

## **Biochemical Science Division (831)**

Outputs and Interactions

### **1. Publications**

Abdulaev, Najmoutin G., Tony Ngo, Eva Ramon, Danielle M. Brabazon, John P. Marino and Kevin D. Ridge, ***“The GDP-Released ‘Empty Pocket’ State of an Activated Receptor Bound Heterotrimeric G-Protein  $\alpha$ -Subunit is conformationally dynamic,”*** *Biochemistry*, in press.

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Valincius, G., McGillivray, D.J., Febo-Ayala, W., Vanderah, D.J., Kasianowicz, J.J., and Lösche, M., “*Enzyme Activity to Augment the Characterization of Tethered Bilayer Membranes*,” J. Phys. Chem. B, 110, 10213-10216 (2006).

Vallone, P.M. and Butler, J.M., “*Analysis of DNA Single Nucleotide Polymorphisms. The Encyclopedia of Mass Spectrometry: Volume 3, Biological Applications, Part B: Carbohydrates, Nucleic Acids and Other Biological Compounds*,” (Caprioli, R.M., ed.), Elsevier: New York, 39-51 (2006).

Vallone, P.M., Decker, A.E., Coble, M.D., and Butler, J.M., “*Evaluation of an Autosomal SNP 12-plex Assay. Progress in Forensic Genetics 11*,” Elsevier Science: Amsterdam, The Netherlands, International Congress Series, 1288, 61-63, (2006).

Vreeland, W.N., Hong, J.S., Jahn, A., Raghavan, S.R., Locascio, L.E., Gaitan, M., “*Microfluidic-Directed Molecular Self-Assembly and Templating of Bio-Inspired Nanoparticles*,” in Proceedings  $\mu$ TAS Symposium, 251-253 (2006).

Wang, L., Cole, K., Hancock, D., Gaigalas, A., and He, H.-J., “*Comparison of Ovalbumin Quantification Using Forward-Phase Protein Microarrays and Suspension Arrays*,” Journal of Proteome Research, 5, 1770-1775 (2006).

Wang, L., Cole, K., He, H.-J., Hancock, D., Gaigalas, A., and Zong, Y., “*Comparison of Ovalbumin Quantification Using Forward-Phase Protein*,” Microarrays and Suspension Arrays, in press.

Wang, L., Abbasi, F., Gaigalas, A., Vogt, R., and Marti, G., “*Comparison of Fluorescein and Phycoerythrin Conjugates for Quantifying CD20 Expression on Normal and Leukemic B-Cells*,” Clinical Cytology, in press.

Wang, L., Cole, K., He, H.-J., Hancock, D., Gaigalas, A., and Zong, Y., “*Comparison of Ovalbumin Quantification Using Forward-Phase Protein Microarrays and Suspension Arrays*,” Web Journal of Proteome Research, 5, 1770-1775 (2006).

Wang, L., Cole, K., and Reddy, P., Kim, S.-K., Hancock, D., ***“Methods to Characterize Ricin for the Development of Reference Materials,”*** Journal of Research, 111, 313-324 (2006).

Wang, L., Abbasi, F., Gaigalas, A., Hoffman, R., Flagler, D., and Marti, G., ***“Quantifying CD4 Expression on T Lymphocytes Using Fluorescein Conjugates in Comparison with Unimolar CD4-Phycoerythrin Conjugates,”*** Cytometry Part B: Clinical Cytometry, in press.

Wang, L., Abbasi, F., Gaigalas, A., Vogt, and Marti, G., ***“Comparison of Fluorescein and Phycoerythrin Conjugates for Quantifying CD20 Expression on Normal and Leukemic B-Cells,”*** Cytometry Part B: Clin. Cytometry, 70B, 410-415 (2006).

Wang, L., Cole, K., He, H.-J., Hancock, D., Gaigalas, A., and Zong, Y., ***“Comparison of Ovalbumin Quantification Using Forward-Phase Protein Microarrays and Suspension Arrays,”*** J. Proteome Res., 5, 1770-1775 (2006).

Xiao, Y., Blasic, J., Holden, M.J., and Barker, P., ***“Quantum Dots Detection for HER2 Standard Reference Material,”*** 97<sup>th</sup> AACR Annual Meeting Proceedings, 1236 (2006).

Xiao, Y., Blasic, J., Holden, M.J., Barker, P., ***“Nanocrystal Fluorophores for Molecular Genetic and Cancer Testing,”*** 2006 Histochemistry and Molecular Genetics Conference Proceedings, 16 (2006).

Zhao, C. and Marino, J.P., ***“Synthesis of HIV-1 site RNA Sequences with Site Specific Incorporation of the Fluorescent Base Analog 2-Aminopurine,”*** Tetrahedron Lett., in press.

Zhou, J., Gregurick, S.K., Krueger, S., and Schwarz, F.P. ***“Conformational Changes in Single-stranded DNA as a Function of Temperature by SANS,”*** Biophys. J., 90, 1-8 (2006).

## **2. Talks**

Abdulaev, N.G., Kevin D., Ridge, Tony Ngo, Danielle M. Brabazon, and John P. Marino ***“Heterotrimer-associated and rhodopsin-stimulated conformational changes in the  $\alpha$ -subunit of transducin,”*** PreARVO meeting 2006, Ft. Lauderdale, FL.

Atencia, J., ***“Engineered microcirculatory systems,”*** Mems Alliance Symposium, Laurel, Maryland. March 2006. Invited

Atencia, J., ***“Pumping in self-contained microfluidics systems,”*** Forum USA 2006, Boston. April 2006.

Atencia, J., Guest lecturer in the course ENEE 605 –***“Design and Fabrication of Micro-Electro-Mechanical Systems”***(MEMS) by Prof. Reza Ghodssi. at the University of Maryland. Invited

Atha, D.H. ***“Bioimaging and High-throughput Genetic Testing: Telomerase Technology for Quantitative Cancer Biomarker Measurements”*** CSTL Exploratory Research, Feb. 9, 2006.

