

Outputs and Interactions – Biotechnology Division

1. Publications

1a. Publications in Print

Akers, D.L. and Goldberg, R.N., “*BioEqCalc: A Package for Performing Equilibrium Calculations on Biochemical Reactions*,” *The Mathematica Journal* 1, 86-113 (2001).

Benight, A.S., Pancoska, P., Owczarzy, R., Vallone, P.M., Nesetrl, J., and Riccelli, P.V., “*Calculating Sequence-Dependent Melting Stability of Duplex DNA Oligomers and Multiplex Sequence Analysis by Graphs*,” *Methods Enzymol.* 340,165-92 (2001).

Berman, H.M., Bhat, T.N., Bourne, P.E., Feng, Z., Gilliland, G., Weissig, H., and Westbrook, J. “*The PDB and the Challenge of Structural Genomics*,” *Nature: Structural Biology*, 11, 957-959 (2000).

Berman, H.M., Westbrook, J., Feng, Z., Gilliland, G.L., Bhat, T.N., Weissig, H., Shindyalov, I., and Bourne, P.E. “*The Protein Data Bank (PDB)*,” *International Tables For X-Ray Crystallography*, Volume F: Macromolecular Crystallography, 675-684 (2001).

Bezrukov, S.M. and Kasianowicz, J. J., “*Neutral Polymers in the Nanopores of Alamethicin and Alpha-hemolysin*,” *Biologicheski Membrany* 18, 451-455 (2001).

Bhat, T.N., Bourne, P., Feng, Z., Gilliland, G., Jain, S., Ravichandran, V., Schneider, B., Schneider, K., Thanki, N., Weissig, H., Westbrook, J., and Berman, H.M. “*The PDB Data Uniformity Project*,” *Nucleic Acids Research*, 29, 214-218 (2001).

Butler, J.M. and Reeder, D.J. “*Detection of DNA Polymorphisms Using PCR-RFLP and Capillary Electrophoresis*,” *Methods in Molecular Biology: Capillary Electrophoresis of Nucleic Acids*, eds. K.R. Mitchelson and J. Cheng, Humana Press, Totowa, NJ, 49-56 (2001).

Butler, J.M., Ruitberg, C.M., Vallone, P.M., “*Capillary Electrophoresis as a Tool for Optimization of Multiplex PCR Reactions*,” *Fresenius J. Anal. Chem.* 369, 200-205 (2001).

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Butler, J.M. and Becker, C.H., “*Improved Analysis of DNA Short Tandem Repeats with Time-Of-Flight Mass Spectrometry*,” Final Report for NIJ Grant 97-LB-VX-0003, Office of Justice Programs, National Institute of Justice, 1-75 (2001).

Butler, J.M., “*Forensic DNA Typing: Biology and Technology Behind STR Markers*,” Academic Press, London (published).

Chu, S.Y., Tordova, M., Gilliland, G.L., Gorshkova, I., Shi, Y., Wang, S., and Schwarz, F.P.,

“The Structure of the T127L/S128A Mutant of cAMP Receptor Protein Facilitates Promoter Site Binding,” J. Biol. Chem. 14, 11230-11236 (2001).

Cole, K.D. and Åkerman, B., ***“Enhanced Capacity for Electrophoretic Capture of Plasmid DNA by Agarase Treatment of Agarose Gels,”*** BioMacromolecules 1, 771-781 (2000).

Cole, K.D., ***“Laboratory Database to Manage Electrophoresis and Chromatography Separations and the Associated Samples,”*** Biotechniques 29, 1256-1262 (2000).

Cole, K.D., Tellez, C.M., and Nguyen, R., ***“Controlling Electrophoretic Trapping of Circular DNA by Addition of Starch Preparations to Agarose Gels,”*** Applied Biochemistry and Technology 95, 31-43 (2001).

Devaney, J.M., Pettit, E.L., Kaler, S.G., Vallone, P.M., Butler, J.M., Marino, M.A., ***“Genotyping of Two Mutations in the HFE Gene Using Single-Base Extension and High-Performance Liquid Chromatography,”*** Anal. Chem. 73, 620-624 (2001).

Dherin, C., Dizdaroglu, M., Doerflinger, H., Boiteux, S., and Radicella, J.P., ***“Repair of Oxidative DNA Damage in Drosophila Melanogaster: Identification and Characterization of D0gg1, a Second 8-Hydroxyguanine DNA Glycosylase Activity,”*** Nucl. Acids. Res. 28, 4583-4592 (2000).

Dizdaroglu, M., Jaruga, P., and Rodriguez, H., ***“Measurement of 8-Hydroxy-2'-Deoxyguanosine in DNA by High-Performance Liquid Chromatography-Mass Spectrometry: Comparison with Measurement by Gas Chromatography-Mass Spectrometry,”*** Nucl. Acids. Res. 3, 1-8 (2001).

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Dizdaroglu, M., Jaruga, P., and Rodriguez, H., ***“Identification and Quantification of 8,5' -Cyclo-2'-Deoxyadenosine in DNA by Liquid Chromatography/Mass Spectrometry,”*** Free Radic. Biol. Med. 30, 774-784, (2001).

Dizdaroglu, M., Burgess, S.M., Jaruga, P., Hazra, T.K., Rodriguez, H., and Lloyd, R.S., ***“Substrate Specificity and Excision Kinetics of Escherichia Coli Endonuclease VIII (Nci) for Modified Bases in DNA Damaged by Free Radicals,”*** Biochem. 40, 12150-12156 (2001).

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Worthington, S.E., Roitberg, A.E., and Krauss, M., ***“An MD/QM Study of the Chorismate Mutase-Catalyzed Claisen Rearrangement Reaction,”*** *J. Phys. Chem. B* 29, 7087-7095 (2001).

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1b. Manuscripts in review

(manuscripts that have been approved by the NIST internal review process and submitted for publication, but have not yet appeared in print)

Abdulaev, N.G., Strassmaier, T.T., Ngo, T., Cartailier, J.P., Lueke, H., Oprian, D.D., and Ridge, K.D., "*G-protein Coupled Receptor/Bacteriorhodopsin Chimeras: Grafting the Amino-terminal and Extra cellular Loop Segments of CCR5 onto the Transmembrane Helices of Bacteriorhodopsin*," Proc. Natl. Acad. Sci., USA, (in press).

Alberty, R.A., Barthel, J.M.G., Cohen, E.R., Goldberg, R.N., and Wilhelm, E., "*Use of Legendre Transforms in Chemical Thermodynamics*," Pure and Applied Chemistry (in press).

