

Outputs and Interactions, Biotechnology Division FY04

Publications:

- Anderson, S.J., Goley, E.M., Barker, P.E., Camphausen, K., *“Microarray analysis of gliosarcoma tissue. CheckSample Clinical Chemistry,”* 44 (5): 51-61, (2004).
- Bacolla, A., Jakupciak, J.P., Jaworski, A., Chuzhanova, N., Abeysinghe, S., O’Connell, C.D., Cooper, D.N., and Wells, R.D., *“Breakpoints of Gross Deletions Coincide with Non-B DNA Conformations,”* Proc. Natl. Acad. Sci. 101, 14162-14167, (2004).
- Bhat, T. N., Prasanna, M. D., *“Related Projects: Protein Data Bank (PDB) and Chemical Compound Data Curation and Quer,”* Proceedings of IUPAC meeting (in press).
- Birincioglu, M., Jaruga, P., Chowdhury, G., Rodriguez, H., Dizdaroglu, M. and Gates, K. S., *“DNA base damage by the antitumor agent 3-amino-1,2,4-benzotriazine 1,4-dioxide (Tirapazamine),”* J. Amer. Chem. Soc. 125, 11607-11615, (2003).
- Bradrick, T.D. and Marino, J.P., *“Ligand-Induced Changes in 2-Aminopurine Fluorescence as a Probe for Small Molecule Binding to HIV-1 TAR RNA,”* RNA, 10, 1459-1468 (2004).
- Burden, D.L., Walhout, P.K., Elliott, J.T., Chandler, E.L., Scharf, R.G., Culbertson, M.J., Stults, D.A., Rupp, E.L., Poppen, S.D. *“Measuring Diffusion in Nanoscale Environments with Single Molecule Confocal Fluorescence Microscopy,”* Spectroscopy Letters. 37, 129-149 (2004).
- Butler, J.M., Schoske, R., Vallone, P.M., Redman, J. and Kline, M.C., *“Allele frequencies for 15 autosomal STR loci on U.S. Caucasian, African American, and Hispanic populations,”* J Forensic Sci., 48 (4) pp908-911 (2003).
- Butler, J.M. and Vallone, P.M. *“High-throughput genetic analysis through multiplexed PCR and multicapillary electrophoresis. PCR Technologie,”* Current Innovations (2nd edition) chapter 11, 111-120 (2004).
- Butler, J.M., Shen, Y., McCord, B.R. *“The development of reduced size STR amplicons as tools for analysis of degraded DN,”* J. Forensic Sci 48(5), 1054-1064 (2003).
- Butler, J.M. *“Short tandem repeat analysis for human identity testing,”* Current Protocols in Human Genetics, John Wiley & Sons, Hoboken, NJ, Unit 14.8, (Supplement 41), 14.8.1 -14.8.22 (2004).
- Butler, J.M. and Schoske, R. *“Duplication of DYS19 flanking regions in other parts of the Y chromosome,”* Int. J. Legal Med., 118: 178-183 (2004).

- Butler, J.M. and Schoske, R. "**Forensic value of the multi-copy Y-STR marker *DYS464***," Progress in Forensic Genetics 10, Elsevier Science: Amsterdam, The Netherlands, International Congress Series 1261, 278-280 (2004).
- Butler, J.M., Buel, E., Crivellente, F., McCord, B.R. "**Forensic DNA typing by capillary electrophoresis: using the ABI Prism 310 and 3100 Genetic Analyzers for STR analysis**," Electrophoresis 25: 1397-1412 (2004).
- Butler, J.M. "**Constructing STR multiplex assays**," Methods in Molecular Biology: Forensic DNA Typing Protocols (Carracedo, A., ed.), Humana Press: Totowa, New Jersey, 297, 53-66 (2004).
- Chandler, E.L., Smith, A.L., Burden, L.M., Kasianowicz, J.J., and Burden, D.L., "**Single-molecule confocal microscopy and simultaneous electrical recording of DNA-threaded nanopores**," Langmuir 20, 898-905 (2004).
- Chung, D.T., Drabek, J., Opel, K.L., Butler, J.M., McCord, B.R. "**A study on the effects of degradation and template concentration on the efficiency of the STR miniplex primer sets**," J. Forensic Sci. 49(4): 733-740 (2004).
- Coble, M.D., and Butler, J.M., "**Characterization of New MiniSTR Loci to Aid Analysis of Degraded DNA**," J. Forensic Sci. (in press).
- Cronin, M., Ghosh, K., Sistare, F., Quackenbush, J., Vilker, V., and O'Connell, C.D., "**Universal RNA Standards for Gene Expression**," Clin Chem. Aug;50(8):1464-1467 (2004).
- Dizdar, M. "**Substrate specificities and excision kinetics of DNA glycosylases involved in base-excision repair of oxidative DNA damage**," Mutat. Res. 531, 109-126, (2003).
- Drabek, J., Chung, D.T., Butler, J.M., McCord, B.R. "**Concordance study between miniplex STR assays and a commercial STR typing kit**," J. Forensic Sci. 49(4): 859-860 (2004).
- Duewer, D.L., Kline, M.C., Redman, J.W., Butler, J.M. "**NIST Mixed Stain Study #3: signal intensity balance in commercial short tandem repeat multiplexes**," Anal. Chem., 76 (23), 6928 -6934 (2004).
- Elliott, J.T., Langenbach, K.J., Tona, A.T. and Plant, A.L. Vascular "**Smooth Muscle Cell Response on Thin Films of Collage**,". Matrix Biology, (in revision)
- Elliott, J.T., Tona, A., Woodward, J.T., Meuse, C.W., Elgandy, H.M. and Plant, A.L. "**Osteoblast Cell Membrane Hybrid Bilayers for Studying Cell-Cell Interactions**," IEE Proceedings- Nanobiotechnology 151, 75-81 (2004).
- Evans, M. D., Dizdaroglu, M. and Cooke, M. S., "**Oxidative DNA damage and disease: Induction, repair and significance**," Mutat. Res. 567, 1-61, (2004).

- Furrer, J., Kramer, F.J., Marino, J.P., Glaser, S.J., and Luy, B., "**Homonuclear Hartmann-Hann Transfer with reduced Relaxation Losses by Use of MOCCA-XY16 Multiple Pulse Sequence**," J. Magn. Reson., 166, 39-46 (2004).
- Gaigalas A.K., Wang L., Humphries E., Cole, K. D. "**Photodegradation of Fluorescein in Solutions Containing n-Propyl Gallate**," J. Phys. Chem. A 108, 4378-4384 (2004).
- Gaigalas, A.K., Wang, L., Schwartz, A., Marti, G.E., Vogt, R.F., "**Quantitating Fluorescence Intensity from Fluorophore: Assignment of MESF Values**," NIST Journal of Research (in press).
- Gallagher, D.T., Monbouquette, H.G., Schroeder, I., Robinson, H., Holden, M.J. and Smith, N.N., "**Structure of alanine dehydrogenase from Archaeoglobus: active site analysis and relation to bacterial cyclodeaminases and mammalian mu crystalline**," J. Mol. Biol. 342, 119-130 (2004).
- Gerena-López, Y., Nolan, J., Wang, L., Gaigalas, A. K., Schwartz, A., and Fernández-Repollet, E. "**Quantification of EGFP Expression on Molt-4 T Cells Using Calibration Standards**," Cytometry Part A, 60A, 21-28 (2004).
- Gilliland, G.L. and Teplyakov, A., "**Structural Calcium (Trypsin, Subtilisin)**," Handbook of Metalloproteins, Vol. 3, 718-730 (2004).
- Goldberg, R. N. and Tewari, Y. B. "**Thermodynamics of enzyme-catalyzed reactions**," in "**Enzyme Technology**", editors: Ashok Pandey, Colin Webb, Carlos R. Soccol, and Christian Larroche, Asiatech, New Delhi, 63-84 (2004).
- Goldberg, R. N., Tewari, Y. B., and Bhat, T. N. "**Thermodynamics of Enzyme-catalyzed Reactions – A Database for Quantitative Biochemistry**," Bioinformatics, 16, 2874-2877 (2004).
- Goldberg, R. N. and Alberty, R. A., "**Standard transformed Gibbs energies of formation for biochemical reactants**," CRC Handbook of Chemistry and Physics, 83rd Edition, (2005).
- Guo, L., Pietkiewicz, D., Pavlov, E.V., Kasianowicz, J.J., Dejean, L.M., Korsmeyer, S.J., Antonsson, B., and Kinnally, K.W., "**Mitochondrial apoptosis-induced channel MAC and Bax channels are regulated by cytochrome c**," American Journal of Physiology Cell Physiology 286, C1109-C1117 (2004).
- Hammond, E., Barker, P.E., Taube, S., Gutman, S. and Barker, P. E., "**Standard reference material for Her2 testing: report of a National Institute of Standards and Technology-sponsored Consensus Workshop**," Appl Immunohistochem Mol Morphol. Jun;11(2):103-6 (2003).
- Hess, J.L., Atha, D.H., Xu, J., and Highsmith, W.E., "**Telomerase Activity in Magnetically-captured Epithelial Cells: Comparison of Slab-Gel and Capillary Electrophoresis**," Electrophoresis, 25, 1852-1859, (2004).