Atha, D.H. ***“Biomarker Research at NIST,”*** NCI-EDRN 13th Steering Committee Meeting, Hillman Cancer Center, Pittsburg, PA, Sept. 19, 2006. Invited

Barker, P.E., ***“Standards, Technology and Validation for Early Cancer Detection Biomarkers,”*** Department of Pathology, Lurie Cancer Center, Chicago, Illinois, November 9, 2006. Invited

Barker, P.E., ***“Analytical and Clinical Validation: Biomarker for Early Cancer Detection,”*** Drug Development and Therapeutics World Congress, Boston, August 8, 2006. Invited

Barker, P.E., ***“Standards, Technology and Biomarker Validation for Early Cancer Detection,”*** American Type Culture Collection, Manassas, Virginia, May 23, 2006

Barker, P.E., ***“Standards, Technology and Biomarker Validation for Early Cancer Detection”***, Physics Laboratory, National Institute of Standards and Technology (NIST), Gaithersburg, Maryland, May 30, 2006. Invited

Barker, P.E., ***“Standards, Technology and Biomarker Validation for Early Cancer Detection”***, Department of Pathology, University of Maryland School of Medicine, Baltimore, Maryland, May 9, 2006. Invited

Barker, P.E., ***“Cancer biomarker validation at NIST,”*** CHI Molecular Diagnostics, Moscone Center, San Francisco, February 20-24, 2006. Invited

Barker, P.E., ***“Standards for serum proteomics”*** CHI PepTalk, January 10, 2006, Del Coronado, California. Invited

Bhat, T., Nguyen, A., Rodriguez, H., Wlodawer, A., and Nasr, M., ***“Semantic Web and Chemical Ontology for Fragment-Based Drug Design and Proteomics,”*** US HUPO meeting, Boston 12-15, March, 2006.

Bhat, T.N., ***“HIV Structural Database and Chemical Ontology,”*** Centre for Advanced Research in Biotechnology (CARB) March 30, 2006.

Bhat, T.N., Cambridge HealthTech, Drug Discovery Chemistry, 2006, La Jolla Ca, April 24-25, 2006, ***“Semantic Compound Library and Semantic Web technology for Drug design and Synthesis”***.

Bhat, T.N., Cambridge HealthTech, Drug Discovery Chemistry, 2006, La Jolla Ca, April 24-25, 2006, Roundtable discussion on ***“Fragment-Based Drug discovery”*** Panel Member.

Bhat, T.N., ***“Semantic Web for Chemical Genomics – need, how to, and hurdles,”*** World Multi-conference on Systemetics, Cybernetics and Informatics, Florida July 17, 2006.

Bhat, T.N., ***“Application of Systemic and/or Cybernetic Concepts and Methodologies in Different Kind of Knowledge, World Multi-conference on Systemetics, Cybernetics and Informatics,”*** Florida July 17, 2006 Session Chair.

Bhat, T.N., ***"A structural Resource for Industrial and Academic Researchers to Facilitate Rational Drug Design 20<sup>th</sup> Annual Meeting of Groups studying the structures of AIDS-related Systems and their Applications to Targeted Drug Design,"*** June 22-23, 2006 Lister Hill Auditorium NIH, Bethesda.

Butler, John, College of Physical and Mathematical Sciences at Brigham Young University (Provo, UT), October 13, 2005, ***"Beyond CSI: Exciting Applications of Forensic DNA,"*** Invited

Butler, John, 11th National CODIS Conference (Crystal City, VA), November 7, 2005, ***"NIST Research Update."*** Invited

Butler, John, Scientific Working Group on DNA Analysis Methods-SWGDAM (Fredericksburg, VA), January 11, 2006, ***"Low-Copy Number DNA and DNA Quantitation."*** Invited

Butler, John, plenary presentation at the ANZFSS 18th International Symposium on the Forensic Sciences: Classroom to Courtroom (Freemantle, Australia), April 4, 2006, ***"Human Identification Using DNA Analysis: Past, Present, and Future."*** Invited

Butler, John, keynote presentation at the ANZFSS 18th International Symposium on the Forensic Sciences: Classroom to Courtroom (Freemantle, Australia), April 4, 2006, ***"STRs vs. SNPs: Thoughts on the Future of Forensic DNA Typing."*** Invited

Butler, John, University of Virginia Department of Chemistry (Charlottesville, VA), April 14, 2006, ***"Analytical Detective Work and the Chemistry Behind Forensic DNA Typing."*** Invited

Butler, John, Virginia Section of the American Chemical Society (Charlottesville, VA), April 14, 2006, ***"Beyond CSI: Exciting Applications of Forensic DNA."*** Invited

Butler, John, Towson University Department of Chemistry (Towson, MD), April 25, 2006, ***"Beyond CSI: Exciting Applications of Forensic DNA."*** Invited

Butler, John, Low Copy Number Forensic DNA Workshop sponsored by the Mid-Atlantic Association of Forensic Scientists (Richmond, VA), May 3, 2006, ***"Introduction to Low Copy Number (LCN) DNA Testing Issues."*** Invited

Butler, John, Validation Workshop at Applied Biosystem's HID University/Future Trends in Forensic DNA Technology seminar series (Albany, NY), May 10, 2006, ***"Validation Workshop."***

Butler, John, Scientific Working Group on DNA Analysis Methods-SWGDAM (Fredericksburg, VA), July 13, 2006, ***"NIST Research Update."*** Invited

Butler, John, The NIJ Conference session on Improving the Success Rate of the Analysis of Compromised DNA Evidence (Washington, D.C.), July 18, 2006, "***CSI: Compromised Sample Improvements.***" Invited

Butler, John, QIAGEN (Germantown, MD), September 22, 2006, "***NIST Human Identity Project Team Overview.***" Invited

Choi, J.H., Wang, N. S., and Reipa, V. "***Silicon nanocrystals for biological assay***", Bioscience Research and Technology Review Day, Nov 2005, University of Maryland, College Park, MD.

Choi, J.H., Wang, N. S., and Reipa, V. "***Silicon Nanocrystal as Efficient Fluorescent Dye***", Jonghoon Choi, Nam Sun Wang, and Vytas Reipa, Research Fest06, Apr 2006, Department of Chemical and Biomolecular Engineering, University of Maryland, College Park, MD.

Choi, J.H., Wang, N. S., and Reipa, V. "***Passivation of Si Nanocrystals using Photo-assisted Alkylation***", NanoDay 2006, May 2006, Maryland Nanocenter, University of Maryland, College Park, MD.

Choi, J.H., Wang, N. S., and Reipa, V. "***Photo-assisted acid dissolution of Si nanocrystals,***" September 2006, Annual National ACS Meeting, San Francisco, CA

Choi, J.H., Wang, N. S., and Reipa, V. "***Passivation of Si Nanocrystals Using Photo-Assisted Alkylation***" Annual National AIChE Meeting, Nov 2006, San Francisco, CA.

Choi, J.H., Wang, N. S., and Reipa, V. "***Photo-Assisted Dissolution of Si Nanocrystal***" Annual National AIChE Meeting, Nov 2006, San Francisco, CA.

Choquette, S.J. FACSS 2005, Quebec, "***Automated Algorithm Development for Raman spectral Searching***", October 2005.

Choquette, S.J. United States Pharmacopeia (USP) "***NIST's NIR and Raman SRM's***" discussion re: USP Chapter on Raman Spectroscopy 10/21/2006 Rockville MD.

Choquette, S.J. "***Standard Guide for Testing the Resolution of a Raman Spectrometer***", ASTM E 13.06 subcommittee meeting, Pittcon March Orlando Florida.

