

**DANIEL H. FARKAS, PhD, HCLD, FAACC, CC, MB(ASCP)<sup>CM</sup>**

**WORK**

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*Curriculum Vitae*

**EDUCATION**

- 1987 Ph. D., Department of Cellular and Molecular Biology, Roswell Park Memorial Institute Graduate Division of the State University of New York at Buffalo
- 1979 B. S., Microbiology and Public Health, Michigan State University, East Lansing, Michigan
- 1976 Graduated with honor from Canarsie High School, Brooklyn, New York

**EMPLOYMENT**

- 2016- Section Head, Molecular Pathology, Cleveland Clinic Foundation, Cleveland, Ohio
- 2015-2016 Chief Clinical Laboratory Officer and Laboratory Director, Celmatix, New York, New York; established CLIA-certified, CAP-accredited, New York State Department of Health-permitted, Molecular Diagnostics laboratory devoted to the genetics of infertility
- 2008-2015 Vice President, Clinical Diagnostics and Laboratory Director, Sequenom Laboratories, Grand Rapids, Michigan; Senior Laboratory Director, San Diego and Morrisville (NC) labs; responsible for interpretation and correlation of data; consultations; interaction with accrediting and regulatory agencies, medical community, medical device industry, patient population served; defined, implemented, monitored quality control standards of laboratory service; oversaw personnel, strategic planning, administration, management, safety. Laboratory liaison to: Marketing, Human Resources, Customer Service, Billing and Reimbursement, Sales, Logistics, Legal.
- 2006-2008 Executive Director, Center for Molecular Medicine, Grand Rapids, Michigan; established and organized advanced molecular pathology laboratory in support of innovative genomic and proteomic diagnostics and clinical trials
- 2005-2006 Vice President, Clinical Diagnostics, GeneNews (formerly ChondroGene Inc.), Toronto, Ontario, Canada; Business Development, Assay Development, Marketing and Regulatory responsibilities
- 2002-2005 Director, Molecular Diagnostics, The Methodist Hospital, Houston, Texas; Associate Professor of Pathology and Laboratory Medicine, Weill Medical College of Cornell University (New York; 2005); Associate Professor of Pathology, Baylor College of Medicine (Houston; 2002-2004); established and organized departmental molecular diagnostics laboratory; implemented molecular diagnostic test menu, with associated administration, quality control, quality assurance and education
- 1998-2002 Director, Clinical Diagnostics, Motorola Life Sciences (Clinical Micro Sensors pre-June, 2000), Pasadena, California; responsible for development of chip-based molecular diagnostics applications; education and recruitment of applications opportunities; 2000-2001, Director, Assay Development Department--led group of fifteen developing chip-based assays

## **EMPLOYMENT, continued**

- 1991-1998 Co-director, Molecular Probe Laboratory, Department of Clinical Pathology, William Beaumont Hospital, Royal Oak, Michigan; established and organized departmental molecular pathology laboratory; implemented molecular diagnostic test menu, with associated administration, quality control, quality assurance and education
- 1989 Section Chief, Diagnostic Molecular Pathology, Department of Pathology, Saint Barnabas Medical Center, Livingston, New Jersey; established and organized clinical molecular pathology laboratory; implemented molecular diagnostic test menu, with associated administration, quality control, quality assurance and education
- 1987 Postdoctoral Research Scientist, Department of Molecular and Genetic Toxicology-Environmental Health Laboratory, Monsanto Agricultural Company, St. Louis, Missouri; established and organized departmental molecular biology laboratory; surveyed oncogene activation and tumor induction caused by different chemical carcinogens

## **PROFESSIONAL CERTIFICATION**

- 1996-present High Complexity Clinical Laboratory Director-HCLD, Molecular Diagnostics; American Board of Bioanalysis, St. Louis, Missouri. Examinations in general laboratory knowledge and clinical molecular biology passed in Boston, Massachusetts, November 1, 1996
- 1997-present Clinical Consultant in Molecular Diagnostics. Certification credential from the American Board of Bioanalysis, St. Louis, Missouri
- 1997-present Technologist in Molecular Biology, American Society for Clinical Pathology (formerly Certified Laboratory Specialist in Molecular Biology-CLSp(MB), National Certification Agency for Laboratory Personnel)
- 2011-present Certified Laboratory Specialist, Molecular Genetic Scientist. State of California Laboratory Field Services
- 2011-present New York State Certificate of Qualification; Laboratory Director, Molecular Genetic Testing and Immunohematology

## **FACULTY APPOINTMENTS**

- Adjunct Assistant Professor of Pathology, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, 2017-
- Visiting Professor, Department of Pathology, Downstate Medical Center, Brooklyn, New York, 2015-2016
- Adjunct Professor, Department of Obstetrics, Gynecology and Reproductive Biology, Michigan State University (MSU), East Lansing, Michigan, 2015-2018 (un-prefixed Professor, 2008-July 2015; adjustment upon leaving state)
- Adjunct Professor, MSU, Department of Pediatrics and Human Development, 2006-2008; Department of Biomedical Laboratory Diagnostics, 2006-2012
- Associate Professor of Pathology and Laboratory Medicine with tenure, Department of Pathology, Weill Medical College of Cornell University, New York, New York, March 2005-November 2005
- Associate Professor with tenure, Department of Pathology, Baylor College of Medicine, Houston, Texas. 2002-2004
- Adjunct Associate/Assistant Professor, Department of Medical Technology, MSU, 1995-1998/1992-1995

## FACULTY APPOINTMENTS, continued

Clinical Instructor, Medical Technology Training Program, School of Medical Technology, Department of Clinical Pathology, William Beaumont Hospital, Royal Oak, Michigan, 1991-1998

## PUBLICATIONS

Perspectives on the Affordability of Precision Medicine. DH Farkas. *J. Molec. Diagn.* 2018;**20**(2):160-162.

Incidental Detection of Maternal Neoplasia in Non-invasive Prenatal Testing. NG Dharajiya, DS Grosu, DH Farkas, RM McCullough, E Almasri, Y Sun, SK Kim, TJ Jensen, J-S Saldivar, EJ Topol, D van den Boom, M Ehrlich. *Clin Chem.* 2018;**64**(2):329-335.

Clinical Validity and Utility: Putting the Patient Front and Center. DH Farkas. *J. Molec. Diagn.* 2016;**18**(5):635-637.

Uterine Leiomyoma Confounding a Noninvasive Prenatal Test Result – a case report. NG Dharajiya, A Namba, I Horiuchi, S Miyai, DH Farkas, E Almasri, J-S Saldivar, K Takagi, Y Kamei. *Prenat Diagn.* 2015;**35**(10):990-993.

Clinical outcome of subchromosomal events detected by whole-genome noninvasive prenatal testing. JH Hume, J Wardrop, T Boomer, E Almasri, WB Paxton, N Dharajiya, TJ Monroe, DH Farkas, RM McCullough. *Prenat Diagn.* 2015;**35**(10):999-1004.

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In observance of the 20th Anniversary of the Annual Meeting of the Association for Molecular Pathology: On to the Next Phase of Molecular Diagnostics---The Ultimate Laboratory Test. DH Farkas. *J Molec Diagn.* 2014; **16**(6):599-600.

Noninvasive Prenatal Testing for Microdeletion Syndromes and Expanded Trisomies: Proceed with Caution. Letter to the Editor. AT Bombard, DH Farkas, TJ Monroe, JS Saldivar. *Obstet and Gynecol.* 2014; **124**, No. 2, Part 1:379.

Inclusion of Genotype with Fundus Phenotype Improves Accuracy of Predicting Choroidal Neovascularization and Geographic Atrophy. LT Perlee, AT Bansal, KM Gehrs, JS Heier, K Csaky, R Allikmets, P Oeth, T Paladino, DH Farkas, PL Rawlings, GS Hageman. *Ophthalmol.* 2013; **120**(9):1880-1892.

Next-generation Sequencing: Guidance for the Translation from Research to Clinical Applications. A Gargis, L Kalman, M Berry, D Bick, D Dimmock, T Hambuch, F Lu, E Lyon, K Voelkerding, B Zehnbauser, R Agarwala, S Bennett, B Chen, ELH Chin, J Compton, S Das, DH Farkas, M Ferber, A Felsenfeld, B Funke, M Furtado, L Ganova-Raeva, U Geigenmuller, S Günselman, M Hegde, PLF Johnson, A Kasarskis, S Kulkarni, T Lenk, J Liu, M Manion, T Manolio, E Mansfield, E Mardis, J Merker, MS Rajeevan, MG Reese, HL Rehm, BB Simen, JM Yeakley, J Zook, IM Lubin. *Nat Biotechnol.* 2012; **30**:1033-1036.

Opportunities and Challenges Associated with Clinical Diagnostic Genome Sequencing: A Report of the Association for Molecular Pathology. I Schrijver, N Aziz, DH Farkas, M Furtado, A Ferreira-Gonzalez, TC Greiner, WW Grody, T Hambuch, L Kalman, JA Kant, RD Klein, DGB Leonard, IM Lubin, R Mao, N Nagan, VM Pratt, ME Sobel, KV Voelkerding, JS Gibson. *J Molec Diagn.* 2012; **14**:525-540.

## PUBLICATIONS, continued

Fetal RHD genotype detection from circulating cell-free fetal DNA in maternal plasma in non-sensitized RhD negative women. AT Bombard, R Akolekar, DH Farkas, AL VanAgtmael, F Aquino, P Oeth, KH Nicolaides. *Prenat Diagn.* 2011; **31**: 802-808.

The Association for Molecular Pathology's Approach to Supporting a Global Agenda to Embrace Personalized Genomic Medicine. J Gibson, N Aziz, P Bayrak-Toydemir, P Cotter, DH Farkas, A Ferreira-Gonzalez, M Furtado, TC Greiner, T Hambuch, RD Klein, DGB Leonard, E Lyon, KP Mann, R Mao, N Nagan, VM Pratt, I Schrijver, ME Sobel, KV Voelkerding, M Steele-Williams. *J Molec Diagn.* 2011; **13**:249-251.

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Characterization of 107 Genomic DNA Reference Materials for *CYP2D6*, *CYP2C19*, *CYP2C9*, *VKORC1* and *UGT1A1*: A GeT-RM and Association for Molecular Pathology Collaborative Project. VM Pratt, B Zehnbaauer, J Amos Wilson, R Baak, N Babic, M Bettinotti, A Buller, K Butz, M Campbell, C Civalier, A El-Badry, DH Farkas, E Lyon, S Mandal, J McKinney, K Muralidharan, L Noll, T Sander, J Shabbeer, C Smith, M Telatar, L Toji, A Vairavan, C Vance, KE Weck, AHB Wu, K-T J Yeo, M Zeller, L Kalman. *J Molec Diagn.* 2010;**12**: 835-846.

Fetal Sex Determination Using Circulating Cell-free Fetal DNA (ccffDNA) at 11-13 Weeks of Gestation. R Akolekar, DH Farkas, AL VanAgtmael, AT Bombard, KH Nicolaides. *Prenat Diagn.* 2010;**30**(10): 918-923.

The Suitability of Matrix Assisted Laser Desorption/Ionization – Time of Flight Mass Spectrometry in a Laboratory Developed Test Using Cystic Fibrosis Carrier Screening as a Model. DH Farkas, NE Miltgen, J Stoerker, D van den Boom, WE Highsmith, L Cagasan, R McCullough, R Mueller, L Tang, J Tynan, C Rowell-Tate, A Bombard. *J Molec Diagn.* 2010;**12**: 611-619.

General Approach to Molecular Pathology. GL Blakey, DH Farkas. In: Basic Concepts of Molecular Pathology, Molecular Pathology Library 2. PT Cagle, TC Allen. Springer Science+Business Media. 2009; 61-68.

Guest Editorial. Direct-to-Consumer Genetic Testing: Two Sides of the Coin. DH Farkas, CA Holland. *J Molec Diagn.* 2009;**11**(4): 263-265.

DNA from A to Z...And Back Again. CA Holland, DH Farkas, AACCC Press, Washington, DC, 2008.

Overview of Molecular Diagnostic Techniques and Instrumentation. DH Farkas, CA Holland. In: Cell and Tissue Based Molecular Pathology. R Tubbs, M Stoler, eds. Elsevier, Orlando. 2008; 18-31.

Diagnostic Molecular Pathology in an Era of Genomics and Translational Bioinformatics [Editorial]. DH Farkas. *Diagn Molec Pathol.* 2008; **17**(1): 1-2.