- Jakupciak, J.P., Wang, W., Barker, P.E., and Atha, D.H., "**Analytical Validation of Telomerase Activity for Cancer Early Detection: TRAP/PCR-CE and hTERT mRNA Quantification Assay for High-throughput Screening of Tumor Cells,**" *Journal of Molecular Diagnosis*, 6, 157-165 (2004).
- Jakupciak, J.P., and O'Connell, C.D., "**NIST Reference Materials for Medical Testing,**" *Encyclopedia of Medical Genomics and Proteomics* (in press).
- Jaruga, P., Theruvathu, J., Dizdaroglu, M. and Brooks, P. J., "**Complete release of (5'S)-8,5'-cyclo-2'-deoxyadenosine from dinucleotides, oligodeoxynucleotides and DNA, and direct comparison of its levels in cellular DNA with other oxidatively induced DNA lesions,**" *Nucleic Acids. Res.* 32, e87, (2004).
- Kasianowicz, J.J., "**Nanopores. Flossing with DNA,**" *Nature Materials* 3, 355-356 (2004).
- Khil, P.P., Obmolova, G., Teplyakov, A., Howard, A.J., Gilliland, G.L., and Camerini-Otero, R.D., "**Crystal Structure of the Escherichia coli YjiA Protein Suggests a GTP-Dependent Regulatory Function,**" *Proteins: Struc. Func. Bioinform.*, 54, 371-374 (2004).
- Kline, M.C., Vallone, P.M., Redman, J.W., Duewer, D.L., Calloway, C.D., Butler, J.M. "**Mitochondrial DNA typing screens with control region and coding region SNPs,**" *J. Forensic Sciences*, (in press).
- Kline, M.C., Duewer, D.L., Redman, J.W., Butler, J.M. "**Results from the NIST 2004 DNA Quantitation Study,**" (in press).
- Kline, M.C., Duewer, D.L., Redman, J.W., Butler, J.M., "**NIST Mixed Stain Study #3: DNA Quantification Practice and it's Influence on Short Tandem Repeat Multiplex Performance,**" *Anal Chem*, 75 (10), 2463-2469 (2003).
- Krosky, D.J., Schwarz, F.P., and Stivers, J.T., "**Linear Free Energy Correlations for Enzymatic Damaged Base Flipping: Entropic and Enthalpic Contributions of the Damaged Base Pair,**" *Biochem* 43, 4188-4195 (2004).
- Ladner, J.E., Obmolova, G., Teplyakov, A., Howard, A.J., Khil, P.P., Camerini-Otero, R.D., and Gilliland, G.L., "**Crystal Structure of Escherichia cole Protein ybgl, a toroidal Structure with a Dinuclear Metal Site,**" *BMC Struct. Biol* 3, 7 (2003).
- Ladner, J.E., Parsons, J.F., Rife, C.L., Gilliland, G.L., and Armstrong, R.N., "**Parallel Evolutionary Pathways for Glutathione Transferases: Structure and Mechanism of the Mitochondrial Class Kappa Enzyme rGSTK1-I,**" *Biochemistry* 43, 352-361 (2004).
- Levin, B.C. and Kuligowski, E.D. "**Toxicology of Fire and Smoke,**" Invited chapter for book entitled "Inhalation Toxicology" Ed. by H. Salem and Katz, Marcel Dekker.
- Levin, B.C. and Kuligowski, E.D., "**Combustion Toxicology,**" In: *Encyclopedia of Toxicology*, 2nd Edition, Ed. by Pertti J. (Bert) Hakkinen, Academic Press (in press).

- Levin, B.C., Richie, K.L., Kline, M.C., Redman, J.W. and Hancock, D.K., ***“Human DNA Standard Reference Materials Developed by the National Institute of Standards and Technology,”*** Invited chapter for book entitled “Progress in Genome Research” Nova Science Publishers (in press).
- Liggett, W.S., Barker, P.E., Semmes, O. J. and Cazares, L. H. ***“Measurement reproducibility in the early stages of biomarker development,”*** (in press).
- Liggett, W. S., Barker, P.E., Semmes, O.J. and Cazares, L. ***“Data-driven and peak-based feature selection in serum protein mass spectrometry,”*** (submitted).
- Marti, G.E., Vogt, R.F., Gaigalas, A.K., Hixson, C.S., Hoffman, R.A., Lenkei, R., Magruder, L.E., Schwartz, A., Shapiro, H.M., Waggoner, A., ***“Fluorescence Calibration and Quantitative Measurement of Fluorescence Intensity: Approved Guideline I/LA24-A,”*** NCCLS (2004).
- Mei, Y., Kumar, A., Gao, W., Gross, R., Kennedy, S.B., Washburn, N.R., Amis, E.J., and Elliott, J.T. ***“Biocompatibility of sorbitol-containing polyesters- I: Synthesis, surface analysis and cell response in vitro,”*** Biomaterials 25, 4195-4201 (2004)
- Meuse, C.W. ***“Measurements of Biomolecular Structure at Interfaces,”*** Invited peer-reviewed article for the Encyclopedia of Nanoscience and Nanotechnology, James A. Schwarz, Cristian Contescu, Karol Putyera editors. Marcel Dekker, New York (in press) 2004.
- Mihailescu, M.R. and Marino, J.P., ***“A proton-Coupled Dynamic Conformational Switch in the HIV-1 Dimerization Initiation Site Kissing Complex,”*** Proc. Natl. Acad. Sci., 101(5), 1189-1194 (2004).
- Noble, J. E., Wang, L., Cole, K. D., and Gaigalas, A. K. ***“The Effect of Overhanging Nucleotides on Fluorescence Properties of Hybridizing Oligonucleotides Labeled with Alexa 488 and FAM Fluorophores,”*** Biophysical Chemistry, 133, 255-263 (2004).
- O’Connell, C.D., Barker, P.E., Marino, M., McAndrew, P., Atha, D.H., Jaruga, P., Birincioglu, M., Dizdaroglu, M., and Rodriguez, H. ***“Biomarkers used to detect genetic damage in tissue engineered skin. In: Tissue Engineering, Stem Cells and Gene Therapies,”*** Book Series: Advances in Experimental Medicine and Biology, 534, 137-145 (2003).
- O’Connell, C.D., Tully, L., Devaney, J. M., Marino, M., Jakupciak, J.P., and Atha, D.H., ***“Renewable Standard Reference Materials for the Detection of TP53 Mutations,”*** Molecular Diagnosis 7(2):85-97 (2003).
- O’Connell, C.D., Barker, P.E., Marino, M., McAndrew, P., Atha, D.H., Jaruga, P., Birincioglu, M., and Rodriguez, H., ***“Molecular Biomarkers Used to Detect Cellular/Genetic Damage in Tissue-Engineered Skin,”*** Tissue Engineered Medical Products (TEMPs), STP 1452, 246-253 (2004).

- Parsons, J.F., Song, F., Parsons, L., Calabrese, K., Eisenstein, E., and Ladner, J.E., ***“Structure and Function of the Phenazine Biosynthesis Protein PhzF from *Pseudomonas fluorescens* 2-79,”*** *Biochemistry* (in press).
- Pechik, I., Madrazo, J., Mosesson, M.W., Hernandez, I., Gilliland, G.L., and Medved, L., ***“Crystal Structure of the Complex Between Thrombin and the Central ‘E’ Region of Fibrin,”*** *Proc. Natl. Acad. Sci. USA*, 101, 2718-2723 (2004).
- Pipino, A. C. R., Meuse, C. W., Silin, V., and Woodward IV, J. T. ***“Surface Plasmon Resonance Enhanced Cavity Ring Down Detection of Tri- and Tetra-Chloroethylene,”*** *J. Chem. Phys.* 120, 1585-1593 (2004).
- Plant, A.L. and Horowitz, E. ***“Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering,”*** *Tissue Engineering* (in press).
- Polk, B., Bernard, M., Kasianowicz, J.J., Misakian, M., and Gaitan, M., ***“Micro-electroplating silver on sharp edges toward the fabrication of solid-state nanopores,”*** *J. Electrochemical Society* 151, C559 (2004).
- Ravichandran, V., Lubell, J., Vasquez, G.B., Lemkin, P., Siram, R.D., and Gilliland, G.L., ***“Ongoing Development of Two-Dimensional Polyacrylamide Gel Electrophoresis Data Standards,”*** *Electrophoresis*, 25, 297-308 (2004).
- Ravichandran, V., Vasquez, G.B., Srivastava, S., Verma, M., Petricoin, E., Lubell, J., Sriram, R.D., Barker, P., Gilliland, G.L., ***“Data Standards for Proteomics: Mitochondrial Two-Dimensional Polyacrylamide Gel Electrophoresis Data as a Model System,”*** *Mitochondrion*, 3, 327-336 (2004).
- Reddy, P., Jaruga, P., O’Connor, T., Rodriguez, H., and Dizdaroglu, M. ***“Overexpression and rapid purification of Escherichia coli formamidopyrimidine-DNA glycosylase,”*** *Protein Expression and Purification*. 34, 126-133, (2004).
- Reddy, P., Toy, J. Y., Tang, X., and Bockstahler, L. E. ***“Standard Guide for Detection of Nucleic Acid Sequences by the Polymerase Chain Reaction Technique,”*** ASTM International (2004)
- Reipa, V., Holden, M.J., Mayhew, M.P., Vilker, V.L. ***“Temperature Induced structural changes in putidaredoxin: A circular dichroism and UV-VIS absorption study,”*** *Biochimica et Biophysica Acta* 1699: 229-234 (2004).
- Reipa, V., Holden, M., Mayhew, M., Vilker, V. L. ***“Structural Changes that Accompany the Temperature Dependence of the Formal Potential of Putidaredoxin,”*** *Biochimica et Biophysica Acta* Jun 1;1699(1-2):229-34 (2004).
- Reipa V. ***“Direct spectroelectrochemical titration of glutathione,”*** *Bioelectrochemistry* 65, 47-49 (2004).
- Reipa, V., Shanklin, J., Vilker, V.L. ***“Substrate binding and the presence of ferredoxin affects the redox properties of the soluble plant delta9-18:0-acyl carrier protein desaturase,”*** *Chemical Communications*, 21, 2406-2407 (2004).

