

Abbreviated Curriculum Vitae
Promotion and Tenure File
10/01/2008-10/30/2009

John G. Thomas, M.S., Ph.D. (HCLD, ABB)

High Complexity Clinical Laboratory Director
American Board of Bioanalysis

Professor, Departments of Pathology
Adjunct Professor, Dept. of Microbiology, Cell Biology, and Immunology
West Virginia University School of Medicine
Adjunct Professor, West Virginia University School of Pharmacy
Clinical Professor, Department of Periodontology,
West Virginia University School of Dentistry

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EDUCATION:

Ph.D.	Syracuse University, Syracuse, New York Major: Molecular Virology Minor: Microbiology	1969
M.S.	Syracuse University, Syracuse, New York Major: Microbiology Minor: Bacteriology	1967
B.S.	Norwich University, Northfield, Vermont Major: Biology	1964

APPOINTMENTS:

Academic Visitor, Department of Restorative Dentistry, School of Dental Medicine, National University of Singapore, Singapore.	July 1, 2008- present
Visiting Professor, (Honorary) Department of Oral Microbiology, School of Dental Medicine, Cardiff University Cardiff, Wales, UK	Dec. 2007- present
Professor, Department of Pathology WVU School of Medicine	1990-present
Senior Microbiology Consultant for Microbiology, WVUH Antibiotic Resistance Analyst	2005-present 2005-present

Director, Biofilm Research Laboratory for Translational Studies in Medicine, Dentistry and Industry	2005-present
Consulting Microbiologist, Allegheny General Hospital Microbiology and Virology, Department of Pathology, Pittsburgh, PA	2003-2004
Adjunct Professor, Department of Microbiology, Immunology and Cell Biology WVU School of Medicine	2001-present
Adjunct Professor WVU School of Pharmacy	2001-present
Adjunct Professor, Department of Clinical Laboratory Sciences New Jersey School of Medicine and Dentistry, School of Medical Technology Newark, NJ	2003-2005
Clinical Professor, Department of Periodontics WVU School of Dentistry	1997-present

I. HONORS/AWARDS/NOTEWORTHY ENDEAVORS

“Global Microbiology/ International Educator” ‘Diversity’ is the necessity of translational research survival and our Biofilm Research Laboratory (BRL) expanded into adjacent clinical diseases including:

1. Infant VAP and the development of an infant VEL Simulator duplicating the NICU environment with use of OX-174, a virus that had properties in MV similar to H1N1.
 2. The use of “probiotics” as “replacement therapy” in 1) oral infections (periodontal diseases), maximized in 2) chronic wound infections and our development of a first ever patent-applied-for Triphasic Wound Model, integrating eucaryotic, procaryotic, and biofilms with *Lactobacillus reuteri*.
 3. The unmasking of our hypothesis that eucaryotic tumors mimic procaryotic biofilms and successful intervention of both, simultaneously, is probably best achieved through anti-tumor-like therapy, particularly in oncology patients. These properties could be uncovered using a new, able-to-be-patented, poloxamer-tumor model.
 4. A significant shift in modeling from *in vitro* to *in vivo* assessment, using IVIS, a real-time assay, employing bioluminescent bacteria and mice
 5. Model development for tracking antibiotic resistance in the adult and infant VEL Simulators and chronic wounds. A growing consequence of both is the increase in MDR (Multi-Drug Resistance), and we have developed a tool (*P. aeruginosa* strains) to demonstrate the increased transfer of genes during biofilm growth.
 6. Lastly, the use of our considerable clinical microbiology experience to track and unmask unique organism profiles rapidly by imaging, which could be associated with bioterrorism. Here, we focused on imaging of individual colonies in a method developed at Purdue University by a friend and collaborator, Dr. Paul Robinson.
- Appointed to the Scientific Advisory Council, American Dental Association, 2008, 2009
 - West Virginia University Student Research Development Award, School of Dentistry, 2003, 2006, 2009.
 - Asked by Colleagues to Convene and Direct First Asia Pacific Biofilm Congress, Wuhan, China, Sept. 11-12, 2009.

