

## **DIVISION OF BIOLOGICAL CHEMISTRY**

**Final Program, 237th ACS National Meeting, Salt Lake City, UT, March 22-26, 2009**

J. T. Stivers and S. Walker, *Program Chairs*

### **BUSINESS MEETING:**

BIOL Business Meeting, 12-2: Tue

### **SUNDAY MORNING**

#### **Frontiers in Imaging Biological Nanostructures**

*Cosponsored by ANYL, COLL, PHYS, POLY, and NANO<sup>+</sup>*

D. Weibel and D. V. Vezenov, *Organizers*

**9:00** — Introductory Remarks.

**9:10 —1.** Intracellular nanoscale imaging of molecular positions and anisotropies. **S. T. Hess**, T. J. Gould, M. S. Gunewardene, M. V. Gudheti, J. A. Gosse

**9:30 —2.** Imaging, Sensing, and Cancer Treatment with Bioconjugates of Nanowires and Nanorods. **N. A. Kotov**

**9:50 —3.** Intracellular, non-endocytic, delivery of quantum dots for live cell imaging. **C. K. Payne**, A. E. Jablonski

**10:10 —4.** Luminescent nanostructures for intracellular imaging. **J. Zheng**, Y. Qin

**10:30** — Intermission.

**10:40 —5.** Towards sub-diffraction transmission microscopy of diffuse materials using nanoplasmonic hot spot beacons. **D. Chaudhuri**, J. W. Galusha, M. J. Walter, N. J. Borys, M. H. Bartl, J. M. Lupton

**11:00 —6.** Large structural change in isolated synaptic vesicles upon glutamate loading. **K. L. Budzinski**, R. Allen, B. S. Fujimoto, D. Belnap, S. M. Bajjalieh, D. T. Chiu

**11:20 —7.** Manipulation and detection of biopolymers using magnetic-luminescent microspheres. **P. Oliver**, J. S. Park, D. V. Vezenov

**11:40 —8.** Two-dimensional supramolecular nanopatterns formed by DNA/RNA nucleobase molecules at the liquid-solid interface. **W. Mamdough**, M. Dong, R. E. A. Kelly, L. Kantorovich, F. Besenbacher

## **Functional Motions in Enzyme Catalysis**

Sponsored by PHYS, Cosponsored by BIOL

## **Nano Meets Neuro: Novel Challenges for Nanoscience in Probing Brain Chemistry**

*Sponsored by MEDI, Cosponsored by ANYL, BIOL, COLL, and NANO<sup>+</sup>*

### **SUNDAY AFTERNOON**

#### **Frontiers in Imaging Biological Nanostructures**

*Cosponsored by ANYL, COLL, PHYS, POLY, and NANO<sup>+</sup>*  
D. Weibel and D. V. Vezenov, *Organizers*

**1:30 –9.** Imaging beyond the diffraction limit in cells using single-molecule active control. **W. E. Moerner**, J. Biteen, N. R. Conley, H -L. Lee, S. J. Lord, M. A. Thompson, L. Shapiro, N. Liu, R. Samuel, R. J. Twieg

**2:15 –10.** Nanoscopic imaging of biomolecules, cells and tissues with STORM. **X. Zhuang**

**3:00 –11.** Optofluidic microscopy - an on-chip, lensless and high resolution imaging approach. **C. Yang**

**3:45 –** Intermission.

**3:55 –12.** Angstrom-resolution imaging of biological materials and their aqueous environments. **S. Jarvis**

**4:40 –13.** Probing the architecture and structure-function relationships of microbial and cellular systems by high-resolution in vitro atomic force microscopy. **A. J. Malkin**

## **Functional Motions in Enzyme Catalysis**

*Sponsored by PHYS, Cosponsored by BIOL*

### **Genetically Designed Molecular Materials**

#### **Peptide Binding, Kinetics and Assembly**

*Sponsored by NANO, Cosponsored by BIOL and MEDI*

## **Nano Meets Neuro: Novel Challenges for Nanoscience in Probing Brain Chemistry**

*Sponsored by MEDI, Cosponsored by ANYL, BIOL, COLL, and NANO<sup>‡</sup>*

### **MONDAY MORNING**

#### **Young Academic Investigators**

J. T. Stivers and S. Walker, *Organizers*

**8:30 –14.** Photocrosslinking sugars capture glycoconjugate interactions. **J. Kohler**

**8:50 –15.** Pathway-specific small molecule probes of cell division. A. Castoreno, **U. S. Eggert**

**9:10 –16.** Structural insights into the DNA alkylation damage response. T. Bowles, A. H. Metz, J. O'Quin, Z. Wawrzak, **B. F. Eichman**