Andersen, O.M., Schwarz, F.P., Eisenstein, E., Jacobsen, C., Moestrup, S.K., Etzerodt, M., and Thogersen, H.C., "*Dominant Thermodynamic Role of the Third Independent Receptor Binding Site in the Receptor-Associated Protein RAP*," Biochem. (in press).

Anderson, S.J., Barker, P.E. and Hadfield, M., "*Cytonectin expression in Alzheimer's Disease*," Journal of Neuropathology and Experimental Neurology. (in press).

Atha, D. H., Kasprzak, W., O'Connell, C. D., Shapiro, B.,D.H., "*Prediction of DNA Single Strand Conformational Polymorphism (SSCP): Analysis by Capillary Electrophoresis and Computerized Modeling*", Nucl. Acids Res. (in press)

Barker, P., Watson, M.S., Ticehurst, J.R., and O'Connell, C.D., "*NIST Physical Standards for DNA-Based Medical Testing*," J. Clin. Lab. Anal. (in-press)

Barker, P. E. "*NCCLS. Fluorescence in situ hybridization (FISH) methods for medical genetics; Proposed guidelines*" NCCLS Document MMP-7 (in-press)

Bezrukov, S.M. and Kasianowicz, J.J. "*Dynamic Partitioning of Neutral Polymers into a Single Ion Channel. NATO ARW on Polymer Structure and Transport in Confined Spaces*," NATO ARW on Polymer Structure and Transport in Confined Spaces, eds. Kasianowicz J. J., Kellermayer, M., and Deamer, D.W., Kluwer Press (in press).

Boerio-Goates, J.A., Francis, M.R., Goldberg, R.N., Ribeiro da Silva, M.A.V., Ribeiro da Silva, M.D.M.C., and Tewari, Y.B. "*Thermochemistry of Adenosine*," J. Chem. Thermodyn. (in press).

Butler, J.M., "*Minisequencing the Mitochondrial DNA Control Region Using Time-Of-Flight Mass Spectrometry*," Mitochondrial DNA Forensic Methods, ed. A. Sajantila, BioTechniques Books, Eaton, Massachusetts (in press).

Butler, J.M., "*High-Throughput Genotyping of Short Tandem Repeat DNA Markers with Time-of-Flight Mass Spectrometry*," Encyclopedia of Mass Spectrometry, Elsevier Science,

New York, NY (in press).

Butler, J.M., Schoske, R., and Vallone, P.M., "**Highly Multiplexed Assays for Measuring Polymorphisms on the Y-Chromosome,**" Progress in Forensic Genetics 9, Elsevier Science, New York, NY (in press).

Cole, K.D. and Tellez, C.M., "**Separation of Large Circular DNA by Electrophoresis in Agarose Gel,**" Biotechnology Progress (in press).

Deamer, D.W., Olsen, H., Akesson, M. A., and Kasianowicz, J. J., "**Mechanism of Ionic Current Blockades During Polymer Transport Through Pores with Nanometer Dimensions,**" in NATO ARW on Polymer Structure and Transport in Confined Spaces, eds. J.J. Kasianowicz, M. Kellermyer, and D.W. Deamer, Kluwer Press. New York (in press).

DeJong, E.S., Luy, B., and Marino, J.P., "**RNA and RNA-Protein Complexes as Targets for Therapeutic Intervention,**" Current Medicinal Chemistry (in press).

Dizdaroglu, M., Jaruga, P., and Rodriguez, H., "**Mechanisms and Measurement of Oxidative DNA Damage,**" Oxidative Stress and Aging: Advances in Basic Science, Diagnostics and Intervention, eds. R.G. Cutler and H. Rodriguez, World Scientific, Singapore (in press).

Duewer, D.L., Richie, K.L., Reeder, D.J., "**RFLP Band Size Standards: NIST Standard Reference Material 2390,**" J. Forensic Sci. (in press).

Elliot, J. T., Meuse, C.W., Silin, V., Kreuger, S., Woodward, J.T., Petralli-Mallow, T.P., and Plant, A.L. "**Biomimetic Membranes on Metal Supports: Opportunities and Challenges,**" in Biomolecular Films: Design, Function, and Application," ed. J. Rusling, Marcel Dekker, New York (in press).

Gilliland, G.L. "**Biotechnology at NIST: Critical Measurements, Data, and Standards for an Emerging Industry,**" Proceedings of the 2000 National Conference of Standards Laboratories, (in press).

Goldberg, R.N. and Tewari, Y.B., "**Thermochemistry of the Biochemical Reaction: {pyrophosphate(aq) + H₂O(l) = 2 phosphate(aq)},**" J. Chem. Thermodynamics (in press).

Goldberg, R.N., Kishore, N., and Lennen, R.M., "**Thermodynamic Quantities for the Ionization Reactions of Buffers,**" J. Phys. & Chem. Ref. Data (in press).

Holden, M.J., Mayhew, M.P., Gallagher, D.T., and Vilker, V.L., "**Chorismate Lyase: Kinetics and Engineering for Stability,**" Biochimica et Biophysica Acta (in press).

Jaruga, P., Rodriguez, H., and Dizdaroglu, M.M., "**Chlorella Virus Pyrimidine Dimer Glycosylase Excises Ultraviolet Radiation- and Hydroxyl Radical-Induced Products 4, 6-Diamino-5-Formamidopyrimidine and 2,6-Diamino-4-Hydroxy-5-Formamidopyrimidine from DNA,**" Photochem. Photobiol. (in press).