Choquette, S.J. "***Analytical Chemistry as a Career***", annual career day presentation, Ridgeview Middle School, 5/11/2006.

Choquette, S.J. "***Validated Raman Spectral Libraries***", Defense Science and Technology Laboratory (DSTL), Salisbury UK 6/2006.

Choquette, S.J., "***Development of validated instrument corrected Raman spectral libraries,***" 4th annual Toxic Industrial Chemicals and Toxic Industrial Materials (TIC & TIMS) conference Richmond Va, July 2006.

Choquette, S.J., "**Validated Raman Spectral Libraries**", DHS annual program review, August NIST.

Choquette, S.J., "**Validated Raman Spectral Libraries**," Biochemical Sciences Division Seminar, Sept 2006.

Coble, Mike on-line presentation for the Forensic E-symposium, February 28, 2006, "**miniSTR's for low copy number and degraded DNA.**"

Coble, Mike, National Forensic Science Technology Center Mitochondrial DNA Workshop (Largo, FL), March 13, 2006, "**Introduction to Mitochondrial DNA Analysis.**"

Coble, Mike, National Forensic Science Technology Center Mitochondrial DNA Workshop (Largo, FL), March 14, 2006, "**mtDNA Coding Region and Haplogroups.**"

Coble, Mike, Mid-Atlantic Association of Forensic Scientists (Richmond, VA), May 4, 2006, "**Development, characterization and performance of new miniSTR loci for typing degraded samples.**"

Coble, Mike, NIJ DNA Grantees meeting (Crystal City, VA), June 26, 2006, "**Development, Characterization and Performance of New miniSTR Loci for Typing Degraded Samples (on behalf of NIST.)**" Invited

Cole, K., "**Update on Disinfection of Biological Threats in Building Water Systems**," Talk at the NIST-EPA Advisory Board on Building Water Safety, Gaithersburg, MD, May 15, 2006.

Cole, K., "**Reference materials for Bacillus anthracis and ricin- an update**" Talk at the DHS Project Review NIST, Gaithersburg, MD, August 29, 2006.

Decker, Amy, Promega Technology Tour (Fairfax, VA), June 13, 2006, "**NIST Experience with FSS-i3 Software.**" Invited

Decker, Amy, Promega Technology Tour (Hartford, CT), June 15, 2006, "**NIST Experience with FSS-i3 Software.**" Invited

Decker, Am, Promega Technology Tour (Phoenix, AZ), June 22, 2006, "**NIST Experience with FSS-i3 Software.**" Invited

DeRose, P.C., "**NIST Activities in the Pursuit of Fluorescence Standards**," Biotechnology Group Seminar, NPL, Teddington, UK, June 28, 2006. Invited

DeRose, P.C., "**Qualification of a Fluorescence Spectrometer for Measuring True Fluorescence Spectra**," 5th Oxford Conference on Spectrometry, Teddington, UK, June 26, 2006.

DeRose, P.C., ***“New Standard Reference Materials for Determining True Fluorescence Spectra,”*** 57th Annual Pittsburgh Conference, Orlando, FL, March 15, 2006.

DeRose, P.C., ***“Qualification of Fluorescence Spectrometers: Comparing the Effectiveness of Novel and Conventional Methods,”*** Eastern Analytical Symposium (EAS) 2005, Somerset, NJ, November 16, 2005.

Dizdar, M. ***“Measurement of Oxidative DNA Damage in Plants Treated with Ionizing Radiation and Other Mutagens,”*** Second Research Coordination Meeting of the International Atomic Energy Agency on Mutagenic Effects on the DNA Sequence in Plants, Seoul, Republic of Korea, November 15, 2005.

Dizdar, M. ***“Base Excision Repair of Formamidopyrimidines,”*** 2nd EU-US DNA Repair Meeting, Erice, Sicily, Italy, November 29, 2005.

Dizdar, M. ***“Oxidative DNA damage: Mechanisms, Measurement and Repair,”*** Trevigen, Inc., Gaithersburg, MD, February 10, 2006.

Dizdar, M. ***“Oxidative DNA Damage and Its Repair in Cancer,”*** Multidisciplinary Cancer Symposium, Bursa, Turkey, March 12, 2006.

Dizdar, M. ***“Oxidative DNA Damage: Mechanisms, Repair and Disease,”*** Turkish Academy of Sciences, Istanbul, Turkey, March 20, 2006.

Dizdar, M. ***“Base Excision Repair of Formamidopyrimidines in DNA,”*** 2nd Baltimore Area Repair Symposium: DNA Damage and Repair in Cancer, Baltimore, MD, March 22, 2006.

Dizdar, M. ***“Formation and Repair of Radiation-Induced Formamidopyrimidines in DNA,”*** IXth International Workshop on Radiation Damage to DNA, Tekirova, Antalya, Turkey, May 14, 2006

Elliott, J. T., ***“Controlling the Extracellular Matrix Standardized Cell Environment,”*** CHI High-Content Analysis Meeting, San Francisco, CA February, 2006. Invited

Elliott, J.T., ***“Lessons Learned from Measuring Cell Response with Quantitative Automated Microscopy FDA Workshop on Potency Measurements for Cellular and Gene therapy Products,”*** Gaithersburg, MD February, 2006 Invited

Elliott, J.T., ***“Influence of Culture Conditions and Substrates on Cellular Responses: A Quantitative Approach Williamsburg Bioprocessing Conference,”*** Newport Beach, CA, Sept, 2005. Invited

Elliott, J. T., ***“Identifying Statistically Relevant Differences between Distributions of Cell Response,”*** Society for Biomolecular Screening Annual Conference, Geneva, Switzerland, Sept, 2005. Invited

Elliott, J. T., ***“Monitoring Cell Signaling on Biomaterials,”*** Johns Hopkins University Biomaterials Lecture Series, March, 2006.

Forry, S. P.; Presentation at MicroTAS 2005 in Boston, MA, in October 2005.

Forry, S. P.; Presentation at Microscale Bioseparations 2006, January, 2006.

Giulian, Gary, John P. Marino, Neşe Sari, Bani Cipriano, Srini Raghavan, Jeeseong Hwang, and Kim Briggman, ***“<sup>1</sup>H, <sup>13</sup>C and <sup>23</sup>Na NMR analysis of sodium dodecyl sulfate (SDS) “trapped” in mechanically shortened double walled carbon nanotubes (DWNTs).”***

Goldberg, R., ***“Biocatalysis – A Brief Overview,”*** American Chemical Society Summer School, Washington, D.C., June 26, 2006.

Goldberg, R., ***“A Thermodynamic Investigation of Reactions Catalyzed by D-Hydantoinase and N-Carbamoyl-D-Amino Acid Hydrolase,”*** presented at the joint meeting of the IUPAC, Thermophysical Properties Society, and Calorimetry Conference, Boulder, CO, July 27, 2006.