General Approach to Molecular Pathology. GL Blakey, DH Farkas. In: Molecular Pathology of Lung Diseases. DS Zander, HH Popper, J Jagirdar, AK Haque, PT Cagle, R Barrios, eds. Springer Science+Business Media. 2008; 70-77.

Quantification of Hepatitis C Virus RNA Using the Roche TaqMan HCV ASR and the Roche COBAS TaqMan 48 Analyzer. GL Blakey and DH Farkas. Section 12.2.3 Part 8 of *Clinical Microbiology Procedures Handbook (LS Garcia, ed.)*. American Society for Microbiology (ASM). 2007.

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Molecular Pathology Methodologies. MJ Smith, JF Pulliam, DH Farkas. In: *Molecular Pathology in Clinical Practice*. DGB Leonard, A Bagg, A Caliendo, KL Kaul, K Snow-Bailey, V Van Deerlin, eds. Springer-Verlag, New York. 2006; 15-40.

Detection of the JAK2<sup>V617F</sup> Mutation in Myeloproliferative Disorders by Melting Curve Analysis Using the LightCycler® System. RJ Olsen, Z Tang, DH Farkas, DW Bernard, Y Zu, C-C Chang. *Arch Pathol Lab Med*. 2006; **130**:997-1003.

The Path Toward the Routine Use of Molecular Diagnostics in the US...and a Look to the Future. *The Bulletin of the Royal College of Pathologists*. 2006; **135**:21-23.

Molecular Pathology: Basic Methodologies and Clinical Applications: A Self-Study Guide (revised). GL Blakey, DH Farkas. Colorado Association for Continuing Medical Laboratory Education. Denver, Colorado. 2006.

Ten Reasons to Avoid Molecular Diagnostics...and Ten Rebuttals. DH Farkas. *Advance for Administrators of the Laboratory*. 2006; **15**:19-22.

Developing a Sustainable Process to Provide Quality Control Materials for Genetic Testing. B Chen, CD O'Connell, DJ Boone, JA Amos, JC Beck, MM Chan, DH Farkas, RV Lebo, CS Richards, BB Roa, LM Silverman, DE Barton, BA Bejjani, DR Belloni, SH Bernacki, M Caggana, E Dequeker, A Ferreira-Gonzalez, KJ Friedman, CL Greene, WW Grody, WE Highsmith, Jr., CS Hinkel, LV Kalman, IM Lubin, E Lyon, DA Payne, VM Pratt, CA Rundell, E Schneider, AM Willey, LO Williams, ES Winn-Deen, DJ Wolff. *Genet Med* 2005; **7**(8):534-549.

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What if we could Amplify Nucleic Acid *in vitro*? *Expert Rev Mol Diagn*. 2004;**4**(4): 267-269.

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Use of Bioelectronic Sensors for Detection of Cystic Fibrosis and Hereditary Hemochromatosis Mutations During Validation of Positive Control Cell Lines for Use as Clinical Standards. SH Bernacki, DH Farkas, W Shi, V Chan, Y Liu, JC Beck, K Snow, VM Pratt, KG Monaghan, KJ Matteson, FV Schaefer, M Friez, AE Shrimpton, TT Stenzel. *Arch Pathol Lab Med*. 2003; **127** (12): 1565-1572.

Molecular Diagnostics: The Best is Yet to Come. *Trends in Molecular Medicine*. 2002;**8**(6):245.

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Bioelectronic DNA Chips for the Clinical Laboratory. Letter to the Editor. *Clin Chem.* 2001;**47**(10):1871-1872.

Electronic Detection of Nucleic Acids: A Versatile Platform for Molecular Diagnostics. RM Umek, SW Lin, J Vielmetter, RH Terbruggen, CJ Yu, JF Kayyem, H Yowanto, GF Blackburn, DH Farkas, and Y-P Chen. *J. Molec. Diagn.* 2001; **3**(2): 74-84.

Bioelectronic Detection of Point Mutations Using Discrimination of the H63D Polymorphism of the *Hfe* Gene as a Model. RM Umek, SS Lin, Y-P Chen, B Irvine, G Paulluconi, V Chan, Y Chong, L Cheung, J Vielmetter and DH Farkas. *Molec Diagn.* 2000;**5**(4): 321-328.

On Molecular Diagnostics and Transgenic Crops. *Molec Diagn.* 2000;**5**(4): 255.

Bioelectronic Detection of DNA and the Automation of Molecular Diagnostics. DH Farkas. *J Assoc. Laboratory Automation.* 1999;**4**(5):20-24.

Tools for Molecular Diagnostics. DH Farkas. *IVD Technology.* 1999;**5**(6): 64-66.

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Molecular Diagnostics on the Menu: New Analytes Poised for the 21<sup>st</sup> Century. DH Farkas. *Clinical Laboratory News.* Special Issue, 7.26.99: 1.

Clinical Micro Sensors Developing Point-of-Care Molecular Diagnostics. DH Farkas. *IVD Technology.* 1999; **5**(1): 42-43.

Recommendations for In-House Development and Operation of Molecular Diagnostic Tests. MH Whittaker, DH Farkas, KL Kaul, AE Shrimpton, DGB Leonard. *Amer J Clin Pathol.* 1999; **111**(4):449-463.

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Preface to *Clinics in Laboratory Medicine*, "DNA Technology in the Clinical Laboratory." WB Saunders Company, Philadelphia, 1997;**17**:xi-xii.

**PUBLICATIONS**, continued

Novel Chemiluminescent Substrate and Probe Systems for the Identification of CFAF508 Genotypes. LV Reddy, H Akhavan-Tafti, R DiSilva, R Handley, DH Farkas, AP Schaap. *Molec Diagn.* 1997;**2**(2):113-120.

Guest Editor, *Clinics in Laboratory Medicine*, "DNA Technology." WB Saunders Company, Philadelphia, **17**(1): March 1997.

Quality Control Issues for the Clinical Molecular Pathologist. In: *Molecular Diagnostics for the Clinical Laboratorian*. WB Coleman, GJ Tsongalis, eds. Humana Press, 1997, 363-371.

Specimen Stability for DNA-based Diagnostic Testing. DH Farkas, AM Drevon, FL Kiechle, RG DiCarlo, EM Heath, D Crisan. *Diagn Molec Pathol.* 1996;**5**(4):227-235.

Editorial: Garbage In-Garbage Out. *Diagn Molec Pathol.* 1996;**5**(4):225-226.

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Molecular Pathology. In: *Encyclopedia of Molecular Biology: Fundamentals and Applications*. RA Meyers, Editor-in-Chief. VCH Publishers, New York, 1996;**4**:323-333.

Molecular Analysis in a Patient with Waldenstrom's Macroglobulinemia Reveals a Rare Case of Biclinality. R Schulz, D David, DH Farkas, D Crisan. *Molec Diagn.* 1996;**1**:159-166.

Clinical News Update: Certification for Molecular Diagnostics Laboratory Directors and Personnel. *Molec Diagn.* 1996;**1**:275.

Report from the President. Informed Consent: What it Means for Researchers. DH Farkas, M Burritt. *Clinical Laboratory News.* 1996;**22**(9):4.

DNA Simplified: The Hitchhiker's Guide to DNA. AACC Press, Washington DC July 1996.

Using Molecular Markers to Manage Breast Cancer. *CAP Today.* 1996;**10**(5):41.

Guest Editor, *Clinics in Laboratory Medicine*, "DNA Technology." WB Saunders Company, Philadelphia, **16**(1): March 1996.

Preface to *Clinics in Laboratory Medicine*, "DNA Technology." WB Saunders Company, Philadelphia, 1996;**16**:xi-xii.

Kiechle FL, Chambers LM, Cox RS, Davis B, Davis CM, DUBY M, Farkas DH, Fink L, Kaul KL, Wiedbrauk DL (eds.). *Patient Preparation and Specimen Handling Fascicle VII: Reference Guide to Diagnostic Molecular Pathology and Flow Cytometry*. College of American Pathologists, Northfield, Illinois, 1996.

Specimen Collection and Storage for Diagnostic Molecular Pathology Investigation. DH Farkas, KL Kaul, DL Wiedbrauk, FL Kiechle. *Arch Pathol Lab Med.* 1996;**120**:591-596.

Mitochondrial Disorders: Methods and Specimen Selection for Diagnostic Molecular Pathology. FL Kiechle, KL Kaul, DH Farkas. *Arch Pathol Lab Med.* 1996;**120**:597-603.

Clinical News Update. DH Farkas, DL Cooper. *Molec Diagn.* 1996;**1**:75-77.

## PUBLICATIONS, continued

- Considerations in Setting Up a DNA Analysis Laboratory. DH Farkas. In: "Molecular Genetics in Diagnosis and Research." RW Allen, JP AuBuchon, eds. American Association of Blood Banks, Bethesda, Maryland, 1995, pp. 139-155.
- Launching a DNA Lab. DH Farkas. *Medical Laboratory Observer*. 1995;**27** (5):42-48.
- Quality Assurance Initiatives for the DNA Diagnostics Laboratory. DH Farkas. *Medical Laboratory Observer*. 1995;**27** (6):44-49.
- Immunohistochemical Analysis of P-glycoprotein Expression in Breast Cancer: Clinical Correlations. DA Decker, LW Morris, AJ Levine, JE Pettinga, JL Grudzien, DH Farkas. *Ann Clinical Lab Sci*. 1995;**25**:52-59.
- Molecular Methods for Virus Detection. DL Wiedbrauk, DH Farkas, co-editors. Academic Press, San Diego, California, 1995.
- So You're Going to Collect a Blood Specimen. FL Kiechle, L Chambers, R Cox, C Davis, M Duby, R Little, A Pappas, DH Farkas. CAP Press. 1994.
- Clinical Applications of Molecular Techniques. DH Farkas. *Laboratory Medicine*. 1994;**25**:633-636.
- Adjuvant Therapy for Breast Cancer. DH Farkas, RM Umek. *N Engl J Med*. 1994;**331**:743 (letter).
- Operational Requirements of a Molecular Pathology Laboratory. DD Klosinski, SV Hunter, DH Farkas. *Clinical Laboratory News*. 1994;**20**(8):10.
- Molecular Biology and Health Care Re-form. DH Farkas. *Clinical Laboratory News*. 1994;**20**(7):23.
- Molecular Diagnostic Testing in 1994 and a Glimpse at the Future. DH Farkas. *Clinical Chemistry News*. 1994;**20**(1):4.
- Detection of *bcl-2* Oncogene Rearrangement in Follicular Lymphoma: Nucleic Acid Hybridization and Polymerase Chain Reaction Compared. D Crisan, MJ Anstett, N Matta, DH Farkas. *Clin Chem*. 1993;**39**(9):1980-1982.
- Bone marrow biopsy imprint preparations: use for molecular diagnostic in leukemias. D Crisan, DH Farkas. *Ann Clin Lab Sci*. 1993;**23**:407-422.
- The B and T cell gene rearrangement test: an overview of application and methodology. DL Schultz, DH Farkas. *Clinical Laboratory Science*. 1993;**6**(5):291-294.
- Southern Blot Technology in the Clinical Laboratory: Quality Control and Applications. DH Farkas. *LabMedica International*. 1993;**10**:17-24.
- Improved Quantitation of HER-2/*neu* Gene Copy Number in Breast Tumor Derived DNA Samples. DH Farkas, LW McMahan, P Cai, RM Umek. *Amer J Clin Pathol*. 1993;**100**:444-450
- Multidrug resistance phenotype (MDR)-a potential marker of chemotherapy resistance in breast cancer? DA Decker, LW Morris, AJ Levine, JE Pettinga, JL Grudzien, DH Farkas. *Laboratory Medicine*. 1993;**24**:574-578.
- Laboratory Analysis for HER-2/*neu* Gene Amplification and Protein Overexpression. DH Farkas, JC Long, R Schulz, N Matta, RM Umek. *Laboratory Medicine*. 1993;**24**:557-561.



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Molecular Biology and Pathology: A Guidebook for Quality Control. DH Farkas, editor. Academic Press, San Diego, California, 1993.

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Safety in the Molecular Biology Laboratory. DH Farkas. In "Molecular Biology and Pathology: A Guidebook for Quality Control." DH Farkas, editor. Academic Press, San Diego, California, February, 1993, pp. 38-50.

Specimen Procurement, Processing, Tracking, and Testing by the Southern Blot. DH Farkas. In "Molecular Biology and Pathology: A Guidebook for Quality Control." DH Farkas, editor. Academic Press, San Diego, California, February, 1993, pp. 51-75.