- J.J. Kasianowicz, M. Kellermayer, and D.W. Deamer, Kluwer Press, New York (in press).
- Krueger, S., Meuse, C.W., Majkrak, C. F., Dura, J.A., Berk, N.F., Tarek, M. and Plant, A.L. ***“Investigation of Hybrid Bilayer Membranes with Neutron Reflectometry: Probing the Interactions of Melittin,”*** Langmuir, (in press).
- Levin, B.C. and Lee, M.S., ***“Mitoanalyzer: A Computer Program and Interactive Web Site to Determine the Effects of Single Nucleotide Polymorphisms (SNPs) and Mutations in Human Mitochondrial DNA,”*** Mitochondrion Journal (in press).
- Luy, B. and Marino, J.P., ***“¹H-³¹P CPMG-Correlated Experiments for the Assignment of Nucleic Acids,”*** J. Am. Chem. Soc.(in press).
- Mayhew, M.P., Roitberg, A.E., Tewari, Y., Holden, M.J., Vanderah, D.J., and Vilker, V.L., ***“Benzocycloarene Hydroxylation by P450 Biocatalysis,”*** New Journal of Chemistry (in press).
- O’Connell, C.D., Atha, D.H., Jakupciak, J.P., Amos, J.A, and Richie, K.L., ***“Standardization of PCR Amplification for Fragile X Trinucleotide Repeat Measurements,”*** Clinical Genetics (in press).
- Rodriguez, H., Akman, S.A., Holmquist, G.P., Wilson, G.L., Wesley, J.D. and LeDoux, S.P., ***“Mapping Oxidative DNA Damage using LMPCR Technology,”*** Methods in Enzymology, (in press).
- Rodriguez, H. and Banks, D.A., ***“Advisability of Human Life Span Extension: Economic Considerations,”*** Oxidative Stress and Aging Journal (in press).
- Rodriguez, H., O’Connor, T.R., Chen, H.H., Dai, S.M., Flanagan, S.D., Holmquist, G.P., Adman, S.A., and Riggs, A.D., ***“Mapping Oxidative DNA Damage at Nucleotide Resolution In Mammalian Cells,”*** Oxidative Stress and Aging Journal (in press).
- Tewari, Y.B., Kishore, N., Bauerle, R.H., LaCourse, W.R., and Goldberg, R.N., ***“Thermochemistry of the Reaction {phosphoenolpyruvate(aq) + D-erythrose 4-phosphate(aq) + H₂O(l) + 2-dehydro-3-deoxy-D-arabino-heptonate 7-phosphate(aq) + phosphate(aq)},”*** J. Chem. Thermodyn. (in press).
- Tuo, J., Müftüoğlu, M., Jaruga, P., Chen, C., Brosh, Jr., R.M., Rodriguez, H., Dizdaroglu, M., and Bohr, V.A., ***“Cockayne Syndrome Group B Gene Is Involved In Base Excision Repair Of 8-Hydroxyguanine In DNA,”*** J. Biol. Chem. (in press).
- Wadkins, R.M., Vladi, B., Tung, C.-S., Vallone, P.M. and Benight, A.S., ***“The Role of the Loop in Binding of Actinomycin D to Hairpins Formed by Single-Stranded DNA,”*** Arch. Biochem. Biophys. (in press)

2. Talks

Atha, D. H. “**High-Throughput Analysis of Differential Gene Expression by Capillary Electrophoresis,**” WTEC Workshop of Tissue Engineering Research, NIST, Gaithersburg, November 2, 2000.

Atha D. H. “**High Throughput Genetic Analysis by Capillary Electrophoresis,**” Cambridge Healthtech Institute Conference on Molecular Analysis for Research and Diagnostics, San Diego, CA, February 15, 2001. Invited

Butler, J.M., “**Update on NIST Activities Regarding Forensic DNA Typing,**” Scientific Working Group on DNA Analysis Methods, Biloxi, MS, October 11, 2000.

Butler, J.M., “**Multiplex PCR and Determination of Primer Sequences Used in STR Kits,**” Eleventh International Symposium on Human Identification, Biloxi, MS, October 13, 2000.

Butler, J.M., “**High-Throughput Genotyping and Applications in Human Identity Testing,**” NIST Biotechnology Seminar, Gaithersburg, MD, December 13, 2000.

Butler, J.M., “**Analysis of Multiplex STR Kits and Primer Sequences,**” Special Presentation to the National Institute of Justice, Washington, D.C., January 12, 2001.

Butler, J.M., “**Update on NIST Activities with Forensic DNA Typing,**” Scientific Working Group on DNA Analysis Methods, Quantico, VA, January 23, 2001.

Butler, J.M., “**Genotyping DNA Samples for Human Identity Testing Purposes,**” Seminar at American Type Culture Collection, Manassas, VA, February 1, 2001.

Butler, J.M., “**Comparison of Primer Sequences Used in Commercial STR Kits,**” 53rd Annual Meeting of the American Academy of Forensic Sciences, Seattle, WA, February 22, 2001.

Butler, J.M., “**Developing New Technology for Forensic DNA Typing,**” Seminar at Florida International University, Miami, FL, March 9, 2001.

Butler, J.M., “**DNA Typing by Mass Spectrometry,**” Seminary at Marshall University, Huntington, WV, April 2, 2001.

Butler, J.M., “**Identifying Criminals with DNA,**” NIST Centennial Open House, Gaithersburg, MD, May 11, 2001.

Butler, J.M., “**Multiplex SNP Assays for mtDNA and Y Chromosome Markers Using Time-Of-Flight Mass Spectrometry,**” NIJ DNA Grantees Meeting, Washington, D.C., June 7, 2001.

Butler, J.M., “**Developing New DNA Tests Using Y Chromosome Markers,**” FBI Headquarters, Washington, D.C., June 12, 2001. Invited

Butler, J.M., ***“High-Throughput Genotyping and Work with Human Identity Testing at NIST,”*** Seminar at LGC, Teddington, England, June 19, 2001.

Butler, J.M., ***“Update on NIST Activities with Forensic DNA Typing,”*** Scientific Working Group on DNA Analysis Methods, Quantico, VA, July 12, 2001.

Butler, J.M., ***“Highly Multiplexed Assays For Measuring Polymorphisms On The Y-Chromosome,”*** 19th Congress of the International Society of Forensic Genetics, Munster, Germany, August 30, 2001.

Butler, J.M., ***“Short Tandem Repeat DNA Typing Systems,”*** Midwestern Association of Forensic Sciences, ABI 310 Workshop, Minneapolis, MN, September 24, 2001.

Butler, J.M., ***“ABI Prism 310 Genetic Analyzer: Chemistry, Hardware, and Software,”*** Midwestern Association of Forensic Sciences, ABI 310 Workshop, Minneapolis, MN, September 24, 2001.

Cole, K.D., ***“Electrophoretic trapping and mobility of large circular BAC DNA in Gels,”*** American Chemical Society National Meeting, San Diego, CA, April 4, 2001.

Cole, K.D., ***“Electrophoresis and Electrophoretic Trapping of Circular DNA in Gels,”*** Dept. of Chemical and Environmental Engineering at the University of Arizona, Tucson, Arizona, April 6, 2001.

DeJong, E.S. ***“NMR Studies of Cole1 RNA Kissing Hairpin Complex Recognition by the Rom Protein,”*** RNA Society Meeting, Banff, Canada, May 19, 2001.