- Rife, C.L., Parson, J.F., Xiao, G., Gilliland, G.L., and Armstrong, R.N., "**Conserved Structural Elements in Glutathione Transferase Homologs Encoded in the Genome of *Escherichia coli***," *Proteins: Struc. Func. Gen.* 53, 777-782 (2003).
- Rodriguez, H., Jaruga, P., Birincioglu, M., Barker, P.E., O'Connell, C., and Dizdaroglu, M. "**Oxidative DNA damage biomarkers used in tissue engineered skin. In: Tissue Engineering, Stem Cells and Gene Therapies**," Book Series: Advances in Experimental Medicine and Biology, Vol. 534, Y. 129-135 (2003).
- Rodriguez, H., O'Connell, C.D., Barker, P.E., Atha, D.H., Jaruga, P., Birincioglu, M., Marino, M., McAndrew, P., and Dizdaroglu, M. "**Measurement of DNA Biomarkers for the Safety of Tissue-Engineered Medical Products Using Artificial Skin as a Model**," *Tissue Engineering* 10 (9/10):1332-1346 (2004).
- Rodriguez, H., O'Connell, C.D., Barker, P.E., Atha, D.H., Jaruga, P., Birincioglu, M., Marino, M., McAndrew, P., Dizdaroglu, M. "**Biomarkers to detect molecular changes in tissue-engineered medical products**," *Bioprocessing Journal* 2(3): 65-66 (2003).
- Rodriguez, H., O'Connell, C.D., Barker, P. E., Atha, D. H., Jaruga, P., Birincioglu, M., Marino, M., McAndrew P., Dizdaroglu, D., "**Cellular biomarkers for the safety of tissue-engineered medical products**," *Tissue Engineering* 10 (9/10):1332-1345 (2004).
- Rodriguez, H., Jaruga, P., Birincioglu, M., Barker, P., O'Connell, C., and Dizdaroglu, M., "**A Comparative Study of Biomarkers of Oxidative DNA Damage Used to Detect Free Radical Damage in Tissue-Engineered Skin**," *Tissue Engineered Medical Products (TEMPs)*, STP 1452, 84-89 (2004).
- Rodriguez, H., O'Connell, C., Barker, P.E., Atha, D.H., Jaruga, P., Birincioglu, M., Marino, M., McAndrew, P. and Dizdaroglu, M., "**Measurement of DNA Biomarkers for the Safety of Tissue-Engineered Medical Products Using Artificial Skin as a Model**," *Tissue Engineering*. (in press)
- Schoske, R., Vallone, P.M., Kline, M.C., Redman, J.W., Butler, J.M., "**High-throughput Y-STR typing of U.S. populations with 27 regions of the Y chromosome using two multiplex PCR assays**," *Forensic Sci. Int.* 139: 107-121 (2004).
- Schwarz, F.P., "**Calorimetric Analysis of Mutagenic Effects on Protein-Ligand Interactions**," *Methods in Enzymology*, 379, 128-145 (2004).
- Schwarz, A., Gaigalas, A. K., Wang, L., Marti, G. E., Vogt, R. F., and Fernandez-Repollet, E.. Report: "**Formalization of the MESF Unit of Fluorescence Intensity**," *Cytometry*, 57B, 1-6 (2004).
- Shin, M.G., Kajigaya, S., McCoy Jr, J.P., Levin, B.C., and Young, N.S., "**Marked Mitochondrial DNA Sequence Heterogeneity in Single CD34⁺ Cell Clones from Normal Adult Bone Marrow**," *Blood* 103:553-561 (2004).

- Shin, M.G., Kajigaya, S., Tarnowka, M., McCoy, Jr, J.P., Levin, B.C., and Young, N.S., ***“Mitochondrial DNA Sequence Heterogeneity in Circulating Normal Human CD34 Cells and Granulocytes,”*** Blood 103:4466-4477 (2004).
- Silin, V.I., Vanderah, D.J., Gaigalas, D.A. ***“Probing the Bio-Interface with Surface Plasmon Resonance,”*** Recent Devel. Coll. Inter. Res. 1, 393-413 (2003).
- Smith, N., Mayhew, M., Holden, M.J., Kelly, H., Robinson, H., Heroux, A., Vilker, V.L. and Gallagher, D.T., ***“Crystal Structure of C73G Putidaredoxin from Pseudomonas Putida,”*** Acta Cryst. D60, 816-822 (2004).
- Smith, N., Mayhew, M.P., Robinson, H., Heroux, A., Charlton, D., Holden M.J., Gallagher, D.T., ***“Crystallization and phasing of alanine dehydrogenase from Archaeoglobus fulgidus.”*** Acta Crystallographica, Section D D59, 2328-2331. (2003)
- Smith, N., Mayhew, M.P., Holden, M.J., Kelly, H., Robinson, H., Heroux, A., Vilker, V.L., Acta Crystallographica Gallagher, D.T., ***“Structure of C73G Putidaredoxin from Pseudomonas putida,”*** D60, 816-822 (2004)
- Stanford, V.M and Kasianowicz, J.J., ***“Transport of DNA through a single nanometer-scale pore: evolution of signal structure,”*** IEEE Workshop on Genomic Signal Processing and Statistics. 26 May, 2004. Baltimore, MD (2004)
- Stodeman, M. and Schwarz, F.P., ***“Importance of Product/Substrate Equilibrium in the Kinetics of the Phosphoglucose Isomerization Reaction by Differential Stopped Flow Microcalorimetry,”*** Anal. Biochem. 329, 307-315 (2004).
- Stoltzfus, A.B., ***“Molecular Evolution: Introns Fall into Place,”*** Curr. Biol., 14, R351-352 (2004).
- Sunar-Reeder, S., Atha, D.H., Aydemir, S., Reeder, D.J., Tully, L., Khan, A.R., and O’Connell, C.D., ***“Use of TP53 Reference Materials to Validate Mutations in Clinical Tissue Specimens by Single-Strand Conformation Polymorphism Analysis,”*** Molecular Diagnosis 8(2):123-130 (2004).
- Teplyakov, A., Pullalarevu, S., Obmolova, G., Doseeva, V., Galkin, A., Herzberg, O., Dauter, M., Dauter, Z., and Gilliland, G.L., ***“Crystal Structure of the YffB Protein from Pseudomonas aeruginosa Suggests a Glutathione-Dependent Thiol Reductase Function,”*** BMC Struct. Biol., 4, 5 (2004).
- Tewari, Y. B., Gery, P. D., Vaudin, M. D., Mighell, A. D., Klein, R., and Goldberg, R. N., ***“Saturation molalities and standard molar enthalpies of solution of cytidine(cr), hypoxanthine(cr), thymidine(cr), thymine(cr), uridine(cr), and xanthine(cr) in H₂O(l),”*** The Journal of Chemical Thermodynamics, 36, 645-658 (2004).
- Tewari, Y. B., Gery, P. D., Vaudin, M. D., Mighell, A. D., Klein, R., and Goldberg, R. N., ***“Saturation molalities and standard molar enthalpies of solution of 2’-deoxyadenosine·H₂O(cr), 2’-deoxycytidine·H₂O(cr), 2’-deoxyguanosine·H₂O(cr),”***

- 2'-deoxyinosine(cr), and 2'-deoxyuridine(cr) in H₂O(l),*" The Journal of Chemical Thermodynamics, 37, 237-245 (2005).
- Tewari, Y. B. and Goldberg, R. N., "*Thermodynamics of the Hydrolysis Reactions of Nitriles,*" The Journal of Chemical Thermodynamics, (in press).
- Tewari, Y. B., R. Klein, M.D. Vaudin and R. N. Goldberg, "*Saturation molalities and standard molar enthalpies of adenosine(cr), guanosine·2H₂O(cr), inosine(cr), and xanthosine·2H₂O(cr),*" J. Chem. Thermodyn, 35, 1681-1702, (2003).
- Tewari, Y.B., P.D. Gery, M.D. Vaudin, A.D. Mighell, R. Klein and R.N. Goldberg, "*Saturation molalities and standard molar enthalpies of solution of cytidine(cr), hypoxanthine(cr), thymidine(cr), thymine(cr), uridine(cr) and xanthine(cr) in H₂O(l),*" The Journal of Chemical Thermodynamics, 36, 645-658, (2004).
- Tewari, Y.B., T. Ihara, K.W. Phinney and M.P. Mayhew, "*A thermodynamic study of the lipase-catalyzed transesterification of benzyl alcohol and butyl acetate in supercritical carbon dioxide media,*" J. Mol. Catal. B: Enzymatic, 30, 131-136, (2004).
- Tewari, Y.B., M.M. Schantz, K.W. Phinney and J.D. Rozzell, "*A thermodynamic study of the ketoreductase-catalyzed reduction of 2-alkanones in non-aqueous solvents,*" The Journal of Chemical Thermodynamics (in press).
- Tigerstrom, A., Karlson, G., Maeder, D., Robb, F.T., Schwarz, F.P., and Sjolin, L., "*Effect of a Novel Disulfide Bond and Ion-Pair Interactions on the Thermostability of Azurin from Pseudomonas Aeruginosa,*" Biochem., 43, 12563-12574 (2004).
- Trzeciak, A. R., Simon, G. N., Jaruga, P., Lohani, A. A., Dizdaroglu, M., and Evans, M. K., "*Cellular repair of oxidatively induced DNA base lesions is defective in prostate cancer cell lines, PC-3 and DU-145,*" Carcinogenesis 25, 1359-1370, (2004).
- Vallone, P.M. and Butler, J.M. "*Multiplexed assays for evaluation of Y-SNP markers in U.S. populations. Progress in Forensic Genetics 10, Elsevier Science,*" International Congress Series 1261, 85-87 (2004).
- Vallone, P.M., Just, R.S., Coble, M.D., Butler, J.M., Parsons, T.J., "*A multiplex allele-specific primer extension assay for forensically informative SNPs distributed throughout the mitochondrial genome,*" Int. J. Legal Med., 118: 147-157 (2004).
- Vallone, P.M. and Butler, J.M., "*Y-SNP typing of U.S. African American and Caucasian samples using allele-specific hybridization and primer extension,*" J. Forensic Sci. 49(4): 723-732 (2004).
- Vallone, P.M. and Butler, J.M., "*AutoDimer: a screening tool for primer-dimer and hairpin structures,*" Biotechniques, 37(2): 226-231 (2004).

