

Outputs and Interactions – Biotechnology Division FY03

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- Tewari, Y., Vanderah, D.J., Rozzell, J.D., **“Thermodynamics of the Lipase-catalyzed Transesterification of 1-phenyl-1-alkanols and Butyl Acetate in Organic Solvents,”** J. Mol. Catal. B: Enzymatic, 21, 123-131 (2003).
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- Vanderah, D.J., Gates, R.S., Silin, V., Zeiger, D.N., Woodward, J.T., Meuse, C.W., Nickel, B., Valincius G., **“Identification of Isostructural Self-Assembled Monolayers. 1. Octadecyl 1-Thiaoligo(ethylene oxides),”** Langmuir, 19, 2612-2620 (2003).
- Vanderah, D.J., Arsenault, J., La, H., Silin, V., Meuse, C.W., Gates R.S., **“Helical, Disordered, and What that Means: Structural Characterization of a New Series of Methyl 1-Thiaoligo(ethylene Oxide) Self-Assembled Monolayers,”** Mat. Res. Soc. Symp. Proc., Vol. 724. Eds. McKittrick, J.; Aizenberg, J.; Orme, C.; Vekilov, P.; N4.5 (2002).
- Vasquez, G., Zullo, S., Barker PE **“Standards requirements for systems biology approaches to healthcare: mitochondrial proteomics.”** Mitochondrion (in press 2003).
- Wang, L., Gaigalas, A.K., Blasic, J., and Holden, M.J. **“Spectroscopic Characterization of Fluorescein and Tetramethylrhodamine Labeled Oligonucleotides and Their Complexes with a DNA Template.”** Biopolymers (submitted)
- Wang, L., Gaigalas, A.K., Blasic, J., Holden, M.J., Gallagher, D.T., and Pires, R. **“Fluorescence Resonance Energy Transfer Between a Donor-Acceptor Pair on Two Oligonucleotides Hybridized Adjacently to a DNA Template.”** Biopolymer (Biospectroscopy), 72, 401-412 (2003).
- Wladkowski, B.D., Ostazeski, P., Chenoweth, S., Broadwater, S.J., and Krauss, M., **“Hydrolysis of cyclic phosphates by Ribonuclease A: A computational study using an *ab initio* quantum model,”** J.Comp.Chem. 24,1803-11, 2003
- Woodward, J.T., **“Choosing a cantilever for in situ atomic force microscopy,”** Microscopy Today 11, 42-43 (2003).
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- Zullo, S., Srivastava, S., Looney, J.P., and Barker, P.E., **“Nanotechnology: Emerging Developments and Early Detection of Cancer,”** Disease Markers 18:153-158, 2002.

Talks:

- Atha, D.H. **“High-Throughput TRAP/PCR Analysis of Telomerase using Capillary Electrophoresis,”** American Society of Human Genetics, Baltimore, October 18, 2002.
- Atha, D.H. **“Telomerase Activity Measurement in Magnetically-Captured Circulating Epithelial Cells is a Sensitive and Specific Diagnostic Tool for the Diagnosis of Aerodigestive Cancer,”** American Association for Cancer Research Conference on the Role of Telomeres and Telomerase in Cancer, San Francisco, CA December 8, 2002.
- Atha, D.H. **“High-Throughput Genetic Analysis Using Capillary Electrophoresis,”** Stanford Research Institute, Menlo Park, CA, December 12, 2002. (Invited).
- Barker, P.E.. Frontiers in Early Cancer Detection Gordon Conference, Proctor Academy, August 19, 2003. Nanotechnology labels for human chromosome analysis (poster/ joint work with Y. Xiao)
- Barker P.E., Xiao Yan 2003. **“NIST SRM 1951a as a prototype proteomic standard”**. FDA-NIH Proteomics standards meeting, Chaired Chip Petricoin, January 10, 2003
- Barker P.E.. **“NIST-NCI Biomarker Validation Laboratory:EDRN”** BIO Washington DC, June 23, 2003.
- Cole, K.D., **“Membrane Technology for Selective DNA Separations”** Membrane Technology Separations Planning Conference, Business Communications Company. Newton, Mass. Nov. 18, 2002.
- Cole, K. D., **“Technologies for separation of circular DNA”** (invited) NIH, Bethesda, Maryland, Nov. 14, 2002.
- Cole, K. D., **“NIST Standards for Bio-Defense: Genetic Markers”**, Joint Service Committee on Calibration and Metrology meeting at NIST on June 12, 2003
- Elliott, J.T. **“Highly Reproducible Fibrillar and Non-Fibrillar Type I Collagen Surfaces Induce a Distribution of Responses in Vascular Smooth Muscle Cells,”** American Society for Cell Biology, San Francisco, Dec. 20, 2003 (Poster)
- Elliott, J.T., Tona, A., Langenbach, K.J., Woodward, J.T., and Plant, A.L. **“Quantitative Microscopy at NIST,”** Atto Biosciences July 2003 (Invited)