DeJong, E.S., ***“High Resolution Structure Determination of the Neomycin B/RRE IIB RNA Complex Using Multidimensional Heteronuclear NMR Spectroscopy,”*** Annual Biotechnology Division Retreat, Harpers Ferry, WV, April 19, 2001.

Dizdar, M., ***“Oxidative DNA Damage: Mechanisms of Product Formation and Repair by Base-Excision Pathway,”*** The 10th Biennial Meeting of the International Society for Free Radical Research, Kyoto, Japan, October 17, 2000. Invited

Dizdar, M. ***“Base-Excision Repair of Oxidative DNA Damage: Measurement and Substrate Specificities,”*** Banyu Tsukuba Research Institute in Collaboration with Merck Research Laboratories, Tsukuba, Japan, October 23, 2000. Invited

Dizdar, M. ***“Oxidative DNA Damage; Mechanisms of Product Formation and Repair by Base-Excision Pathway,”*** Oxygen Club of the Greater Washington Area, National Institutes of Health, Bethesda, MD, November 21, 2000. Invited

Dizdar, M. ***“Measurement of Oxidative DNA Damage by Liquid Chromatography-Mass Spectrometry,”*** National Institute of Aging, National Institutes of Health, Baltimore, MD, December 12, 2000. Invited

Dizdar, M. ***“Mechanisms and Measurement of Oxidative DNA Damage”***, Second International

- Meeting on Oxidative Stress and Aging, Maui, Hawaii, April 2, 2001. Invited
- Elliott, J.T., “*Detecting Active Peptides and Proteins in Tethered Lipid Bilayers*,” Biophysical Society Meeting, Boston, MA, February 18, 2001. Invited
- Gaigalas, A.K., “*Characterization and Certification of Fluorescein Standard*,” PITTCON, New Orleans, LA, March 5, 2001.
- Gaigalas, A.K., “*Development of EmF Techniques for the Study of Molecules*,” PITTCON, New Orleans, LA, March 5, 2001.
- Gallagher, D.T., “*Extreme Product Inhibition in Chorismate Lyase*,” 17th Enzyme Mechanisms Conference, Marcos Island, FL, January 5, 2001.
- Gallagher, D.T., (coauthors: Mayhew, M.P., Holden, M.J., and Vilker, V.L.) “*Protein and Enzyme Engineering from a Structural Perspective*,” American Chemical Society National Meeting, San Diego, CA, April 4, 2001.
- Gallagher, D.T., “*Protein and Enzyme Engineering from a Structural Perspective*,” American Crystallographic Association Council Meeting, San Antonio, TX, April 7, 2001.
- Gallagher, D.T., “*Tricks, Tools, and Trends on the Pathway to Structure*,” American Crystallographic Association Annual Meeting, Los Angeles, CA, July 23, 2001.
- Gilliland, G.L. “*Structural Genomics: High-Throughput Crystallization*,” Crystallogensis and Protein Crystallography Workshop, Institute de Quimica, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, November 28, 2000.
- Gilliland, G.L. “*Protein Data Bank*,” Crystallogensis and Protein Crystallography Workshop, Institute de Quimica, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, November 29, 2000.
- Gilliland, G.L., “*Structural Genomics: High-Throughput Crystallization*,” Macromolecular Crystallography Workshop, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, October 14, 2001.
- Gilliland, G.L., “*Depositing Data In and Querying the Protein Data Bank*,” Macromolecular Crystallography Workshop, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, October 16, 2001.
- Gilliland, G.L., “*The Central Role of the Protein Data Bank in Bioinformatics*,” PittConn 2001, New Orleans, LA. March 8, 2001.
- Gilliland, G.L., “*Biometrology Task Group Report*,” Comité Consultatif pour la Quantité del Matière Annual Meeting, Paris, France, April 5, 2001.
- Gilliland, G.L., “*Protein Structure and the Protein Data Bank*,” Biochemistry and Molecular Biology Department, Georgetown University, Georgetown, MD, April 30, 2001.

Gilliland, G.L., "**Macromolecular Crystallography and Structural Biology Databases at NIST**," NIST Centennial Celebration Symposium, American Crystallographic Association Annual Meeting, Los Angeles, July 24, 2001.

Goldberg, R.N., "**The National Institute of Standards and Technology Celebrates its Centennial**," 38th IUPAC World Chemistry Congress, Brisbane, Australia, July 3, 2001.
Invited

Holden, M.J., "**Status of GMO Activity at NIST**," USDA/GIPSA, Kansas City, MO, July 31, 2001.

Holden, M.J., (coauthors: Mayhew, M.P., Gallagher, D.T., and Vilker, V.L.) "**Chorismate Lyase: Understanding the Mechanism of Product Inhibition**," Experimental Biology 2001 Conference, Orlando, FL, April 3, 2001.

Hancock, D.K., "**NMR Developments in The Protein Data Bank**," Frontiers of NMR in Molecular Biology VII, Big Sky, Montana, January 20-26, 2001.

Hancock, D.K., "**The Protein Data Bank – NMR Developments**," 42nd Experimental Nuclear Magnetic Resonance Conference (ENC), Orlando, Florida, March 13, 2001.

Hancock, D.K. "**Development and Use of Designer PNAs to Detect Low-Frequency Disease Mutations in Human Mitochondrial DNA**," 2nd Annual Biotechnology Division Retreat, Harpers Ferry, WV, April 19, 2001.

Hancock, D.K., "**The Protein Data Bank – NMR Developments**," Washington Area NMR Group (WANG) meeting, NIH, May 4, 2001.

Kasianowicz, J.J., "**DNA Transport in a Single Nanopore**," Centre National de la Recherche Scientifique Institut de Pharmacologie et de Biologie Structurale, Toulouse, France. November 2, 2000. Invited

Kasianowicz, J.J., "**Threading DNA Through a Single Nanopore: Biotechnological Applications**," Workshop on Materials for Biomedical Applications, Smolenice Castle, Slovakia, November 4, 2000.

Kasianowicz, J.J., "**Applications for DNA in a Nanometer-Scale Pore**," Biophysical Society Meeting, Boston, MA. February 21, 2001.

Kasianowicz, J.J., "**Threading DNA Through a Nanometer-Scale Pore: Biophysical and Biotechnological Applications**," American Physical Society Meeting, Seattle, WA., March 13, 2001.