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## INVITED BOOK REVIEWS

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## ABSTRACTS and PRESENTATIONS

LYin, JE Brock, R Johnson, DH Farkas. Assessing the Performance of Automated Library Preparation in a Pan-Solid Tumor NGS Workflow. Poster Session, Association for Molecular Pathology Annual Meeting, San Antonio, TX, November 1-3, 2018. Abstract in press, *J. Molec Diagn*. 2018.

ZJ Tu, MA Jakubowski, JE Brock, DH Farkas, JR Cook, Y-W Cheng. Validation and Development of a Data Analysis Pipeline for a Customized Hematological Neoplasm Next Generation Sequencing Panel. Poster Session, Association for Molecular Pathology Annual Meeting, San Antonio, TX, November 1-3, 2018. Abstract in press, *J. Molec Diagn*. 2018.

JE Brock, WA Nedlik, DH Farkas. A Process for New Clinical Laboratory Test Implementation Poster Session, Association for Molecular Pathology Annual Meeting, San Antonio, TX, November 1-3, 2018. Abstract in press, *J. Molec Diagn*. 2018.

CM Stefaniuk, C Revay, KG McDonnell, F Mularo, JK Stoller, DS Bosler, K Marchant, DH Farkas. Detection of a Rare Allele of Alpha-1 Antitrypsin, M(Procida), Using Melt Curve Technology Variant Analysis for the F and I Alleles. Association for Molecular Pathology-Europe Meeting, Rotterdam, The Netherlands, April 30-May 2, 2018.

F Mularo, JK Stoller, KG McDonnell, G Murugesan, DS Bosler, DH Farkas. Analysis of Variants Contributing to  $\alpha$ -1 Antitrypsin Deficiency: Cost Reduction and Efficiency Improvement through Utilization of Melt Curve Technology. Association for Molecular Pathology Annual Meeting, Salt Lake City, UT, November 8, 2017. *J. Molec Diagn*. 2017; 19 (6):1047.

G Murugesan, M DeJane, J Riley, S Zilka, TM Daly, DH Farkas. Validation of a Molecular Diagnostic Assay for Genotyping Thiopurine Methyltransferase (TPMT) Variants in a Clinical Diagnostic Laboratory. XXX International Symposium on Technological Innovations in Laboratory Hematology. Honolulu, Hawaii, May 4-6, 2017.

R McCullough, E Almasri, T Boomer, J Wardrop, P Oeth, W Paxton, N Dharajiya, T Monroe, J-S Saldivar, DH Farkas. High volume clinical laboratory noninvasive prenatal testing: a synopsis of results from >375,000 patients. 19th International Conference on Prenatal Diagnosis and Therapy. Washington DC, July 13, 2015.

PL Rawlings, DH Farkas. Evaluation of “Dri-Capsules” for stabilization of DNA in buccal swab specimens used in multiplexed CFTR genotyping. Poster session, Association for Molecular Pathology Annual Meeting. Washington, DC, November 15, 2014.

N Dharajiya, TJ Monroe, DH Farkas, T Boomer, J Wardrop, J Jesiolowski, E Almasri, C Zhao, C Deciu, J-S Saldivar. Adventitious detection of maternal neoplasia during noninvasive prenatal testing (NIPT). Poster session, Association for Molecular Pathology Annual Meeting. Washington, DC, November 15, 2014.

## ABSTRACTS and PRESENTATIONS, continued

N Dharajiya, TJ Monroe, DH Farkas, T Boomer, J Wardrop, J Jesiolowski, J-S Saldivar. Clinical experience of trisomy 16 and 22, and microdeletion detection by non-invasive prenatal testing. Poster session, National Society of Genetic Counselors 33rd Annual Education Conference. New Orleans, Louisiana, September 17, 2014.

J Wardrop, DH Farkas, E Almasri, C Zhao, C Deciu, T Boomer, JS Saldivar, N Dharajiya. Detection of maternal 22q deletions by noninvasive prenatal testing (NIPT). Poster session, National Society of Genetic Counselors 33<sup>rd</sup> Annual Education Conference. New Orleans, Louisiana, September 17, 2014.

LT Perlee, AT Bansal, KM Gehrs, JS Heier, K Csaky, R Allikmets, P Oeth, T Paladino, DH Farkas, PL Rawlings, GS Hageman. Combining Genotype and Phenotype to Predict Progression in Choroidal Neovascularization. American Academy of Ophthalmology Annual Meeting. Chicago, Illinois, November 10, 2012.

LT Perlee, G Haney, DH Farkas. Interpretation of a Risk Prediction Test for Age-related Macular Degeneration. National Society of Genetic Counselors Annual Meeting. San Diego, California, October 28, 2011.

DH Farkas, J Stoerker, J Tynan, WE Highsmith, R Mueller, A Bombard. Superior Pan-ethnic Population Carrier Screening for Mutations that Cause Cystic Fibrosis. American College of Obstetricians and Gynecologists Annual Meeting. May 6, 2010.

J Stoerker, J Tynan, L Cagasan, R McCullough, T Goodman, H Walline, C-R Vibat, D van den Boom, R Mueller, DH Farkas. Use of the MassARRAY<sup>®</sup> Mass Spectrometry Platform for High-Throughput and Accurate Detection of a 105 Member Cystic Fibrosis-Causing Mutation Panel. Association of Molecular Pathology Annual Meeting, November 19-21, 2009, Orlando, Florida. *J. Molec Diagn.* 2009; **11** (6):619.

L Kalman, B Zehnbaauer, J Amos Wilson, R Beak, N Babic, M Bettinotti, A Buller, K Butz, M Campbell, C Civalier, A El-Badry, DH Farkas, E Lyon, J McKinney, K Muralidharan, L Noll, S Mandal, T Sander, J Shabbeer, C Smith, M Teletar, L Toji, A Vairavan, C Vance, K Weck, A Wu, KJ Yeo, M Zeller, VM Pratt. Characterization of 107 Genomic DNA Reference Materials for Five Common Pharmacogenetic Loci (*CYP2D6*, *CYP2C9*, *VKORC1*, *CYP2C19* and *UGT1A1*): A GeT-RM Collaborative Project. Association of Molecular Pathology Annual Meeting, November 19-21, 2009, Orlando, Florida. *J. Molec Diagn.* 2009; **11** (6):625.

VM Pratt, B Zehnbaauer, N Babic, A Buller, K Butz, M Campbell, DH Farkas, E Lyon, S Mandal, K Muralidharan, L Toji, C Vance, KTJ Yeo, L Kalman. Characterization of 107 Genomic DNA Reference Materials for *CYP2D6*: A GeT-RM Collaborative Project. Association of Molecular Pathology Annual Meeting, November 19-21, 2009, Orlando, Florida. *J. Molec Diagn.* 2009; **11** (6):626.

Oncology Management Strategies: CellSearch Assay for Metastatic Prostate Cancer. Spectrum Health Urology Tumor Board, May 8, 2008. Grand Rapids, Michigan.

RJ Olsen, PL Cernoch, GA Land, DH Farkas. Validation of the MycoAlign System for Identification of *Mycobacterium spp.* in the Clinical Microbiology Laboratory. Texas Society of Pathology Annual Meeting, Houston, Texas, 2006.--*First prize poster presentation (resident)*

RJ Olsen, PL Cernoch GA Land, DH Farkas. Use of the MycoAlign System for Identification of *Mycobacterium spp.* in the Clinical Laboratory. Association of Molecular Pathology Annual Meeting, November 17-19, 2005, Scottsdale, Arizona.

Moderator and Speaker (“Molecular Diagnostics Update, 2005”), “Molecular Diagnostics Around the World,” Symposium, AACC Annual Meeting, July 27, 2005, Orlando, Florida.

## ABSTRACTS and PRESENTATIONS, continued

E Ghezzi, A Bosia, E Shehi, G Amicarelli, A di Nicola, C Bonanno, DH Farkas, D Adlerstein. Abstract published in *Clin Chem*, **51** (6), Supplement, 2005, page A186 and poster presented at AACC Annual Meeting, July 27, 2005. Orlando, Florida.

Moderator and Speaker, An Overview of Molecular Diagnostics, an EduTrack at the AACC Annual Meeting, July 29, 2004, Los Angeles, California.

Introduction to Molecular Diagnostics. Houston Society of Clinical Pathologists Annual Meeting, April 24, 2004. Houston, Texas.

D McGregor, DH Farkas, B Schur, C Chang. Recipient and donor  $t(14;18)$  in bone marrow transplant for follicular lymphoma. Abstract presented at the AMP Annual Meeting, November 21-23, 2003. Orlando, Florida. *J Molec Diagn.* 2003; **5**(4):269 (H24).

Molecular Pathology. Internal Medicine Service Meeting. The Methodist Hospital, June 16, 2003. Houston, Texas.

Real Time PCR Detection of Group B *Streptococcus*. Obstetrics and Gynecology Service Meeting. The Methodist Hospital, June 2, 2003. Houston, Texas.

Tools for Molecular Hematology-Oncology Applications. Lymphoma Tumor Board. The Methodist Hospital, May 19, 2003. Houston, Texas.

Standard control lymphoblastoid cell lines for molecular genetic testing derived from residual clinical blood samples. S Bernacki, J Beck, J Herndon, A Stankovic, L Williams, J Amos, DH Farkas, M Friez, FHantash, K Matteson, K Monaghan, K Muralidharan, V Pratt, T Prior, F Schaefer, A Shrimpton, E Spector, K Snow, C Stolle, C Strom, L Wasserman, E Cole, T Stenzel. Abstract presented at the AMP Annual Meeting, November 15-17, 2002. Dallas, Texas.

Results of reference testing of EBV transformed cell lines for performance evaluation and quality assurance in molecular genetic testing. LO Williams, AK Stankovic, SH Bernacki, JC Beck, DH Farkas TT Stenzel. Abstract presented at the 2002 ASHG Annual Meeting, October 15-19, 2002. Baltimore, Maryland.

The transcriptional factor LBP-1c/CP2/LSF gene in chromosome 12q13 is not associated with asthma in two independent populations. A Zambelli-Weiner, DH Farkas, R Mathias, V Chan, V Casolaro, KC Barnes. Abstract presented at the 2002 ASHG Annual Meeting, October 15-19, 2002. Baltimore, Maryland.

Electrochemical Detection on eSensor™ DNA Chips for Genotyping Mutations in the Cystic Fibrosis Transmembrane Conductance Regulator Gene. Y Liu, W Shi, GE Park, A Asatourians, Y-P Chen, DH Farkas, WA Coty. Abstract presented at the 2002 AACC Annual Meeting, July 30, 2002. Orlando, Florida.

Stable EBV transformed B lymphocyte cell lines derived from residual clinical blood for PE/QA of molecular genetic testing. JC Beck, SH Bernacki, K Snow, VM Pratt, KG Monaghan, AK Stankovic, LO Williams, KJ Matteson, FV Schaefer, M Friez, AE Shrimpton, DH Farkas, TW Prior, LM Wasserman, EC Cole, TT Stenzel. Abstract submitted to the 2002 European Society for Human Genetics Meeting.

Use of residual clinical blood samples to establish stable EBV transformed cell lines for PE/QA of molecular genetic testing. TT Stenzel, SH Bernacki, JC Beck, AK Stankovic, LO Williams, K Snow, VM Pratt, KG Monaghan, KJ Matteson, FV Schaefer, M Friez, AE Shrimpton, DH Farkas, TW Prior, LM Wasserman, WW Noll, EC Cole. Abstract submitted to the 2002 American Society for Human Genetics Meeting.

**ABSTRACTS and PRESENTATIONS, continued**

Chipping Away: What's New in Molecular Technologies for Clinical Laboratories. DH Farkas. *Clin Chem*, **49**:S12, 1999.

Detection of Circulating PSA mRNA Positive Cells in Patients with Prostate Adenocarcinoma. D Crisan, B O' Malley, DH Farkas. Abstract published and presented as a poster at the Cambridge Symposia: Genetic Approaches to Breast and Prostate Cancer, Lake Tahoe, California, March 22-27, 1997.

The Use of Molecular Diagnostic Methods for Lymphoma Staging in Bilateral Bone Marrow Biopsies. T Murphy, D Crisan, D Farkas. Presented at the 5th Annual Association for Molecular Pathology Meeting, Baltimore, Maryland, November 15-17, 1996. Abstract published in the *Amer J Pathol*, **149**:1781, 1996.

Novel Chemiluminescent Substrate and Probe Systems for the Identification of Genotypes. LV Reddy, DH Farkas, H Akhavan-Tafti, R DiSilva, RS Handley, AP Schaap. Poster presented at the 11th Annual American Association for Clinical Chemistry San Diego Conference, November 21-23, 1996.