- Elliott, J.T., Langenbach, K.J., Tona, A., Woodward, J.T., Jones, P.L, and Plant, A. L. “**Collagen Reference Materials for Understanding Vascular Biology**,” Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering. NIST, Oct 12, 2003. (Invited)
- Goldberg, R. N., “**The measurement and collation of the thermodynamic properties of metabolic reactions**,” National Institutes of Health Conference on Aging and Metabolic Diseases,” National Institutes of Health, Bethesda, Md., November 12, 2002.
- Kasianowicz, J.J., “**Single molecule and organelle manipulation and measurement**,” Dept. of Physics, Carnegie-Mellon University, Pittsburgh, PA, September 16, 2003. (Invited).
- Kasianowicz, J.J., “**Biopolymer transport in single nanopores: potential applications in biotechnology**,” Dept. of Physics, Carnegie-Mellon University, Pittsburgh, PA, September 15, 2003. (Invited).
- Kasianowicz, J.J., “**Nanopores for detecting and characterizing molecules**,” Gordon Research Conference on the Physics and Chemistry of Microfluidics, Bozeman, MT, August 26, 2003. (Invited).
- Kasianowicz, J.J., “**Single molecule and organelle manipulation and measurement**,” Dept. of Chemistry, University of Utah, Salt Lake City, UT, August 19, 2003. (Invited).
- Kasianowicz, J.J., “**DNA transport in single biological nanopores**,” Dept. of Chemistry, University of Utah, Salt Lake City, UT, August 18, 2003. (Invited).
- Kasianowicz, J.J., “**Sensing molecules with single nanopores**,” Summer School on Nanocapsules with Functionalised Surfaces and Walls, International University of Bremen, Bremen, Germany, July 19-25, 2003. (Invited).
- Kasianowicz, J.J., “**The structures of transmembrane pore-forming toxins**,” Pittsburgh Supercomputing Center and the University of Pittsburgh's Faculty of Arts and Sciences and Medical School Workshop: “From Structure to Function: Frontiers of Biological Ion Channels”. Mellon Institute Pittsburgh, PA, May 21, 2003. (Invited).
- Kasianowicz, J.J., “**Nanometer-scale pores in biology and biotechnology**,” Naval Research Laboratory, Washington, D.C., March 21, 2003. (Invited).
- Kasianowicz, J.J., “**Single nanopore-based sensors**,” World Technology Evaluation Center, Inc. Biosensing Meeting. NIH, Bethesda, MD, December 4, 2002. (Invited).
- Kasianowicz, J.J., “**DNA transport in single nanopores**,” Dept. of Physical Chemistry, Chalmers University of Technology. Göteborg, Sweden. 26 November, 2002. (Invited).
- Kasianowicz, J.J., “**Threading DNA in single nanometer-scale pores**,” Dept. of Physics, Marquette University, Milwaukee, WI, November 15, 2002. (Invited).
- Kasianowicz, J.J., “**DNA Transport through a single nanoscale pore**,” 454 Corporation, Branford CT. November 12, 2002. (Invited).
- Kasianowicz, J.J., “**Biopolymer transport in nanometer-scale pores**,” American Vacuum Society Meeting, Molecular Recognition Surfaces Section. Denver, CO, November 5, 2002. (Invited).

