

WEDNESDAY AFTERNOON

Section A

Salt Palace Convention Center
Hall 5

Enzyme Structure and Mechanism

J. T. Stivers, *Organizer*

5:00-7:00

155. Aggregation and stability characterization of abatacept (orencia), a therapeutic fusion protein. **J. L. Fast**, J. F. Carpenter, T. W. Randolph
156. Characterization of the calcium binding domain of NADPH oxidase 5 (NOX5). **C. L. Qi**, C.-C. Wei, K. A. Levek, N. A. Mott
157. 5-F Substituent effects on orotidine 5'-monophosphate decarboxylase-catalyzed decarboxylation of orotidine monophosphate and on exchange of the C-6 hydrogen of uridine 5'-monophosphate for deuterium. **S. A. Barnett**, W.-Y. Tsang, T. L. Amyes, B. M. Wood, J. A. Gerit, J. P. Richard
158. A new family of ATP-dependent oligomerization-macrocyclization biocatalysts. **N. Kadi**
159. Aerobic ethylbenzene metabolism via a CO₂-dependent pathway by *Rhodococcus ruber*. **A. Mashruwala**, S. A. Ensign
160. Application of nonhydrolyzable coenzyme A analogs in manipulation of nonribosomal peptide synthetases geometry. **Y. Liu**, S. D. Bruner
161. Applications of immobilized biomacromolecules and whole organelles at thiazine dye mediated carbon electrode surfaces. **M. J. Moehlenbrock**
162. Bacterial squalene synthase: Cloning, solubilization, characterization, and mutagenesis studies of *Thermosynechococcus elongatus* BP-1 squalene synthase. **S. Lee**, C. D. Poulter
163. Biochemical characterization of yeast vacuolar ATPase protein subunits E and G. **D. D. Ojennus**, B. Hams, J. Spaun
164. Biochemical investigation of stereochemical control in polyketides biosynthesis. **C. R. Valenzano**, D. E. Cane
165. Characterization of cellulases from *Penicillium funiculosum* and organic solvent effects on activity. **A. J. Kelkhoff**, S. N. Lone, **R. C. Steinmeier**
166. Characterization of H57R, a novel mutant of deacetoxycephalosporin-c synthase by molecular dynamics: Insight into substrate selection. **N. Balakrishnan**, T. J. Masilamani, C. M. Krishnan, P. Rajasekaran, V. Vinayagam, **M. Durairaj**
167. Consequences of extreme evolution on the tertiary structure of the RNAP alpha-subunit in *Pelargonium x hortorum*. **K. M. French**, G. S. Murphy, B. Kuhlman, P. Kuhlman
168. Correlation of human NQO1 activity with quinone substrate reduction potential. **M. F. Mendoza**, N. Hollabaugh, R. L. McCarley
169. Design and properties of mutant sulfo-transferases for heterodimerization. **K. L. Hughes**, J. A. Dopke, J. D. Beckmann
170. Determinants of PRMT1-catalyzed ADMA product formation. **S. Gui**, J. M. Hevel, W. Woodechak
171. Determining the role for methionine 234 in substrate recognition in human carbonyl reductase. **C. R. Young**, H. A. Charlier Jr.
172. Development of assays monitoring the inhibition of heat shock protein 70. **C. C. Clement**, R. D. Lang
173. Directed evolution of lactase: Controlling substrate specificity. **N. Gupta**, E. T. Farinas
174. Engineering synthetase promiscuity to incorporate a family of fluorinated amino acids. **S. J. Miyake-Stoner**, R. A. Mehl
175. Enzymatic pathways in the development of beetle elytral cuticle. **J. Lomakin**, C. Eichler, Y. Arakane, K. J. Kramer, R. W. Beeman, M. R. Kanost, **S. H. Gehrke**
176. Functional and structural characterization of the noncanonical nucleotide pyrophosphatase TM0159 from *Thermotoga maritima*. **K. A. Awwad**, **A. Desai**, M. Sommerhalter
177. How do monomethylated substrates bind PRMT1? **Y. Morales**, J. M. Hevel
178. Identification and characterization of AsbF: The missing link in petrobactin biosynthesis. **D. T. Fox**, K. Hotta, C.-Y. Kim, A. T. Koppisch
179. Identification of soluble proteins in bovine and porcine vitreous humor. **K. Sherman**, F. Y. Ohene
180. Impact of metal, Tyr-Cys crosslink and the outer-sphere residues on the geometric and electronic structures for the catalytic site in galactose oxidase.
181. In vitro characterization of enzymes from the phaseolotoxin biosynthetic pathway. **R. F. Roush**, I. Ntai, N. L. Kelleher, C. T. Walsh
182. Interactions between positively charged residues (Arg, Lys) and the sulfonate of coenzyme M responsible for stereoselectivity of R- and S-hydroxypropyl CoM dehydrogenases. **D. A. Sliwa**, A. M. Krishnakumar, J. W. Peters, S. A. Ensign
183. Investigating the catalytic mechanism of the yeast palmitoyltransferase Akr1. **X. Guan**, A. F. Roth, N. G. Davis, C. A. Fierke
184. Investigating the role of the N-terminal tail of the human protein arginine methyltransferase 1 on substrate recognition. **B. B. Suh**, **J. Delka**, J. Hevel
185. Leukocyte 12-lipoxygenase: ESI-MS and EPR investigations of the iron site. **S. Xu**, J. Rapp, W. P. Griffith, D. M. O. Funk Jr.
186. Withdrawn.
187. Mechanism of PDK1-catalyzed T229 phosphorylation of the S6K1 protein kinase. **M. M. Keshwani**, T. K. Harris
188. Mechanistic studies of MenD, 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylic acid synthase from *Staphylococcus aureus*. **H. Xu**, M. Graham, J. Karelis, S. G. Walker, P. J. Tonge
189. Mechanistic studies of novel antibacterials. **S. K. Vooturi**, M. Rybak, S. M. Firestone
190. Mechanistic studies of reductive product release in NRPS and PKS/NRPS systems. **J. A. Read**, C. T. Walsh
191. Molecular dynamics simulation of chemical rescue experiments in mutants of human carbonic anhydrase II. **N. Castillo Rijo**, C. M. Maupin, G. A. Voth
192. Monitoring changes in human serum ganglioside profiles via HPLC/MS to aid in diagnosis and treatment of ganglioside synthase deficiencies. **A. L. Stokes**, J. Blevins, K. R. Hess, R. A. Mehl
193. Novel reactivity of the enzymatic non-heme Fe(II) centre of diketone dioxygenase Dke1. **C. M. L. Di Giuro**, G. D. Straganz
194. Oxidative inhibition of protein tyrosine phosphatases. **C. E. Hubbard**, A. M. Barrios
195. Parallel characterization of thermophilic isopentenyl phosphate kinases from *Archaea*. **M. Chen**, C. Poulter
196. Withdrawn.
197. Purification and characterization of lysyl oxidase from pig aorta. **J. Barnes**, **E. Camire**, H. Kagan, H. Lucero, F. Ryvkin
198. Pyrrolidinedione in andrimid biosynthesis. **X. Liu**, C. T. Walsh
199. Relationship of copper-binding activity of 8-hydroxyquinoline analogs and their inhibitory property to human cancer cell growth. **V. Milacic**, P. Jiao, **L. Yang**, Q. P. Dou, B. Yan