**9:30 –17.** Painting the cysteine chapel: New tools to probe oxidation biology. **K. S. Carroll**

**9:50 –18.** Phase transitions and ternary diffusion in protein aqueous multicomponent solutions. **O. Annunziata**

**10:10 –19.** Rationally designed peptide antagonists that disrupt the TLR4/MD-2 interactions in vivo. **H. Yin**

**10:30 –20.** Interrelationships between local RNA structure and trans-factor binding: implications for control of mRNA stability through AU-rich mRNA-destabilizing sequences. **G. M. Wilson**

**10:50 –21.** Chemically ubiquitinated PCNA as a probe for eukaryotic translesion DNA synthesis. **Z. Zhuang**

**11:10 –22.** Toward understanding the molecular determinants of PRMT1 substrate selection and processing. W. Wooderchak, D. Chen, **J. M. Hevel**

**11:30 –23.** Anti-tumor effects of nitrosylcobalamin (a vitamin B12-based nitric oxide adduct) against spontaneous cancer in dogs. **J. A. Bauer**, G. Frye, A. Bahr, J. Gieg, D. J. Lindner

**11:50 –24. Award Address** (Nobel Laureate Signature Award for Graduate Education in Chemistry, sponsored by Mallinckrodt Baker, Inc). A general method to rapidly and reversibly regulate protein function using synthetic small molecules. **L. A. Banaszynski**, T. J. Wandless

## Functional Motions in Enzyme Catalysis

*Sponsored by PHYS, Cosponsored by BIOL*

## Genetically Designed Molecular Materials

## Peptide-Based Molecular Erectors for Functional Systems

*Sponsored by NANO, Cosponsored by BIOL and MEDI*

## MONDAY AFTERNOON

### Frontiers in Protein Science and Enzymology

J. T. Stivers, *Organizer*

**1:30 –25.** Probing enzymatic phosphorylation using H-P-P correlation spectroscopy. **C. F. Meyers**, A. Majumdar, M. H. Shah

**1:50 –26.** Molecular events of a slow substrate-product transition in orotidine 5'-monophosphate decarboxylase. **M. Fujihashi**, A. M. Bello, L. P. Kotra, E. F. Pai

**2:10 –27.** Determining the molecular basis of nitric oxide signaling in bacterial biofilms. **E. M. Boon**

**2:30 –28.** Ligand recognition by a multidrug-binding sensor. **H. Wade**, R. Morissette

**2:50 –29.** Mechanistic enzymology of SgTAM, a tyrosine aminomutase. **H. A. Cooke**, S. D. Bruner

**3:10 –30.** Mechanistic studies of benzylsuccinate synthase-a novel toluene degradation enzyme. **L. Li**, E. N. G. Marsh

**3:30 –31.** 1.2 Å Crystal Structure of a Ca<sup>+2</sup> Dependent PI-PLC from *Streptomyces antibioticus*. M. R. Jackson, **T. L. Selby**

**3:50 –32.** Allosteric regulation of the substrate specificity for the human 15-lipoxygenase isozymes. **A. T. Wecksler**, T. R. Holman

**4:10 –33.** Mechanistic studies of DpgC, a metal and cofactor free dioxygenase in the vancomycin biosynthetic pathway. **E. N. Fielding**, S. D. Bruner

**4:30 –34.** Structural studies of Mtr4. **S. J. Johnson**

### Frontiers in Imaging Biological Nanostructures

*Cosponsored by ANYL, COLL, PHYS, POLY, and NANO<sup>‡</sup>*  
D. Weibel and D. V. Vezenov, *Organizers*

**1:30 –35.** Electron cryotomography. **G. J. Jensen**

**2:15 –36.** 3D Optical Superresolution: 4Pi Microscopy and Photoactivation Localization Microscopy (FPALM) . **J. Bewersdorf**, M. D. Lessard, M. J. Mlodzianoski, S. E. Kirschbaum, T. Hartwich, M. F. Juetten