- Kasianowicz, J.J., “***Polynucleotide transport in a single nanometer-scale pore,***” College de France, Paris, France. October 15, 2002. (Invited).
- Kasianowicz, J.J. “***Threading DNA through single nanoscale pores: effects of confinement on polymer structure,***” International Workshop on Molecular Organization at Interfaces. Leipzig, Germany, October 10, 2002. (Invited).
- Kasianowicz, J.J., “***Threading individual DNA molecules through a single nanometer-scale pore,***” Center for Ultrastructure Research and Ludwig Boltzmann Institute for Molecular Nano-Technology. Vienna, Austria. October 7, 2002. (Invited).
- Kasianowicz, J.J., “***Polynucleotide and proton transport near and through a single nanopore,***” University of Bratislava, Bratislava, Slovakia. October 4, 2002. (Invited).
- Krauss, M., “***Two two-electron enzyme mechanisms: zinc lactamase and adenylyl cyclase,***” NIH, Bethesda, MD, April 11 2003.
- Krauss, M., “***Dynamics of proton transfer in bacteriorhodopsin,***” National ACS meeting, September 7-13, 2003, (poster)
- Marino, J.P., “***Targeting RNA: Development of Fluorescence and NMR Techniques to Identify Novel Therapeutics***” RNA in Drug Development: RNA as a Tool and Target San Diego, CA, November, 2002. (Invited)
- Marino, J.P., “***Mechanism of Nucleocapsid Protein Catalyzed Structural Isomerization of the Dimerization Initiation Site of HIV-1***” Third HIV DRP Symposium on Antiviral Drug Resistance Chantilly, VA, December, 2002. (Poster)
- Marino, J.P., “***Dissecting the Mechanism of NCp7 catalyzed structural isomerization of the dimerization initiation site***” NIH RNA Interest Group, Bethesda, MD, December, 2002. (Invited)
- Marino, J.P., “***Dissecting the Mechanism of NCp7 catalyzed structural isomerization of the dimerization initiation site***” 4th Annual MCB Faculty and Student Retreat of the University of Maryland, Baltimore, MD, December, 2002. (Invited)
- Marino, J.P., “***Screening Small Molecules that Target RNA using Fluorescence and NMR Spectroscopy***” Frontiers of NMR in Molecular Biology VIII, Taos, New Mexico, February, 2003. (Invited)
- Marino, J.P., “***RNA: Tool and target in drug discovery***” NRC CSTL Review Panel Technical Seminar, February, 2003. (Invited)
- Marino, J.P., “***Dissecting the Mechanism of NCp7 catalyzed structural isomerization of the dimerization initiation site***” EMBL, Heidelberg, Germany, March, 2003. (Invited)
- Marino, J.P., “***Dissecting the Mechanism of NCp7 catalyzed structural isomerization of the dimerization initiation site***” Technical University, Munich, Germany, March, 2003. (Invited)

- Marino, J.P., ***“Dissecting the Mechanism of NCp7 catalyzed structural isomerization of the dimerization initiation site”*** Max-Planck-Institute for Biophysical Chemistry, Göttingen, Germany, March, 2003. (Invited)
- Marino, J.P., ***“Methods for Discovery and Characterization of Lead Compounds that Target RNA,”*** CUNY-Brooklyn College Brooklyn, NY, April, 2003. (Invited)
- Marino, J.P., ***“Relaxation-Enhanced TOCSY Multiple Pulse Sequence,”*** 44th ENC Savanna, Georgia, April, 2003. (Poster)
- Marino, J.P., ***“HIV-1 Nucleocapsid Catalyzed Maturation of the Dimerization Initiation Site is Modulated by pH-dependent RNA Dynamics,”*** AIDS Structural Biology Meeting, NIH, Bethesda, MD, June, 2003. (Invited)
- O’Connell, C.D. ***“Molecular Biomarkers Used to Detect Cellular/Genetic Damage in Tissue Engineered Skin”***, ASTM Tissue Engineered Medical Products (TEMPs) F04 Symposium Nov. 4-5, 2002.
- O’Connell, C.D. ***“Molecular Biomarkers Used to Detect Cellular/Genetic Damage in Tissue Engineered Skin”***, ASM Breakfast, November 20, 2002.
- O’Connell, C.D. ***“Universal Standards for Quantitative RT-PCR for clinical diagnostics”***, April 1, 2003, Specialty Labs, Santa Monica, CA.
- O’Connell, C.D. ***“Prevalidation of Mitochondrial DNA Mutations in Lung Cancer”***, June 23-24, 2003, Pittsburgh, PA.
- O’Connell, C.D., ***“Validation of Homoplasmic Mitochondrial Changes in Cancer”***, July 16, 2003, National Institute of Aging, Baltimore, MD.
- O’Connell, C.D., ***“The Standardization of Molecular Diagnostic Assays in a Rapidly Changing Technological Era”***, NCSL meeting August 18-20, 2003, Tampa, FL.
- Plant, A.L., ***“Introduction to Tissue Engineering,”*** ASM Resources Biotechnology Breakfast Series, Washington DC, November 2002.
- Plant, A.L., ***“Designing Biomimetic Surfaces,”*** Department of Chemical Engineering, Virginia Commonwealth University, Richmond, December 2002.
- Plant, A.L., ***“Cell Indicators and Reference ECM Surfaces for Tissue Engineering,”*** BD Technologies, RTP, NC, January 2003.
- Plant, A.L., ***“Indicator Cells and Reference Materials for Tissue Engineering,”*** Introductory Biomaterials Seminar, Johns Hopkins University, Dept. of Materials Science and Engineering, March 2003.
- Plant, A.L., ***“Thin Films of Collagen and Control of Cell Signaling Pathways,”*** American Chemical Society, New Orleans, March, 2003. [Coauthors Elliott, Langenbach, Tona].