- Vallone, P.M., Decker, A.E., Butler, J.M. ***“Allele frequencies for 70 autosomal SNP loci with U.S. Caucasian, African American, and Hispanic Samples,”*** Forensic Sci. Int., (in press).
- Vallone, P.M., Fahr, K., Kostrzewa, M. ***“Genotyping SNPs using a UV photocleavable oligonucleotide in MALDI-TOF MS.”*** Methods in Molecular Biology: Forensic DNA Typing Protocols (Carracedo, A., ed.), 297, pp. 169-178 (2004).
- Vanderah, D. J., La, H., Naff, J., Silin, V., Rubinson, K. A., ***“Control of Protein Adsorption: Molecular Level Structural and Spatial Variables,”*** J. Am. Chem. Soc, 126, 31639-32641 (2004).
- Vanderah, D. J., Parr, T., Silin, V., Meuse, C. W., Gates, R. S., La, H., Valincius, G., ***“Isostructural Self-Assembled Monolayers. 2. Methyl 1-(3-Mercaptopropyl)-oligo(ethylene oxide)s,”*** Langmuir, 20, 1311-1316 (2004).
- Vásquez, G.B., Zullo, S., Barker, P. E., ***“Standards requirements for systems biology approach to health care: mitochondrial proteomics,”*** Mitochondrion 3(4): 205-215 (2004).
- Vanderah, D. J., Parr, T., Silin, V., Meuse, C. W., Gates, R., La, H. ***“Isostructural Self-Assembled Monolayers. 2. Methyl 1-(3-Mercaptopropyl)oligo(ethylene oxides),”*** Langmuir 20, 1311-1316 (2004).
- Wang L., Reipa V., Blasic J. ***“Silicon Nanoparticles as a Luminescent Label to DNA,”*** Bioconjugation Chemistry, 15, 409-412 (2004).
- 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 Adjacent to a DNA Template,”*** Biopolymer Biospectroscopy, 72, 401-412 (2003).
- Wang, L., Reipa, V., and Blasic, J. ***“Silicon Nanoparticles as a Luminescent Label to DNA,”*** Bioconjugate Chemistry, 15(2) 409-412 (2004).
- 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,”*** Spectrochim Acta A 60, 2741-2750 (2004).
- Wang, L., Gaigalas, A. K., Zong, Y., Zhang, S., Shi, J., and Wang, Y. ***“Effect of Target and Probe Concentrations on Hybridization in DNA Microarrays,”***. Microarrays and Combinatorial Techniques: Design, Fabrication, and Analysis II, 129-139 (2004)
- Wang, L., Gaigalas, A. K., and Reipa, V. ***“Optical Properties of Alexa 488 and Cy5 Immobilized on a Glass Surface,”*** Biotechniques (in press).
- Xiao, Y., Barker P.E., ***“Semiconductor nanocrystal probes for human metaphase chromosomes,”*** Nucleic Acids Research 32(3):1-5 (2004).

Talks:

- Atha, D.H., Hess, J.L., Xu, J. and Highsmith, W.E., ***“Telomerase Activity Measurement in Magnetically-Captured Epithelial Cells: Comparison of Slab-Gel and Capillary Electrophoresis,”*** Nature Biotechnology Symposium: The Cell Cycle, Chromosomes and Cancer, Miami, FL, February 2, 2003.
- Atha, D.H., ***“Telomerase activity measurements,”*** EDRN Lung Cancer Biomarkers Workshop, Fitzsimons Medical Center, Denver, CO, September 19, 2004.
- Barker, P.E., ***“Biomarkers and Drug Development,”*** NIST-EDRN Validation Studies, Copenhagen, Denmark, October 6-7, 2003.
- Barker, P.E., ***“Molecular Medicine TriConference,”*** NIST-EDRN Biomarker Validation Laboratory, San Francisco, California, March 24-26, 2004.
- Barker, P.E., ***“NTROI Steering Committee (NCI Network for Translational Research in Optical Imaging),”*** Biomarkers, Quantitative Histopathology and Validation of Bioimaging Protocols, Bethesda, Maryland, April 25-26, 2004.
- Barker, P.E., ***“Biomarker Validation Conference,”*** NIST-EDRN Biomarker Validation and Reference Laboratory CHI, Philadelphia, Pennsylvania, May 4, 2004.
- Barker, P.E., ***“ITC (EPA Interagency Committee),”*** CdSe Nanocrystals: Structural Chemistry, BioImaging Applications and Toxicity, EPA, Washington, D.C. June 10, 2004.
- Barker, P.E., ***“Translation from discovery to clinical application,”*** Biomarker in drug R&D, Washington DC, June 17-18, 2004 at Patton Boggs, INSERM biomarkers conference/ Prof. Brachet
- Bhat, T. N., ***“IUPAC Project Meeting on XML Data Dictionary & Chemical Identifier,”*** NIST, Nov., 12- 14, 2003.
- Bhat, T. N., ***“HIV structural database – A unique resource for AIDS research,”*** Mid-atlantic meeting, John Hopkins University, June 2-4, 2004.
- Bhat, T. N., ***“A structural data resource for HIV,”*** AIDS Structural Biology Meeting, NIH, June 9-11, 2004.
- Butler, J.M., ***“NIST Research Update,”*** Scientific Working Group on DNA Analysis Methods-SWGDAM, FBI Academy, Quantico, VA, January 8, 2004.
- Butler, J.M., ***“Technology Developments in Forensic DNA Typing,”*** Invited talk at NIST as part of Sigma Xi lecture series, Gaithersburg, MD, January 13, 2004.
- Butler, J.M., ***“SNPs and Strips: Approaches to Rapid Screening of mtDNA Types,”*** American Academy of Forensic Sciences workshop on Forensic Human Mitochondrial DNA Analysis, Dallas, TX, February 16, 2004.

- Butler, J.M., *"Going Beyond the U.S. Haplotype: A Look at Additional Y-STR and Y-SNP Loci in U.S. Populations,"* American Academy of Forensic Sciences workshop on Y-STR Analysis on Forensic Casework, Dallas, TX, February 17, 2004.
- Butler, J.M., *"Forensic DNA Typing Projects Conducted by NIST Human Identity Testing Project Team in FY2004,"* National Institute of Justice DNA Program Review, Washington, DC, March 25-26, 2004 and April 1-2, 2004.
- Butler, J.M., *"Technology Developments in Forensic DNA Typing,"* MEMS Alliance Symposium, Laurel, MD, March 29, 2004.
- Butler, J.M., *"Forensic DNA Projects at NIST,"* EDNAP European DNA Profiling Group meeting, Nicosia, Cyprus, April 15, 2004.
- Butler, J.M., *"Forensic DNA Projects at NIST,"* ENFSI European Network of Forensic Science Institutes DNA Working Group meeting, Nicosia, Cyprus, April 16, 2004.
- Butler, J.M., *"Technology Developments in Forensic DNA Typing and Prospects for Non-Forensic Use of DNA Identification,"* Mitretek Systems' Biometrics Identification Seminar, Falls Church, VA, May 12, 2004.
- Butler, J.M., *"The Future of Forensic DNA Typing: Y-STRs, SNPs, and Real-time PCR,"* CODIS State Administrators meeting, Quantico, VA, May 25, 2004.
- Butler, J.M., *"NIST Research Update,"* Scientific Working Group on DNA Analysis Methods-SWGDAM, Wingate Inn, Stafford, VA, July 12, 2004.
- Butler, J., Vallone, P.E., Coble, M.D., *"NIST Research Summary for AFDIL,"* Armed Forces DNA Identification Laboratory, Rockville, MD August 3, 2004.
- Coble, M.D., *"Characterization of New MiniSTR Loci to Aid Analysis of Degraded DNA,"* American Academy of Forensic Scientists, Dallas, Texas. February 20, 2004.
- Coble, M.D., *"Forensic DNA Typing Projects Conducted by NIST Human Identity Testing Project Team in FY 2004,"* National Institute of Justice DNA Program Review, Washington, DC, April 1-2, 2004.
- Coble, M.D., *"Characterization of New MiniSTR Loci to Aid Analysis of Degraded DNA,"* Mid-Atlantic Association of Forensic Scientists, Wilmington, Delaware, April 23, 2004.
- Coble, M.D., *"NIST Research Summary for AFDIL,"* Armed Forces DNA Identification Laboratory, Rockville, Maryland, August 03, 2004.
- Cole, K.D., Hancock, D.K., Wang, L., Gaigalas, A.K., NIST, and Yu-Zhong Zhang *"Comparison of Fluorescent Reporters for Suspension Arrays to Detect Biological Threats,"* (Molecular Probes) American Society of Microbiology Biodefense Meeting, Baltimore, MD April 9, 2004.

- Dizdar, M., “***Substrate specificities of DNA glycosylases involved in base-excision repair of oxidative DNA damage,***” Eight International Conference on Mechanisms of Antimutagenesis and Anticarcinogenesis, Pisa, Italy, October 7, 2003.
- Dizdar, M., “***Oxidative DNA Damage and Its Repair by Base-excision Repair Pathway***” Instituto Superiore di Sanita, Rome, Italy, October 10, 2003.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Measurement and Enzymic Repair,***” NIH Research Festival, NIH, Bethesda, MD, October 15, 2003.
- Dizdar, M., “***Repair of Oxidative DNA Damage by Base-excision Repair Enzymes and in Cells,***” 1st US-EU DNA Repair Meeting: Endogenous Stress, National Conference Center, VA, October 17, 2003.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Disease,***” National Cancer Institute, Division of Cancer Prevention, Cancer Biomarkers Research Group, Bethesda, MD, December 2, 2003.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Biological Consequences,***” Tufts University, Human Nutrition Research Center, Vitamins and Carcinogenesis Laboratory, Boston, MA, December 9, 2003.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Disease,***” Inaugural Meeting of the Chemical Society of Washington, Washington Section of the American Chemical Society, Wheaton, MD, January 15, 2004.
- Dizdar, M., “***Measurement of Oxidative DNA Damage in Plants Treated with Ionizing Radiation and Other Mutagens,***” International Atomic Energy Agency, Vienna, Austria, March 3, 2004.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Disease,***” Johns Hopkins Medical School, Baltimore, MD, April 28, 2004.
- Dizdar, M., “***Basic Radiation Chemistry,***” Radiation Epidemiology Course, National Cancer Institute, NIH, Bethesda, MD, May 5, 2004.
- Dizdar, M., “***Radiation Chemistry of DNA,***” Radiation Epidemiology Course, National Cancer Institute, NIH, Bethesda, MD, May 5, 2004.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Role in Disease,***” Faculty of Medicine, Aydin University, Aydin, Turkey, May 11, 2004.
- Dizdar, M., “***Oxidative DNA Damage: Mechanisms, Repair and Biological Consequences,***” National Symposium on Molecular Diagnosis and Applications, Ege University, Izmir, Turkey, May 12, 2004.
- Dizdar, M., “***Oxidative DNA Damage and Repair in Human Genetic Disease,***” National Congress of the Turkish Biochemical Society, Trabzon, Turkey, May 15, 2004.

