

David Marciano

Postdoctoral Research Fellow, Genetics

Bio

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Scripps Research Institute Kellogg School (2014)

STANFORD ADVISORS

- Michael Snyder, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Pharmacological repression of PPAR γ promotes osteogenesis.** *Nature communications*
Marciano, D. P., Kuruvilla, D. S., Boregowda, S. V., Asteian, A., Hughes, T. S., Garcia-Ordenez, R., Corzo, C. A., Khan, T. M., Novick, S. J., Park, H., Kojetin, D. J., Phinney, D. G., Bruning, et al
2015; 6: 7443-?
- **HDX-MS guided drug discovery: small molecules and biopharmaceuticals** *CURRENT OPINION IN STRUCTURAL BIOLOGY*
Marciano, D. P., Dharmarajan, V., Griffin, P. R.
2014; 28: 105-111
- **An alternate binding site for PPAR gamma ligands** *NATURE COMMUNICATIONS*
Hughes, T. S., Giri, P. K., De Vera, I. M., Marciano, D. P., Kuruvilla, D. S., Shin, Y., Blayo, A., Kamenecka, T. M., Burris, T. P., Griffin, P. R., Kojetin, D. J.
2014; 5
- **The Therapeutic Potential of Nuclear Receptor Modulators for Treatment of Metabolic Disorders: PPAR gamma, RORs, and Rev-erbs** *CELL METABOLISM*
Marciano, D. P., Chang, M. R., Corzo, C. A., Goswami, D., Lam, V. Q., Pascal, B. D., Griffin, P. R.
2014; 19 (2): 193-208
- **Antidiabetic actions of a non-agonist PPAR gamma ligand blocking Cdk5-mediated phosphorylation** *NATURE*
Choi, J. H., Banks, A. S., Kamenecka, T. M., Busby, S. A., Chalmers, M. J., Kumar, N., Kuruvilla, D. S., Shin, Y., He, Y., Bruning, J. B., Marciano, D. P., Cameron, M. D., Laznik, et al
2011; 477 (7365): 477-U131
- **The crystal structure of a bacterial Sufu-like protein defines a novel group of bacterial proteins that are similar to the N-terminal domain of human Sufu** *PROTEIN SCIENCE*
Das, D., Finn, R. D., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Cai, X., Carlton, D., Chen, C., Chiu, H., Chiu, M., Clayton, T., Deller, et al
2010; 19 (11): 2131-2140
- **The structure of the first representative of Pfam family PF09836 reveals a two-domain organization and suggests involvement in transcriptional regulation** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Das, D., Grishin, N. V., Kumar, A., Carlton, D., Bakolitsa, C., Miller, M. D., Abdubek, P., Astakhova, T., Axelrod, H. L., Burra, P., Chen, C., Chiu, H., Chiu, et al
2010; 66: 1174-1181
- **Structure of a membrane-attack complex/perforin (MACPF) family protein from the human gut symbiont Bacteroides thetaiotaomicron** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Xu, Q., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Cai, X., Carlton, D., Chen, C., Chiu, H., Clayton, T., Das, D., Deller, M. C., Duan, et al