- Plant, A.L., ***“Designing Biomimetic Surfaces,”*** Biosecurity and Nanosciences Laboratory, Lawrence Livermore NL, Livermore CA, April, 2003.
- Plant, A.L., ***“Designing Biomimetic Surfaces,”*** University of Wisconsin, Madison, April 2003.
- Plant, A.L., ***“Osteoblast Cell Membrane Hybrid Bilayers for Studying Cell-Cell Interactions,”*** Biology and Physics at Interfaces, Forschungszentrum Juelich Germany, May 2003.
- Plant, A.L., ***“Metrology for Tissue Engineering,”*** Biotechnology Industry Organization Annual Meeting, Washington, June 2003
- Ravichandran V., Khan A., Barker P. E., O’Connell C., Zullo S., Vasquez G., Bhat T. N., Gilliland G. ***“2002 Human Mitochondrial Protein Database”***. Mitoproteomics Workshop at NIST (chairs Vasquez, Zullo, Barker).
- Ravichandran, V., ***“Human Mitochondrial Protein Database: A Resource for Human Mitochondrial Proteomics,”*** Mitochondrion-2003, Mitochondrial Medical Society Meeting, San Diego, CA, June 13, 2003.
- Ravichandran, V., ***“TWODML: A Markup Language for Unifying Two-Dimensional Polyacrylamide Gel Electrophoresis Data”*** Human Proteome Organization (HUPO), Montreal, Canada, October 9, 2003.
- Reipa, V. ***“New metal- oxide electrodes for fast direct electron transfer to the redox proteins”***, 203rd Meeting of the Electrochemical Society, Paris, France, April 28, 2003.
- Reipa, V. ***“IR and Raman characterization of the Biological products”***, invited talk at the International Association for Biologicals/FDA sponsored conference “State of the Art Analytical Methods for the Characterization of Biological Products and Assessment of Comparability”, Bethesda, MD, June 10, 2003.
- Reipa, V. ***“Raman spectroscopy in biological studies”***, 12-th world Lithuanian scientific symposium, Lemont, IL, May 22, 2003.
- Reipta, V ***“Adenylyl cyclase isoenzymes in Mycobacterium tuberculosis H37Rv and Mycobacterium leprae: Molecular cloning and characterization.”*** Presented at the US-Japan Cooperative Research Program. Thirty eighth Tuberculosis and Leprosy Research Conference, July 21-22, 2003; Newark, NJ.
- Richie, K.L., ***“Improvements of the NIST Human Mitochondrial DNA Standard Reference Material 2392 by the Addition of DNA from the HL-60 Cell Line”***, Mini Symposium on NIST Research in the Biological Sciences, Rockville, MD, November 2001.
- Richie, K.L., ***“The Complete mtDNA Genome Sequence of Human Cell Line HL-60 and its Inclusion in the NIST Human Mitochondrial DNA Standard Reference Material SRM 2392”***, 13th International Symposium on Human Identification , Phoenix, AZ, October 2002.
- Ridge, K.D., ***“Designing and Characterizing Functional Mimics of GPCR’s for Structural Analysis”***, IBC Seventh G-protein Coupled Receptors meeting. San Diego, CA, October 14, 2002. (Invited)

- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Department of Chemistry, University of Washington, Seattle, WA, December 16, 2002. *(Invited)*
- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Department of Biochemistry and Molecular Biology, Center for Membrane Biology, University of Texas Medical School, Houston, TX, February 20, 2003. *(Invited)*
- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Agensys, Inc., Santa Monica, CA, April 16, 2003. *(Invited)*
- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Department of Biochemistry and Molecular Biology, University of California, Irvine, CA, April 18, 2003. *(Invited)*
- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Department of Biochemistry and Molecular Biology, Oregon Health and Science University, Portland, OR, May 20, 2003. *(Invited)*
- Ridge, K.D., ***“Analysis of G-protein Coupled Receptor Function: One Piece at a Time”***, Membrane Protein Interest Group, NIDDK, NIH, Bethesda, MD, June 4, 2003. *(Invited)*
- Schwarz, F.P. ***“Entropic Nature of the Interaction Between Promoter Bound CRP Mutants and RNA Polymerase”*** 58th Annual Calorimetry Conference and The Japan Society of Calorimetry and Thermal Analysis, Laie, Hawaii, July 29, 2003.
- Shin, M.G., Kajigaya, S., McCoy, J.P., Jr., Levin, B.C., and Young, N., ***“Unexpected Mitochondrial DNA Heterogeneity in Single CD34+ Cell Clones from Normal Bone Marrow,”*** American Society of Hematology, Philadelphia, Pennsylvania, December 6, 2002.
- Stoltzfus, A., ***“Climbing Mount Probable: the Mechanistic Basis of Orthogenesis”*** European Society of Evolutionary Biology, IXth International Congress, Leeds, UK, August 18-24, 2003. *(Invited)*
- Stoltzfus, A., ***“Climbing Mount Probable: the Mechanistic Basis of Orthogenesis,”*** Population Genetics Group (Feldman/Petrov), Stanford University, April 18, 2003 (guest lecture)
- Stoltzfus, A., ***“The Non-randomness of Spliceosomal Intron Gain,”*** Bioinformatics Research Center, University of Maryland, Baltimore County, April 10, 2003. (guest lecture)
- Stoltzfus, A., ***“Phyloinformatic Analysis of Intron Evolution,”*** Department of Biology, University of Indiana, Bloomington, September 8, 2002 (guest lecture)
- Vallone, P.M., ***“Multiplex Detection of 10 SNPs Located in the Coding Region of the Mitochondrial Genome”*** 52nd Annual American Society of Human Genetics meeting, Baltimore, MD, October 2002
- Vallone, P.M. ***“Development of Multiplexed Assays for Evaluating SNP and STR Forensic Markers”*** Seminar at George Washington University Department of Biological Sciences, Washington, DC, February 28, 2003