Goldberg, R., ***“Thermodynamic Data and Measurements for Biofuels,”*** Workshop on Measurements and Standards for Biofuels: Enabling a Transition from petroleum as a Vehicular Source,” Rio de Janeiro, Brazil, September 14, 2006.

Halter, M., Tona A., Elliott J.T., Plant A.L. ***“Dynamic response of a tenascin-C promoter driven GFP reporter,”*** Cytometry Development Workshop, Pacific Grove CA, Oct 2006.

Hill, Becky, Applied Biosystem's HID University/Future Trends in Forensic DNA Technology seminar series (Washington, DC), May 16, 2006, ***“ABI 3130xl Upgrade Validation Experiments Performed at NIST.”*** Invited

Hill, Becky, Promega Technology Tour (Austin, TX), June 13, 2006, ***“NIST Experience with FSS-i3 Software.”*** Invited

Hill, Becky, Promega Technology Tour (Chicago, IL), June 15, 2006, ***“NIST Experience with FSS-i3 Software.”*** Invited

Hill, Becky, Promega Technology Tour (Anaheim, CA), June 20, 2006, ***“NIST Experience with FSS-i3 Software.”*** Invited

Hill, Becky, Expert Systems Workshop held in conjunction with the 2nd Annual Present and Future Technological Advances in Human Identification Conference (Roanoke, VA), March 27, 2006, ***“NIST Experience with FSS-i3 software.”*** Invited

Holden, M., BAWG – CCQM, ***“Validation of the P44 test plasmid: Determination of the mass of the plasmid in test solutions,”*** Nov.8, 2005 BAWG-CCQM.

Holden, M., BAWG – CCQM, ***“Q-PCR DNA quantitation: Trace Detection Study Result,”*** April 3, 2006.

Holden, M., “SADCMET Symposium, International Biomeasurement Activity in Food and Healthcare, ***“Biotech crop measurements in the United States,”*** Nov 10, 2005.

Holden, M., AEIC Meeting Sept. 13, 2006, ***“Taking the measure of the measurementsHye.”***

Jakupciak, J.P., ***“Mitochondrial DNA as a Biomarker,”*** Tumor Markers for Personalized Medicine Conference, Kona, HI, March 3, 2006.

Jakupciak, J.P., ***“Mitochondrial DNA as a Biomarker,”*** CHI Molecular Diagnostics Conference, San Francisco, CA, June 13, 2006.

Jakupciak, J.P., ***“Mitochondrial DNA as a Biomarker for Early Detection of Cancer,”*** 13th Steering Committee Meeting, UPMC Cancer Pavilion, Pittsburgh, PA, September 18-19, 2006.

Kline, Margaret, National Institute of Justice (NIJ) Applied Technologies & Partnerships Conference (Hilton Head, SC), February 1, 2006, ***“Standards, Validation, and Evaluation Studies to Aid the Forensic DNA Community.”*** Invited

Kline, Margaret, PITTCON workshop on Standard Reference Materials (SRMs) for Environmental, Food, Metal, Fossil Fuel, and Forensic DNA Analysis, March 12, 2006, ***“Forensic DNA Standard Reference Materials.”*** Invited

Kline, Margaret, 2nd Annual Present and Future Technological Advances in Human Identification Conference (Roanoke, VA), March 29, 2006, ***“NIST Update.”*** Invited

Kline, Margaret, Tenth International Symposium on Biological and Environmental Reference Materials (BERM 10) meeting (Charleston, SC), May 4, 2006, ***“Providing SRMs for the rapidly evolving forensic DNA and human identity testing communities.”*** Invited

Kline, Margaret, NIJ DNA Grantees meeting (Crystal City, VA), June 26, 2006, ***“Progress Toward SRM 2372: Human DNA Quantitation.”*** Invited

Lang, B., ***“DNA and RNA Duplex stability by ITC and DSC.”*** Thermo International 2006/61st Calorimetry Conference, Boulder, Colorado, July 30 - August 4 2006.

Locascio, L.E., ***“Cells and Model Cell Systems in Microfluidics,”*** 6<sup>th</sup> International Symposium on Microchemistry and Microsystems (ISMM2006), Hakone, Japan, June 7-8, 2006. Invited

Locascio, L.E., ***“Development of a U.S. National Standard for Sampling Suspicious Powders,”*** Second National Conference on Environmental Sampling and Detection for Bio-Threat Agents, Brooklyn, NY October 25-27, 2006. Invited

Marino, J. P., ***“Probing the Mechanism of Heterotrimeric G-protein signaling using high-resolution NMR,”*** Hollings Marine Laboratory, Charleston, South Carolina, October, 2005.

Marino, J. P., ***“Probing the Mechanism of Heterotrimeric G-protein signaling using high-resolution NMR,”*** UMBI Research Day, University of Maryland, Shady Grove, November, 2005.

Marino, J. P., ***“Probing the Mechanism of Heterotrimeric G-protein signaling using high-resolution NMR,”*** Health Science Center at the Houston Medical School, Houston, Texas, November, 2005.

Marino, J. P., ***“Probing the Mechanism of Heterotrimeric G-protein signaling using high-resolution NMR,”*** Vanderbilt University, Nashville, Tennessee, December, 2005.

Marino, J. P., ***“Probing Structural Changes in the HIV-1 dimerization initiation site kissing dimer during maturation”*** Meeting of Groups Studying the Structures of AIDS-Related Systems and their Application to Drug Design, NIH, Bethesda, MD June, 2006.

Meuse, C., ***“Spectroscopic Techniques for Tertiary Structure Analysis “at the “Follow-On Biologicals Workshop”*** sponsored by the FDA, the New York Academy of Sciences and NIS, December 12, 2005 in Brooklyn, NY. Invited

Meuse, C., ***“Quality Control of Antibody Structure” at the “Improved Autoantibody Metrology”*** USMS workshop, February 21, 2006 in Gaithersburg, MD. Invited

Meuse, C., ***“Measuring Protein Structural Distributions in Different Environments,”*** ACS National Meeting, September 12, 2006, San Francisco, CA.

Noble, J., Wang, L., Cerasoli, E., Lamarre, B., Knight, A., Bailey, M., and Gray, E., ***“CCQM P58: Fluorescence measurement for the life sciences,”*** BAWG Meeting, April 2006, Paris.

Noble, J., Wang, L., Knight, A., Bailey, M., Milton, M., Gaigalas, A., and Gray, E., ***“CCQM P58: Fluorescence measurement for the life sciences,”*** BAWG Meeting, November 2005, South Africa.