Issues of Reimbursement and Certification. Presented at the 4th Annual Association for Molecular Pathology Meeting, Minneapolis, Minnesota, November 12, 1995.

Detection of Hepatitis C Virus by Reverse Transcriptase Polymerase Chain Reaction; Clinical use for Diagnostics and Monitoring of Interferon Therapy. JG Buck, D Crisan, DH Farkas. *Clin Chem* 1995;**41**:1685-1686.

Detection of Hepatitis C Virus by Reverse Transcriptase Polymerase Chain Reaction; Clinical use for Diagnostics and Monitoring of Interferon Therapy. JG Buck, D Crisan, DH Farkas. Poster presented at the 10th Annual American Association for Clinical Chemistry San Diego Conference, November 16-18, 1995.

Molecular Analysis in a Patient with Waldenstrom's Macroglobulinemia Reveals a Rare Case of Biclinality. R Schulz, D Crisan, DH Farkas. *Clin Chem*. 1994; **40** (12):2335-2336.

Molecular Analysis in a Patient with Waldenstrom's Macroglobulinemia Reveals a Rare Case of Biclinality. R Schulz, D Crisan, DH Farkas. Poster presented at the American Association for Clinical Chemistry San Diego Conference, The Genetic Revolution, November 17-19, 1994.

Laboratory Analysis for HER-2/*neu* Gene Amplification and Protein Overexpression. DH Farkas, RM Umek. Poster presented at Molecular Pathology 1994-A Workshop in Molecular Diagnostics, sponsored by Universities Associated for Research and Education in Pathology, November 11-13, 1994.

Questions and Answers on DNA Technology. DH Farkas, K Kaul, DD Klosinski, ER Unger. *Laboratory Medicine*. 1994;**25**:675-676.

Discrepant Morphologic Features in Bone Marrow Involvement by Malignant Lymphomas: Use of Gene Rearrangement Patterns for Diagnosis. D Crisan, JC Mattson, DH Farkas. Poster presentation at the AACC Michigan Section Spring Meeting, Frankenmuth, Michigan, May 20, 1994.

Operational Requirements of a Molecular Pathology Laboratory. D Klosinski, SV Hunter, DH Farkas. *Clin Chem*. 1994;**40** (4):658.

Discrepant Morphologic Features in Bone Marrow Involvement by Malignant Lymphomas: Use of Gene Rearrangement Patterns for Diagnosis. D Crisan, JC Mattson, DH Farkas. *Amer J Clin Pathol*. 1994;**101** (3):389-390.

**ABSTRACTS and PRESENTATIONS, continued**

Quantitation of HER-2/*neu* Gene Copy Number in Breast Tumor Derived Deoxyribonucleic Acid Samples. DH Farkas. *Ann Clin Lab Sci.* 1994;**24**(2):188.

Molecular Diagnostic Testing for Lymphomas in Body Fluids. DL Schultz, D. Crisan, DH Farkas, RC Hankin, EG Bernacki, JC Chen. *Ann Clin Lab Sci.* 1994;**24**(2):191.

Operational Requirements of a Molecular Pathology Laboratory. D Klosinski, SV Hunter, DH Farkas. Poster presented at the American Association for Clinical Chemistry San Diego Conference, Beyond DNA Probes, November 18-20, 1993.

Quantitation of HER-2/*neu* Gene Copy Number in Breast Tumor Specimens. Association of Clinical Scientists Fall Meeting. Toledo, Ohio, November 4, 1993.

Bone Marrow Involvement in Extra-nodal Lymphomas: Use of B/T-Cell Gene Rearrangements for Diagnosis, D Crisan, DH Farkas, JC Mattson, N Matta. *Amer J Clin Pathol.* 1993;**100**(3):339.

Molecular Biology: Practical Application in Disease Diagnosis. Contemporary Perspectives in Vaginal Infection and Health. A clinical forum for health care providers. DH Farkas. Microprobe Corporation. September 1993.

Designing clinical experiences for laboratory sciences students and technologists in molecular pathology. D Klosinski, N Matta, S Hunter, DH Farkas, D Crisan, R Hankin. *Clinical Laboratory Science.* 1993;**6**:147.

Bone marrow involvement in extra-nodal lymphomas: use of B/T cell gene rearrangements for diagnosis. D Crisan, DH Farkas, JC Mattson, N Matta. American Society for Clinical Pathology Fall Meeting, Orlando, Florida, October 1993.

Implementation of a new test under CLIA '88: Fragile X detection by DNA analysis. DH Farkas, D Crisan, N Matta, E Carr, A Al-Saadi. Association of Clinical Scientists' Spring Meeting, Newport, Rhode Island, May 13, 1993.

Bone marrow biopsy imprint preparations in molecular diagnostic tests. D Crisan, DH Farkas, E Carr, N Matta, MJ Anstett. *Ann Clin Lab Sci.* 1993;**23**:302-303.

Implementation of a new test under CLIA '88: Fragile X detection by DNA analysis. DH Farkas, D Crisan, N Matta, E Carr, A Al-Saadi. *Ann Clin Lab Sci.* 1993;**23**:305-306.

Bone marrow biopsy imprint preparations in molecular diagnostic tests. D Crisan, DH Farkas, E Carr, N Matta, MJ Anstett. Association of Clinical Scientists' Spring Meeting, Newport, Rhode Island, May 13, 1993.

Detection of the follicular lymphoma-specific chromosomal translocation involving the Bcl-2 oncogene by nucleic acid hybridization and the polymerase chain reaction (PCR): a comparison. MJ Anstett, E Carr, N Matta, DH Farkas, D Crisan. 25th annual American Association for Clinical Chemistry Oak Ridge Conference, Knoxville, Tennessee, April 22, 1993.

Detection of BCR gene rearrangements and early myeloid markers in CML and acute leukemias by mRNA analysis from hematology smears. D Crisan, DH Farkas, N Matta, E Carr, MJ Anstett. Controversies in Bone Marrow Transplantation Conference, San Antonio, Texas, April 21, 1993.

DNA Technology in the Clinical Laboratory. DH Farkas. *Clin Chem.* 1992;**38** (6):1139-40.

## **ABSTRACTS and PRESENTATIONS, continued**

Inhibition of Transient Gene Expression with Herpesvirus Genes. T Block, R Jordan, DH Farkas, RG Hughes. American Society for Virology. London, Ontario. 1989.

Inhibition of Transient Gene Expression with HSV-1 Subgenomic Fragments. T Block, R Jordan, DH Farkas, A Lange, R Hughes. 13th International Herpesvirus Workshop. Irvine, California. 1988.

Herpes simplex Virus Antitransformation Sequences. 12th International Herpesvirus Workshop. T Block, DH Farkas, R Jordan, R Hughes. Philadelphia, Pennsylvania. 1987.

American Society for Virology Annual Meeting-University of California at Santa Barbara. Herpes Simplex Virus Sequences that Inhibit DNA-Mediated Gene Transfer. June 22, 1986.

## **GENBANK ACCESSIONS**

Accession Number: DQ235663. RJ Olsen, PL Cernoch, DH Farkas, GA Land. *Mycobacterium mucogenicum* 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence.

Accession Number: DQ235664. RJ Olsen, PL Cernoch, DH Farkas, GA Land. *Mycobacterium haemophilum* 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence.

Accession Number: DQ235665. RJ Olsen, PL Cernoch, DH Farkas, GA Land. *Mycobacterium immunogenum* 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence.

Accession Number: DQ235666. RJ Olsen, PL Cernoch, DH Farkas, GA Land. "*Mycobacterium senegalense* 16S ribosomal RNA gene and 16S-23S ribosomal RNA intergenic spacer, partial sequence.

## **INVITED LECTURES**

Chairperson, "Past, Present and Future of Prenatal Genomic Testing," and speaker, "Noninvasive Fetal Genotyping;" Molecular Med Tri-Con, San Francisco, California, February 10, 2014.

Circulating Fetal DNA as an Object of Investigation in the Clinical Laboratory. AACC Annual Meeting, Atlanta, Georgia. July 27, 2011.

Molecular Diagnostics: Logistical and Regulatory Considerations. Association for Molecular Pathology Review Course. Rockville, Maryland, April 29, 2011.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Michigan State Clinical Laboratory Sciences Annual Meeting. East Lansing, Michigan, April 15, 2010.

Emerging Trends in Diagnostics. West Michigan Science and Technology Initiative Annual Meeting. Grand Rapids, Michigan, September 17, 2009.

Opening Keynote: Molecular Diagnostics-From Revolution to Mainstream to Genomic Medicine. Molecular Diagnostics 2009, Washington G-2 Reports. Fort Lauderdale, Florida, February 3, 2009.

Personalized Medicine; Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. 41<sup>st</sup> Annual Great Lakes Cancer Nursing Conference. Troy, Michigan, October 14, 2008.

Personalized Medicine; Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Keynote Presentation. Association of Medical Diagnostics Manufacturers IVD Regulatory Focus Meeting. Campbell, California, September 18, 2008.

## INVITED LECTURES, continued

Personalized Medicine Applications in Oncology. Grand Rapids Breast Health and Cancer Coalition Meeting, St. Mary's Hospital. Grand Rapids, Michigan, June 5, 2008.

The Past, Present and Future of Molecular Diagnostics. Detroit Institute of Arts, AACC Michigan Section Spring Meeting. Detroit, Michigan. May 14, 2008.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Holland Hospital. Holland, Michigan, April 22, 2008.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. West Michigan Cancer Nursing Conference. Grand Rapids, Michigan, April 18, 2008.

The Future of Molecular Diagnostics. Rhode Island Hospital Department of Pathology Grand Rounds. Providence, Rhode Island April 10, 2008.

Molecular Diagnostics: Business, Medical and Regulatory Considerations. Leerink Swann Conference on Molecular Diagnostics. New York, New York, April 3, 2008.

Molecular Approaches to Oncology Management. Gilda's Club. Grand Rapids, Michigan, April 1 and May 12, 2008.

The MDx Universe—What does Technology Hold? Where Will it Lead? AdvaMed Medical Technology Learning Institute Conference: Molecular Diagnostics & the Changing Landscape From Development Through Reimbursement: Considerations & Implications. Washington, DC, February 7, 2008.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. The Dark Report Molecular Summit. Philadelphia, Pennsylvania, February 5, 2008.

Molecular Diagnostics in the 21<sup>st</sup> Century. An AACC Web-based Seminar. Washington, DC, December 12, 2007.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. DNA Technology in the Clinical Laboratory; 16<sup>th</sup> Annual William Beaumont Hospital DNA Seminar. Troy, Michigan. September 27, 2007.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Financial Analysts Briefing. AACC Annual Meeting. San Diego, California, July 16, 2007.

Ten Reasons to Avoid Molecular Diagnostics...and Ten Rebuttals. Washington G2 Reports Conference: Integrating MDx Into Your Lab. Tampa, Florida. February 7, 2007.

Molecular Diagnostics: From Revolution to Mainstream to Personalized Medicine. William Beaumont Hospital 15<sup>th</sup> Annual DNA Technology in the Clinical Laboratory Symposium. Troy, Michigan. September 18, 2006.

Establishing a Molecular Diagnostics Laboratory. Frontiers in Laboratory Medicine Conference. Birmingham, England. February 2, 2006.

Opening Keynote: Molecular Diagnostics as a Paradigm for Personalized Medicine. Building a Molecular Diagnostics Laboratory: The Lowdown on Key Business and Technical Considerations. Washington G-2 Reports Conference. Miami, Florida. January 26, 2006.

Molecular Diagnostics as a Paradigm for Personalized Medicine. The 2nd Annual Business of Discovery Conference on Molecular Diagnostics. San Francisco, California. October 21, 2005.



## INVITED LECTURES, continued

A Brief History of Molecular Diagnostics: Revolution to Mainstream to Personalized Medicine. MD Anderson Pathology and Laboratory Medicine Grand Rounds. Houston, Texas. September 16, 2005.

Implementing Pharmacogenomics Testing in the Clinical Laboratory. International Meeting on Clinical and Laboratory Genomic Standards. Paris, France. May 4, 2005.

Molecular Technologies for the Compleat (*sic*) Idiot-An Overview of What's Here and What's Coming. American Pathology Foundation. Las Vegas, Nevada. March 12, 2005.

Molecular Diagnostics: State of the Art and a Brief History. Johnson Space Center, NASA, Houston, Texas. November 8, 2004.

Molecular Diagnostics: State of the Art and a Brief History. NHG Annual Scientific Congress. Singapore. October 11, 2004.

Molecular Diagnostics: Introduction to Laboratory Methods. NHG Annual Scientific Congress. Singapore. October 11, 2004.