- Vallone, P.M. ***“Development of Multiplexed SNP Assays from Mitochondrial and Y Chromosome DNA for Human Identity Testing”*** NIJ DNA Grantees meeting, Washington DC, June 23, 2003
- Vallone, P.M. ***“Multiplexed Assays for Evaluation of Y SNP Markers in U.S. Populations”*** International Society of Forensic Genetics - 20th International Congress ISFG, Arcachon, France, September 12, 2003
- Vanderah, D.J., ***“Oligo(ethylene oxide) Self-Assembled Monolayers: Protein Resistance and Thin-film Metrology Tools,”*** 2003 Gordon Research Conference on Organic Thin Films, Barga, Italy, May 20, 2003.
- Vanderah, D.J., ***“Characterization of a Series of Self-Assembled Monolayers of Methyl 1-(3-Mercaptopropyl)oligo(ethylene oxide)s,”*** 77th ACS Colloid and Surface Science Meeting, Atlanta, GA, June 16, 2003.
- Vasquez, G.B. ***“Development of a Proteomics Program,”*** HUPO (Human Proteome Organisation) Plasma Proteome Project Workshop, Bethesda, MD, July 16-17, 2003. (Invited)
- Vasquez, G.B. ***“An Overview of Standards”*** HUPO (Human Proteome Organisation) Liver Proteome Project Workshop, Bethesda, MD, July 17-18, 2003. (Invited)
- Vilker, V.L., ***“NIST and Biotech Grains”***, Cedar Lane Unitarian Church, March 27, 2003 (Invited Presentation)
- Vilker, V.L. ***“NIST Role in Biometrology”*** Joint Seminar of the UK LGC, Inc., and National Physics Laboratories, London, England, July 2, 2003.
- Vilker, V.L. ***“The NIST Biotechnology Program”***, Presidential Symposium on Opportunities in the Bio and Pharma Areas, ACS 226th Fall Meeting, New York, September 8, 2003.
- Vrettos, J.S. ***“Determining Protein Structural Stability by Infrared Techniques,”*** Human Genome Sciences, Inc., Rockville, MD, October 15, 2003. (Invited)
- Vrettos, J.S. ***“Photosynthetic Energy Conversion Processes: the Roles of Calcium and Manganese in Photosystem II,”*** Institute for Biological Energy Alternatives, Rockville, MD, October 21, 2003. (Invited)
- Vrettos, J.S. ***“Determining Protein Structural Stability by Infrared Techniques,”*** National Heart, Lung, and Blood Institute of the National Institutes of Health, Bethesda, MD, October 31, 2003. (Invited)
- Wang, L ***“Hyperthermophilic Alanine Dehydrogenase: Structure and Relations”*** 5/22/03 at the 31st annual Mid-Atlantic Protein Crystallography Meeting, Duke University, Durham, NC.
- Wang, L, ***“Alanine Dehydrogenase from Archaeoglobus Fulgidus”*** 7/29/03 at the American Crystallographic Association annual meeting, Covington, KY.

Xiao, Y. and Barker PE. *“Semiconductor nanocrystal probes from human metaphase chromosomes”*
American Society of Human Genetics Annual Meeting (platform talk by Dr. Xiao November 8,
2003)

Cooperative Research and Development Areements (CRADAs) and Consortia

“Characterizing Photophysical and Photochemical Properties of R-phycoerythrin (R-PE) and Alexa Fluor
546 Fluorochromes.” L. Wang, A.K. Gaigalas, and K. Cole,
CRADA with Molecular Probes, Inc.