- Dizdar, M., ***“Oxidative DNA Damage and Repair in Human Genetic Disease,”*** Gülhane Military Medical Academy, Department of Biochemistry and Clinical Medicine, Turkey, May 20, 2004.
- Dizdar, M., ***“Oxidative DNA Damage: Mechanisms, Repair and Role in Disease,”*** Department of Molecular Biology and Genetics, Bilkent University, Ankara, Turkey, May 21, 2004.
- Dizdar, M., ***“Cellular Repair of Oxidative DNA Damage in Human Genetic Disease,”*** The 29th FEBS Congress, Warsaw, Poland, June 28, 2004.
- Dizdar, M., ***“Oxidative DNA Damage: Mechanisms, Repair and Role in Disease,”*** Faculty of Medicine, The 9th September University, Izmir, Turkey, July 16, 2004.
- Dizdar, M., ***“Oxidative DNA Damage: Mechanisms, Repair and Role in Disease,”*** Department of Biochemistry and Biophysics, Heart, Lung and Blood Institute, NIH, Bethesda, MD, September 3, 2004.
- Elliott J.T., ***“Thin Films of Collagen that mediate Growth Arrest in Smooth Muscle Cells,”*** University of Washington, Chemical Engineering Department, Seattle, WA, April 2004.
- Elliott, J. T., Woodward, J.T., Tona, A., Langenbach, K.J., 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, Gaithersburg, MD, October 2003.
- Elliott, J.T., ***“Collagen Reference Materials for Adhesion-Dependent Cell Types,”*** 4th Annual Regenerative Medicine Conference, Washington, DC, November 2003.
- Elliott, J. T., ***“Investigating the Features of Fibrillar Type I Collagen that Mediate Growth Arrest in Smooth Muscle Cells,”*** American Society for Cell Biology National Meeting, San Francisco, CA, December 2003.
- Gallagher, D.T. ***“Ironies of Ferredoxin Crystallography,”*** Mid-Atlantic Crystallography Meeting, Johns Hopkins University, Baltimore, June 4, 2004.
- Gilliland, G.L. ***“Approaches to Crystallization Problems: Crystallization Data and Strategies,”*** Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, October 23, 2003.
- Gilliland, G.L. ***“The PDB: Not Just a Data Bank,”*** Center for Advanced Research in Biotechnology, Rockville, MD, February 5, 2004.
- Goldberg, R. N., ***“Thermodynamics of Biochemical Reactions,”*** Department of Biochemistry, Georgetown University, Washington, D.C., May 2004.
- Goldberg, R. N., ***“Thermodynamics of Enzyme-catalyzed Reactions,”*** Gordon Research Conference on Biocatlysis, Meriden, NH, July 2004.

- Holden, M.J. ***“CCQM Real-Time PCR Pilot Study, Preliminary Report,”*** CCQM BioAnalytical Working Group, Tsukuba, Japan, November, 2003.
- Holden, M.J. ***“Testing for the Presence and Identity of Biotech Crop Material in Food and Raw Ingredients,”*** This presentation was given seven times during the week of March 29th through April 2nd, 2004 at the following institutes in China as part of the ABSAC Program (Sino-U.S. Agricultural Biotechnology Safety Assessment Cooperation) of the U.S. Trade and Development Agency:
- Animal and Plant Quarantine Institute, Chinese Government
China Agricultural University, Beijing China
Beijing Agricultural Bureau, Beijing China
Chinese Center for Disease Control and Prevention, Beijing China
Chinese Government Ministry of Agriculture, Beijing China
Environmental Protection Administration, Chinese Government, Beijing, China
Tianjin Center for Disease Control and Prevention, Tianjin
- Holden, M.J. ***“CCQM Real-Time PCR Pilot Study, P44,”*** CCQM BioAnalytical Working Group, BIPM, Paris, France, April 15, 2004.
- Holden, M.J. ***“Reference Materials – What has been Done and What Needs to be Done: DNA Reference Materials,”*** AOAC International, Annual Meeting, St. Louis, MO, September 21, 2004
- Jakupciak, J.P., Srivastava, S., and Wang, W., ***“Quality Control of Telomerase Activity and Mitochondrial Sequencing,”*** Ninth EDNR Steering Committee Meeting, Dallas, TX (2004).
- Jakupciak, J.P., Wendy, W., and Atha, D.H., ***“RAPIDTRAP and hTERT mRNA quantification assay for HTS of tumor cells,”*** 95th Annual Meeting of American Association for Cancer Research, Orlando, FL (2004).
- Jakupciak, J.P., Markowitz, M.E., Ally, D., Srivastava, S., Wang, W., Barker, P.E., Sidransky, D., and O’Connell, C.D., ***“Mitochondrial DNA as a Cancer Biomarker,”*** CHI 2nd international Biomarker Validation meeting.
- Jakupciak, J.P., Bacolla, A., Cooper, D.N., Jaworski, A., Wells, R.D., ***“Non-B DNA Conformations and Genomic Rearrangements,”*** The 19th Lost Pines Conference on Cellular and Molecular Biology, Science Park campus, Texas M.D. Anderson Cancer Center, Smithville, Texas (2004).
- Kasianowicz, J.J., ***“Detecting and characterizing individual DNA molecules using single nanopores,”*** Focused Workshop on the Electronic Recognition of DNA Molecules, University of Liege, Chateau de Colonster, Liège, Belgium, September 1, 2004.
- Kasianowicz, J.J., ***“Ion and macromolecule transport in single protein nanopores,”*** 1st Nordic Network on Statistical Physics, Soft Matter and Biological Physics, Niels Bohr Institute, Copenhagen, Denmark, August 29, 2004.

- Kasianowicz, J.J., *“Single nanopores in biology and for biotechnology,”* Emerging Challenges in Membrane Biophysics, Sun Valley, ID, June 24, 2004.
- Kasianowicz, J.J., *“The structures and potential uses for single nanoscale pores,”* Nanoscale Engineering of Biomembrane Architectures, Johns Hopkins University, May 3, 2004.
- Kasianowicz, J.J., *“Biopolymer transport across membranes,”* Dept. of Physics, University of Massachusetts. Amherst, MA, May 10, 2004.
- Kasianowicz, J.J., *“Single nanometer-scale pores in biology and for biotechnology,”* New York University Nanotechnology Lectures, NYC, NY, April 20, 2004.
- Kasianowicz, J.J., *“DNA transport in single biological nanopores,”* 44th Sanibel Symposium. University of Florida, Quantum Theory Project. St. Augustine, FL, March 5, 2004.
- Kasianowicz, J.J., *“Biopolymer transport in single nanometer-scale pores,”* Dept. of Chemistry, Georgetown University, Washington, D.C., January 29, 2004.
- Kline, M.C., *“Capillary Electrophoresis 101: the ABI 3100,”* Seventh Annual STR Megaplex Advanced Research and Training Workshop Virginia Beach, VA, March 29, 2004.
- Kline, M.C., *“Alternatives to Quantification: Real-Time PCR,”* Seventh Annual STR Megaplex Advanced Research and Training Workshop, Virginia Beach, VA, March 30, 2004.
- Kline, M.C., *“New Autosomal Forensic Markers and a Review of the NIST Interlaboratory Quantitation Study,”* NIJ DNA Grantees meeting, Washington, DC, June 30, 2004.
- Kline, M.C., *“Forensic DNA Identification and Standards Development,”* Community and Technical College of Shepherd Martinsburg, WV, September 28, 2004.
- Ladner, J.E., *“A Black Sheep in the GST Fold,”* Center for Advanced Research in Biotechnology, Rockville, MD, February 19, 2004.
- Ladner, J.E., *“Parallel Evolutionary Pathways for Glutathione Transferases,”* Johns Hopkins University, Baltimore, MD, June 2, 2004.
- Langenbach, K.J., Tona, A.T., Plant, A.L., and Elliott, J.T., *“Metrology Tools for Quantitative Evaluation of Cell Responses to Their Environment,”* Regenerate 2004, Seattle, WA, June 2004
- Langenbach, K.J., Tona, A.T., Plant, A.L., and Elliott, J.T., *“Tools for Quantitative Evaluation of Biomaterial Influences on Cell Behavior,”* Department of Materials Science and Engineering & Whitaker Biomedical Engineering Institute, Johns Hopkins University, Baltimore, MD April 2004.