Plant, A., ***“Thin Films of Self-Assembled Collagen Fibrils: Effect of Nanoscale Mechanical Properties on Cell Response,”*** University of Maryland Materials Science and Engineering Department, College Park MD, December 2005. Invited

Plant, A., ***“Thin Films of Self-Assembled Collagen Fibrils: Effect of Nanoscale Mechanical Properties on Cell Response,”*** Biophysics Interest Group, NICDH, NIH, Bethesda MD, Jan 2006. Invited

Plant, A., ***“Nanoscale mechanical properties of collagen determine vascular smooth muscle phenotype,”*** IEEE-EMBS/ASME Workshop on Nanoscale Modeling and Measurement of

Mechanical Properties of Cells and Proteins, Drexel University, Philadelphia PA, Sept 2006.  
Invited

Plant, A., “*NIST Overview for NSTI Nanotech 2006*,” Boston, May 2006.

Plant, A., “*The need for standards for cell signaling*,” ASTM International Annual Meeting, Toronto, May 2006.

Plant, A., “*Cell-Based Metrology and Informatics at NIST: challenges and opportunities*,” Biomedical Information Science and Technology Initiative (BISTI), NIH, Apr. 2006.

Plant, A., “*Metrology Infrastructure for Innovation in Cell-based Technologies*,” NIST Visiting Committee on Advanced Technology, Boulder CO, Sept 2006.

Plant, A., “*Protocols and Analyses for Quantitative Measurements of Cells*,” CHI Conference on Targeting the Invisible: Labels and Stains for Tissues and Cells, Boston, Apr 2006. Invited

Plant, A., “*The Role of Stochasticity in Cell Response*,” NICHD Retreat, Harper’s Ferry, Apr 2006. Invited

Reddy, P., “*Aromatic Amino Acid Biosynthetic Pathways in Mycobacterium tuberculosis H37Rv: Characterization of Chorismate Mutase*,” School of Pharmacy, Howard University, January 20, 2006. Invited

Reddy, P., “*Biochemical and Structural Characterization of the Secreted Chorismate Mutase from Mycobacterium tuberculosis H37Rv*,” Department of Biochemistry and Molecular Biology, Howard University Medical School, November 16, 2006. Invited

Reddy, P., “*Biochemical and Structural Characterization of the Secreted Chorismate Mutase (Rv1885c) from Mycobacterium tuberculosis H37Rv*,” 41st US-Japan Tuberculosis and Leprosy Research Conference, Kagoshima, Japan, July 19, 2006.

Reipa, V. “*Association and Redox Properties of the Putidaredoxin Reductase-NAD+Complex*,” 209th National Meeting of the Electrochemical Society in Denver, CO on May 8, 2006.

Richie, K.L., “*Fragile X Validation Project – NIST Update*,” Association for Molecular Pathology Meeting, Scottsdale, AZ, November 2005.

Richie, K.L., “*Huntington’s Disease Validation Project – NIST Update*,” U.S. Quality Control Materials Meeting and the International Symposium on Reference Materials for Genetic Testing, Geel, Belgium, November 2005. Invited

Richie, K.L., “*Development of Genomic Quality Control Materials for Huntington’s Disease Genetic Testing*,” American College of Medical Genetics Meeting, San Diego, CA, March 2006.

Ross, D., ***“Scanning Temperature Gradient Focusing for Simultaneous Concentration and Separation of Complex Samples,”*** plenary presentation, AIChE Annual Meeting, Cincinnati, OH, October 30-November 4, 2005.

Rossi, A. M., Wang, L.L., Reipa, V., and Murphy, T. E., ***“Comparative Study of Porous Silicon Biomolecule Conjugation Procedures,”*** International Congress on Nanobiotechnology & Nanomedicine (NanoBio2006) June 20, 2006 San Francisco, CA.

Salit, M., External RNA Control Consortium Roundtable CHI Meeting ***“From Gene Expression Profiling to Validated Biology,”*** October 6-7 2005, Boston, MA. Invited

Salit, M., ***“The Metrology for Gene Expression Program at NIST,”*** FDA Microarray Quality Control Project meeting, December 1-2, 2005, Palo Alto, CA. Invited

Salit, M., ***“Microarray Measurements of Known Quality,”*** Association for Laboratory Automation meeting, January 23-26, 2006, Palm Springs, CA. Invited

Salit, M., ***“Standards in Microarray Gene Expression Experiments,”*** at the 10<sup>th</sup> Biennial Biological and Environmental Reference Materials Conference, May 1-4, Charleston, SC.

Salit, M., ***“Understanding Measurement Quality in Microarray Gene Expression Results,”*** at the 4<sup>th</sup> Annual Ion Channel Retreat, June 27-29, Vancouver, BC. Invited

Salit, M., ***“Standards in Microarray Gene Expression,”*** at the 2006 Discovery-to-Diagnostics “Chips-to-Hits” conference, September 25-26, 2006, Boston, MA. Invited

Schwarz, F.P., ***“Thermodynamic Characterization of Protein Pharmaceutical Products by Calorimetry”*** NIST/FDA Workshop on “Follow-on Biologics” jointly sponsored by the New York Academy of Sciences and the FDA in collaboration with NIST, Brooklyn Bridge Marriott, NYC, NY, December 13, 2005. Invited

Schwarz, F.P., ***“Towards the Development of Protein Interactions Standards”*** at the ABRF 2006 Annual Meeting entitled “Integrating Science, Tools, and Technologies with Systems Biology” at the Long Beach convention Center, Long Beach, California, February 13, 2006. Invited

Schwarz, F.P., ***“Energetics of Promoter Conformational Changes in Transcription,”*** Workshop on Biocalorimetry and Biological Thermodynamics, Rio de Janeiro, Brazil, May 3, 2006. Invited

Smith, J., Cicerone, M., Meuse, C., ***“An Infrared Absorbance Assay for Determining Relative Changes in Surface-Adsorbed Protein Monolayers,”*** ACS Surface and Colloid Science Meeting, June 20, 2006, Boulder, CO.

Stoltzfus, A., ***“Evolutionary Bioinformatics,”*** February, 2006, CSTL-CARB strategy meeting.

Stoltzfus, A., ***"Introns in relation to protein structural features,"*** January, 2006, CARB Internal Seminar.

Struble, Evi ***"Structural Studies of Two Nucleic Acid Binding Proteins – Insights in Binding, Specificity and Recognition,"*** CBER/FDA, January 22, 2007. Invited

Struble, Evi, ***"Structural Studies of Two Nucleic Acid Binding Proteins – Insights in Binding, Specificity and Recognition"***, the internal seminar series for UMBI Shady Grove, February 8, 2007.

Tewari, Y.B., ***"A thermodynamic study of ketoreductase-catalyzed reactions,"*** Gordon Research Conference on Biocatalysis, Bryant University, Smithfield, RI, July 13, 2006.