Kasianowicz, J.J., "**Threading Individual Polymers Through a Nanometer-Scale Pore: Potential Applications in Biology and Biotechnology**," *Polymers in Nanoscopic Pores: Applications to Single Molecule Analysis and Metabolite Transport*," National Institutes of Health, Bethesda, MD, April 16, 2001.

- Kasianowicz, J.J., ***“DNA Transport in a Single Nanometer-Scale Pore,”*** Dept. of Physics, University of Pittsburgh, Pittsburgh, PA, April 27, 2001.
- Kasianowicz, J.J., ***“Dynamics of DNA Transport in a Single Nanopore,”*** 4th International Discussion Meeting on Relaxations in Complex Systems, Crete, Greece. June 19, 2001.
- Kasianowicz, J.J., ***“DNA and RNA Transport in a Single Nanopore,”*** Post 15th International and 5th Chinese Conferences on Phosphorus Chemistry, Tsinghua University, Beijing, China, August 7, 2001.
- Kasianowicz, J.J., ***“Single Nanopores for Sensitive Analyte Detection,”*** NCI Nanotechnology in Early Cancer Detection Workshop, NIST, Gaithersburg, MD, August 30, 2001.
- Kline, M. C., ***“Overview of the NIST CSTL Biotechnology Division,”*** Marine Genomics Consortium, NIST Charleston Laboratory, Charleston, SC, March 9, 2001.
- Kline, M.C., ***“NIST Update: 1) SRM 2391a Availability, 2) New NIST Projects,”*** Fourth Annual STR MegaPlex Advanced Research and Training Workshop, Hilton Head, SC, March 13, 2001.
- Kline, M.C. ***“NIST Update: What Have We Learned About DNA Stability and Quantitation?”*** Fourth Annual STR MegaPlex Advanced Research and Training Workshop, Hilton Head, SC, March 13, 2001.
- Kline, M.C. ***“DNA Stability and Quantitation Methods Overview,”*** CODIS Laboratories, Marshall University, April 18, 2001.
- Levin, B.C., ***“Human DNA Standard Reference Materials Developed at NIST,”*** Adenoviral Vector Testing, Washington, D.C., October 5, 2000. Invited
- Levin, B.C., ***“NIST DNA Standards,”*** E-48 Committee on Biotechnology, FDA Building, Rockville, MD, October, 26, 2000. Invited
- Levin, B.C., ***“NIST Standard Reference Materials For Human DNA Analysis,”*** Workshop on Measurement Traceability for Clinical Laboratory Testing and In Vitro Diagnostic Test Systems, NIST, Gaithersburg, MD, November 2, 2000. Invited
- Levin, B.C. ***“Single-Strand DNA Breaks Following Exposure to Combined Therapeutic HIV/AIDS Agents,”*** Alternate Toxicological Methods for the New Millennium, NIH, Bethesda, MD, November 28, 2000.
- Levin, B.C., ***“Human Mitochondrial DNA: The Other DNA and its Importance,”*** Chemical Society of Washington, Rosslyn, VA. January 11, 2001. Invited
- Levin, B.C., ***“The Miracle of DNA: Inheritance from the Past and Prospects for the Future,”*** Science and Religion Series, United Church, Washington, DC, January 21, 2001. Invited

- Levin, B.C., "***NIST Biotechnology Division Poster,***" Pittsburgh Conference (PittCon), New Orleans, LA, March 5, 2001.
- Levin, B.C., "***NIST Standard Reference Materials for Human DNA Analysis,***" Pittsburgh Conference (PittCon), New Orleans, March 5, 2001. Invited
- Levin, B.C., "***A Computer Program to Determine the Effects of Single Nucleotide Polymorphisms and Mutations in Human Mitochondrial DNA,***" 40th Annual Meeting of the Society of Toxicology, San Francisco, CA, March 25, 2001.
- Levin, B.C., "***Description of a New NIST Mitochondrial DNA Interactive Web Site,***" 2nd Annual Biotechnology Division Retreat, Harpers Ferry, WV, April 19, 2001.
- Levin, B.C., "***Human Mitochondrial DNA Standard Reference Materials and the Interactive Web Site,***" FDA Genomics/Proteomics Working Group, FDA Parklawn Building, Rockville, MD, May 1, 2001. Invited
- Levin, B.C., "***Genetics of Human Mitochondrial DNA,***" Catholic University, Washington, DC, June 20, 2001 Invited
- Luy, B. "***F-19 NMR as a Method for Monitoring Ligand Binding to RNA and RNA-protein Complexes,***" Annual Meeting of the Biophysical Society Meeting, Boston, MA, February 3, 2001.
- Marino, J.P., "***Designing and Screening Small Molecules that Target RNA Using Fluorescence and NMR Spectroscopy,***" CHI Meeting on NMR: Drug Discovery and Design, McLean, VA, October 8, 2000. Invited
- Marino, J.P., "***Structural and Kinetic Studies of RNA Loop-Loop Complexes,***" Department of Biochemistry, University of Montana, Missoula, MT, November 10, 2000. Invited
- Marino, J.P., "***Structure and Dynamics of the R1 Plasmid CopA-CopT RNA Complex,***" Keystone Symposium on Frontiers of NMR in Molecular Biology V, Big Sky, MT, January 21, 2001.
- Marino, J.P., "***Targeting RNA: The Development of High-Throughput Screens to Identify Novel Therapeutics,***" NIST Measurements and Materials at the Bio-Interface, Gaithersburg, MD, February 18, 2001. Invited
- Marino, J.P. "***RNA Loop-Loop Complexes: Structural Variations on an Antisense Theme,***" ACS Mid-Atlantic Regional Meeting, Towson, MD, May 14, 2001. Invited
- Marino, J.P., "***Targeting Retroviral RNA : Development of Fluorescence and NMR Techniques to Identify Novel Therapeutics,***" NIH AIDS Structural Biology Meeting,

Bethesda, MD, June 13, 2001.

Marino, J.P., "***Mechanism of NCp7 Mediated HIV-1 DIS Maturation,***" NIH RNA Interest Group, Bethesda, MD, July 22, 2001. Invited

Mayhew, M.P., "***Chorismate Lyase: Understanding the Mechanism of Product Inhibition,***" American Chemical Society National Meeting, San Diego, CA, April 4, 2001.

Meuse, C.W., "***Organic Thin-Film Thickness Standards and Spectroscopic Ellipsometry,***" 2nd Optical Properties Consortium Workshop, NIST, Gaithersburg, MD, December 6, 2000.

Meuse, C.W., "***Molecular Surface Structure and Biocompatibility,***" American Physical Society Meeting, Seattle, WA, March 13, 2001.