**3:00 –37.** Nanoscale structural, chemical and functional analysis of pathogens using AFM. **Y. F. Dufrene**

**3:45** – Intermission.

**3:55 –38.** Molecular resolution stiffness map of native membrane obtained by microsecond force spectroscopy. **M. Dong**, O. Sahin

**4:15 –39.** Multicolor super-resolution microscopy with photo-switchable fluorescent probes. **M. Bates**, M. Lakadamyali, G. Dempsey, B. Huang, X. Zhuang

**4:35 –40.** Toward nanoscale chemical imaging of biomolecular networks using tip-enhanced fluorescence microscopy. **J. M. Gerton**, B. D. Mangum, C. Mu

**4:55 –41.** Research on supramolecular structures formed by hydrogen-bonded amino acid and nucleic acid bases. **X. Ma**, E. Zhang, R. Subramani, W. Mamdouh, F. Besenbacher

**5:15 –42.** Dynamic imaging of vault nanoparticles. **J. Yang**, L. Bentolila, V. A. Kickhoefer, L. H. Rome

**5:35** – Concluding Remarks.

### **Functional Motions in Enzyme Catalysis**

*Sponsored by PHYS, Cosponsored by BIOL*

### **Undergraduate Research Poster Session: Biochemistry**

*Sponsored by CHED, Cosponsored by BIOL, BIOT, and SOCED*

## **MONDAY EVENING**

### **Sci-Mix**

J. T. Stivers, *Organizer*

**7:00 - 9:00**

**56, 109, 119-120, 133, 138, 183, 187, 207, 210.** See subsequent listings.

## **TUESDAY MORNING**

### **New Drug Targets**

*Cosponsored by MEDI*

J. T. Stivers and J. Zablocki, *Organizers*

**8:30 —43.** Exploring the regulation of O-GlcNAc. **L. K. Mahal**

**8:50 —44.** Isolation of a suite of cell binding peptides: Novel ligands for diagnosis and targeted therapy for non-small cell lung cancer. **K. Brown**

**9:10 —45.** Functionally Selective Opioids: A Novel Target for Analgesics. **T. E. Prisinzano**

**9:30 —46.** Acyclovir, the anti-herpes drug, has direct anti-HIV activity and selects for HIV reverse transcriptase mutants. M. A. McMahon, J. T. Stivers, R. F. Siliciano, **R. M. Kohli**

**9:50 —47.** Inhibition of HIV budding by a genetically selected cyclic peptide targeting the TSG101-Gag interaction. **A. Tavassoli**

**10:10 —48.** Chemical approaches to studying PAD4 function. **P. R. Thompson**

**10:30 —49.** Chimeric protein-small molecule conjugates as selective inhibitors of protein kinases. **D. J. Maly**

### **Genetically Designed Molecular Materials**

#### **Peptide-Based Molecular Scaffolds**

*Sponsored by NANO, Cosponsored by BIOL and MEDI*

## **TUESDAY AFTERNOON**

### **Nucleic Acids**

J. T. Stivers, *Organizer*

**1:30 —50.** AP endonuclease 1 actively stimulates thymine DNA glycosylase by disrupting its product complex. **A. C. Drohat**, M. E. Fitzgerald

**1:50 —51.** Structural analysis of PARP-1: a regulator of DNA repair, transcription, and cell death signaling. **J. Pascal**

- 2:10 –52.** Herpes simplex virus-1 DNA primase: A remarkably inaccurate yet selective polymerase. **M. Urban**, M. Hocek, N. Joubert, R. D. Kuchta
- 2:30 –53.** Identifying and Studying RNA Loop-Ligand Interactions. **M. D. Disney**
- 2:50 –54.** Improved model to predict the thermodynamics of RNA tandem mismatches. **B. M. Znosko**
- 3:10 –55.** Junction probes – sequence specific detection of nucleic acids via template enhanced hybridization processes. S. Nakayama, **L. Yan**, H. O. Sintim
- 3:30 –56.** Phosphine-triggered  $\alpha$ -azidoether probes to detect single nucleotide polymorphisms. **R. M. Franzini**, E. T. Kool
- 3:50 –57.** Repair of OG:A mismatches by the DNA adenine glycosylase MutYH and variants associated with colorectal cancer. **S. Kundu**, M. Brinkmeyer, A. L. Livingston, S. S. David
- 4:10 –58.** Ru(II) complexes as DNA probes in cell imaging applications. **M. Gill**, G. Battaglia, J. A. Thomas
- 4:30 –59.** Targeting HIV-1 TAR with branched peptides. **W. Santos**, D. I. Bryson, A. Pagano