Vallone, Peter, Science and Engineering Alliance at Southern University and A&M College (Baton Rouge, LA), January 18, 2006 ***"Forensic DNA Typing: The Application of Nucleic Acid Based Technology to Human Identity Testing."*** Invited

Vallone, Peter and Mike Coble, Fred Hutchinson Cancer Research Center (Seattle, WA), February 17, 2006, ***"Potential Application of Forensic DNA Testing Methods to Cancer Diagnostics."*** Invited

Vallone, Peter, 58th Annual Meeting of the American Academy of Forensic Sciences (Seattle, WA), February 23, 2006, ***"Examining Candidate DNA Quantitation Standards with Real-Time Quantitative PCR Assays."***

Vallone, Peter, DNA in Forensics 2006 (Innsbruck, Austria), September 29, 2006, ***"Forensic Application of the Affymetrix Human Mitochondrial Resequencing Array."***

Vallone, Peter, DNA in Forensics 2006 (Innsbruck, Austria), September 30, 2006, ***"Impact of Additional Y-STR Loci on Resolving Common Haplotypes and Closely Related Individuals."***

Vreeland, Wyatt N., ***"Forensic DNA Analysis: Cheap, Fast, and Easy,"*** Washington DC Science Writers Association, National Academy of Sciences, Washington, DC, USA. December 5, 2006. Invited

Vreeland, Wyatt N., ***"Prototype Polymeric Microfluidic DNA Analysis System for Forensic Analysis,"*** Presentation and instrument demonstration at the 7th Annual DNA Grantees Workshop, National Institute of Justice, US Department of Justice, Arlington, VA, USA. June 27, 2006. Invited

Wang, L., Cole, K., Gaigalas, ***"A. Proteomics-Protein Microarrays: Measurement Challenges for Clinical Applications."*** CSTL FY05 Exploratory Research Review Presentations, Feb 9, 2006, NIST.

Wang, L., Marti, G., Abbasi, F., Gaigalas, A., Vogt, R., ***“Comparison of Fluorescein and Phycoerythrin Conjugates for Quantifying CD20 Expression on Normal and Leukemic B-Cells,”*** ISAC XXIII International Congress, May 20-24, 2006, Québec City, Canada.

Xiao, Yan, ***“Metrology for cancer biomarkers: IgY affinity analysis of human HER2 and telomerase,”*** Developing New Standards for Autoantibody Measurement Workshop. NIST, Gaithersburg, MD, February 22, 2006. Invited

Xiao, Yan, ***“Novel Nanocrystal fluorophores for Biological and Medical Applications-FISH and IHC,”*** The George Washington University, Washington, D.C., April 18, 2006. Invited

### **3a. CRADA’S**

L. Wang, BD Biosciences

Vreeland, W.N., Ross, D., CN-5025 CRADA between Network Biosystems and NIST

### **3b. Guest Researchers**

Jamie Almeida

Ross Haynes

Javier Atencia

Dr. Hua-Jun He, KT Consulting/Utah State University

Kiran Bhadriraju

Dr. Richard Hendler, NIH scientist emeritus National Heart, Lung, and Blood Institute.

Doug Blackburn

Robert Brinson

Susan Hester

Phillip Bryan

Becky Hill

Jonghoon Choi, Dept. of Bioengineering, University of Maryland, College Park

Pawel Jaruga

Bruce Coxon

Zvi Kelman

Amy Decker

Guldal Kirkali

Koren Deckman

Morris Krauss

Dr. Lel Drachev, NIH scientist emeritus National Heart, Lung, and Blood Institute.

Albert Ledford  
Barbara Levin  
Shuwei Li

Lisa Fitzgerald, KT Consultants

Jayne Morrow  
John Orban

Patrick Gleichmann

Kordian Placzek

Dr. Andrea Rossi, National Metrological Institute, Turin, Italy

Gintaras Valincius (Vilnius Institute of Biochemistry, Vilnius, Lithuania): Jan-Feb and June-July

Jack Smith, NRC postdoctoral fellow 2/05 – 10/15/06.

Prof. N.S. Wang, Dept. of Bioengineering, University of Maryland, College Park

Natasha Smith

Brett Weed, Department of Homeland Security, Graduate Fellow, summer program 12 weeks.

Haviland Steele (SAIC)

Alex Tona

Yan Xiao

John Travis

Chang Zhao

### **3c. Students**

Ryan Vierling (SURF, Tulsa University)

Jennifer Gehret

Max Gabinski (Harvey Mudd College)

My Nguyen (American University)

Peter Thomas (University of Maryland)

### **4. PATENTS**

Locascio, L.E., “Surface Charge Modification within Preformed Polymer Microchannels with Multiple Applications including Modulating Electroosmotic Flow and Creating Microarrays”, T.J., Johnson, E.A. Waddell, D.J. Ross, L.E. Locascio (US Patent 6,982,028 B2; 01/03/06)

Locascio, L.E., “Simplified Methods for Electrokinetic Focusing in Microfluidic Devices” D.J. Ross, L.E. Locascio (US Patent 7,029,561 B2; 04/18/06)

### **5. SRM Activities**

Atha, D.H., Jakupciak, J.P. “SRM 2440: Standards for Telomerase Assays”

Barker, P., Xiao, Y., RM2393 HER2 Testing Standard

Becker, M.L., Jakupciak, J.P., Atha, D.H., Gallant, N.D., Joint Div. 854 and 831 “Standards for Immuno-Histochemistry Imaging: A Telomerase Expression Chip

Choquette, S.J., Calibrated surplus SRM 2036 glass for EOIR customer.

Choquette, S.J., Report of Analysis 831.02-06-107.

DeRose, P., Certification of SRM 2940, Relative Intensity Correction Standard for Fluorescence Spectroscopy: Orange Emission

DeRose, P., Certification of SRM 2941, Relative Intensity Correction Standard for Fluorescence Spectroscopy: Green Emission

Hancock, D., NMR Purity analyses for: SRM 17f Sucrose, SRM 911c Cholesterol, SRM 971 Hormones in Serum (Progesterone, Estradiol, Testosterone), SRM 3246 – 3248 Ginkgo Dietary Supplements (Quecetin, Tyramine)

Smith, M., Recertifications: 209 units

Stability of SRM 1930, Liquid Absorbance Standard for Ultraviolet Spectrophotometry ROC# 831.02-06-109

SRM 2372 (DNA) data taken

SRM Deliveries: SRM 930e - 16 units (2480, 2482, 2483, 2484, 2485, 2487, 2435, 2437, 2470, 2380, 2405, 2481, 2486, 2489, 2490, 2491)

SRM 2031a - 14 units (626, 627, 628, 629, 630, 631, 635, 636, 637, 638, 639, 641, 642, 643)

SRM 2930 - 2 units (7013, 7014)

SRM 1930 - 3 units (207, 215, 228)

SRM 2031a - continuous production

Kline, Margaret, SRM 2372 Human DNA Quantitation Standard is in development

Richie, K., J. Jakupciak Development of a Standard Reference Material for Accurate Size Determinations of CAG Repeat Length Mutations in Huntington's Disease. SRM 2393

Schwarz, F., RM 8237 Peptide Reference Material for Molecular Mass and Purity Measurements

## **6. Standard Reference Data Activities**

Bhat, T.N., Enzyme thermodynamics database: NIST Standard Reference Data 79.