Meuse, C.W., "***Characterization of Biomolecular Structures,***" Biotechnology Division Seminar, Gaithersburg, MD, May 16, 2001.

Meuse, C.W., "***Measurement of Molecular Surface Structure,***" ACS Colloid and Surface Science Symposium, Pittsburgh, PA, June 22, 2001.

O'Connell, C.D., "***Standardization of Trinucleotide Repeat Measurements,***" Miami, FL, March 1, 2001.

O'Connell, C. D., "***Standardization of Trinucleotide Repeat Measurements,***" American Society of Biochemistry, Orlando, FL, March 31, 2001.

O'Connell, C. D. "***Standardization of Trinucleotide Repeat Measurements,***" Institute of Biological Sciences and Technology, Houston, TX, April 10, 2001.

O'Connell, C. D., "***Standardization of Trinucleotide Repeat Measurements,***" International Genetics Meeting, Vienna, Austria, May 15, 2001.

O'Connell, C.D., "***Determining the p53 Mutational Status of Clinical Specimens,***" Second Annual Biotechnology Division Retreat, Harpers Ferry, WV, April 19, 2001.

Plant, A.L., "***Designing Biomimetic Surfaces,***" Bioscience Division, Los Alamos National Laboratory, Los Alamos, NM, March 29, 2001.

Plant, A.L., "***Novel Probes of Interfaces in Biotechnology,***" Horizons in Biotechnology Forum, DuPont Experimental Station, Wilmington DE, April 7, 2001. Invited

Plant, A.L., "***Arresting the Fusion of Phospholipid Vesicles with Hydrophobic Interfaces by Decreasing the Surface Free Energy,***" ACS NW Regional Meeting, Seattle, WA, June 17, 2001.

Plant, A.L., "***Biomimetic Materials***," Psychiatric Genomics Inc, Gaithersburg MD, July 19, 2001.

Reddy, P., "***Diversity of Adenylyl Cyclases in Mycobacterium Tuberculosis H37Rv: Molecular Cloning and Characterization***," US-Japan Cooperative Medical Science Program, 36th Tuberculosis and Leprosy Research Conference, New Orleans, LA, July 15, 2001.

Reipa, V. "***Structural Perturbations of the Cytochrome P450 Y96F mutant active site, as deduced by Resonance Raman Spectroscopy***," American Chemical Society National Meeting, San Diego, CA, April 3, 2001.

Richie, K.L., "***Standardization of Trinucleotide Repeat Measurements***," 2001 Clinical Genetics Meeting, Miami, FL, March 1, 2001.

Ridge, K.D., "***G-protein Coupled Receptor/Bacteriorhodopsin Chimeras: Grafting Segments from the Extracellular Surface of CCR5 onto the Transmembrane Helices of Bacteriorhodopsin Confers HIV-1 Coreceptor Activity***," Department of Biology, Massachusetts Institute of Technology, Cambridge, MA, July 20, 2001.

Ridge, K. D., "***Interactions Between "High Affinity" G Protein α -Subunit Carboxyl-terminal Peptides and Soluble Cytoplasmic Surface Polypeptides of Rhodopsin***," 34th IUPS Meeting on Phototransduction, Dunk Island, Australia, August 23, 2001. Invited

Rist, M., "***Quantitative Analysis of Antisense RNA Loop-Loop Complexes using 2-Aminopurine Fluorescence***," Annual Meeting of the Biophysical Society, Boston, MA, February 3, 2001.

Rodriguez, H., "***Technologies for Mapping Oxidative DNA Damage along the Human Genome***," 7th Annual Meeting of the Oxygen Society, San Diego, CA, November 18, 2000.

Rodriguez, H. "***Measurement of Oxidative Damage to DNA by LC/MS***," 7th International Workshop on Radiation Damage to DNA, Orleans - Nouan le Fuzelier, France, September 7, 2001.

Rodriguez, H., "***Measurement of Oxidative Damage to DNA by LC/MS***," 7th International Workshop of Radiation Damage to DNA, Nouan le Fuzelier, France, September 8, 2001.

Rodriguez, H., "***The Development of Molecular Biomarkers for Tissue-Engineered Medical Products***," Williamsburg BioProcessing TE Conference, Williamsburg, VA, September 21, 2001.

Rodriguez, H., "***Genechips, Tissue Engineering, and DNA Damage Mapping***," Second International Conference on Oxidative Stress and Aging, Maui, HI, April 16, 2001.

Rodriguez, H. "***Biomarkers of AQ & QC for Tissue Engineered Skin***," Engineering Tissue

Growth-1 International Conference and Exposition, Pittsburgh, PA, March 22, 2001.

Rodriguez, H., "***Oxidative Stress and Tissue Engineering: Developing Technologies and Standards for Industry,***" Biotechnology Division Lecture Series, NIST, Gaithersburg, June 14, 2001.

Rodriguez, H., "***Comparison of the Levels of 8-oxo-Gua in DNA as Measured by GC/MS Following Hydrolysis of DNA by E. Coli Fpg Protein or Formic Acid,***" Annual Joint Meeting of The Oxygen Club of Greater Washington, DC. Society for Experimental Biology and Medicine, Bethesda, MD, June 17, 2001.

Ruitberg, C.M., "***STRBase: Update on the NIST Forensic STR Database,***" Eleventh International Symposium on Human Identification, Biloxi, MS, October 11, 2000.

Ruitberg, C.M., "***New Primer Sets for Y Chromosome and CODIS STR Loci,***" Eleventh International Symposium on Human Identification, Biloxi, MS, October 12, 2000.

Schwarz, F.P., "***Energetics of the Activation of Transcription in E. Coli,***" Biocalorimetry 2001 Conference, Philadelphia, PA, July 18, 2001. Invited

Schwarz, F.P., "***Oxidation of the Metal Ions in Azurin Derivatives Induce Irreversibility in Their Thermal Denaturation Transitions,***" 56th Annual Calorimetry Conference, Colorado Springs, CO, August 2001. Invited

Silin, V., "***The Interaction of Phospholipid Vesicles with Binary Alkanethiol/Hydroxitiol Monolayer,***" American Vacuum Society International Symposium, Boston, Massachusetts, October 6, 2000.