2010; 66: 1297-1305

- **The structure of the first representative of Pfam family PF06475 reveals a new fold with possible involvement in glycolipid metabolism** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Bakolitsa, C., Kumar, A., McMullan, D., Krishna, S. S., Miller, M. D., Carlton, D., Najmanovich, R., Abdubek, P., Astakhova, T., Chiu, H., Clayton, T., Deller, M. C., Duan, et al
2010; 66: 1211-1217
- **Structure of the first representative of Pfam family PF04016 (DUF364) reveals enolase and Rossmann-like folds that combine to form a unique active site with a possible role in heavy-metal chelation** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Miller, M. D., Aravind, L., Bakolitsa, C., Rife, C. L., Carlton, D., Abdubek, P., Astakhova, T., Axelrod, H. L., Chiu, H., Clayton, T., Deller, M. C., Duan, L., Feuerhelm, et al
2010; 66: 1167-1173
- **Structures of three members of Pfam PF02663 (FmdE) implicated in microbial methanogenesis reveal a conserved alpha plus beta core domain and an auxiliary C-terminal treble-clef zinc finger** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Axelrod, H. L., Das, D., Abdubek, P., Astakhova, T., Bakolitsa, C., Carlton, D., Chen, C., Chiu, H., Clayton, T., Deller, M. C., Duan, L., Ellrott, K., Farr, et al
2010; 66: 1335-1346
- **Structure of the first representative of Pfam family PF09410 (DUF2006) reveals a structural signature of the calycin superfamily that suggests a role in lipid metabolism** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Chiu, H., Bakolitsa, C., Skerra, A., Lomize, A., Carlton, D., Miller, M. D., Krishna, S. S., Abdubek, P., Astakhova, T., Axelrod, H. L., Clayton, T., Deller, M. C., Duan, et al
2010; 66: 1153-1159
- **Conformational changes associated with the binding of zinc acetate at the putative active site of XcTcmJ, a cupin from Xanthomonas campestris pv. campestris** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Axelrod, H. L., Kozbial, P., McMullan, D., Krishna, S. S., Miller, M. D., Abdubek, P., Acosta, C., Astakhova, T., Carlton, D., Caruthers, J., Chiu, H., Clayton, T., Deller, et al
2010; 66: 1347-1353
- **The structure of BVU2987 from Bacteroides vulgatus reveals a superfamily of bacterial periplasmic proteins with possible inhibitory function** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Das, D., Finn, R. D., Carlton, D., Miller, M. D., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Chen, C., Chiu, H., Chiu, M., Clayton, T., Deller, et al
2010; 66: 1265-1273
- **Structure of BT_3984, a member of the SusD/RagB family of nutrient-binding molecules** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Bakolitsa, C., Xu, Q., Rife, C. L., Abdubek, P., Astakhova, T., Axelrod, H. L., Carlton, D., Chen, C., Chiu, H., Clayton, T., Das, D., Deller, M. C., Duan, et al
2010; 66: 1274-1280
- **Structure of the gamma-D-glutamyl-L-diamino acid endopeptidase Ykfc from Bacillus cereus in complex with L-Ala-gamma-D-Glu: insights into substrate recognition by NlpC/P60 cysteine peptidases** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Xu, Q., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Cai, X., Carlton, D., Chen, C., Chiu, H., Chiu, M., Clayton, T., Das, D., Deller, et al
2010; 66: 1354-1364
- **Structure of LP2179, the first representative of Pfam family PF08866, suggests a new fold with a role in amino-acid metabolism** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Bakolitsa, C., Kumar, A., Carlton, D., Miller, M. D., Krishna, S. S., Abdubek, P., Astakhova, T., Axelrod, H. L., Chiu, H., Clayton, T., Deller, M. C., Duan, L., Elsliger, et al
2010; 66: 1205-1210
- **The structure of SSO2064, the first representative of Pfam family PF01796, reveals a novel two-domain zinc-ribbon OB-fold architecture with a potential acyl-CoA-binding role** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Krishna, S. S., Aravind, L., Bakolitsa, C., Caruthers, J., Carlton, D., Miller, M. D., Abdubek, P., Astakhova, T., Axelrod, H. L., Chiu, H., Clayton, T., Deller, M. C., Duan, et al
2010; 66: 1160-1166
- **Structure of a tryptophanyl-tRNA synthetase containing an iron-sulfur cluster** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*