## **Protein and Nucleic Acid Chemical Biology**

J. T. Stivers, *Organizer*

### **5:00 - 7:00**

- 60.** Oligo(ethylene oxide)-based compounds for the control of protein adsorption. **M. L. Walker**, D. J. Vanderah
- 61.** Cellular cholesterol in membrane raft domains is required for ultraviolet light (UV)-induced apoptosis in HaCaT keratinocytes. **K. S. George**, S. W. u
- 62.** Development of a live cell-based immunofluorescent assay for the detection of pharmaceutically-relevant secondary metabolites in plant cells. **V. Gaurav**, S. C. Roberts
- 63.** Investigation of Trimeric o-gp140DV2 TV1 Immobilized on engineered Surfaces. **Y. H. Tan**, L. Shi, E. Kan, I. Srivastava, G -Y. Liu
- 64.** Use of layer-by-layer assembly to preserve cellular riboswitch function. **S. V. Harbaugh**, C. D. East, M. E. Davidson, J. L. Chávez, L. Narayanan, N. Kelley-Loughnane, M. O. Stone
- 65.** A label-free binding assay for the thermodynamic analysis of protein-ligand interactions by dynamic ligand exchange-capillary electrophoresis. **J. M. A. Gavina**,

M. T. Mazhab-Jafari, P. Britz-McKibbin

- 66.** An approach to siRNA off-target effects using 8-oxo-2'-deoxyguanosine. **A. Kannan**, C. J. Burrows
- 67.** Application of phosphopantetheinyl transferase catalyzed site-selective covalent protein immobilization on to nanofabricated surfaces. **L. S. Wong**, G. J. Leggett, J. Micklefield
- 68.** Aptamer-based label-free direct detection of thrombin using SERS. **C. V. Pagba**, H. Cho, S. Lane, S. Wachsmann-Hogiu
- 69.** Are Density Functional Theory predictions of the Raman spectra accurate enough to distinguish conformational transitions during amyloid formation? **W. Berhanu**, I. A. Mikhailov, A. Schulte, A. E. Masunov
- 70.** Base pairing effects on the oxidation of 8-oxoG within a DNA duplex. **A. M. Fleming**, A. C. Dlouhy, J. G. Muller, C. J. Burrows
- 71.** Beta2-microglobuline removal at neutral pH using seed conjugated polymer bead. **M. Kim**, S. Kang, S. R. Paik, Y. S. Lee
- 72.** Binding specificity of PI3 Kinase C-SH2 Domain as revealed by a combinatorial library approach. **W. Abugosh**, D. Pei
- 73.** Bioluminogenic substrates for the detection of furin activity . **A. Dragulescu-Andrasi**, J. Rao
- 74.** Biotransformation of capsaicin analogues. **H -X. Jin**
- 75.** Characterization of the catalytic Mg of the hepatitis delta virus ribozyme by raman spectroscopy. B. Gong, J -H. Chen, B. L. Golden, P. C. Bevilacqua, **P. Carey**
- 76.** Chemical probes of protein tyrosine phosphatase activity: Profiling PTP substrate selectivity and imaging intracellular PTP activity. S. Mitra, T. Kaltcheva, M. R. Karver, R. A. Kulkarni, S. Stanford, D. Krishnamurthy, N. Bottini, **A. M. Barrios**
- 77.** Comparison of free-solution DNA hybridization using isothermal titration calorimetry and backscattering interferometry. D. J. Bornhop, **E. Pesciotta**, R. A. Flowers II
- 78.** Comparison of oxidation products of guanosine in nucleoside and single-stranded oligodeoxynucleotide contexts. **P. Ghude**, M. Schallenberger, A. M. Fleming, J. G. Muller, C. J. Burrows
- 79.** Cyclin-dependent kinase 2 negatively regulates human pregnane X receptor-mediated CYP3A4 gene expression in HepG2 liver carcinoma cells. **W. Lin**, J. Wu, H. Dong, D. Bouck, F -Y. Zeng, T. Chen
- 80.** Design, synthesis, and characterization of light-activatable fluorescent sensors of the proteasome. **A. Wakata**, M. Schmidt, A. Toutchkine, D. S. Lawrence
- 81.** Detection of broad spectrum aminoglycoside antibiotics through fluorescence-

labeling aminoglycoside resistance enzymes. **D. Li**

**82.** Development of specific ligands and inhibitors of phosphoproteins. **D. Cai**, A -Y. Lee, C -M. Chiang, T. Kodadek, T. J. Kodadek