Please refrain from using cellular telephones and cameras during technical sessions.

200. Role of coupled domain motions on the catalytic activity of Escherichia coli prolyl-tRNA synthetase. **K. Zimmermann**, B. Shane, M. Ignatov, K. Musier-Forsyth, S. Hati
201. Role of histidine residues in the catalytic mechanism of 2-ketopropyl CoM oxidoreductase/carboxylase from *Xanthobacter autotrophicus* Py2. **M. Kofod**, S. A. Ensign
202. Structural and biochemical characterization of the RNA helicase, Mtr4. **R. Jackson**, B. Hintze, S. J. Johnson
203. Structural and functional studies of M2 proton channel from influenza A virus. **D. D. Busath**, M. Sharma, H. Qin, E. Peterson, C. Larson, W. Caywood, R. Rawlings, T. A. Cross
204. Structural insights into the mechanism of tartrate dehydrogenase: A versatile enzyme catalyzing multiple reactions. **R. Malik**, R. E. Viola
205. Structure of human ETHE1 protein. **N. E. Adams**, P. Limphong
206. Synthesis and evaluation of modified nucleotides for RNA editing enzymes. **P. Jayalath**, S. Pokharel, O. Maydanovich, P. A. Beal
207. Synthesis and kinetic evaluation of Acetylcholinesterase inhibitors. **K. R. Cavanaugh**, Y. Wang, D. Quinn
208. Synthesis and photophysical studies of photocaged N-protected glycines as substrates for peptidyl alpha-hydroxylating monooxygenase. **S. Handa**, A. Mokdad, R. Larsen, D. J. Merkler
209. Synthesis of naphthoyl amino-CoA inhibitor for cocrystallization with NcsB2. **E. L. Guenther**, H. A. Cooke, S. D. Bruner
210. The rescue of a K12G mutant of triose-phosphate isomerase by small alkylammonium cations. **M. K. Go**, J. P. Richard, T. L. Amyes
211. Theoretical study of the inhibitory reaction mechanisms between GAPDH and Nitroxy (HNO). **M. P. Sherman**, R. D. McCulla
212. Utilization of synthetase promiscuity to site-specifically incorporate new photocrosslinking unnatural amino acids. **J. C. Peeler**, R. A. Mehl
213. Purification and peptide mapping of the heme biosynthesis enzyme ferrochelatase. **A. P. Asuru**, L. S. Busenlehner