- Langenbach, K.J., Tona, A.T., Plant, A.L., and Elliott, J.T., "***Indicator Cells and Reference Materials for Quantitative Cell Biology***," GE Healthcare (Amersham Biosciences), Piscataway, NJ March 2004.
- Langenbach, K.J., and Rodriguez, H., "***Biomarkers for Tissue Engineering Cell Damage Detection and Cell Biomaterial Interaction***," FDA-CBER, Bethesda, MD February 2004.
- Langenbach, K.J., Tona, A.T., Plant, A.L., and Elliott, J.T., "***Tools for Quantitative Evaluation of Live Cell Responses to the Extracellular Matrix***," VAPAHCS Stanford University, Palo Alto, CA December 2003.
- Langenbach, K.J., Elliott, J.T., Tona, A., Woodward, J.T., and Plant, A.L., "***Tools for Quantitative Evaluation of ECM Influences on Cell Behavior***," Gordon Research Conference on Signal Transduction from Engineered Extracellular Matrices, Maine, June 2004.
- Langenbach, K.J., Tona, A.T., Plant, A.L., and Elliott, J.T., "***Quantitative Evaluation of Tenascin Expression and Proliferation in Fibroblasts and the Influence of Thin Film Collagen Reference Materials***," Molecular Biology of the Cell San Francisco CA, December 2003.
- Langenbach, K.J., Elliott, J.T., Tona, A., Woodward, J.T., and Plant, A.L., "***Indicator Cells For Quantitative Evaluation of Live Cell Responses to Biomaterials***," 4th Annual Regenerative Medicine Conference, Washington, D.C., November 2003.
- Levin, B.C., "***Human Mitochondrial DNA***," The Discovery Center for Cell and Molecular Biology, Catholic University, Washington, DC, June 29, 2004.
- Levin, B.C., "***Human Mitochondrial DNA: Forensic, Medical And Anthropological Uses***," U.S. Army Center for Health Promotion & Preventive Medicine, Directorate of Toxicology, Aberdeen Proving Grounds, Aberdeen, MD. Technical Seminar Series, January 21, 2004.
- Levin, B.C., "***Human Mitochondrial DNA: Forensic, Medical And Anthropological Uses***," Association of Government Toxicologists, Uniformed Services University of the Health Sciences, Naval Medical, Bethesda, MD, November 19, 2003.
- Levin, B.C., "***Human Mitochondrial DNA: Forensic, Medical And Anthropological Uses***," National Research Institute of Police Science, 6-3-1, kashiwanoha, kashiwa, Chiba, 277-0882, Japan. October 28, 2003.
- Levin, B.C., "***Microbial Forensics Using MALDI-TOF MS Spectral Fingerprints***," (Co-authors: Koren A. Holland, and Chad P. Nelson, 14th International Symposium on Human Identification, Phoenix, AZ, September 30, 2003.
- Levin, B.C., "***Human Mitochondrial DNA Amplification and Sequencing Standard Reference Materials 2392 and 2392-I***," (Coauthors: Diane K. Hancock, Haiyan

- Cheng, Koren Holland Deckman, and Kristy L. Richie), 43rd Annual Meeting of the Society of Toxicology, Baltimore, MD March 25, 2004.
- Levin, B.C., “*A Heteroplasmic Mitochondrial DNA Standard Reference Material (SRM 2394) for Quality Control in the Detection of Low Frequency Heteroplasmies*,” (Co-authors: Lois A. Tully, and Diane K. Hancock), 14th International Symposium on Human Identification, Phoenix, AZ, September 29 – October 2, 2003.
- Levin, B.C., “*Human Mitochondrial DNA - Amplification and Sequencing Standard Reference Materials – SRM 2392 (Updated) and SRM 2392-I (New) – for Forensic and Medical Use*,” (Co-authors: D.K. Hancock, K.A. Holland, H. Cheng and K.L. Richie), 14th International Symposium on Human Identification, Phoenix, AZ, September 29 – October 2, 2003.
- Marino, J.P., “*Mechanism of Nucleocapsid Protein Catalyzed Structural Isomerization of the Dimerization Initiation Site of HIV-1*,” Fourth HIV DRP Symposium on Antiviral Drug Resistance, Chantilly, VA, December 1, 2003.
- Marino, J.P., “*Dissecting the Mechanism of NCp7 Catalyzed Structural Isomerization of the Dimerization Initiation Site*,” NIH/NHLB, Bethesda, MD, February 1, 2004.
- Marino, J.P., “*The Nucleocapsid Catalyzed Maturation of the Dimerization Initiation Site of HIV-1 is Modulated by pH-dependent RNA Conformational Dynamics*,” 48th Annual Biophysical Society Meeting, Baltimore, MD, February 2, 2004.
- Marino, J.P., “*Small Molecule Binding to HIV-1 TAR RNA as Monitored by Ligand-Induced Changes in 2-Aminopurine Fluorescence*,” 48th Annual Biophysical Society Meeting, Baltimore, MD, February 3, 2004.
- Marino, J.P., “*Characterization of Fluorescence Resonance Energy Transfer between Pairs of Fluorophores Using an RNA Ruler*,” 48th Annual Biophysical Society Meeting, Baltimore, MD, February 4, 2004.
- Marino, J.P., “*Mapping Structural Changes in the G Protein Transducin Upon Binding a Soluble Mimic of Light-Activated Rhodopsin*,” 48th Annual Biophysical Society Meeting, Baltimore, MD, February 5, 2004. (invited)
- Marino, J.P., “*A Proton-Coupled Dynamic Conformational Switch in the HIV-1 Dimerization Initiation Site Kissing Complex*,” Keystone Symposium, Snowbird, UT, April 1, 2004.
- Marino, J.P., “*A Proton-Coupled Dynamic Conformational Switch in the HIV-1 Dimerization Initiation Site Kissing Complex*,” NIH RNA Club, Bethesda, MD, May 1, 2004. (invited)
- Marino, J.P., “*The Role of RNA Structure in Maturation of the HIV-1 Dimerization Initiation Site Kissing Dimer*,” Annual Meeting of the Groups Studying the Structure of AIDS-Related Systems and Their Application to Targeted Drug Design, Bethesda, MD, June 1, 2004. (invited)

- Meuse, C.W., ***“Infrared Techniques for Quantifying Protein Stability,”*** at the FASEB meeting “Protein folding in the cell” in Saxtons River, VT, August 3, 2004.
- Meuse, C.W., ***“Infrared Techniques for Quantifying Protein Stability,”*** at the Protein Society meeting in San Diego, CA, August 17, 2004.
- Naff, J. L., & Vanderah, D. J., ***“Defining the Relationship Between Surface Composition and Protein Adsorption,”*** National American Chemical Society Meeting, Anaheim, CA, March 29, 2004.
- O’Connell, C.D., Validation Subcommittee Co-Chair, ***“Validation of QC Materials, 2nd Quality Control Materials for Genetic Testing,”*** March 8, 2004, Orlando, FL.
- O’Connell, C.D., ***“Validation of Mitochondrial Changes in Lung Cancer,”*** EDRN Lung Cancer Biomarkers Workshop, University of Colorado, Denver, CO. September 20, 2004.
- Plant, A.L., Elliott, J.T., Langenbach, K.J., Woodward, J.T., and Tona, A., ***“Biomimetic Thin Films of Collagen for Studying Cell Response,”*** Applied Biosystem/Celera Genomics, Rockville, MD, July 2004.
- Plant, A.L., Elliott, J.T., Woodward, J.T., Tona, A., Langenbach, K.J., Jones, P.L., ***“Indicator Cells and Reference Materials for Tissue Engineering,”*** 4th Annual Regenerative Medicine Conference, Washington, D.C., November 2003.
- Plant, A., Elliott, J., Langenbach, K., Woodward, J., Tona, A., Jones, P., ***“Biomimetic Thin Films of Collagen for Inducing Cell Response,”*** Materials Research Society, Symposium on Biomaterials for Tissue Engineering, December 2003.
- Reddy, P., ***“Expression and Characterization of the Catalytic Domain of Adenylyl Cyclase from Yersinia pestis,”*** American Society for Microbiology Biodefense Research Meeting, Baltimore, MD, March 7-10, 2004.
- Reddy, P., ***“Cloning and Characterization of Chorismate Mutase from Mycobacterium tuberculosis H₃₇R_v,”*** American Society for Microbiology Biodefense Research Meeting, Baltimore, MD, March 7-10, 2004.
- Reipa, V., ***“Silicon nanoparticles applications in biological research,”*** Vilnius University, Lithuania November 18, 2003.
- Reipa, V., ***“Semiconducting Electrodes for Direct Charge Transfer to Biomolecules and Their Application in Spectroelectrochemistry,”*** Indiana University, Bloomington April 08, 2004.
- Rodriguez, H., ***“NIST Opportunities and Interactions with Hispanic Serving Institutions,”*** Hispanic Serving Institutions Summit and Technical Assistance Workshop, El Paso, TX, September 8, 2003.

- Rodriguez, H., ***“A Comparative Study of Molecular Biomarkers Used to Detect Cellular/Genetic Damage in Tissue-Engineered Skin,”*** Cell & Tissue Bioprocessing Conference, Memphis, TN, September 24, 2003
- Rodriguez, H., O’Connell, C., Barker, P.E., Atha, D.A., Jaruga, P., Birincioglu, M., Marino, M., McAndrew, P., and Dizdaroglu, M., ***“Measurement of DNA Biomarkers for the Safety of Tissue-Engineered Medical Products Using Artificial Skin as a Model,”*** 10th Annual FDA Science Forum: The Critical Path – From Concept To Consumer (2004). Washington, D.C.
- Rodriguez, H., ***“Past, Present, and Future: Clinical Trends in Preventive Medicine,”*** Phoenix Conference on Longevity Health Sciences, Scottsdale, AZ, December 11-14, 2003.
- Rodriguez, H., ***“Biomarkers for Tissue Engineering – Cell Damage Detection and Cell Biomaterial Interaction,”*** CBER/FDA, Rockville, MD, Feb. 20, 2004
- Rodriguez, H., ***“Oxidative Stress and Tissue Engineering Measurements: Standards for Tomorrow’s Anti-Aging Market,”*** Howard University, Washington, DC, May 7, 2004
- Rodriguez, H., ***“Biomarkers of Tissue Engineering: Cell-Biomaterial Interaction & Cell Damage Detection,”*** NIST Tissue Engineering Day, Gaithersburg, MD, Aug. 4, 2003
- Rodriguez, H., ***“Biomarkers of Tissue Engineering,”*** NIST/NBIB Tissue Engineering Visit. Gaithersburg, MD, Aug. 13, 2003.
- Rodriguez, H., ***“Safety Standards for the Automotive Industry,”*** NIST-Special American Business Internship Training Program, Gaithersburg, MD, Sept. 2, 2003.
- Schwarz, F.P., ***“ITC Measurements for Quantitating Interactions,”*** Quantitating Biomolecular Interactions Workshop, Frederick, MD, November 7, 2003.
- Schwarz, F.P., ***“Proposed Standard for Biomolecular Interactions: Barnase-Barstar,”*** ABRF Meeting, Portland, OR, March 2, 2004.
- Schwarz, F.P., ***“Lac Repressor Protein-Promoter Interactions,”*** CalCon 2004, Santa Fe, NM, June 27, 2004.
- Stoltzfus, A.B., ***“Towards a Predictive Model of Protein Sequence Evolution,”*** Information Science Standards to Enable Biomedical Research (NIST-sponsored satellite of “Digital Biology” meeting) Bethesda, MD, November 4, 2003 (invited).
- Stoltzfus, A.B., ***“Digital Biology: The Emerging Paradigm,”*** NIH Symposium, Bethesda, MD, November 6, 2003.
- Stoltzfus, A.B., ***“Phyloinformatics and the Enigma of Intron Origins,”*** Center of Marine Biotechnology, Baltimore, MD, January 21, 2004 (invited).