Molecular Diagnostics: Yesterday, Today and Tomorrow. Grand Rounds. Department of Pathology. University of Texas-Houston. January 21, 2004.

Moderator, Quality Control Materials for Genetic Tests. A CDC Conference. Atlanta, Georgia. September 15-16, 2003.

Technologies in Molecular Diagnostics. College of American Pathologists Annual Meeting. San Diego, California. September 13, 2003.

Molecular Diagnostics: Yesterday, Today and Tomorrow. The Business and Technology of Healthcare. SG-2 The Edge Summer Meeting. Chicago, Illinois. July 17, 2003.

Interview: News 24 Houston Local News, discussion of clinical laboratory DNA testing. April 9, 2003.

Evolving Technologies for Clinical Diagnostics. Opening Remarks. National Institute of Standards and Technology's Health Care Industry Executive Roundtable. Gaithersburg, Maryland. March 31, 2003.

Bioelectronic Detection of Nucleic Acids: A Platform for Molecular Diagnostics. Molecular Analysis for Research and Diagnostics. Cambridge Healthcare Institute. San Diego, California. February 13, 2002.

Member, Molecular Diagnostics Expert Panel Discussion. Chips to Hits Annual Meeting. San Diego, California. October 29, 2001.

Bioelectronic Detection of Nucleic Acids: A Platform for Molecular Diagnostics. Southeast Section of the American Association for Clinical Chemistry and Industrial Workshop at the AACC Annual Meeting. Chicago, Illinois. July 30 and July 31, 2001.

Low Density Bioelectronic DNA Arrays: A Workshop. EuroBiochips Microarray and Microfluidics Technology Congress. Munich, Germany. June 7, 2001.

Bioelectronic DNA Detection: A Platform for Pharmacogenomics and Other Diagnostic Applications. Inauguration Symposium, Laboratório Fleury, Sao Paulo Brazil. June 2, 2001.

Bioelectronic Detection of Nucleic Acids for Clinical Laboratory Diagnostics. Cleveland Clinic. Cleveland, Ohio. May 9, 2001.

**INVITED LECTURES**, continued

Bioelectronic DNA Detection as a Platform for Clinical Laboratory Diagnostics. West Valley Laboratory Symposium. Woodland Hills, California. May 5, 2001.

Bioelectronic of Nucleic Acids for Clinical Laboratory Diagnostics. California Association of Public Health Laboratory Directors' Annual Meeting. Newport Beach, California. April 26, 2001.

Bioelectronic DNA Detection as a Platform for Clinical Laboratory Diagnostics. Kaiser Permanente Laboratory Operations Committee Meeting. Baldwin Park, California. March 28, 2001.

Array-based Bioelectronic Detection of Nucleic Acids. Joint meeting of the Histochemical Society, Society for Immunohistochemistry, and the International Society for Analytical and Molecular Morphology. Santa Fe, New Mexico. February 5, 2001.

A View to the Future of Molecular Diagnostic Testing. AACC Southern California Section Meeting. Anaheim, California. November 15, 2000.

Bioelectronic Detection of Nucleic Acids. American Society for Microbiology, Southern California Branch 64<sup>th</sup> Annual Meeting. San Diego, California. November 4, 2000.

Low Density Bioelectronic DNA Chips for Molecular Diagnostics. Advancing Pathology Information, Imaging, and the Internet 2000. UAREP Focus Session: "Pathology Informatics in Support of Molecular Medicine." Pittsburgh, Pennsylvania. October 25, 2000.

Molecular Diagnostics Using Bioelectronic Nucleic Acid Detection. California State Department of Health. Berkeley, California. October 20, 2000.

A Bioelectronic Detection Platform for Nucleic Acids. 2000 ASCP/CAP Annual Meeting. Session SA16: DNA Vision of the Future. Dr. Richard Froede, Chairperson. San Diego, California. October 15, 2000 and Philadelphia, Pennsylvania. October 22, 2001.

Molecular Diagnostics Using Bioelectronic Detection of Nucleic Acids. City of Hope Seminar Series. Duarte, California. September 19, 2000.

Detection of Nucleic Acids Using a Novel Bioelectronic Technology. Food and Drug Administration. Rockville, Maryland. May 4, 2000.

Novel Molecular Approaches to Identify Pathogens: Bioelectronic Detection of Nucleic Acids. Strategies for Identification and Characterization of Unknown Pathogens. A meeting funded by the Centers for

Disease Control and Prevention, National Center for Infectious Diseases. The Banbury Center, Cold Spring Harbor Laboratory, April 2-5 2000.

Bioelectronic Detection of Nucleic Acids. International Society of Laboratory Hematology. Banff, Alberta, Canada. April 16, 2000.

Bioelectronic Detection of Nucleic Acids. AACC Southern California Section Meeting. Long Beach, California. March 21, 2000.

Bioelectronic Detection of Nucleic Acids. American Pathology Foundation Annual Meeting. Las Vegas, Nevada. March 11, 2000 and March 9, 2002.

Molecular Electronics: A Versatile Platform for Nucleic Acid Detection. Laboratory Automation Annual Conference and Exhibition. Palm Springs, California. January 24, 2000.

## **INVITED LECTURES**, continued

Bioelectronic Detection of Nucleic Acids. Medical College of Virginia. Richmond, Virginia. October 21, 1999.

Bioelectronic Detection of Nucleic Acids. A presentation of the Laboratory Society: Mayo Clinic Foundation House at the Mayo Clinic. Rochester, Minnesota. October 8, 1999.

Moderator, AACC Edutrack: "Chipping Away: What's New in Clinical Laboratory Diagnostics." AACC Annual Meeting. New Orleans, Louisiana. July 26, 1999.

DNA Diagnostics Using a Novel Electronic Reader. Myriad Genetics. Salt Lake City, Utah, May 11, 1999.

(1) Molecular Diagnostics and (2) DNA Chip Technology. Both presented at the Isala Conference on DNA Diagnostics. Isala Hospital. Zwolle, Holland. April 19-20, 1999.

Clinical Molecular Pathology-Questions and Answers. William Beaumont Hospital Eighth Annual Symposium on "DNA Technology in the Clinical Laboratory." Royal Oak, Michigan, March 26-27, 1999.

Point-of-Care Molecular Diagnostics. Technolink Association. California Institute of Technology. Pasadena, California, February 18, 1999.

Moderator, AACC Clinical Chemistry Forum on Genetic Testing, Crystal City, VA, November 3-4, 1998.

Credentials for Molecular Diagnosticians. SmithKline Beecham Clinical Laboratories, Van Nuys, California, October 14, 1998.

Clinical Molecular Pathology-Questions and Answers. Roundtable presentations at the AACC Annual meeting. Chicago, Illinois, August 3, 1998.

Diagnostic Molecular Pathology Question and Answer session. Quest Diagnostics, San Juan Capistrano, California, July 9, 1998.

Establishment of a Molecular Diagnostics Laboratory: What, When and How. Clinical Ligand Assay Society and National Academy of Clinical Biochemists Joint Meeting, Rye, New York, May 6, 1998.

DNA Diagnostics. Birmingham Rotary Club, Birmingham, Michigan, January 19, 1998.

Moderator, Review Course for Medical Technologists' National Certification Agency Exam in Clinical Molecular Biology. R DiCarlo and A Drevon, presenters. Association for Molecular Pathology Annual Meeting, San Diego, California, November 13, 1997.

Presenter, Diagnostic Immunology and Molecular Pathology Update. American Society of Clinical Pathologists Annual Meeting. Philadelphia, Pennsylvania, September 22, 1997.

What You Need to Know to Set Up Molecular Testing at Your Institution; with Dr. K. Kaul. American Society of Clinical Pathologists Annual Meeting. Philadelphia, Pennsylvania, September 21, 1997.

Clinical Molecular Pathology-Questions and Answers. Roundtable presentations at the AACC Annual meeting. Atlanta, Georgia, July 23, 1997.

Molecular Diagnostics in Oncology, as part of a Boehringer Mannheim Symposium on Marco Island, Florida, May 5, 1997.

## INVITED LECTURES, continued

Mainstreaming Molecular Diagnostics into Routine Microbiology. Presented as part of “Advances in Molecular Diagnostics of HIV and Other Infectious Agents”, a program of Roche Molecular Systems prior to the American Society of Microbiology Meeting, Miami, Florida, May 2, 1997.

Molecular Biology: Review of Basic Concepts. Back to Basics-Laboratory Without Walls: Midwest Clinical Ligand Assay Society Meeting, Romulus, Michigan, April 30, 1997.

Home Brew DNA Testing. A roundtable presentation at the Michigan Society of Clinical Laboratory Scientists' Annual Meeting in Troy, Michigan, April 11, 1997.

Introduction, “Review of Molecular Biology” course, presented by R DiCarlo and A Drevon at the Michigan Society of Clinical Laboratory Scientists' Annual Meeting in Troy, Michigan, April 11, 1997.

Co-director/Speaker, William Beaumont Hospital's 6th annual seminar on DNA Technology in the Clinical Laboratory: “Clinical molecular biology: basic methodology and diagnostic applications.” William Beaumont Hospital, Royal Oak, Michigan, March 14-15, 1997.

Molecular Markers for Cancer: Future Prospects. Presented at the American Association for Clinical Chemistry (Michigan Section) meeting on Cancer Diagnosis and Monitoring. Ann Arbor, Michigan, March 6, 1997.

Molecular Diagnostics in Clinical Laboratory Medicine. Presented at a Molecular Diagnostics Seminar at the Winthrop-University Hospital, Mineola, New York, October 25, 1996.

Considerations in Setting Up a DNA Analysis Laboratory. Presented at the American Association of Blood Banks Meeting, Orlando, Florida, October 13, 1996.

Moderator, “Molecular Identification: From Present to Past.” American Association for Clinical Chemistry Annual Meeting. Chicago, Illinois, August 1, 1996.

New Diagnostic Approaches for the Treatment of Chlamydial Infections. Presented at “Advances in Gynecology: Improving Outcomes. Dearborn, Michigan, June 29, 1996.

The Future Role of Nucleic Acid Diagnostics. Part of an expert panel discussion group at Chiron Corporation, San Francisco, California, May 7, 1996.

PCR: Cornerstone of Molecular Pathology. Continuing Education Program of the Ohio Chapter of the Clinical Laboratory Manager's Association. Cleveland, Ohio, March 26, 1996.

Co-director/Speaker, William Beaumont Hospital's 5th annual seminar on DNA Technology in the Clinical Laboratory: “Clinical molecular biology: basic methodology and diagnostic applications.” William Beaumont Hospital, Royal Oak, Michigan, March 8, 9, 1996.

On Molecular Pathology-The William Beaumont Hospital Perspective. Lecture given at Johnson and Johnson Clinical Diagnostics, Rochester, New York, January 31, 1996.

Lecture to Clinical Chemistry Group at the University of Windsor. “Clinical Molecular Diagnostics”, Windsor, Ontario, December 1, 1995.

Clinical Molecular Pathology-Questions and Answers. Roundtable presentations at the San Diego Conference. November 21 and 22, 1996; November 17, 1995.

**INVITED LECTURES**, continued

Interview: NBC Local News (San Diego), discussion of ethical issues and molecular genetics testing. November 17, 1995.

Leader and speaker, "Regulatory and Licensing Workshop." Association for molecular pathology Meeting. Minneapolis, Minnesota, November 10, 1995.

College of American Pathologists' Inspector of Molecular Microbiology Laboratory at Detroit Medical Center, Detroit, Michigan, November 6, 1995.

Chairperson, "Molecular Diagnostics," a symposium presented at the annual Clinichem Meeting of the AACC. Teaneck, New Jersey, October 14, 1995.

Lecture on Molecular Diagnostics to the Volunteer Board of Directors of William Beaumont Hospital. October 9, 1995.

Co-Director (with Dr. KL Kaul), Workshop, American Society of Clinical Pathologists Annual Meeting. "Molecular Pathology: What you Need to Know to Establish Molecular Testing at your Institution." New Orleans, September 17, 1995; San Diego, October 1, 1996; Philadelphia, September 21, 1997.

"Molecular Diagnostics-Today and Tomorrow." Presented at Medical Data International's, "Opportunities in Diagnostic Testing: Technologies, Market Niches, and New Sites"; at the AACC annual meeting, Anaheim, California, July 20, 1995.

Moderator, Molecular Pathology Symposium at the American Association for Clinical Chemistry Annual Meeting, Anaheim, California, July 18, 1995.

"Establishing a Molecular Diagnostics Laboratory." An AACC audioconference-June 8, 1995.