Section B

Salt Palace Convention Center
Ballroom A

Frontiers in Chemical Biology

J. T. Stivers, *Organizer*

- 1:30 214. Quantitative phosphoproteomic dissection of signaling pathways applied to T cell and mast cell signaling. **A. Salomon**
- 1:50 215. Development and application of a set of chemical probes to investigate protein kinase function in lysates and living cells. **R. Krishnamurthy**, D. J. Maly
- 2:10 216. Differential innate immune detection of peptidoglycan by Toll-like receptor 2. **J. Asong**, M. Wolfert, K. Maiti, D. Miller, G.-J. Boons
- 2:30 217. Exosite II-mediated allosteric inhibition of selected coagulation enzymes by novel hydrophobic, yet water soluble, molecules. **U. R. Desai**, B. L. Henry, A. Liang
- 2:50 218. Expanding the fluorosensory arsenal, tetrafluorinated phenylalanines for protein design. **H. Zheng**, J. Gao
- 3:10 219. Forward chemical screen using zebrafish embryos with novel 2-substituted 2H-chromene derivatives. T. Evans, **B. C. Das**
- 3:30 220. Pc 4 induced photodamage of intact mitochondria. **J. Kim**, M. E. Rodriguez, N. L. Oleinick, V. E. Anderson
- 3:50 221. New class of detergents for membrane protein manipulation. **P. S. Chae**, P. D. Laible, S. H. Gellman

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- 4:10 222. Synthesis of hybrid fluorosurfactants and their application as additives for protein renaturation. **R. Singh**, R. A. Flowers II
- 4:30 223. Synthesis of novel water soluble linker for antibody/quantum dot assemblies targeting cancer biomarkers. **M. Kalita**, S. Cingarapu, R. Jankowiak, K. J. Klabunde, S. H. Bossmann

Functional Motions in Enzyme Catalysis

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THURSDAY MORNING

Functional Motions in Enzyme Catalysis

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THURSDAY AFTERNOON

Functional Motions in Enzyme Catalysis

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BMGT

Division of Business Development & Management

M. L. Hurrey, *Program Chair*

OTHER SYMPOSIA OF INTEREST:

Legal Perspectives on a Shrinking World: Intellectual Property, Business and Regulatory Issues in Nanotechnology (see CHAL, Tue)

SOCIAL EVENT:
Award Reception, 4:30 pm: Mon

BUSINESS MEETING:
Open Meeting, 12:00 pm: Mon

MONDAY AFTERNOON

Section A

Salt Palace Convention Center
Ballroom A

ACS Award in Industrial Chemistry: Symposium in Honor of George G. I. Moore Cosponsored by ORGNF and PROF, Financially supported by 3M

M. E. Hoke, *Organizer*

- 1:25 Introductory Remarks.
- 1:30 1. Systematic design of chemistries and interlaces for the covalent attachment of low molecular weight and biogenic amines. **R. R. Shah**, G. G. I. Moore, C. M. Leir
- 1:55 2. Trifluoromethyl- and trifluorovinylcopper reagents: Elusive reagents. **D. J. Burton**
- 2:20 3. Novel heterocyclic TLR-7 and TLR-8 immune response modifiers. **D. S. Hays**, M. E. Danielson, S. Niwas, J. F. Gerster, C. A. Haraldson, J. D. Bonk, S. J. Mackey, K. J. Lindstrom, W. H. Moser, R. B. Prince, T. A. Kshirsagar, P. D. Heppner, G. D. Lundquist, M. A. Kavanagh, J. T. Moseman, S. Olson, M. J. Rice, J. R. Wurst, S. A. Strong, D. J. Willie, L. R. Wurst, S. J. Gibson
- 2:45 Intermission.
- 3:00 4. Hydrofluoroethers: Chemistry and applications. **R. M. Flynn**
- 3:25 5. Solvent tuning in fluorosurfactants: Increasing separation efficiency while lowering fluorine content. **M. S. Yu**, T. Nagashima, Q. Chu, D. Curran
- 3:50 6. Award Address (ACS Award in Industrial Chemistry, sponsored by ACS Division of Business Development and Management and the Synthetic Organic Chemical Manufacturers Association). Creativity, chemistry, utility: My career at 3M. **G. G. I. Moore**
- 4:30 Concluding Remarks.