**83.** Engineering of endogenous protein by ligand-directed tosyl chemistry: Construction of a <sup>19</sup>F NMR biosensor in live cells. **Y. Takaoka**, S. Tsukiji, I. Hamachi

**84.** Expression, Purification, and Characterization of Hcentrin 1 Variants. **J. E. Diaz-Arana**

**85.** Full-length HIV-1 gp120 glycosylation redistribution upon ligation with T-cell receptor CD4. **C. D. Boone**, F. Ashish, J. Krueger

**86.** Functional and structural comparisons of MscS and bCNG ion channels. **R. C. Guayasamin**, H. R. Malcolm, J. F. Hawkins, J. A. Maurer, D. E. Elmore

**87.** Functional enhancement of antimicrobials. **L. Smith**, N. Chaney, D. Ellis, S. Wilson-Stanford

**88.** Identification of Infrared Spectrum from Human Bio-energetic Campus. **A. .. Udristoiu**

**89.** Identifying the type I collagen binding site on osteocalcin. **A. Janiga**, R. V. Prigodich

**90.** Improved carcinostatic activity of novel lipophilic silicon-containing n-acetyl l-cysteine antioxidants. **U. I. Zakai**, G. A. Bikzhanova, S. Gately, R. West

**91.** In silico selection of RNA aptamers. **Y. Chushak**, M. O. Stone

**92.** In situ spectrophotometric analysis in gel electrophoresis. **A. F. Charlebois**, A. Brandolini, P. Patel, R. Rene

**93.** Incorporation of modified nucleosides into DNA: Tricking enzymes into revealing themselves. **S. Cao**, S. S. David

**94.** Increasing alpha-chymotrypsin thermodynamic stability upon PEGylation correlates with reduced structural dynamics. **J. A. Rodriguez-Martinez**, R. J. Sola, B. Castillo, I. Rivera-Rivera, H. R. Cintron-Colon, G. Barletta, K. Griebenow

**95.** Inhibition of Colon Cancer Cell Proliferation is Greater with Quercetin 3-beta-D-Glucoside than with Quercetin or its Rutinoside. **M. A. Lea**, C. Ibeh, C. desBordes

**96.** Interaction of peptide dimers with X-linked inhibitor of apoptosis protein. **K. E. Splan**, C. L. Cosimini, G. L. McLendon

**97.** Investigating the bactericidal mechanism of three novel histone-derived antimicrobial peptides. **H. S. Tsao**, A. T. Lee, **N. P. Maharaj**, D. E. Elmore

**98.** Investigating the chemical interactions at the DCoH( $\alpha$ ) dimer-dimer interface . **C. M. Hansen**, J. M. Hevel