"Surviving a CAP Molecular Pathology Inspection." An AACC audioconference with Dr. Karen L. Kaul-June 22, 1995.

Moderator, "Technology Assessment: PCR/DNA Testing" at the National Committee for Clinical Laboratory Standards (NCCLS) Annual Meeting, Chicago, Illinois, March 30, 1995.

Co-director/Speaker, William Beaumont Hospital's 4th annual seminar on DNA Technology in the Clinical Laboratory: "Clinical molecular biology: basic methodology and diagnostic applications." William Beaumont Hospital, Royal Oak, Michigan, March 10-11, 1995.

Joint Annual Conference of Medical Laboratory Organizations. "What Every Clinical Laboratory Scientist Should Know About PCR (Basic)." Orlando, Florida, March 2, 1995.

Joint Annual Conference of Medical Laboratory Organizations. "Progress in PCR (Advanced)." Orlando, Florida, March 2, 1995.

Standardization of Molecular Biology Methods for the Clinical Laboratory. Regulatory and Reimbursement Forum at Pharmacia Biotech. Uppsala, Sweden. December 12-13, 1994.

Establishment of a Molecular Diagnostics Laboratory. Michigan Society of Pathologists meeting. Ann Arbor, Michigan. December 10, 1994.

Moderator, Molecular Pathology session at the American Association for Clinical Chemistry Conference, The Genetic Revolution, San Diego, California, November 19, 1994.

## INVITED LECTURES, continued

Interview: Channel 7 News (Detroit), discussion of Johns Hopkins University discovery of a new class of mutations that may have utility for broad-based cancer screening (October 11, 1994).

Establishing and Setting up DNA Diagnostics in Hospital Laboratories. Roundtable presentation at the American Association for Clinical Chemistry Annual Meeting, New Orleans, July 21, 1994.

Molecular Pathology Laboratory Quality Control Measures and Quality Assurance Programs. Roundtable presentation at the American Association for Clinical Chemistry Annual Meeting, New Orleans, July 18, 1994.

Participant, American Association for Clinical Chemistry panel discussion on AACC's role in Molecular Pathology. Washington, DC, June 20, 1994.

Establishing a Clinical Molecular Pathology Laboratory. Michigan State Medical Technologists' Meeting. Romulus, Michigan, April 29, 1994.

Director, Workshop, American Society of Clinical Pathologists Annual Meeting. "Quality Control Measures and Quality Assurance Programs in the Molecular Pathology Laboratory." Seattle, April 9, 1994.

Co-director/Speaker, William Beaumont Hospital's 3rd annual seminar on DNA Technology in the Clinical Laboratory: "Molecular techniques and their clinical applications." William Beaumont Hospital, Royal Oak, Michigan, March 25, 1994.

College of American Pathologists' Inspector of Molecular Histocompatibility Laboratory at Harper Hospital of Detroit Medical Center, Detroit, Michigan, March 24, 1994.

Director, Short Course, United States and Canadian Academy of Pathology Annual Meeting. "Quality Control in the Clinical Molecular Pathology Laboratory." San Francisco, California, March 17, 1994.

DNA Analysis in the Clinical Laboratory. Scientific Advisory Board Discussion Group in Rockland, Maine. FMC Bioproducts, October 25, 1993.

Molecular Assistance for Oncologists. Crossroads chapter of the Chemical Ligand Assay Society, University of Louisville, March 13, 1993.

Co-director/Speaker, William Beaumont Hospital's 2nd annual seminar on DNA Technology in the Clinical Laboratory: "Molecular pathology techniques and quality control." William Beaumont Hospital, Royal Oak, Michigan, March 1, 1993.

Moderator for "Molecular Aspects of Histocompatibility Testing," a one day symposium by the Organ Procurement Agency of Michigan, Detroit, Michigan, January 22, 1993.

Lecture to surgeons, oncologists, and pathologists, "HER-2/*neu* oncogene amplification/overexpression as a prognostic indicator in breast cancer: an update," William Beaumont Hospital, October 23, 1992.

Implementing a Molecular Pathology Laboratory: Issues and Answers. American Society of Clinical Pathologists (ASCP) Industry Sponsored evening session. ASCP Fall annual meeting, Las Vegas, Nevada, October 13, 1992.

Chair, Molecular Pathology Selected Topics Seminar, "DNA Technology in the Clinical Laboratory," at the American Association for Clinical Chemistry Annual Meeting, Chicago, Illinois, July 23, 1992.

## **INVITED LECTURES, continued**

Co-director/Speaker, William Beaumont Hospital's 1st annual seminar on DNA Technology in the Clinical Laboratory: "Basics of clinical molecular biology and the B/T cell gene rearrangement test" and "HER-2/*neu* gene amplification as a prognostic indicator in breast cancer." William Beaumont Hospital, Royal Oak, Michigan, January 31, 1992.

Oncor, Inc., 1990 annual report participant. Gaithersburg, Maryland, Spring 1990.

## **TEACHING LECTURES**

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Grand Valley State University Life Science and Biotechnology Organization; lecture to graduate and undergraduate students. Grand Rapids, Michigan, April 13, 2010; October 19, 2011.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Michigan State University; lecture to graduate and undergraduate students. East Lansing, Michigan, September 15, 2008.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Van Andel Institute Graduate School Lecture. Grand Rapids, Michigan, April 14, 2008.

Opportunities in Molecular Biology Beyond Research. Grand Valley State University Introduction to Research Class. Grand Rapids, Michigan, April 1, 2008.

Molecular Diagnostics: From Revolution to Mainstream to Genomic Medicine. Spectrum Health Department of Pathology Presentations (two campuses). Grand Rapids, Michigan, February 26 and 27, 2008.

Introductory Molecular Pathology. The Methodist Hospital Department of Pathology residents and fellows, Houston, Texas, September 14, 2005.

Introductory Molecular Pathology. Baylor College of Medicine Department of Pathology residents and fellows, Houston, Texas, January 6, 2004; January 14, 2003.

DNA in Laboratory Medicine. Pin Oak Middle School, Houston, Texas. May 11, 2004; May 1, 2003.

Diagnostic Molecular Pathology. William Beaumont Hospital. Medical Technology students. Three lecture hours to each class plus five laboratory hours to each class; class size ranged from six to twelve per year). Royal Oak, Michigan, 1991-1998.

The Ethics of DNA Diagnostics. Groves High School, Birmingham, Michigan, March 19, 1998.

Lecture to medical technology students, Hematology course. "The B/T cell gene rearrangement test", Michigan State University, East Lansing, Michigan, December 3, 1992; November 11, 1993; December 1, 1994; November 30, 1995; November 18, 1996; November 19, 1997.

Molecular Methods in Diagnostic Medicine. A lecture to 150 Genetics undergraduates at the University of Michigan-Flint. April 15, 1994.

Lecture to graduate faculty and students, Introduction to Research course. "HER-2/*neu* oncogene amplification as a prognostic indicator in breast cancer," Michigan State University, East Lansing, Michigan, November 12, 1992.

"Amplification of the HER-2/*neu* and other oncogenes in carcinoma of the breast," William Beaumont Hospital Anatomical Pathology Research Conference, November 18, 1991.

## MOLECULAR GENETIC PATHOLOGY FELLOWS TRAINED

- David N. Feldman MD (2003-2004), Baylor College of Medicine
- Joseph Pulliam, MD (2003-2004), Baylor College of Medicine
- Gregory L. Blakey, MD (2004-2005), Baylor College of Medicine
- Sean Keenan, MD (2016-2017), Cleveland Clinic
- Catherine Stefaniuk, DO (2017-2018), Cleveland Clinic
- Fang Zhao, MD (2018-2019), Cleveland Clinic

## GRANT SUPPORT

**Department of Health and Human Services Public Health Service, Small Business Research Program:** “Ultrasensitive Chemiluminescent Enzyme-Linked Assays”, H Akhavan-Tafti, principal investigator for Lumigen, Inc. DH Farkas and William Beaumont Hospital, sub-contractors. 9/95-8/97.

**American Cancer Society Institutional Grant:** “*Trans*-acting Genes of HSV-1 that Inhibit Formation of Stable tk<sup>+</sup> Transformants”, RG Hughes, Jr., DH Farkas, Co-principal Investigators. 7/86-4/87.

**American Cancer Society Institutional Grant:** “Are There Mammalian Sequences in the T-DNA of *Agrobacterium tumefaciens*?”, RG Hughes, Jr., DH Farkas, Co-principal Investigators. 9/84-3/85.

**Graduate Resource Access Development Project of the Graduate Association of the State University of New York at Buffalo:** “Transfer of the Human OTC Gene to Cultured Mouse Fibroblasts”, DH Farkas, Principal Investigator, RG Hughes, Jr., Co-principal Investigator. 3/83-6/83.

## COMMITTEES AND OFFICES HELD

- |              |  |
|--------------|--|
| 2018-        | Association for Molecular Pathology representative to the College of American Pathologists Molecular Oncology Resource Committee |
| 2015-present | Member, Clinical Omics Editorial Advisory Board  |
| 2014-present | Member, Laboratory Accreditation Advisory Panel of the College of American Pathologists  |
| 2014-2015    | Member, Association for Molecular Pathology Membership Affairs Committee, Dr. Nirali Patel, Chair                                |
| 2011-2012    | Program chair-elect and program chair, respectively, Association for Molecular Pathology; and member, AMP Board of Directors     |
| 2011- 2014   | Member, Association for Molecular Pathology Whole Genome Association Workgroup, Dr. Jane Gibson, Chair                           |
| 2010-2012    | Member (AACC representative), AMA Molecular Pathology Coding Workgroup   |



## COMMITTEES AND OFFICES HELD, continued

- 2010-2011 Member, Professional Relations Committee, Association for Molecular Pathology, Dr. Elaine Lyon, Chair
- 2009-11;14-18 Member, Scientific Advisory Committee, CHI Annual Conferences on Molecular Diagnostics, San Francisco, California
- 2009 Member, Analytic Validity of Genetic and Laboratory Tests Technical Expert Panel, Agency for Healthcare Research and Quality
- 2007-2009 Member, AACC Board of Directors (AACC Executive Committee, 2009)
- 2007 Member, Program Committee, Clinical and Laboratory Genomic and Genetic Standards, Sponsored by the Drug Information Association and the US Food and Drug Administration. December 13- 14, 2007, Bethesda, Maryland. Drs. Janet Warrington and Federico Goodsaid, Program Co-Chairs.
- 2007-2008 Board of Directors, Center for Molecular Medicine, *ex officio*
- 2007-2008 Member, Michigan State University College of Human Medicine Search Committee for Director of Research, Dr. Jeffrey Dwyer, Chair
- 2006-2008 Member, CDC Expert Panel on Quality Control Materials for Genetic Testing. Drs. Lisa Kalman and Bin Chen, co-chairs
- 2004-2006 Chair, AACC Annual Meeting Organizing Committee
- 2005-2006 Member, AACC Meetings Management Group
- 2005-2007 Chair (2007) and Member, AMP Strategic Planning Committee
- 2005-2007 Member, Editorial Board, *Archives of Pathology and Laboratory Medicine*, Philip T. Cagle, MD, Editor-in-Chief; invited reviewer, 2008.
- 2004-2005 Member, Editorial Board, Laboratory Tests Online ([www.labtestsonline.org](http://www.labtestsonline.org))
- 2004-2005 Institutional Biosafety Committee, The Methodist Hospital, Houston, Texas
- 2004-2007 Member, National Academy of Clinical Biochemistry Committee to Develop Laboratory Medicine Practice Guidelines for Pharmacogenomics, Roland Valdes, PhD, Chairman
- 2005-2008 Member, Clinical and Laboratory Genomic and Genetic Standards Committee, Janet Warrington, PhD, Chairperson
- 2004 Consultant to CAP Point of Care Committee, Peter J. Howanitz, MD, FCAP, Chairman
- 2004- Member, Editorial Board, *Journal of Molecular Diagnostics*, Barbara Zehnbauser, Editor-in-Chief
- 2004-2009 Member, Board of Directors for the American Board of Bioanalysis
- 2003-2004 Administrative Assignment: Host, Baylor College of Medicine Grand Rounds Lecture Series: Eric Hsi (2002); Karen Kaul (2002); Stephen Thibodeau (2003); Mark Stoler (2004)