Stoltzfus, A., "***The Population Genetics of Orthogenesis,***" Behavior, Evolution, Ecology and Systematics (BEES) Program at the University of Maryland, College Park, MD, October 30, 2000. Invited

Stoltzfus, A., "***Is RNA Editing and Evolutionary Anomaly?,***" Gordon Conference on RNA Editing, Ventura, CA, January 21, 2001. Invited

Stoltzfus, A., "***Evolutionary Gain of Intron and Non-random Sequences,***" Annual Biotechnology Division Retreat, Harpers Ferry, WV, April 19, 2001.

Stoltzfus, A., "***Bias in the Introduction of Variation as an Orienting Factor in Evolution,***" Annual Meeting of the Society for Molecular Biology and Evolution, Athens, GA, July 8, 2001. Invited

Stoltzfus, A., "***An Experimentally Based Measure of Amino Acid Exchangeability for Use in Evolutionary Modeling,***" Bioinformatics Division of GlaxoSmithKline Pharmaceuticals Research and Development, King of Prussia, PA, September 27, 2001. Invited

- Tewari, Y.B., "*Thermodynamics of the Lipase-Catalyzed Esterification of Glycerol and n-Octanoic Acid in Organic Solvents*," Martire Symposium, Georgetown University, Washington, D.C., May 4, 2001.
- Vallone, P.M., "*DNA Mass Spectrometry at NIST*," Eleventh International Symposium on Human Identification, Biloxi, MS, October 11, 2000.
- Vallone, P.M. "*DNA Mass Spectrometry at NIST*," American Society of Mass Spectrometry, Chicago, IL, May 27, 2001.
- Vallone, P.M. "*Developing New DNA Tests Using Y Chromosome Markers*," FBI Washington D.C., June 12, 2001. Invited
- Vallone, P.M., "*DNA Mass Spectrometry at NIST*," Bruker Daltonics Annual User Meeting at the 49th ASMS Chicago, IL, May 27, 2001. Invited
- Vallone, P.M. "*Genotyping of Single Nucleotide Polymorphisms (SNPs) by MALDI-TOF MS*," Virginia Commonwealth University School of Medicine, March 13, 2001. Invited
- Vallone, P.M., "*Analysis of Multiplex STR Kits and Primer Sequences*," Special Presentation to National Institute of Justice, Washington D.C., January 12, 2001 Invited
- Vanderah, D.J., "*Methyl 1-Thiahexa(ethylene oxide) Monolayers for the Inhibition of Protein Adsorption*," American Physical Society Meeting, Seattle, WA, March 13, 2001.
- Vanderah, D.J., "*Protein Adsorption Properties of Helical and Disordered Oligo(ethylene oxide)-terminated Self-Assembled Monolayers*," 75th Colloid & Surface Science Symposium, Pittsburgh, PA., June 13, 2001.
- Vilker, V.L., "*Biocatalysis Research Activity at NIST*," U.S. Airforce Workshop on Materials Biotechnology, St. Petersburg, FL, January 18, 2001.
- Vilker, V.L., "*Electrochemically Driven Biocatalysis*," Sixth Annual World Congress on Enzyme Technologies, IBC USA, San Diego, CA, February 26, 2001.
- Vilker, V.L., "*Biotechnology at NIST*," The Dow Chemical Co., Midland, MI, May 23, 2001.
- Wang, L., "*Vibrational Spectroscopy of Fluorescein*," Eastern Analytical Symposium, Atlantic City, NJ, October 31, 2000.
- Woodward, J. T., "*Atomic Force Microscopy of Supported Membranes*," Physics Department Seminar, George Mason University, February 21, 2001. Invited
- Woodward, J. T., "*Formation and Properties of Supported Membranes*," American Physical Society March Meeting, Seattle, WA, March 14, 2001.

Woodward, J. T., "***Atomic Force Microscopy of Bio-Interfaces,***" Physics Department Seminar, Ohio State University, April 5, 2001.

Woodward, J. T. "***Atomic Force Microscopy of Bio-Interfaces,***" Biotechnology Division Retreat, Harper's Ferry, WV, April 20, 2001.

Woodward, J. T., "***Atomic Force Microscopy of Bio-Interfaces,***" Physics Department Seminar, Syracuse University, April 25, 2001.

Woodward, J. T., "***Formation and Properties of Supported Membranes,***" American Chemical Society Colloid and Surface Science Symposium, Pittsburgh, PA, June 12, 2001.

3. Cooperative Research and Development Areements (CRADAs) and Consortia

Development of High-throughput Analytical and Preparative Methods for Diferential Analsis of Gene Expression. **Gene Logic, Inc.**

The Use of Biomimetic Membranes on SPR Surfaces to Mimic Binding of Macromolecules to Target Cells . **MedImmune, Inc.**

Nanopore Detection of Zinc Finger Protein Binding to Target DNA Sequences. **Genome Dynamics, Inc.**

Quantitation of Isolated Chormosomes by PCR and SKY, P. Barker, and M. C. Kline **FAST Systems, Inc.**

Thermodynamics of Monoclonal Antibody-Antigen Interactions, F.P. Schwarz, **MedImmune, Inc.**

4. Patent Awards and Applications

Cole, K.D. “ Electrophoresis Gels” US Patent No. 6,203,680 (Issued March 20, 2001).

Reipa, V., Vilker, V.L., “Electroenzymatic Reactor and Method for Enzymatic Catalysis” US Patent No. 6,126,795 (Issued October 3, 2000).

5. Measurement Services

5a. SRM Activities (Certificates issued in FY2001

SRM 2390 DNA Profiling Standard

6. Committee Assignments

P.E. BARKER

NCCLS FISH Methods Subcommittee (Member)

NIST Fluorescence Intensity Workshop Organizing Committee (Member)

Organizing Committee, NIST Fluorescence Intensity Standards Workshop

Editorial Committee, Disease Markers

USDA Animal Biotechnology Program (Reviewer)

NIST-NCI Workshop Nanotechnology and Early Cancer Detection

Genomics Section, EDRN Scientific Meeting (Chair)

PACCT Strategy Group, National Cancer Institute (Observer).