“Quantitating Fluorescence Intensity Measurement in Cytometry.” A.K. Gaigalas and L. Wang, CRADA
with BD Biosciences.

CRADA with BioSpace Proteomics, Inc. for development of protein crystallization hardware and
methods.

Patent Awards and Applications

Lacourciere, K.A., Stivers, J.T., and Marino, J.P. (2000) *“Fluorescence Emission Perturbation (FREP):
A Method for Detection of Ligand Binding to 2-Aminopurine Substituted Oligonucleotides,”*
Amended Patent Claims Accepted, 2003.

SRM Activities:

SRM 8640 - Completion of characterizing the reference materials, the ROA and certification near
completion,” (A.K. Gaigalas and L. Wang).

SRM 1932 “Fluorescein Solution”, Released: Certificate Date 04 March 2003

SRM 2391b “PCR-based DNA Profiling Standard,” Released; Certificate Date 06 December 2002

SRM 2392 Revalidated to extend expiration date and to change one primer. New Certificate of Analysis
and Report of Analysis written, May 2003.

SRM 2392-I Completed and available for sale, May, 2003. Wrote Certificate of Analysis and Report of
Analysis. Paper published in journal Mitochondrion (see Publications: Levin). Also wrote Special
Publication on both SRM 2392 and 2392-I: SP260-155 (available Sept. 2003). Also on web:
http://patapsco.nist.gov/srmcatalog/sp_publications/publications.htm

SRM 2394 Production and certification of materials ongoing and nearing completion.

SRM 2395 “Human Y-Chromosome DNA Profiling Standard,” Released; Certificate Date 06 June 2003.

SRM 2399 Production and certification of materials ongoing and nearing completion.

SRD Activities:

SRM 2372 Human DNA Quantitation Standard, prototype material under final development.

Calibrations
None

Committee Assignments:

Barker, PE

USDA Animal Biotechnology Program (Reviewer)

PACCT Strategy Group, National Cancer Institute (Observer) Oct 28/29, 2002; March 24, 25, 2003; Bethesda; Nov. 10, 2003.

NCI Innovative Materials and Technology Study Section member, NIH/NCI (reviewer & Chairman, July 12-13, 2002)

Bhat, TN

Review panel: NIH Grant request, RFP-03-31 "Immune Epitope Database" on February 19, 2003.

Butler, JM

FBI's Scientific Working Group on DNA Analysis Methods, SWGDAM, subcommittee on Y-chromosome analysis (guest member)

National Institute of Justice's World Trade Center Kinship and Data Analysis Panel, WTC KADAP (member)

Cole, KD

CSTL representative on the NIST Research Library Advisory Board K.D. Cole, Task Force for Testing Handheld Devices for the Detection of Bacillus anthracis, organized by Department of Homeland Security.

Gallagher, DT

Interagency Working Group, NSTC: Representing NIST on the Metabolic Engineering, F. Heinehere, NSF Chair, which is organized by the National Science Foundation.

Goldberg, RN

ASTM Committee E-48 on Biotechnology

Editorial Advisory Board of the Handbook of Chemistry and Physics

Hancock, DK

USA Associate Referee to the International Commission for Uniform Methods of Sugar Analysis (ICUMSA), for Subject 4: Density, Refractive Index & Polarimetry

Levin, BC

Association of Government Toxicologists (Member)

Toxic Substances Control Act, Interagency Task Committee (Alternate Member)

NIST Committee for Women (Senior Advisor)
NIST Chapter of Sigma Xi, (Executive Board Member)
Tenth Annual Post-Doctoral Poster Presentation, NIST Sigma Xi (Chairman and Organizer)
ASTM Committee E-48 on Biotechnology (Member)
Recombinant DNA Advisory Committee (DOC Representative)
U.S. Technical Advisory Group to ISO/TC92/SC3 (member)
Bioscience Portal for the I-270 Corridor, group comprised of Industry, Academia and Government (member).

Marino, JP

Ph.D. committee of a graduate student, K.P. Sujatha, in the MOCB program.

O'Connell, CD

NIST Chapter of Sigma Xi (Member)
ASTM Committee E-48 (Member)
Search committee for Microbiology Scientist hire

Ridge, K.D.

Scientific Organizing Committee of the American Society for Photobiology, Division 2, Rhodopsins and Vision.
Center for Scientific Review, NIH, ZDA1 Study Section (temporary member).
Mr. Walter Schlapkohl's graduate student thesis committee, Program in Molecular and Cell Biology at the University of Maryland, College Park, MD (Ph.D. thesis committee member).

Schwarz, F.P.