## COMMITTEES AND OFFICES HELD, continued

- 2003-2004 Leader, Subcommittee on Professional Guidance of Appropriate QC as part of a CDC effort to develop QC materials for genetic testing, Joe Boone, PhD, CDC Coordinator
- 2003- Member, Editorial Board, *Biotechnology Healthcare*, David B. Nash, Editor-in-Chief
- 2003-2004 Scientific Program Director, Houston Society of Clinical Pathologists
- 2003 Invited Reviewer, *Laboratory Investigation*
- 2003 Member, Review Panel of *Human Pathology*
- 2002-2008 & 2017- Member and Consultant to the Clinical and Molecular Genetics Devices Panel of the Medical Devices Advisory Committee, Center for Devices and Radiological Health, Food and Drug Administration
- 2003 Invited reviewer, *BioTechniques*
- 2003 Panelist, National Institute of Standards and Technology's Health Care Industry Executive Roundtable. March 31, 2003. Gaithersburg, Maryland. Dr. Arden Bement, director
- 2003 Expert panel meeting for the Duke/CDC cell line project. February 5, 2003, Raleigh-Durham, North Carolina
- 2002-2004 President-elect, President, and Past-President, respectively, Association for Molecular Pathology (AMP). Member, AMP Executive Council
- 2002 Search committee for Director of Hematopathology, Department of Pathology, Baylor College of Medicine
- 2002 Invited reviewer, *Journal of Clinical Microbiology*
- 2002 Invited reviewer, *Expert Review of Molecular Diagnostics*
- 2002 Observer, Subcommittee on Determining Clinical Utility of Genetic Tests, National Committee for Clinical Laboratory Standards, TJ O'Leary, MD, PhD, Chairman
- 2002 Member, Industry Liaison Group for the Pharmacogenetics Research Network of the National Institute of General Medical Sciences, NIH
- 2002 Chair, AMP Nominating Committee
- 2002 Invited reviewer, *Trends in Molecular Medicine*
- 2002-2003 Member, AACC Nominations Committee
- 2001-2003 Member, AACC Annual Meeting Organizing Committee (Plenary Sessions Organizer)
- 2001-2002 Lead Advisor, IBC Conference. *The Interface: Molecular Diagnostics Meets Therapeutics*. June 2002, Boston, Massachusetts
- 2001-2002 Vice-chairperson, NCCLS Subcommittee on Molecular Methods for Microarrays, Joseph Hackett, PhD, Chairperson

## COMMITTEES AND OFFICES HELD, continued

- 2001-2013 Reviewer and Item Writer for the American Board of Bioanalysis Clinical Molecular Biology Examination
- 2000-2002 Industry Representative to the FDA Clinical and Molecular Genetics Panel, Geretta Wood, Executive Secretary
- 2000-2002 Observer, Subcommittee on PCR-Based Assays in Molecular Hematology, National Committee for Clinical Laboratory Standards, TJ O'Leary, MD, PhD, Chairman
- 2000-2001 Chair, AACC San Diego Conference on Nucleic Acids Organizing Committee
- 2000-2001 Member, AACC Meetings Management Group
- 1999-2000 Editor, Clinical Micro Sensors Newsletter
- 1998-1999 Secretary-Treasurer, Association for Molecular Pathology (AMP)  
Chair, AMP Publications Committee (*ad hoc*: 1996-97; 2000-01)
- 1998-1999 Member, AMP/ASIP Journal Oversight Committee
- 1998-1999 Member, AMP/ASIP Senior Editor Selection Committee (for *The Journal of Molecular Diagnostics*)
- 1998-1999 Member, Association for Molecular Pathology Journal Oversight Committee and Editor Selection Committee
- 1999-2002 Member, Editorial board, *IVD Technology*
- 1998-2000 Member, AACC 2000 Annual Meeting Organizing Committee (Workshops Organizer)
- 1998 Member, Organizing Committee and Moderator for AACC Clinical Chemistry Forum on Genetic Testing, Crystal City, VA, November 3-4, 1998
- 1998 Member, Clinical Advisory Board, Qiagen, Santa Clarita, CA, February 26, 1998
- 1997-2001 Member, Government Relations Committee, American Association for Clinical Chemistry, Dr. Pennell Painter, Chair
- 1997-1998 Member, Council on Diagnostic Immunology and Molecular Pathology of the Commission on Continuing Education of the American Society of Clinical Pathologists
- 1997-1998 Legislative Liaison for the Michigan Section of AACC
- 1997-1999 Invited reviewer, *Archives of Pathology and Laboratory Medicine* and the ASCP Press
- 1997 Invited reviewer, College of American Pathologists Publications Committee-*The Criminal Investigator's Guide to DNA Evidence*
- 1996-1997 Molecular Technology for the Laboratory Professional-DNA: the Foundation of Molecular Technology. A computer based tutorial from the National Laboratory Training Network, Nashville, Tennessee; a division of the Center for Disease Control and Prevention. Assisted in preparation of text and critical review.

## COMMITTEES AND OFFICES HELD, continued

- 1996-1998 Faculty Coordinator, Michigan State University Certificate Program in Molecular Laboratory Diagnostics
- 1996-2004 AACC Liaison to the College of American Pathologists Molecular Pathology Resource Committee
- 1996-2001 Member, National Certification Agency for Medical Laboratory Personnel Molecular Genetics examination committee
- 1996-2001 Editor, Association for Molecular Pathology Newsletter
- 1995-1996 Member, Association for Molecular Pathology Clinical Practice Committee, Dr. Debra Leonard, Chair
- 1995-2005 Member, Editorial Board-*Molecular Diagnosis*
- 1995-1996 Chair, Clinical Advisory Board, Visible Genetics, Toronto, Ontario, Canada
- 1995-1997 Member, Scientific Advisory Board, Johnson & Johnson Clinical Diagnostics, Rochester, NY
- 1995-1999 Member, Board of Editors-*Clinical Laboratory News*, American Association for Clinical Chemistry, Drs. Mark Jandreski and Rob Christenson, Chair
- 1995 Program Director-1995 AACC San Diego Conference: Nucleic Acids-A Decade of Discovery
- 1994-present Member, Editorial Board-*Diagnostic Molecular Pathology*, Mark Stoler, Editor-in-Chief
- 1995 Invited reviewer for the Check Sample Program of the American Society of Clinical Pathologists
- 1994-1996 Liaison (AMP) to the AACC and its Molecular Pathology Division
- 1994-present Invited reviewer (book and manuscripts), *Clinical Chemistry*, the journal of the AACC
- 1995 Past-Chair and member, Executive Committee, AACC Molecular Pathology Division
- 1994 Invited guest, Planning Committee-1994 San Diego Conference on DNA
- 1993-1995 Consultant, College of American Pathologists Patient Preparation and Specimen Handling Editorial Board. Molecular Pathology Testing.
- 1994 Chair, Molecular Pathology Division, American Association for Clinical Chemistry
- 1994 Reviewer, AACC Request for Proposals: The Costs and Effectiveness of Laboratory Tests
- 1993-5 Reviewer, William Beaumont Hospital Research Institute Grant Applications
- 1993-6 Reviewer of abstracts for the AACC San Diego Conference on DNA technology
- 1993 Chair-Elect, Molecular Pathology Division, American Association for Clinical Chemistry
- 1992 Member, Organizing Committee for "Molecular Aspects of Histocompatibility Testing", a 1 day symposium--Organ Procurement Agency of Michigan

## **COMMITTEES AND OFFICES HELD, continued**

- 1992-1998 Member, Organizing Committee for “DNA Technology in the Clinical Laboratory”, an annual symposium at William Beaumont Hospital, Royal Oak, Michigan
- 1992-1996 Observer, Subcommittee on Molecular Hematology, National Committee for Clinical Laboratory Standards, TJ O’Leary, MD, PhD, Chairman
- 1992-1996 Contributing editor, American Association for Clinical Chemistry, Molecular Pathology Division Newsletter
- 1991-1994 Member, Scientific Committee, American Association for Clinical Chemistry, Molecular Pathology Division
- 1991-1995 Member, Executive Committee, AACC Molecular Pathology Division
- 1991-1993 Member, Organ Procurement Agency of Michigan Histocompatibility Committee
- 1991-1994 Member, William Beaumont Hospital Research Institute Common Use Committee
- 1991-1998 Member, William Beaumont Hospital Medical Staff
- 1989-91 Member, Saint Barnabas Medical Center Medical Staff
- 1989-91 Member, Saint Barnabas Medical Center Radiation Protection Committee
- 1988-89 Member, Executive Committee, Monsanto Environmental Health Lab Manual Committee
- 1987-89 Member, Monsanto New Employees Committee
- 1984-85 Student Representative, Cellular and Molecular Biology Admissions and Standings Committee, Roswell Park Memorial Institute, Buffalo, New York
- 1980-82 Senator ('81-'82) and Alternate Senator ('80-'81), Graduate Student Association Senate-SUNY at Buffalo

## **SOCIETIES, HONORS, AWARDS, ACKNOWLEDGMENTS**

- Mentor of the Month, American Association of Clinical Chemistry, August 2009
- Recipient, 2007 Association for Molecular Pathology Leadership Award
- Personalized Medicine Coalition (CMM as member, 2007-2008; SCMM as member, 2009)
- Member, Houston Society of Clinical Pathology (2003-2005)
- Fellow of the National Academy of Clinical Biochemistry (2000-present)
- AACC Outstanding Speaker Award (2000, 2008)
- AACC Molecular Pathology Division Past Chairman’s Award, presented July 30, 1996; Chicago, Illinois
- Association for Laboratory Automation (1999-2001)
- American Association for the Advancement of Science (1986-2005)

## **SOCIETIES, HONORS, AWARDS, ACKNOWLEDGMENTS, continued**

American Association for Clinical Chemistry (1990-present)

American Association of Bioanalysts (1997-present)

American Society of Clinical Pathologists (1991-1999)

American Society of Microbiology (1987-1992; 1999-2005)

American Society of Human Genetics (1991-1993)

Association of Clinical Scientists (1993-1994)

Association for Molecular Pathology (1994-present)

International Academy of Pathology, United States-Canadian Division (1994)

Transplantation Society of Michigan (1991-1993)

State University of New York at Buffalo Graduate Genetics Group, 1986-1987 graduate stipend

State University of New York at Buffalo Research Foundation, 1984-1986 graduate stipend

Sigma Xi Poster Competition Winner, April 30, 1986: "Inhibition of Transformation by HSV DNA."

## **MISCELLANEOUS**

College of American Pathologists Laboratory Accreditation Inspections

2003: Team Member (Houston, TX)

2009: Team Member (Detroit, MI); Team Leader (Houston, TX)

2010: Team Leader (San Diego and Orange County, CA)

2011: Team member (Colorado Springs, CO); Team Leader (Austin, TX; New Orleans, LA; San Diego, CA; South San Francisco, CA; Orange, CA; St. Louis, CA)

2012: Team Leader (Houston TX; Keesler, MS); Team Member (Ann Arbor, MI)

2013: Team Leader (Charlotte, NC; Orange, CA; Alisa Viejo, CA; Dallas TX; Carrollton, TX)

2014: Team Leader (Ramsey, NJ; Chicago, IL; Cincinnati, OH; San Diego, CA)

2015: Team Leader (Greensboro, NC; Burlingame, CA)

2017: Team Leader (New York, NY); Team Member (Windber, PA)

Approved College of American Pathologists Laboratory Accreditation Inspector for Molecular Genetics, Heritable Diseases; Molecular Genetics, Infectious Diseases; Molecular Oncology, Solid Tumors; Molecular Oncology, Hematologic Neoplasia.

Item Writer, American Board of Clinical Chemistry certification examination in Molecular Diagnostics, for Dr. Elizabeth Frank, editor, 2008-2009.