- 99.** Investigating the role of proline in the function of the antimicrobial peptide buforin II. **Y. Xie, N. P. Maharaj**, E. Fleming, D. E. Elmore
- 100.** Investigation of Amyloid Aggregation on the Controlled Self-assembled Monolayers. **Q. Wang, J -C. Yang, X. Yu**, S. Z. D. Cheng, **J. Zheng**
- 101.** Investigation of length requirements of Hoogsteen bound third strand in intramolecular RNA triple helices. **D. J. Holland**
- 102.** JS-K: pathways of anti-cancer action. **D. Basudhar**, L. A. Ridnour, K. M. Miranda, D. A. Wink
- 103.** Lysophosphatidic acid (LPA) antagonists treat breast and lung cancer in engineered tumor models. **X. Xu**, H. Zhang, A. Parrill, G. Tigyi, G. D. Prestwich
- 104.** MALDI TOF mass spectrometry: A new methodology for footprinting protein/ssDNA complexes . **M. Light**, R. V. Prigodich
- 105.** Mapping the structure of the "ON" and "OFF" states of the ykkCD riboswitch. **K. Roark**, T. Gerczei
- 106.** Mechanism of interaction of Alzheimer's disease drugs with aggregates of  $\beta$ -amyloid peptide (A $\beta$  1-42). **L. Ramakrishnan**, N. Bhattarai, P. P. Henning, L. Rajbhandari, R. B. Thapa
- 107.** Modulation of the selectivity of nucleoside functionalized congeners as A1 and A3 adenosine receptor agonists by attachment to poly(amidoamine) (PAMAM) dendrimer carriers. **A. M. Klutz**, Z -G. Gao, J. Lloyd, A. Shainberg, K. Jacobson
- 108.** New Reductive Ligation of S-Nitrosothiols. **M. Xian**
- 109.** Noncovalent functionalization of bacteriophage Qbeta: Addressing encapsidated RNA aptamers. **J. L. Lau**, P. Ordoukhanian, M. M. Baksh, M. G. Finn
- 110.** Novel use of quaternions in the analysis of protein and nucleic acid secondary structure. **R. M. Hanson, D. Kohler**, A. J. Hanson
- 111.** Oral delivery of insulin through the vitamin B12 uptake pathway. **A. K. Petrus**
- 112.** Oral delivery of RNA aptamer as reversible antagonist of coagulation factor IXa. **R. T. S. Lam**, S. Oney, B. A. Sullenger, K. W. Leong
- 113.** PEI-SWNTs: Small molecule capture and release. **E. Dillon**, C. A. Crouse, C. Craven, A. R. Barron
- 114.** Peptide Nanocapsules and Their Conjugation with Inorganic Nanoparticles. **Y. Yang**, P. Burkhard
- 115.** Peptide nanoparticles as novel immunogens: Design and biophysical analysis of a prototype SARS vaccine. **T. Pimentel**, Z. Yan, S. A. Jeffers, K. V. Holmes, R. S. Hodges, P. Burkhard
- 116.** Potential inhibitory fullerene-peptides for neuroblastoma cells. **N. Doostdar**, J.

Yang, A. R. Barron

- 117.** Potential roles of lipids and nucleic acids in prion disease: Characterizing the interactions of lipids and nucleic acids with PrP. **J. G. Cannon**, W. K. Surewicz
- 118.** Probing adenine rings and backbone linkages using isotope edited raman difference spectroscopy: applications to group ii intron ribozyme domain 5. **Y. Chen**, K. T. Dayie, P. Carey
- 119.** Probing bacterial isoprenoid biosynthesis: 1-deoxy-D-xylulose 5-phosphate synthase (Dxs). **L. A. Brammer**, C. F. Meyers
- 120.** Rational structure-based redesign of beta-peptide helical bundles: Mimicking protein-like architectures. **C. J. Craig**, J. L. Goodman, A. Schepartz
- 121.** Reactivity of DNA lesions in large DNAs. **E. J. Merino**, A. Luckenbill, Y. He
- 122.** Real time monitoring of heat induced (35-120°C) denaturation and aggregation of beta-lactoglobulin in aqueous solutions in the presence of chaperones. **A. Ochenduszko**, V. Buckin
- 123.** Recognition of duplex RNA with novel helix-threading ligands. **N. Schirle**, M. Krishnamurthy, P. A. Beal
- 124.** Regulation of pyrimidine biosynthesis in *Pseudomonas nitroreducens* . **T. P. West**
- 125.** Restriction Enzyme activity studies of the binding of Cisplatin to different DNA structures and sequences. **J. E. Pulido**, J. Gattorno, V. Ng, T. Rao, R. L. D. L. Vega, S. A. Winkle
- 126.** Role of the 2-amino group of purines during dNTP polymerization by human DNA polymerase  $\alpha$ . **J. N. Patro**, M. Urban, R. D. Kuchta
- 127.** Selective protein labeling using reactive-tag system. **H. Nonaka**, S. Uchinomiya, S. Fujishima, A. Ojida, I. Hamachi
- 128.** SNARE proteins are highly mobile, yet cluster beneath secretory vesicles, on the plasma membrane of PC12 cells. **M. K. Knowles**, S. Barg, L. Wan, W. Almers
- 129.** Spatially Controlled Dual Surface Modifications of a Symmetrical Multi-subunit Protein Cage Architecture and Composition Analysis using Mass Spectrometry. **S. Kang**, L. M. Oltrogge, P. A. Suci, C. C. Broomell, M. Young, T. Douglas
- 130.** Stereospecific repair of the 5R Spore Photoproduct by Spore Photoproduct Lyase. **S. C. Silver**, T. Chandra, E. Zilinskas, E. M. Shepard, W. E. Broderick, J. B. Broderick
- 131.** Structural Characterization of 2x3 Internal Loops. **N. Zulic**, B. M. Znosko
- 132.** Structure constraints of gelsolin and actin complex in solution using small-angle scattering. **R. C. Oliver**, J. Krueger, F. Ashish