- Stoltzfus, A.B., "*Spliceosomal Intron Gain: Sequence and Phase Preferences*," Molecular Evolution (Gordon Conference), Ventura, CA, February 2, 2004.
- Stoltzfus, A.B., "*Amino Acid Exchangeability from Experimental Data*," Molecular Evolution (Gordon Conference), Ventura, CA, February 3, 2004.
- Stoltzfus, A.B., "*Phyloinformatics and the Enigma of Intron Origins*," The Institute for Genomic Research (TIGR), Rockville, MD, March 12, 2004 (invited).
- Stoltzfus, A.B., "*Genomes and Evolution*," Pennsylvania State University, State College, PA, June 17, 2004.
- Stoltzfus, A.B., "*Sequence Variation and Evolution: Understanding Fundamental Processes*," Celera Genomics, Rockville, MD, September 9, 2004 (invited).
- Stoltzfus, A.B., "*The Exchangeability of Amino Acids in Proteins*," Genome Sequencing and Analysis Conference XVI (TIGR), Washington, DC, September 27, 2004.
- Tewari, Y.B., "*Thermodynamic studies of enzyme-catalyzed reactions in non-aqueous Solvents*," the Gordon Research Conference on Biocatalysis, Kimball Union Academy, Meriden, NH, July 15, 2004.
- Vallone, P.M., "*Multiplex SNP Assays for the Evaluation of Forensic Markers*," Royal Institute of Technology, Department of Biotechnology, Stockholm, Sweden November 18, 2003.
- Vallone, P.M., "*A Multiplex Primer Extension Assay for Probing 11 SNPs Located in the Mitochondrial Genome*," talk at Uppsala University, Department of Genetics and Pathology, Uppsala, Sweden November 19, 2003.
- Vallone, P.M., "*AutoDimer: a rapid screening tool for primer dimer and hairpin structures*," poster at CHI Nucleic Acids Based Technologies meeting, McLean, VA June 21-23, 2004.
- Vallone, P.M., "*New Autosomal Forensic Markers and a Review of the NIST Interlaboratory Quantitation Study*," NIH DNA Grantees meeting, Washington, DC, June 30, 2004.
- Vanderah, D. J., "*Protein Adsorption Properties of Oligo(ethylene oxide)-terminated Self-Assembled Monolayers (SAMs) and Sub-monolayers: Implications for Biocompatibility and Cell Biology*," Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering, National Institute of Standards and Technology, Gaithersburg, MD, October 14-15, 2004.
- Vanderah, D. J., "*Control of Protein Adsorption: Structural and Spatial Variables*," Measurements and Materials at Biomolecular Interface (MMBI) Seminar Series, NIST, March 31, 2004.

Vanderah, D. J., ***“Perspectives from New Oligo(ethylene oxide) [OEO] Self-Assembled Monolayer (SAM) Surfaces on Au. Can OEO-SAMs Direct Polymer Biomolecular Material Design?”*** Biomaterials Group, Polymer Division, NIST, July 30, 2004.

Vrettos, J. S., ***“Infrared Techniques for Protein Structural Stability,”*** at the Biophysical society meeting in Baltimore, MD, February 15, 2004.

Wang, L., Gaigalas, A. K., Zong, Y., Zhang, S., Shi, J., Wang, Y., ***“The Effect of Target and Probe Concentrations and Dye Interaction on Hybridization in DNA Microarrays,”*** Photonics West 2004 (SPIE Bio 2004), San Jose, January 26, 2004

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 Adjacent to a DNA Template,”*** CSTL Colloquium, September 2004.

Woodward, J.T., Elliott, J.T., Tona, A., Langenbach, K.J., and Plant, A.L., ***“Characterization of extracellular matrix protein coated surfaces for tissue engineering,”*** American Chemical Society National Meeting, Philadelphia, PA, August 2004.

Woodward, J.T., Elliott, J.T., Tona, A., Langenbach, K.J., and Plant, A.L., ***“Tissue Engineering Standards: Metrology for Tissue Culture Substrates,”*** Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering, NIST, Gaithersburg, MD, October, 2003

Woodward, J.T., Elliott, J.T., ***“Characterizing cell culture substrates with molecular recognition force microscopy,”*** Materials Research Society Fall Meeting, Boston, MA, December 4, 2003.

Xiao, Y., Barker, P.E., ***“American Society of Human Genetics-November 8, 2003 platform talk on Quantum dots as labels for human metaphase chromosomes,”*** (presented by Xiao in Los Angeles, California).

Xiao, Y., Barker, P.E., ***“International Congress on Immunohistochemistry and Semiconductor nanocrystal probes for human metaphase chromosomes,”*** LaJolla, CA, July, 2004.

Cooperative Research and Development Agreements (CRADAs) and Consortia

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

“Dialysis-based Dynamic Protein Crystal Growth Measurements and Applications.” D.T. Gallagher, CRADA with BioSpace International, Inc.

“Quantitation of Multicolor Cytometry Measurements” A.K. Gaigalas, L. Wang, K. Cole, G.E. Marti, F. Abbasi, R. Hoffman, CRADA with Becton Dickinson Biosciences

Patent Awards and Applications

Vásquez, G. B., and Vanderah, D. J., *“Development of 2-Dimensional Gel Electrophoresis Fiducials to Facilitate Calibrations and Comparisons of Proteomics Data”* March 12, 2004.

SRM Activities:

SRM 2372 – DNA Quantitation Standard. Prototype material distributed in interlaboratory study, results to be published in *J. Forensic Sciences*. The components for the final standard are being selected. (J. Redman)

SRM 2394 - Heteroplasmic Mitochondrial DNA Mutation Detection Standard. Production and certification of materials completed. (D.K. Hancock, L. Tulley, and B. C. Levin).

SRM 2396 – Oxidative DNA Damage Mass Spectrometry Standard. Production and certification of materials completed. (H. Rodriguez and M. Dizdar)

SRM 2397 – Peptide Set for Qualitative Analysis. Protocols developed and samples have been distributed to participants involved in the Certificate of Analysis. (F. Schwarz and E. Eisenstein)

SRM 2398 - DNA Standard for Quantitative PCR. Under development. (M.J. Holden)

SRM 2399 – Fragile X Human DNA Triplet Repeat Standard. Production and certification of materials completed. (B.C. Levin and K.L. Richie)

SRM 8640 - Microspheres with Immobilized, Fluorescein Isothiocyanate. Production and certification of materials completed. Sample is available for purchase from NIST. (A.K. Gaigalas and L. Wang).

SRM ##### - HER2 Testing Standard. Three batches of material have been prepared. Interlaboratory validation studies for measuring concentrations of DNA, RNA, and protein are in progress. Two publications that describe the development and execution of the methodology have been published: Hammond, E., Barker P.E., Taube, S., and Gutman, S. (2003). Standard reference material for Her2 testing: Report of a National Institute of Standards and Technology-sponsored Consensus Workshop. *Appl Immunohistochem Mol Morphol*. 2003 June, 11(2):103-6; and Xiao, Y., Barker P. E. (2004). Semiconductor nanocrystal probes for human metaphase chromosomes, *Nucleic Acids Research* 32(3):1-5. (P.E. Barker)

SRD Activities:

Enzyme thermodynamics database: NIST Standard Reference Data 79. Established. (R.N. Goldberg, Y.B. Tewari, and T.N. Bhat).

HIV Structural Reference Database NIST Standard Reference Data 101. Established. (T. N. Bhat, G.L.Gilliland, M. D. Prasanna, V.Ravichandran, J. Vondrasek, and A Wlodawer)

Committee Assignments:

Barker, P.E.

EPA
NTROI

Butler, J.M.

FBI's Scientific Working Group on DNA Analysis Methods Y-chromosome subcommittee

Cole, K.D.

Analytical Laboratory System Detection Upgrade Program- Weapons of Mass Destruction
Civil Support System (sponsored by Dept. of Defense)
NIST Standards Portfolio organized by the Department of Homeland Security
Research Library Advisory Board (RLAB), chair.
Task Force on *Bacillus anthracis* (sponsored by Dept of Homeland Security)

Gallagher, D.T.

NIST representative to the Interagency Working Group on Metabolic Engineering

Gilliland, G.L.

Steering Committee & Session Chairman, Information Science Standards to Enable
Biomedical Research Workshop
External Advisory Committee for University of Kansas Center for Biomedical Excellence
(COBRE) in Protein Structure and Function

Goldberg, R.N.

ASTM Committee on Biotechnology
Editorial Board of the CRC Handbook of Chemistry and Physics

Holden, M.J.