## **CONTINUING EDUCATION**

Association for Molecular Pathology Annual Meeting. Salt Lake City, Utah. November 16-18, 2017. 12 CME Credit Hours

Cleveland Clinic Pathology and Laboratory Medicine Institute Grand Rounds, regular weekly attendance 2016-

Association for Molecular Pathology Annual Meeting. Charlotte, North Carolina. November 10-12, 2016. 13.75 CME Credit Hours

Association for Molecular Pathology Annual Meeting. Austin, Texas. November 5-7, 2015. 13.5 CME Credit Hours

Association for Molecular Pathology Annual Meeting. Washington, D.C. November 13-15, 2014. 14.75 CME Credit Hours

Association for Molecular Pathology Annual Meeting. Phoenix, Arizona. November 14-16, 2013. 19 CME Credit Hours

Association for Molecular Pathology Annual Meeting. Long Beach, California. October 25-27, 2012. 14 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Los Angeles, California. July 15-18, 2012. 12 ACCENT Credit Hours

Association for Molecular Pathology Annual Meeting. Grapevine, Texas. November 17-19, 2011. 15.5 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Atlanta, Georgia. July 25-27, 2011. 11 ACCENT Credit Hours

Association for Molecular Pathology Annual Meeting. San Jose, California, November 18-20, 2010. 15.75 Category I Credits

American Academy of Ophthalmology Annual Meeting. Chicago, Illinois, October 16, 2010. 2 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Anaheim, California. July 26-28, 2010. 4.5 ACCENT Credit Hours

American Association for Clinical Chemistry Annual Meeting. Chicago, Illinois. July 19-22, 2009. 10.5 ACCENT Credit Hours

College of American Pathologists. Comprehensive Online Team Leader Self Study. December 23, 2008. 3.0 Category I Credits

Association for Molecular Pathology Annual Meeting. Dallas, Texas, October 30-November 1, 2008. 9.5 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Washington, DC, July 2008. 2.0 ACCENT Credit Hours

American Association for Clinical Chemistry "San Diego Conference on Genomics and Proteomics. Coronado, California, March 25-26, 2008. 12 ACCENT Credit Hours

Association for Molecular Pathology Annual Meeting. Los Angeles, California, November 7-10, 2007. 3 Category I Credits

American Association for Clinical Chemistry Annual Meeting. San Diego, California, July 2007. 6.0 ACCENT Credit Hours

Association for Molecular Pathology Annual Meeting. Orlando, Florida, November 16-18, 2006. 6.5 Category I Credits

## CONTINUING EDUCATION, continued

American Board of Bioanalysis Item Writer's Workshop. St. Louis, Missouri, February 24-25, 2006. 13.0 ACCENT Credit Hours

American Association for Clinical Chemistry Annual Meeting. Orlando, Florida, July 2005. 8.0 ACCENT Credit Hours

American Association for Clinical Chemistry Oak Ridge Conference: Pushing the Technology Envelope, An Exploration of the Future of Clinical Laboratory Testing. Baltimore, Maryland, April 14-15, 2005. 12 ACCENT Credit Hours

American Pathology Foundation Annual Meeting. The Business of Pathology: A Look Ahead. Las Vegas, Nevada, March 12, 2005. 2.5 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Los Angeles, California, July 2004. 6.75 ACCENT Credit Hours

Houston Society for Clinical Pathologists 44<sup>th</sup> Annual Spring Symposium; Molecular Pathology: Applications and Practical Considerations. Houston, Texas, April 24, 2004. 7.5 AMA PRA Credits

Association for Molecular Pathology Annual Meeting. Orlando, Florida, November 21-23, 2003. 8.25 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Philadelphia, Pennsylvania, July 2003. 4 ACCENT Credit Hours

Association for Molecular Pathology Annual Meeting. Dallas, Texas, November 15-17, 2002. 13.5 Category I Credits

Fourth Annual Pathology Compliance and Coding Seminar. Baylor College of Medicine. Houston, Texas, November 4, 2002. Two Category I Credits

American Association for Clinical Chemistry Annual Meeting. Orlando, Florida, July 2002. 12 ACCENT Credit Hours

AACC Pharmacogenomics Conference. Philadelphia, Pennsylvania, May 9-10, 2002. 10.5 ACCENT Credits Hours

Association for Molecular Pathology Annual Meeting. Philadelphia, Pennsylvania, November 16-18, 2001. 13.75 Category I Credits

AACC "San Diego" Conference: "Cool Tools-New Technologies for Molecular Diagnostics." San Diego, California, November 8-10, 2001. 17 ACCENT credit hours

College of American Pathologists Annual Meeting. Philadelphia, Pennsylvania, October 22, 2001. 3.5 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Chicago, Illinois, July 2001. 5.5 Category I Credits

International Society for Analytical and Molecular Morphology Annual Meeting. Faculty member. Santa Fe, New Mexico, February 2-7, 2001. 8.5 lecture hours

AACC Arnold O. Beckman Conference: "The Clinician and Laboratorian-Dynamic Transitions." Newport Beach, California, February 11-12, 2001. 9 ACCENT credit hours



## CONTINUING EDUCATION, continued

Association for Molecular Pathology Annual Meeting. Denver, Colorado. November 10-12, 2000. 13 Category I Credits

American Association for Clinical Chemistry Annual Meeting. San Francisco, California, July 2000. 6.25 Category I Credits

International Society for Laboratory Hematology Conference. Banff, Alberta, Canada, April 12-16, 2000. 18 Category I Credits

Association for Molecular Pathology Annual Meeting. St. Louis, Missouri, November 5-7, 1999. 12.5 Category I Credits

College of American Pathologists Conference XXXIV. Molecular Pathology: Role in Improving Patient Outcome. February 26-28, 1999. 17.5 CME/CMLE Credit Hours

Association for Molecular Pathology Annual Meeting. Crystal City, Virginia, November 6-8, 1998. 18 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Chicago, Illinois, August 1998. 7.5 Category I Credits

William Beaumont Hospital's 7<sup>th</sup> annual seminar on DNA Technology in the Clinical Laboratory: Wm. Beaumont Hospital, Royal Oak, Michigan, March 26-28, 1998. 19 Category I CME credits

Association for Molecular Pathology Annual Meeting. San Diego, California, November 13-15, 1997. 14.75 Category I Credits

American Association for Clinical Chemistry/Association for Molecular Pathology meeting on Viral Load Testing. Dallas, Texas, September 13, 1997. 6.5 Category I Credits

American Association for Clinical Chemistry Annual Meeting. Atlanta, Georgia, July 1997. 9 Category I Credits

Clinical Ligand Assay Society. Back to Basics-Laboratory Without Walls. Romulus, Michigan, April 30, 1997. 3 credit hours

William Beaumont Hospital's 6<sup>th</sup> annual seminar on DNA Technology in the Clinical Laboratory: Wm. Beaumont Hospital, Royal Oak, Michigan, March 14-15, 1997. 13 Category I CME credits

American Association for Clinical Chemistry Local Michigan Section Meeting: Update on Tumor Markers, Ann Arbor, Michigan, March 6, 1997. 3.5 Category I Credits

Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 17 Category I CME credits for 1996

Association for Molecular Pathology Annual Meeting. November 15-17, 1996. Nine Category I Credits

Molecular Diagnostics in Clinical Laboratory Medicine. Five Category I Credits-Category A1 for the Recognition Award for Continuing Medical Laboratory Education. Winthrop-University Hospital, Mineola, New York, October 25, 1996

The Institute for Continuing Healthcare Education. Molecular Diagnostics: Promises and Realities. Rosemont, Illinois, October 7, 1996. Six Category I Credits-Category A1 for the Recognition Award for Continuing Medical Laboratory Education (American Society of Clinical Pathologists)

## CONTINUING EDUCATION, continued

- American Association for Clinical Chemistry Annual Meeting. Chicago, Illinois, July 1996. 13 Category I Credits
- University at Buffalo School of Medicine and Biomedical Sciences-13th Convocation on Immunology. June 1-5, 1996. 18 hours of Category 1 Credit
- Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 22 Category I CME credits for 1995
- Tenth annual AACC-San Diego Conference on Nucleic Acids. San Diego, November 16-18, 1995. Twenty Category I Credits
- Association for Molecular Pathology Meeting, Minneapolis, Minnesota, November 10-12, 1995. 18 Category I Credits
- CAP inspection of DMC University Laboratories. Detroit, MI, November 6, 1995. Seven Category I Credits
- How Can Laboratories Help Hospitals Survive? American Association for Clinical Chemistry Videoconference, Royal Oak, Michigan, October 26, 1995. 2 Category I Credits
- “Molecular Diagnostics”, a symposium presented at the annual Clinichem Meeting of the AACC. Teaneck, New Jersey, October 14, 1995. 2 Category I Credits
- American Association for Clinical Chemistry Local Michigan Section Meeting: New Solutions to Old Problems, Romulus, Michigan, September 14, 1995. 4 Category I Credits
- American Association for Clinical Chemistry Annual Meeting: Anaheim, California, July 1995. 8 Category I Credits
- 1995 NCCLS Annual Meeting and Education Program: “The Winds of Change-Moving Ahead, at what Cost?”, Chicago, Illinois, March 30-31, 1995. 9 Accent Category I Credits
- Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 22 Category I CME credits for 1994
- San Diego Conference, “The Genetic Revolution”, November 17-19, 1994. 12 hours
- Third annual meeting on Molecular Pathology. Universities Associated for Research and Education in Pathology. 20 hours. November 11-13, 1994, Rockville, Maryland
- American Association for Clinical Chemistry, Michigan Section Meeting: September 22, 1994. 2 Category I Credit. Health Care Reform Update/Lab Licensure in Michigan
- Roche Grand Rounds Presentation on the Polymerase Chain Reaction. One hour. September 21, 1994, Detroit, Michigan
- American Association for Clinical Chemistry Annual Meeting: New Orleans, July 1994. 11 Category I Credits
- Participant in workshop on molecular HLA typing. Gen-Trak, Inc., Plymouth Meeting, Pennsylvania, June 13-14, 1994. 15 hours

## CONTINUING EDUCATION, continued

Workshop at the Annual Meeting of the American Society of Clinical Pathologists. "Quality Control Measures and Quality Assurance Programs in the Molecular Pathology Laboratory." Seattle, April 9, 1994. 3 Category I CME credits

William Beaumont Hospital's 3rd annual seminar on DNA Technology in the Clinical Laboratory: Wm. Beaumont Hospital, Royal Oak, Michigan, March 25, 1994. 9 Category I CME credits

Short Course, Annual Meeting of the United States and Canadian Academy of Pathology. "Quality Control in the Clinical Molecular Pathology Laboratory." San Francisco, March 17, 1994. 3 Category I CME credits

Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 30 Category I CME credits for 1993

Eighth annual San Diego Conference: Beyond DNA Probes (American Association for Clinical Chemistry). San Diego, November 17-20, 1993

Association of Clinical Scientists 1993 Fall Meeting, Toledo, Ohio; seven hours ACCME Category I CME credits

American Association for Clinical Chemistry Annual Meeting: New York, July 1993. 11 Category I Credits

American Society of Clinical Pathologists Teleconference. Setting up a Molecular Diagnostics Laboratory. May 25, 1993, 1 CME credit

American Association for Cancer Research Annual Meeting, Orlando, Florida, May 1993

The Next Generation of Testing: Basic and Clinical Molecular Diagnostic Applications. April 3, 1993, University of Pittsburgh Medical Center. Six credit hours-Category I (AMA)

Molecular Assistance for Oncologists; lecture to meeting of the Crossroads chapter of the Chemical Ligand Assay Society, University of Louisville, March 13, 1993.

DNA Technology in the Clinical Laboratory. William Beaumont Hospital, Royal Oak, Michigan, March 1, 1993. 6 CME credits

Moderator, Molecular Aspects of Histocompatibility Testing; a one day symposium by the Organ Procurement Agency of Michigan, Detroit, Michigan, January 22, 1993

Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 38 Category I CME credits for 1992

American Society of Clinical Pathologists Teleconferences. 1992. 4 CME Credits

Federal Regulation of Laboratories: Changing Ground Rules for the 1990s; sponsored by the Michigan Health Care Institute, Lansing, Michigan, August 28, 1992

American Association for Clinical Chemistry Annual Meeting: Chicago, July 1992. 20 Category I Credits

American Association for Cancer Research Annual Meeting: May 1992, San Diego, California

**CONTINUING EDUCATION**, continued

Michigan Society of Pathologists-February 22, 1992: (i) Barrett's Esophagus and (ii) Molecular Biology of Colorectal Cancer. Two Category I credits

DNA Technology in the Clinical Laboratory; a one day Molecular Pathology Seminar. William Beaumont Hospital, Royal Oak, Michigan, January 31, 1992. 6 CME credits

Weekly Clinical Pathology seminar, William Beaumont Hospital, Royal Oak, Michigan. 19 Category I CME credits for 1991

American Society of Clinical Pathologists Teleconferences. 1991. 1 CME Credit

Variegated Patterns of Clinical Pathology; William Beaumont Hospital, Royal Oak, Michigan, August 1991

American Association for Clinical Chemistry Annual Meeting: Washington DC, July 1991. 23 Category I Credits

DNA Workshop, (Bio-Synthesis) at the University of North Texas, Denton, Texas, July 1991. 16 hours

American Society of Clinical Pathologists Teleconferences. 1990. 4 CME Credits

Twelfth Annual Conference on Clinical Laboratory Molecular Analysis, Scripps Clinic and Research Foundation, La Jolla, California, February 7-9, 1990. 21 credit hours-Category I

American Society of Clinical Pathologists Teleconferences. 1989. 9 CME Credits