- Han, G. W., Yang, X., McMullan, D., Chong, Y. E., Krishna, S. S., Rife, C. L., Weekes, D., Brittain, S. M., Abdubek, P., Ambing, E., Astakhova, T., Axelrod, H. L., Carlton, et al
2010; 66: 1326-1334
- **The structure of Haemophilus influenzae prephenate dehydrogenase suggests unique features of bifunctional TyrA enzymes** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Chiu, H., Abdubek, P., Astakhova, T., Axelrod, H. L., Carlton, D., Clayton, T., Das, D., Deller, M. C., Duan, L., Feuerhelm, J., Grant, J. C., Grzechnik, A., Han, et al
2010; 66: 1317-1325
 - **The structure of KPN03535 (gi vertical bar 152972051), a novel putative lipoprotein from Klebsiella pneumoniae, reveals an OB-fold** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Das, D., Kozbial, P., Han, G. W., Carlton, D., Jaroszewski, L., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Chen, C., Chiu, H., Chiu, M., Clayton, et al
2010; 66: 1254-1260
 - **A conserved fold for fimbrial components revealed by the crystal structure of a putative fimbrial assembly protein (BT1062) from Bacteroides thetaiotaomicron at 2.2 angstrom resolution** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Xu, Q., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Cai, X., Carlton, D., Chen, C., Chiu, H., Chiu, M., Clayton, T., Das, D., Deller, et al
2010; 66: 1281-1286
 - **Structures of the first representatives of Pfam family PF06938 (DUF1285) reveal a new fold with repeated structural motifs and possible involvement in signal transduction** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Han, G. W., Bakolitsa, C., Miller, M. D., Kumar, A., Carlton, D., Najmanovich, R. J., Abdubek, P., Astakhova, T., Axelrod, H. L., Chen, C., Chiu, H., Clayton, T., Das, et al
2010; 66: 1218-1225
 - **Structures of the first representatives of Pfam family PF06684 (DUF1185) reveal a novel variant of the Bacillus chorismate mutase fold and suggest a role in amino-acid metabolism** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Bakolitsa, C., Kumar, A., Jin, K. K., McMullan, D., Krishna, S. S., Miller, M. D., Abdubek, P., Acosta, C., Astakhova, T., Axelrod, H. L., Burra, P., Carlton, D., Chen, et al
2010; 66: 1182-1189
 - **Open and closed conformations of two SpoIIAA-like proteins (YP_749275.1 and YP_001095227.1) provide insights into membrane association and ligand binding** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Kumar, A., Lomize, A., Jin, K. K., Carlton, D., Miller, M. D., Jaroszewski, L., Abdubek, P., Astakhova, T., Axelrod, H. L., Chiu, H., Clayton, T., Das, D., Deller, et al
2010; 66: 1245-1253
 - **The structure of Jann_2411 (DUF1470) from Jannaschia sp at 1.45 angstrom resolution reveals a new fold (the ABATE domain) and suggests its possible role as a transcription regulator** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Bakolitsa, C., Bateman, A., Jin, K. K., McMullan, D., Krishna, S. S., Miller, M. D., Abdubek, P., Acosta, C., Astakhova, T., Axelrod, H. L., Burra, P., Carlton, D., Chiu, et al
2010; 66: 1198-1204
 - **Structure of a putative NTP pyrophosphohydrolase: YP_001813558.1 from Exiguobacterium sibiricum 255-15** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Han, G. W., Elsliger, M., Yeates, T. O., Xu, Q., Murzin, A. G., Krishna, S. S., Jaroszewski, L., Abdubek, P., Astakhova, T., Axelrod, H. L., Carlton, D., Chen, C., Chiu, et al
2010; 66: 1237-1244
 - **Structure of Bacteroides thetaiotaomicron BT2081 at 2.05 angstrom resolution: the first structural representative of a new protein family that may play a role in carbohydrate metabolism** *ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY AND CRYSTALLIZATION COMMUNICATIONS*
Yeh, A. P., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Cai, X., Carlton, D., Chen, C., Chiu, H., Chiu, M., Clayton, T., Das, D., Deller, et al
2010; 66: 1287-1296
 - **Crystal Structure of the First Eubacterial Mre11 Nuclease Reveals Novel Features that May Discriminate Substrates During DNA Repair** *JOURNAL OF MOLECULAR BIOLOGY*
Das, D., Moiani, D., Axelrod, H. L., Miller, M. D., McMullan, D., Jin, K. K., Abdubek, P., Astakhova, T., Burra, P., Carlton, D., Chiu, H., Clayton, T., Deller, et al
2010; 397 (3): 647-663