Innovative Materials and Technology Study Section member, NIH/NCI (reviewer)

NWO Genomics Agency, Netherlands(reviewer)

EDRN Image Analysis Committee (Committee Member)

A.K. GAIGALAS

NCCLS Subcommittee on Fluorescence Calibration for Cytometry and Receptor-Ligand Assays
(Member)

G.L. GILLILAND

Database Committee, International Union of Crystallography (Member)
Biotechnology Research Working Group of the Subcommittee on Biotechnology Reporting to
the Office of Science and Technology Policy (Member)
Board of Directors, Council of Biotechnology Centers, Biotechnology Industry Organization
(Member)
National Institutes of Health, Special Study Section 6, (Member)
National Institutes of Health, National Center for Research Resources, Shared Instrument
Program Review Panel (Member)
NASA Structural Biology Review Panel (member)
NASA Iterative Biological Crystallization Science Advisory Group
ASTM Committee E-48 on Biotechnology (Member)

R.N. Goldberg

IUPAC, Commission on Biophysical Chemistry (Vice Chairman and Secretary)
ASTM Committee E-48 on Biotechnology (Vice Chairman)
Editorial Advisory Board of the Handbook of Chemistry and Physics (Member)

J.J. Kasianowicz

Harvard Undergraduate Thesis Adviser For Sarah E. Henrickson

B.C. Levin

Association of Government Toxicologist (Member) Toxic Substances Control Act, Interagency
Task Committee (Alternate Member)
NIST Chapter of Sigma Xi, Executive Board (Member)
ASTM Committee E-48 (Member)
Recombinant DNA Advisory Committee (DOC Representative)
U.S. Technical Advisory Group to ISO/TC92/SC3 (member)

J.P. Marino

Ph.D. thesis committee of K.P. Sujatha, MOCB program
NIH Study Section of the Center for Scientific Review (Member)
Search Committee for NMR Facility Manager at CARB (Chairman)

C.W. Meuse

Health Effects Laboratory Division, National Institute of Occupational Safety and Health
(Reviewer)

C. O'Connell

CDC Genetic Forum
NCCLS Subcommittee on Trinucleotide Repeats (observer)

K.D. RIDGE

Center for Scientific Review, NIH, Study Sections VISC and SSS-2
Mr. Walter Schlapkohl's graduate student in the Program in Molecular and Cell Biology at the University of Maryland, College Park, MD (Ph.D. thesis committee member)
ASTM E-48
CARB Director's Search Committee

K.L. RICHIE

NCCLS Subcommittee on Trinucleotide Repeats (Observer)

H. RODRIQUEZ

Oxygen Club of Greater Washington, D.C. – President-Elect
Conference Co-Chairperson of the Second International Conference on Oxidative Stress and Aging: Technologies for Assessment and Intervention Strategies Maui, Hawaii, April 2-5, 2001
Conference Co-Chairperson on the Organizing Committee of the Gene Expression Detectin Technologies for Oxidative Stress, NIH

F.P. Schwarz

IUPAC Commission on Biophysical Chemistry (Titular Member)
NSF Division of Molecular & Cellular Biosciences (Reviewer)
National Institutes of Health/Alcohol, Drug Abuse, and Mental Health Administration Scientific Committee (Reviewer)
Australian National Health and Medical Research Council (Reviewer)
Member of Association of Biomolecular Research Facilities
Member Board of Directors of US Calorimetry Conference
Chairman-Designate of 2002 US Calorimetry Conference

J.T. Stivers

Study Section, NCI intramural grant awards (Member)

Y.B. TEWARI

ASTM Committee E-48 on Biotechnology (Member)

7. Editorships**M. Dizdar**

Free Radical Research
Free Radical Biology & Medicine

E. EISENSTEIN

Journal of Biological Chemistry

G.L. GILLILAND

Protein & Peptide Letters (Associate Editor)

Biophysical Journal (Associate Editor)
PROTEINS: Structure, Function, and Genetics (Associate Editor)

A.L. PLANT

Senior Editor of the American Chemical Society Journal, Langmuir

K.D. Ridge

Editorial Board, Journal of Biological Chemistry

8. Seminars

December 6, 2000

Nathan Lawrence, Ph.D., Boston Biomedics, Inc., “Controls, Standards, and Reference Materials: Preparing for Commercialization of IVD Biochips” (Division Sponsor: A.K. Gaigalas)

DECEMBER 18, 2000

Scott Reed, University of Oregon, “Synthesis, Surface Characterization, and Electron Transfer Measurements of Peptide-Containing Thin Films” (Division Sponsor: V.L. Vilker)

January 22, 2001

Professor Rob Coalson, University of Pittsburgh, “Dynamic Monte Carlo Studies of Ion Permeation and Biopolymer Translocation through Protein Channels” (Division Sponsor: J. J. Kasianowicz)

February 26, 2001

Sriram Subramaniam, National Cancer Institute, NIH, “Structural Analysis of Macromolecular Assemblies by High-Resolution Electron Microscopy” (Division Sponsor: K.D. Ridge)

MARCH 5, 2001

Professor Rekha Panchal, University of Melbourne, “Potential Applications of Suppressor tRNA” (Division Sponsor: J. J. Kasianowicz)

MARCH 28, 2001

Dr. Bohdana Discher, University of Pennsylvania, “Polymer Viscosity-Similarities and Departures from Natural Lipid Membranes” (Division Sponsor: J. J. Kasianowicz)

MAY 9, 2001

Dr. Daniel Burden, Wheaton College, “Probing Surface Diffusion Heterogeneity at Biomeaterial Interfaces with Single-Event Histograms” (Division Sponsor: J. J. Kasianowicz)

July 9, 2001

Haruo Ogawa, Institute of Molecular and Cellular Biosciences, University of Tokyo, “Structural Study of P-type ATPase” (Division Sponsor: K. D. Ridge)

AUGUST 7, 2001

David F. J. Tees, University of Pennsylvania, “Forced Dissociation of Cell Adhesion Receptor-

Ligand Bonds” (Division sponsor: J. T. Woodward)

9. Conference/Workshops/Session Sponsored/Co-Sponsored

F.P. Schwarz

Member Board of Directors of US Calorimetry Conference

Chairman-Designate of 2002 US Calorimetry Conference

Y.B. TEWARI

Organizer and co-chairman of the Martire symposium, Georgetown University, Washington, DC, May 4-5, 2001.

10. Other

G.L. Gilliland

George Washington University, Adjunct Faculty Appointment

University of Maryland at Baltimore, Adjunct Faculty Appointment

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

M.K. Gilson

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

M. Krauss

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

J.P. Marino

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

California Institute of Technology, Adjunct Faculty University of Maryland, Lecturer

K.D. Ridge

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

University of Maryland, Lecturer

F.P. Schwarz

University of Maryland Biotechnology Institute, Adjunct Professor

2001 Biotechnology Division Retreat Organizer

Member of the WERB board from 1991 to present

J. T. Stivers

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment

A. Stoltzfus

University of Maryland Biotechnology Institute, Adjunct Faculty Appointment