. The 2.7-A crystal structure of a 194-kDa homodimeric fragment of the 6-deoxyerythronolide B synthase. *Proceedings of the National Academy of Sciences of the U.S.A.* 103, 11124-11129 (2006).
17. Alice Y. Chen, Nathan A. Schnarr, Chu-Young Kim, David E. Cane, Chaitan Khosla. Extender Unit and Acyl Carrier Protein Specificity of Ketosynthase Domains of the 6-Deoxyerythronolide B Synthase. *Journal of the American Chemical Society* 128, 3067-3074 (2006).
18. Elin Bergseng, Jiang Xia, Chu-Young Kim, Chaitan Khosla, Ludvig M. Sollid. 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* 23, 21791-21796 (2005).
19. Chu-Young Kim, Viktor Y. Alekseyev, Alice Y. Chen, Yinyan Tang, David E. Cane, Chaitan Khosla. Reconstituting modular activity from separated domains of 6-deoxyerythronolide B synthase. *Biochemistry* 43, 13892-13898 (2004).
20. Chu-Young Kim, Hanne Quarsten, Elin Bergseng, Chaitan Khosla, Ludvig M. Sollid. Structural basis for HLA-DQ2 mediated presentation of gluten epitopes in celiac disease. *Proceedings of the National Academy of Sciences of the U.S.A.* 101, 4175-4179 (2004).
21. Vijay M. Krishnamurthy, Brooks R. Bohall, Chu-Young Kim, Demetri T. Moustakas, David W. Christianson, George M. Whitesides. Thermodynamic Parameters for the Association of Fluorinated Benzenesulfonamides with Bovine Carbonic Anhydrase II. *Chemistry - An Asian Journal* 2, 94-105 (2007).
22. Chu-Young Kim, Douglas A. Whittington, Jeanne S. Chang, John Liao, Jesse A. May, David W. Christianson. Structural aspects of isozyme selectivity in the binding of inhibitors to carbonic anhydrases II and IV. *Journal of Medicinal Chemistry* 45, 888-893 (2002).
23. Bartosz A. Grzybowski, Alexey V. Ishchenko, Chu-Young Kim, George Topalov, Robert Chapman, David W. Christianson, George M. Whitesides, Eugene I. Shakhnovich. Combinatorial computational method gives new picomolar ligands for a known enzyme. *Proceedings of the National Academy of Sciences of the U.S.A.* 99, 1270-1273 (2002).

24. Ryan D. Madder, Chu-Young Kim, Pooja P. Chandra, Jeffrey B. Doyon, Teaster A. Baird Jr., Carol A. Fierke, David W. Christianson, Judith G. Voet, Ahamindra Jain. Twisted amides inferred from QSAR analysis of hydrophobicity and electronic effects on the affinity of fluoroaromatic inhibitors of carbonic anhydrase. *Journal of Organic Chemistry* 67, 582-584 (2002).
25. Chu-Young Kim, Pooja P. Chandra. Ahamindra Jain, David W. Christianson. Fluoroaromatic-fluoroaromatic interactions between inhibitors bound in the crystal lattice of human carbonic anhydrase II. *Journal of the American Chemical Society* 123, 9620-9627 (2001).
26. Chu-Young Kim, Jeanne S. Chang, Jeffrey B. Doyon, Teaster T. Baird Jr., Carol A. Fierke, Ahamindra Jain, David W. Christianson. Contribution of fluorine to protein-ligand affinity in the binding of fluoroaromatic inhibitors to carbonic anhydrase II. *Journal of the American Chemical Society* 122, 12125-12134 (2000).
27. Jeffrey B. Doyon, Elizabeth A. M. Hansen, Chu-Young Kim, Jeanne S. Chang, David W. Christianson, Ryan D. Madder, Judith G. Voet, Teaster A. Baird Jr., Carol A. Fierke, Ahamindra Jain. Linear free energy relationships implicate three modes of binding for fluoroaromatic inhibitors to a mutant of carbonic anhydrase II. *Organic Letters* 2, 1189-1192 (2000).