- 133.** Structure elucidation and biosynthesis of the fuscachelins, nonribosomal peptide siderophores from the moderate thermophile *Thermobifida fusca*. **E. J. Dimise**, S. D. Bruner
- 134.** Supramolecular nanopatterns of self-assembled peptide nucleic acids at the liquid/solid interface. **R. Subramani**
- 135.** Synthesis and study of multifunctional enzyme inhibitors in mevalonate pathway. **J. Gao**, Y. Qiao, J. Wu, Y. Qiu, Z. Lun, D. Li
- 136.** Synthesis of biological activity of 3- and 5-PP-IP5. **J. Zhang**, H. Zhang, Y -S. Lee, E. O'Shea, G. D. Prestwich
- 137.** Synthesis of fullerene amino acids and peptides. **A. Strom**, A. R. Barron
- 138.** Synthesis of selenium modified thymidine phosphoramidites and their incorporation into oligonucleotides for structural and functional study of nucleic acids. **J. Sheng**, J. Salon, J. Jiang, Z. Huang
- 139.** Synthesis of templates with guanine-N7 adducts of 2,7-diaminomitosenone to monitor translesion synthesis by different DNA polymerases. **C. C. Clement**, S. Ladwa
- 140.** Targeted inactivation of proteins triggered by visible light. **J. Lee**, H -S. Lim, D. G. Udugamasooriya, T. Kodadek
- 141.** The alteration of microRNAs expression profile by RDX follows a tissue-specific pattern. **X. Pan**, **B. Zhang**
- 142.** The mechanism of gene expression regulation by the ykkCD riboswitch. **W. Howe**, T. Gerczei
- 143.** Towards an artificial metallo-ribozyme: Enantioselective allylic substitution by a DNA-diene-iridium hybrid catalyst. **P. Fournier**, R. Fiammengo, A. Jäschke
- 144.** TPLH network: maintaining the global structure of ankyrin repeat proteins. **Y. Guo**, C. Yuan, M -D. Tsai, J. Li
- 145.** Tuning the redox properties of ruthenium(II) polypyridyl-viologen complex by the linkage chain for effective DNA photocleavage . **Y. He**, S. Sun, Z. Yang, J. Fan, X. Peng
- 146.** Unraveling the Interaction Between poly(CUG)RNA and the MBNL1 Protein and Inhibition of Complex Formation by Small molecules. **S. R. Ramisetty**
- 147.** Urea denaturation of various elastin-like polypeptides. **L. B. Sagle**, Y. Cho, J. Kherb, Y. Zhang, P. S. Cremer
- 148.** Using NMR to determine the conformation of capsaicin in environments of varying polarity: relevance to capsaicin binding to TRPV1 receptors. **B. Vallieres**, R. V. Prigodich
- 149.** Using quaternions to analyze ligand-protein interactions in molecular dynamics

calculations. R. M. Hanson, **S. Johnston**

**150.** Using transmission electron microscopy (TEM) to image the osteocalcin binding site on type I tropocollagen. **P. Klemm**, R. V. Prigodich

## **Genetically Designed Molecular Materials**

### **Nanostructured Biomacromolecules**

*Sponsored by NANO, Cosponsored by BIOL and MEDI*

## **WEDNESDAY MORNING**

### **Nakanishi Prize: Symposium in Honor of JoAnne Stubbe**

J. Stubbe, *Organizer*

**9:00 –151.** Nanocarrier delivery of platinum anticancer drugs. **S. Lippard**

**9:40 –152.** Fluorescent and luminescent probes for biological chemistry. **B. Imperiali**

**10:20 –153.** ENDOR in metallobiochemistry. **B. M. Hoffman**

**11:00 –154. Award Address** (Nakanishi Prize, sponsored by Nakanishi Prize Endowment). Ribonucleotide reductases as a paradigm for control of radical mediated reactions in biology. **J. Stubbe**, E. B. Minnihan, K. Yokoyama, M. Seyedsayamdost

## **Functional Motions in Enzyme Catalysis**

*Sponsored by PHYS, Cosponsored by BIOL*

## **WEDNESDAY AFTERNOON**

### **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. Motl
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