IUPAC Fellow

NSF Division of Molecular & Cellular Biosciences (Reviewer)

Cold Neutron Research Facility at NIST (Reviewer)

Australian National Health and Medical Research Council (Reviewer)

Member of Association of Biomolecular Research Facilities

Chair, Joint Meeting of the 58th Calorimetry Conference and the Japanese Society of Calorimetry and Thermal Analysis, Laie, Hawaii, July 27-Aug. 1, 2003.

Vilker, VL

Member, Review Team on OSTP-sponsored review of Postal Services' Biological Detection System (Capt A Matsun, Naval Medical Research Command, Chair) (02/2003)

Participant in DHS/AOAC Review of Handheld Assays for First Responders (6/03, ongoing)

Participant, The National Technology Alliances' Chemical, Biological, and Radiological Technology Alliance Meeting (San Jose, CA)(05/2003)

Ex-Officio Member, USDA Advisory Committee on Biotechnology and 21st Century Agriculture (6/03, ongoing)

Deputy Chair, Bioanalytic Working Group of the CCQM (5/2003, ongoing)

Member, JCTLM (04/2003, ongoing)

Editorships:**Barker, PE**

Disease Marker (Associate Editor)

Butler, JM

Journal of Forensic Sciences (guest editor)

Dizdar, M

Free Radical Research

Free Radical Biology & Medicine

Ridge, KD

Editorial Board, Journal of Biological Chemistry

Plant, AL

Langmuir (Associate Editor)

Seminars:

May 19, 2003

Mike Locascio, CTO, Evident Technologies, Inc., “Properties, Synthesis, and Applications of Semiconductor Nanocrystals” (Division Sponsor: P.E. Barker) .

June 18, 2003

Dr. Gil Ommenn, University of Michigan-speaker with Arden Bement, “HUPO & the Human Serum Proteome Project” (Division Sponsor: P.E. Barker)

September 9, 2003

Host to the Chief Executive (Professor Julia Goodfellow) of the UK Biotechnology and Biological Sciences Research Council, presentation “The Future Challenges & Priorities in Biological Science” (Division Sponsor: V.L. Vilker)

September 23, 2003

Daniel Chan, Ph.D., Johns Hopkins Dept. of Pathology; “Clinical Proteomics” (Division Sponsor: P.E. Barker)

October 21, 2002

Informal lunch meeting with N. Leigh Anderson, Ph.D. “Standards for Human Serum Proteomics” (Division Sponsor: P.E. Barker)

Conference/Workshops/Session Sponsored/Co-Sponsored

Barker, PE

2nd Annual Inter-Agency Biosensors Meeting.

NIST-Naval Research Lab Third Annual Biosensors Conference at NIST, July 23, 2003 (cosponsored with GeoCenters)

Mitochondrial proteomics workshop (with Greg Vasquez and Steve Zullo) September 17-18, 2002.

Butler, JM

Organizer, Workshop on the Y Chromosome for 13th International Symposium on Human Identification (Phoenix, AZ), October 9, 2002

Cole, KD

Hosted Joint Service Committee on Calibration and Metrology meeting at NIST on June 12, 2003.

Levin, BC

Chairman and Organizer, Tenth Annual Sigma Xi Post-Doctoral Poster Presentation, NIST, Gaithersburg, MD, February 2003.

Marino, JP

Knowledge Foundation Conference: RNA in Drug Development: RNA as a Tool and Target San Diego, CA.

Third HIV DRP Symposium on Antiviral Drug Resistance Chantilly, VA.

Experimental NMR Conference, Asilomar, CA, April, 2002 (attended by Dr. Burkhard Luy - poster listed above).

Keystone Conference: Frontiers of NMR in Molecular Biology VIII, Taos, New Mexico, February, 2003.
AIDS Structural Biology Meeting, NIH, Bethesda, MD, June, 2003

O'Connell, CD

Co-chaired NIST Workshop at Stanford University and prepared proceedings for publication.
Member of the Steering Committee for the September 2003 CDC Workshop entitled "Developing QC
Materials for Genetic Testing, Atlanta, GA.

Ravichandran, V

Human Proteome Organization (HUPO); Liver Proteome Initiative, July 17-18, Bethesda
Mitochondrial Proteomics: Data Issues and Standards, November 6-7, 2003.

Schwarz, F.P.