Bhat, T.N., HIV Structural Reference Database NIST Standard Reference Data 101.

## **Committee Assignments**

**Barker, P.**, Committee member, Industrial Working Group of the Network for Translational Research: Optical Imaging (NTROI) program of NCI

**Barker, P.**, NCI/Innovative Technologies (IMAT) Study Section Reviewer, NCI/NIH 6/06

**Barker, P.**, AIBS Committee reviewer, U. S. Army Advanced Proteomics Program PRMRP- 06 (7/06)

**Barker, P.**, Committee member, AACR/FDA/NCI Think Tank on Clinical Biomarkers, November 27, 2006; November 27, 2006

**Butler, J.**, FBI's Scientific Working Group on DNA Analysis Methods Y-chromosome subcommittee

**Butler, J.**, Department of Defense Quality Assurance Oversight Committee for DNA Analysis

**Butler, J.**, 2005 Hurricane Victim DNA Identification Expert Group

**Choquette, S.J.**, Vice Chair of ASTM E13.08 Raman Subcommittee

**Choquette, S.J.**, Technical delegate for IR data evaluation to the Organization for the Prohibition of Chemical Warfare (OPCW), den Hague Netherlands

**Cole, K.**, panel member on the National Science Foundation Grant Review Board- Separations and Purifications. Arlington, VA, Nov. 17, 2005.

**Cole, K.**, thesis reader for Ph.D. student (S. Chethana), University of Mysore, India, June 2006.

**Cole, K.**, thesis reader and examination committee for Ph.D. student (Hong Shen), University of Maryland Baltimore County, March 8, 2006.

**Cole, K.** Working Group on Standards for Hand-Held Assays, sponsored by Department of Homeland Security.

**DeRose, P.C.**, IUPAC Task Group on Reference Methods, Standards and Applications of Photoluminescence

**DeRose, P.C.**, ACD Quality Committee

**DeRose, P.C.**, ASTM UV/VIS and Luminescence subcommittee E13.01 (vice-chairman)

**DeRose, P.C.**, ASTM Membership subcommittee (chairman)

**DeRose, P.C.**, ASTM Executive subcommittee E13.90 (secretary)

**DeRose, P.C.**, ASTM committee E13 (secretary)

**Elliott, J.T.**, A founding member of the Standards for Cell Signaling Committee in ASTM Organization, May, 2006

**Forry, S. P.**; SEMI Task Force for establishing Standard Micro-Fluidic Interconnects

**Goldberg, R.N.**, Member of ASTM Committee E-48 on Biotechnology

**Holden, M.**, Interagency Task Group for Agricultural Risk Analysis Research.

**Holden, M.**, Ex officio member of the USDA AC21 committee (Agriculture for the 21st Century, advisory committee to the Secretary of Agriculture)

**Holden, M.**, Interagency Task Force on Science to Support Food and Agricultural Research.

**Holden, M.**, Biochemical Science Division Quality team.

**Jakupciak, J.**, Program Opportunities in Bioscience: Biomarkers and Systems Biology

**Locascio, L.E.**, ISO TC/229 U.S. on Nanotechnologies, Chair Working Group 3 on Environmental Health and Safety

**Locascio, L.E.**, MicroTAS Program Planning Committee

**Locascio, L.E.**, National Science Advisory Board for Biosecurity

**Locascio, L.E.**, Division of Analytical Chemistry American Chemical Society Executive Board

**Locascio, L.E.**, Department of Homeland Security Sampling Standard Task Group

**Locascio, L.E.**, NIST Chapter of Sigma XI, Board Member

**Locascio, L.E.**, Biological Decontaminations Standards Working Group

**Marino, J.P.**, Member: CARB faculty advisory committee for CARB IT.

**Marino, J.P.**, Member: CARB faculty advisory committee for the CARB oligonucleotide synthesis facility.

**Marino, J.P.**, Member: CSTL advisory committee on Scientific Stature and Performance Characteristics

**Meuse, Curtis, W.**, Biochemical Science Division Safety Representative

**Morrow, J.B.**, Participated as an observer of record for the Subcommittee on Quality Control for Commercial Microbial ID Systems, Clinical and Laboratory Standards Institute, Wayne, PA.

**Plant, A.**, MultiAgency Tissue Engineering Sciences working group of the NSTC, 2004-present

**Plant, A.**, Langmuir Editorial Advisory Board, 2005-present.

**Plant, A.**, CBER/FDA Site Visit Committee for Tumor Vaccines and Biotechnology Branch, Sept 2006

**Plant, A.**, CBER/FDA Cellular, Tissue and Gene Therapies Advisory Committee Subcommittee, Workshop on Potency for Cell-Based Products, Feb. 2006

**Plant, A.**, National Science and Technology Council Subcommittee on Biotechnology

**Plant, A.**, ASTM International Committee F04.46, of Standards for Cell Signaling, (chair, 2006-present)

**Plant, A.**, Advisory Committee for The University of Pennsylvania IPAH Cell Center Core, for collection, storage and analysis of pulmonary hypertension tissue and proteomics samples.

**Reipa, V.**, M.S. thesis committee of Jonghoon Choi at the Department of Bioengineering of the University of Maryland, College Park.

**Salit, M.**, Board of Directors, MGED Society

**Salit, M.**, Co-lead, External RNA Control Consortium

**Salit, M.**, Bioanalysis Working Group, Consultative Committee for Amount of Substance – Metrology in Chemistry

**Salit, M.**, Advisory Board, European Union “EMERALD Project: Empowering the Microarray-Based European Research Area to Take a Lead in Development and Exploitation

**Schwarz, F.P** Acting Associate Director of CARB until 1/2006.

**Schwarz, F.P** Adjunct Professor, CARB of UMBI.

**Schwarz, F.P** CARB Fellow

**Schwarz, F.P** Member of the CARB Board of Advisors.

**Schwarz, F.P** Member of the Association of Biomolecular Resource Facilities.

**Schwarz, F.P** Co-chair of IUPAC Working Group on “Recommendations on the Measurement and Analysis of Results Obtained on Biological Substances with Isothermal Titration Calorimetry”.

**Schwarz, F.P** Member of the New York Academy of Science

**Schwarz, F.P** Mentor of Wootton High School Science Students

**Schwarz, F.P** NSF MCB Grant Reviewer.

**Schwarz, F.P** Member of organizing committee on The NIST Workshop entitled “Validating modeling and experimental methods to enable drug discovery” April 19 to April 20, 2006.