AGRA Agricultural Biotechnology Risk Analysis Task Group (Biotechnology Research
Work Group, National Science and Technology Council, OSTP) Finished a report
assessing the activities of Federal agencies and the needs of the Federal agencies with
regulatory authority for biotechnology-derived crops.
ISO WG 34 U.S. TAG (Technical Advisory Group) Working on standards for biotech crop
material testing (DNA- qualitative, DNA-quantitative, DNA extraction, protein
detection, sampling)

Levin, B.C.

Association of Government Toxicologists (Member)
NIST Committee for Women (Senior Advisor)
NIST Scientific Women's Network (Organizer and Chairman)
NIST Chapter of Sigma Xi, (Executive Board Member)
Eleventh Annual Post-Doctoral Poster Presentation, NIST Sigma Xi (Chairman and
Organizer)
ASTM Committee E-48 on Biotechnology (Member)
Recombinant DNA Advisory Committee (DOC Representative).

Meuse, C.W.

Biotechnology representative on the CSTL colloquium committee.
Combined Federal Campaign Keyworker

Marino, J.P.

Member of the faculty Ph.D. committee for MOCB graduate student, K.P. Sujatha
Member of the faculty search committee to identify and recruit a new CARB faculty member
in the area of Chemical Biology
Member of an NCRR/NIH Study Section

O'Connell, C.D.

CDC QC Materials for Genetic Testing Working Group: Chair of the Validation
Subcommittee

Plant, A.

Defense Basic Research Review, Department of Defense, Arlington, VA, May 2004.
ASTM Committee F04 on Medical and Surgical Materials and Devices, Division IV on
Tissue Engineered Medical Products.

Schwarz, F.P.

Pluperfect Chair and 2005 Local Arrangements Chair of the Calorimetry Conference
Molecular Interactions Research Group, ABRF
Peptide Standard Project Research Group, ABRF

Stoltzfus, A.B.

Member of thesis committees for Wendy Zhu, Freeland Lab Biology, UMBC
Member of thesis committee for Jonathan Jacobs, Dinman Lab, MOCB program, UMCP
Member of thesis committee for Robin Cook, Haag Lab, Biology, UMCP

Langenbach, K.

CSTL colloquium committee
Organizing committee for the Symposium on Metrology and Standards for Cell Signaling:
Impact on Tissue Engineering held at NIST October 2003.

Vásquez, G.B.

HUPO Liver Proteome Project Organizing Committee Member
NCCLS Subcommittee on Molecular Methods for Microarrays (MM12)

Editorships:

Barker, P.E.

Disease Markers

Dizdar, M.

Free Radical Research
Free Radical Biology & Medicine

Gilliland, G.L.

Protein Peptide Letters (Associate Editor)

Biophysical Journal (Associate Editor)

Proteins: Structure, Function, Bioinformatics (Associate Editor)

Plant, A.

Architecture and Application of Biomaterials and Biomolecular Materials. Materials Research Society. 2004 (editor)

Seminars:

September 20, 2004

Calum MacAulay, Ph.D., "*Quantitative Image Analysis of Pre-Invasive Neoplasia for Chemoprevention Studies and Early Cancer Management Programs, Performance Standards and Reproducibility.*" (Division co-sponsor K.J. Langenbach and P.E. Barker).

October 9, 2003

Dr. Igor Vodyanoy, Office of Naval Research "*Scanning Ion Conductance Microscopy for Nanotechnology*" (Division sponsor K.J. Langenbach)

November 13, 2003

Brian Nablo, University of North Carolina at Chapel Hill, "*Resisting Implant-Associated Infections with Localized Nitric Oxide Release*" (Division Sponsor: J. J. Kasianowicz).

Conference/Workshops/Session Sponsored/Co-Sponsored:

Butler, J.M.

"Capillary Electrophoresis" Two-day workshop at Northeastern Association of Forensic Scientists, Mystic, CT with Dr. Bruce McCord of Florida International University, September 29-30, 2004

Coble, M.D.

56th Annual Meeting of the American Association of Forensic Scientists Conference in Dallas, Texas, February 18-21, 2004.

2004 Meeting of the Mid-Atlantic Association of Forensic Scientists Conference in Wilmington, Delaware, April 21-23, 2004.

Cole, K.D.

Workshop for training collaborative laboratories using five different handheld detection devices for *Bacillus anthracis* on April 2, 2004 (sponsored by the Department of Homeland Security and AOAC International)

Gilliland, G.L.

X-Ray Methods in Structural Biology, October 14-29, 2003.

Information Science Standards to Enable Biomedical Research Workshop, November 4-5, 2003.

45th Experimental Nuclear Magnetic Resonance Conference, April 18-23, 2004.

The American Crystallographic Association Annual Meeting, July 18-22, 2004.

Database Challenges in Biology, September 10, 2004.

Langenbach, K.

Served as session chair for the “Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering,” NIST, Gaithersburg, MD October 2003.

Organizer and Co-Chair at the “First Annual Phoenix Conference on Longevity Health Sciences,” Scottsdale, Arizona, December 2003.

Levin, B.C.

Chairman and Organizer, Eleventh Annual Sigma Xi Post-Doctoral Poster Presentation, NIST, Gaithersburg, MD, February 2004.

Chairman and Organizer, NIST Scientific Women’s Network

Marino, J.P.

CARB NMR Day Symposium, May 2004

Plant, A.

Organized and managed the “Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering,” NIST, Gaithersburg, MD October 2003.

Stanford, V.M and Kasianowicz, J.J., “*Transport of DNA through a single nanometer-scale pore: evolution of signal structure*” IEEE Workshop on Genomic Signal Processing and Statistics, Baltimore, MD, May 26, 2004.

Rodriguez, H.

Poster Oral Presentation Judge at the “10th Annual Meeting of The Society for Free Radical Biology and Medicine,” Seattle, Washington, November 2003.

Vásquez, G.B.

“Mitochondrial Proteomics: Data Issues and Standards,” (with Veersamy Ravichandran) NIST, Gaithersburg, MD, November 6-7, 2003.

Wang, L.

K.D. Cole, D.K. Hancock, L. Wang, A.K. Gaigalas, and Y. Zhong. Comparison of Fluorescent Reporters for Suspension Arrays to Detect Biological Threats. Annual Meeting of American Society for microbiology, March 2004.

Fluorescence Metrology at Biotechnology Division of NIST (Poster). Symposium on Metrology and Standards for Cell Signaling, October 2003.

Clinical Cytometry Meeting at Reston, VA, November, 2003.

Other:

Atha, D.

Third EDRN Scientific Workshop, Bethesda, June 14-16, 2004
Dupont Safety Workshop, NIST, November 19-20, 2003.
NIST Symposium on Metrology and Standards for Cell Signaling: Impact on Tissue Engineering, Oct. 14-15, 2003

Elliott, J. T.

Biotechnology/Life Science Source Evaluation Board member for Department of Commerce Advanced Technology Program, April-Aug 2004.

Gilliland, G.L.

Adjunct Professor of the Maryland Biotechnology Institute
Adjunct Professor, University of Maryland at Baltimore, School of Medicine Department of Biochemistry & Molecular Biology
Adjunct Professor, The George Washington University, Graduate Genetics Program

Goldberg, R.N.

International Advisory Board of the International Conference on Chemical Thermodynamics, Beijing, China 2004
IUPAC Fellow

Kasianowicz, J. J.

Grants & Contracts
Lösche, M., Erlebacher, J.D., Kasianowicz, J.J., and Paulaitis, M., "*Nanoscale engineering of bilaterally accessible biomembrane mimics*" NSF-Nanoscale Interdisciplinary Research Training Grant (2003-2006).
Kasianowicz, J.J., "*Mechanism of membrane-bound toxin formation*", Naval Research Laboratory (2003-2004).
Brigman, K., Stephenson, J., Hight-Walker, A., Plusquellic, D., Richter, L., Meuse, C., Reddy, P., and Kasianowicz, J.J., "*Optical metrology for structure of immobilized proteins*", Advanced Technology Program Intramural Grant (2002-2004).
Member of the steering committee, North & South American Program Chair. 10th International Meeting on Chemical Sensors. Tsukuba, Japan (2004).

Kline, M.

Poster "Semi-Automation of mtDNA Arrays: Results from 666 Population Samples and Comparisons" 14th International Symposium on Human Identification, Phoenix, AZ September 30-October 2, 2003.
Poster "NIST SRM 2395 and Other Y Chromosome Work" 14th International Symposium on Human Identification, Phoenix, AZ September 30-October 2, 2003.

Levin, B.C.

Invited to serve on the Evaluation Panel for the National Research Institute of Police Science, 6-3-1, kashiwanoha, kashiwa, China, 277-0882, Japan. October 27-30, 2003.
Worked with Gail Porter from Public and Business Affairs Division to prepare an interactive display of my research in Administration building. Approved by V. Vilker and W.

Koch. Requested by Arden Bement and final approval was by Mat Heyman. Completed on time and highly acclaimed.

Marino, JP

Adjunct Associate Professor of the Maryland Biotechnology Institute

O'Connell, C.D.

Wrote validation proposal for NCI-EDRN inter-agency agreement to perform MitoChip analysis on cancer samples. Proposal was accepted and work is in progress.

Schwarz, F.P.

Adjunct Professor of the Maryland Biotechnology Institute

Associate Director of CARB

IUPAC Fellow

Stoltzfus, AB

Adjunct Assistant Professor of the Maryland Biotechnology Institute

Vallone, P.M.

A manuscript entitled "AutoDimer: A screening tool for primer-dimer and hairpin structures" was published in *BioTechniques*. A web page: (<http://www.cstl.nist.gov/biotech/strbase/AutoDimerHomepage/AutoDimerProgramHomepage.htm>) can be found at that hosts a beta test version of the program. Currently this site has been viewed ~1000 times. In addition, with the assistance of an outside contractor we will be developing a web-based utility for DNA analysis.