Chair, Joint Meeting of the 58th Calorimetry conference and the Japanese Society of Calorimetry and
Thermal Analysis
Chair of the North American Calorimetry Conference

Vilker, VL

Co-Organizer, "Metrology and Standards Needs for Gene Expression Technologies: Universal RNA
Standards" Workshop (Stanford University)(03/2003)
Co-Organizer, Bioanalytic Working Group Thinkshop on Biometrology, (IRMM, Geel,
Belgium)(04/2003)
Co-organizer, USDA/NIST workshop on Standards Needs for Genetically Modified Organisms Detection
(NIST)(06/2003)
Co-Organizer, FDA/NIST Meeting on Standards Needs for RNA Detection in Gene Expression
Technologies (US/FDA, Rockville, MD)(08/2003)
Organizer, Symposium on "NIST Biotechnology Opportunities: Working with Industry" BIO2003
(Washington, DC) (06/2003)
Organizer, Symposium "Reference Materials in Biotechnology", 2003 NCSLI Workshop and Symposium
(Tamp, Florida) (08/2003)

Other:

Jakupciak, JP (My Research Presented by others)

“Non-B DNA and its physiological consequences” A.Bacolla, R.P.Bowater, R.Dere, J.D. Griffith, M. Herbert, R.R.Iyer, John P. Jakupciak, A.Jaworski, J.E.Larson, L.Mochmann, M.Napierala, A.Pluciennik, L.Spitz, A.Vetcher, M.Wojciechowska, R.D. Wells. Society for General Microbiology, 153rd Meeting, UMIST, Manchester, UK September 8-12, 2003.

“Molecular mechanisms of genetic instabilities of CTGCAG repeats associated with myotonic dystrophy” A.Bacolla, R.P.Bowater, R.Gellibolian, R.R.Iyer, John P. Jakupciak, A.Jaworski, J.E.Larson, M.Napierala, A.Pluciennik, P.Parniewski, N.Sakamoto, R.D. Wells. 75th Annual Meeting Japanese Biochemical Society, Kyoto, Japan, October 17, 2002.

Molecular mechanisms of genetic instabilities of triplet repeats associated with hereditary neurological diseases” A.Bacolla, R.P.Bowater, R.Gellibolian, R.R.Iyer, John P. Jakupciak, A.Jaworski, J.E.Larson, M.Napierala, A.Pluciennik, P.Parniewski, N.Sakamoto, R.D. Wells. 59th Annual Meeting Genomics and Proteomics, Taejon, Korea, October 11, 2002.

Marino, JP.

ATP Reviewer

Served as a reviewer for two external ATP grant applications (Grants #00-00-5954 and #00-00-5636)

Marino, JP

Journal Reviewer

In the past year, I have served as a reviewer for the following Journals:

Journal of Magnetic Resonance

Journal of the American Chemical Society

Journal of Biomolecular NMR

Journal of Molecular Biology

Journal of Biological Chemistry

Marino, JP

Research Direction

Undergraduate Students (1 summer student)

Katharine T. Briggs (Summer Student from Wheeling Jesuit College, WV)

Post-doctoral Associates (4 Post-docs)

Eric DeJong (NRC Postdoctoral Research Associate)

Rita Mihaelescu (NIH Postdoctoral Research Associate)

Thomas Bradick (NIH Postdoctoral Research Associate)

Peter Yim (Postdoctoral Research Associate- Joint with Optics Group in Physics)

Marino, JP

Research Funding

Funded:

P.I., NIH/NCRR Shared Instrumentation Grant “Acquisition of a 600 MHz NMR Cryoprobe System” (\$250K total direct costs to CARB)

P.I., FY4 of a 5 year R01 NIH/NIGMS Grant entitled “Structural Basis of RNA Stem-Loop ‘Kissing’ Interactions.” (\$775K total direct costs)

Co-P.I., FY3 of a 3 year ATP/NIST Intramural Award entitled “Single Molecule Probes” (\$450K total direct costs to CARB over 3 years)

Co-P.I., FY2 of a 5 year NIST Competence Award entitled “SM3” (\$500K total direct costs to CARB over 5 years)

Submitted (under review):

P.I., NIH/NIGMS RO1 Grant “Structural Analysis of GPCR Mediated Signal Transduction” (\$875,000 total direct cost to CARB over 5 years)

Submitted (not funded)

P.I., NIST Competence Award, “Development of Ribonucleic Acid Metrology to Support Gene Expression Technology”

Ridge, K. D.

University of Maryland Biotechnology Institute, Adjunct Associate Professor

Schwarz, FP

University of Maryland Biotechnology Institute, Adjunct Professor

Member fo WERB from 1991 to present.

Stoltzfus, A.

Served as a peer-reviewer of manuscripts for a conference on Biological Language Modelling, and for the journals *Proteins*, *Biophysical Journal* and *Molecular Biology and Evolution*. Served as an external reviewer for faculty tenure or renewal decisions at Pomona College and George Mason University. Reviewed grant proposals for the DOE’s Chemical and Biological National Security Program (CBNP).