**Stoltzfus, A.**, Represented NIST at the 2006 National Centers of Biomedical Computing: All-hands Meeting, Bethesda, MD (17-19 July).

**Stoltzfus, A.**, Organized CARB-UMBI-Shady-Grove internal seminar series.

**Stoltzfus, A.**, Served on Ph.D. thesis committee for thesis defense of Mark Lupisella (BEES program, UM College Park).

## **9. Editorships**

**Barker, P.**, Editor, Disease Markers

**Barker, P.**, Editor, Cancer Biomarkers Special Issue on Biomedical Standards

**Barker, P.**, Editorial Board, Biomarker Insights

**Barker, P.**, Editor, Clinical Proteomics

**Butler, J.**, Guest editor for the Journal of Forensic Science

**Choquette, S.J.**, Analytical Chemistry editorial advisory board (Term ending FY 2006)

**Dizdar, M.**, Free Radical Biology & Medicine

**Locascio, L.E.**, Journal of Analytical Chemistry Editorial Advisory Board Ex-Officio Member

## **10. Seminars**

Dr. David Boettiger, University of Pennsylvania, **September 20, 2006**

Dr. Robert Murphy, Carnegie Mellon, **August 23, 2006**

Dr. Michael Mackey, University of Iowa

Dr. Alexander Peterson, NIH, **May 3, 2006**

Dr. Ilya Ravkin of Vitra Bioscience, Inc (Mountain View, CA), “Statistical properties of algorithms for analysis of cell images, algorithm comparison and possible leadership role for NIST in this area,” **November 16, 2005**.

Dr. David Roberts, NIH, **August 8, 2006**

Dr. Melvin Schindler of Nanoculture LLC (Piscataway, NJ), “Synthetic Nanofibers as Biomimetic Growth Surfaces for Cells,” **March 27, 2006**.

Dr. Winston Timp, MIT, **September 11, 2006**

### **11. Conferences/Workshops/Sessions Organized**

(Bhat, T.N), SIMA, NIST **June 16, 2006** One day workshop and discussion on Semantic Web

(Butler, J), Workshop with Bruce McCord at 58th Annual Meeting of the American Academy of Forensic Sciences (Seattle, WA), **February 20, 2006**, "Advanced Topics in STR DNA Analysis"

(Elliott, J.T), USMS- Tools and Standards for Improved Antibody-based Measurements: Co-organized and facilitated several breakout sessions at USMS NIST Workshop in **Feb 2006**

(Gaigalas, A.K), help organize SPIE conference entitled: USMS Workshop on Biophotonic Tools for Cell and Tissue Diagnostics (**1/22/2006**)

(Gaigalas, A.K.), organized USMS Workshop on Improved antibody metrology in flow cytometry. Held at NIST (**2/22/2006**)

(Locascio, L.E.), MicroTAS Program Planning Committee, MicroTAS **2005**

(Locascio, L.E.), ACS National Meeting, Symposia Organizer, **Fall 2006**

(Locascio, L.E.), ACS National Meeting, Symposia Organizer, **Spring 2006**

(Meuse, C.), Organized a meeting with the FDA and the NYAS entitled, "Scientific Issues in Assessing the Similarity of Follow-on Protein Products" **12/12-14/2005**, Brooklyn, NY.

(Meuse, C.), Helped organize a USMS meeting, “Developing New Standards for Autoantibody Measurement: Bringing Metrology to Serology” for NIST. **February 21-22, 2006**, Gaithersburg, MD.

(Plant, A.), USMS Workshop on “Measurement and Standards Needs for NanoBiotechnology”, Houston TX (**Jan 2006**)

(Plant, A.), Organizing Meeting for ASTM committee F04.46 on Cell Signaling, Toronto, **Apr 2006**

(Plant, A.), Regenerate World Congress, ‘Cell Based Sensors’ Session Chair, Pittsburgh, **Apr 2006**

(Salit, M.), “Using Classical Statistics and Experiment Designs, Reduce Noise in Your Next Microarray Experiment”, Mr. Thomas J. Downey, President, Partek, Inc., **February 16, 2006**

(Schwarz, F., Marino, J.), NIST Workshop on validating modeling and experimental methods to enable drug discovery” **April 19 to April 20, 2006.**

(Stoltzfus, A.), **June 29, 2006**, Philadelphia. Organized a 1-day meeting on “Supporting evolutionary analysis with BioPerl”, including interested scientists from CARB, GSK, Penn, and Hunter College. These interactions led to a successful NESCent working group proposal focusing on software interoperability in evolutionary informatics.

(Wang, L.), USMS Workshop: Improved Antibody-Based Metrology in Flow Cytometry, **February 23, 2006.** (Organizing Committee).

(Wang, L.), USMS Workshop: Developing New Standards for Autoantibody Measurement: Bringing Metrology to Serology, **February 21-22, 2006.** (Organizing Committee).

## **12. Awards**

Bhat, T.N., The Judson French Award National Institute of Standards and Technology, US Department of Commerce for the development of NIST standard reference database SRD 102, 2006

Bhat, T.N., Best paper award by Organizing Committee of the 9th World Multi-conference on Systemics, Cybernetics and Informatics (WMSCI 2005), held in Orlando, Florida, USA, in July 10-13, 2005

Bhat, T.N., Science Spectrum Trailblazer Award, 2006. Awarded by the Science Spectrum Magazine

Butler, J., Honored Alumnus for Brigham Young University’s College of Physical and Mathematical Sciences, October 2005.

Dizdar, M., Gold Medal Award of the Department of Commerce

Dizdar, M., NIST Fellow

Elliott, J.T., Received a Exploratory Research Award with Barb Jones in March 2006 entitled “Ionic Liquids as an Interface Between Electrophoresis and MALDI-MS on a Single Microfluidic Device and Application to the Identification of Nanoparticle Adsorption Sites on Extracellular Matrix Proteins.”

Guo, X., Ray, R., Xiao, Y., Barker, P. E., Ray, P. (2006). Anti-cytotoxic and anti-inflammatory effects of the macrolide antibiotic roxithromycin in sulfur-mustard exposed human airway epithelial cells. (in preparation).(Paper presentation won “Best Paper Award” at the 25th Army Science Conference; Submitted WERB).

Ross, D., and Locascio, L., CSTL Technical Achievement Award 2006, “Fluidic Temperature Gradient Focusing”, US patent no. 7,029,561.

Locascio, L.E., Department of Commerce Silver Medal

### **13. Intercomparisons**

Meuse, C., Co-organizer of the CCQM Bioanalytical working group study P-59 for the International Comparability in Circular Dichroism with the National Physics Laboratory of the United Kingdom.

Wang, L., CCQM P58: Fluorescence measurement for the life sciences