- **Bacterial Pleckstrin Homology Domains: A Prokaryotic Origin for the PH Domain** *JOURNAL OF MOLECULAR BIOLOGY*
Xu, Q., Bateman, A., Finn, R. D., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Carlton, D., Chen, C., Chiu, H., Chiu, M., Clayton, T., Das, et al
2010; 396 (1): 31-46
- **Structural and Functional Characterizations of SsgB, a Conserved Activator of Developmental Cell Division in Morphologically Complex Actinomycetes** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Xu, Q., Traag, B. A., Willemsse, J., McMullan, D., Miller, M. D., Elsliger, M., Abdubek, P., Astakhova, T., Axelrod, H. L., Bakolitsa, C., Carlton, D., Chen, C., Chiu, et al
2009; 284 (37): 25268-25279
- **Crystal Structure of Histidine Phosphotransfer Protein ShpA, an Essential Regulator of Stalk Biogenesis in *Caulobacter crescentus*** *JOURNAL OF MOLECULAR BIOLOGY*
Xu, Q., Carlton, D., Miller, M. D., Elsliger, M., Krishna, S. S., Abdubek, P., Astakhova, T., Burra, P., Chiu, H., Clayton, T., Deller, M. C., Duan, L., Elias, et al
2009; 390 (4): 686-698
- **Crystal structure of a novel Sm-like protein of putative cyanophage origin at 2.60 angstrom resolution** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Das, D., Kozbial, P., Axelrod, H. L., Miller, M. D., McMullan, D., Krishna, S. S., Abdubek, P., Acosta, C., Astakhova, T., Burra, P., Carlton, D., Chen, C., Chiu, et al
2009; 75 (2): 296-307
- **Crystal structure of the Fic (Filamentation Induced by cAMP) family protein S04266 (gi vertical bar 24375750) from *Shewanella oneidensis* MR-1 at 1.6 angstrom resolution** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Das, D., Krishna, S. S., McMullan, D., Miller, M. D., Xu, Q., Abdubek, P., Acosta, C., Astakhova, T., Axelrod, H. L., Burra, P., Carlton, D., Chiu, H., Clayton, et al
2009; 75 (1): 264-271
- **Structural Basis of Murein Peptide Specificity of a gamma-D-Glutamyl-L-Diamino Acid Endopeptidase** *STRUCTURE*
Xu, Q., Sudek, S., McMullan, D., Miller, M. D., Geierstanger, B., Jones, D. H., Krishna, S. S., Spraggon, G., Bursalay, B., Abdubek, P., Acosta, C., Ambing, E., Astakhova, et al
2009; 17 (2): 303-313
- **A Structural Basis for the Regulatory Inactivation of DnaA** *JOURNAL OF MOLECULAR BIOLOGY*
Xu, Q., McMullan, D., Abdubek, P., Astakhova, T., Carlton, D., Chen, C., Chiu, H., Clayton, T., Das, D., Deller, M. C., Duan, L., Elsliger, M., Feuerhelm, et al
2009; 385 (2): 368-380
- **Crystal structures of MW1337R and lin2004: Representatives of a novel protein family that adopt a four-helical bundle fold** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Kozbial, P., Xu, Q., Chiu, H., McMullan, D., Krishna, S. S., Miller, M. D., Abdubek, P., Acosta, C., Astakhova, T., Axelrod, H. L., Carlton, D., Clayton, T., Deller, et al
2008; 71 (3): 1589-1596
- **Identification and structural characterization of heme binding in a novel dye-decolorizing peroxidase, TyrA** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Zubieta, C., Joseph, R., Krishna, S. S., McMullan, D., Kapoor, M., Axelrod, H. L., Miller, M. D., Abdubek, P., Acosta, C., Astakhova, T., Carlton, D., Chiu, H., Clayton, et al
2007; 69 (2): 234-243
- **Crystal structures of two novel dye-decolorizing peroxidases reveal a beta-bar fold with a conserved heme-binding motif** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Zubieta, C., Krishna, S. S., Kapoor, M., Kozbial, P., McMullan, D., Axelrod, H. L., Miller, M. D., Abdubek, P., Ambing, E., Astakhova, T., Carlton, D., Chiu, H., Clayton, et al
2007; 69 (2): 223-233
- **Crystal structure of homoserine O-succinyltransferase from *Bacillus cereus* at 2.4 angstrom resolution** *PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS*
Zubieta, C., Krishna, S. S., McMullan, D., Miller, M. D., Abdubek, P., Agarwalla, S., Ambing, E., Astakhova, T., Axelrod, H. L., Carlton, D., Chiu, H., Clayton, T., Deller, et al
2007; 68 (4): 999-1005