II. PROFESSIONAL SOCIETIES

American Society for Hospital Pharmacists (ASHP)	1999-present
American Association for Dental Research	1998-present
American Anaerobic Bacteriology Society	1992-present
Pan American Society for Rapid Viral Diagnosis	1990-present
Infectious Disease Society of America	1989-present
American Board of Bioanalysis (ABB)	1987-present
South Central Association for Clinical Microbiology	1978-present
Area Director-Northern Ohio 1982, 1989	1982,1989
Area Director-Northern West Virginia 1996-1998	1996-1998
South Eastern Association for Clinical Microbiology	1978-present
American Society for Microbiology (40 Year Member)	1966-present
American Association for the Advancement of Science	1964-present
N. Y. Academy of Sciences	1964-present
Tissue Culture Association	1964-present

III. SCHOLARLY ACTIVITIES/PUBLICATIONS/INVITED PRESENTATIONS/ABSTRACTS

Publications reflected a growing diversity in research focus, and expanded the topics to include biofilms in unique areas particularly a “trilogy” (Oral probiotics, gut flora and VAP) that included:

1. The oral systemic link and the relationship of changing microbial populations and colonization, “birth to death”
2. The role of biofilms in chronic wounds and the potential therapeutic role of probiotics, particularly *Lactobacillus reuteri*. (Probiotics)
3. The continuing saga of the 3 species OMS (oral microbial signature) as sensitive indicator of environmental pressures and a predictor of oral status and untoward outcomes. (COHRA)

- **Textbooks**

- Thomas JG, Posey SP, Namsupak A. *Probiotics: The Link Between Beneficial Oral Bacteria and Total Health*. Sherman Oaks, CA. Health Pointe Press; 2009.
- Thomas JG, Nakaishi L, Corum L. Ch 14. Consequences of Biofilms on Indwelling Medical Devices: Cost and Prevention. In: Manivannan G, ed. *Disinfection and Decontamination: Principles, Applications, and Related Issues*. Boca Raton, FL: CRC Press; 2008:289-338.
- Thomas JG, Posey SP. Biofilms. In: *APIC Text of Infection Control and Epidemiology - 3rd Edition*. Washington, DC: APIC; 2009;94,94-1
- The Role of Biofilms in Device-Related Infections. Shirliff M and Leid J. Edited by J. William Costerton and John G. Thomas. “Biofilm Ventilation” Life Sciences. Springer Series on Biofilms. Jan 3, 2009.
- Thomas JG. *Probiotics: The Key to a Healthy digestive and Immune System: The Body’s Partner for Good Health*. Sherman Oaks, CA. Health Pointe Press; 2009.

- Disinfection and Decontamination: Principles, Applications, and Related Issues. Thomas, J., Nakaishi, L., Corum, L. “Antimicrobial Anti-infective Coated Medical Devices: Costs and Consequences of Biofilms” Chapter 14. CRC Press. Oct 4, 2007.
- Antimicrobial Susceptibility Testing Protocols. Thomas, J. and Rector, N. “Susceptibility-Testing Protocols for Antibiograms and Preventative Surveillance: A Continuum of Data” Chapter 7. CRC Press; May 22, 2007.
- Thomas JG, Litton I, Rinde H. Ch 2. Economic Impact of Biofilms on Treatment Costs. In: Pace JL, Rupp ME, Finch RG, eds. *Biofilms, Infections, and Antimicrobial Therapy*. Boca Raton, FL: CRC Press; 2006: 21-38.
- Textbook of Diagnostic Microbiology, 3rd Edition. Mahon, C.R., Lehman, D.C. and Manuselius, G. Eds. “Biofilms: Architects of Disease.” Chapter 31. Elsevier Press. Feb 10, 2006.
- (Association for Professionals in Infection Control and Epidemiology, Inc.) APIC Text of Infection Control & Epidemiology, 2nd Edition. Thomas, J. “Biofilms.” Chapter 96. Assoc for Professionals in Infection Control and Epidemiology, Inc. January 1, 2005.
- Biofilms, Infection, and Antimicrobial Therapy. Thomas, J., Lynton, I., Rinde, H “Economic Impact of Biofilms on Treatment Costs.” Chapter 2. CRC Press. Jan 1, 2005.

- **Manuscripts**
 - Wilson A, Gray D, and Thomas J. Increases in Endotracheal Tube Resistance Are Unpredictable Relative to Duration of Intubation. *Chest*. Oct 2009;136(4):1006-13.
 - Percival SL, Thomas JG. Transmission of *Helicobacter pylori* and the role of water and biofilms. *J Water Health*. Sept 2009;7(3):469-77.
 - Thomas JG, Posey SB. Emergence of Oral/Dental Microbiology: The mouth is the most diverse and least understood reservoir of microbiology. *Advance for Administrators of the Laboratory*. June 2009;18(6);35-38.
 - The Consequence of Microbial Biofilms: Collateral damage and “A Call to Arms.” *Advance for Administrators of the Laboratory*. In Press.
 - Thomas JG, Posey SB. Results Reporting in Microbiology Experts share views of the “seven deadly sins” of a microbiology lab report. *Advance for Administrators of the Laboratory*. Sept 2008;17(9);66.
 - Polk DE, Weyant RJ, Crout RJ, McNeil DW, Tarter RE, Thomas JG, Marazita ML. Study Protocol of the Center for Oral Health Research in Appalachia (COHRA) Etiology Study. *BMC Oral Health*. June 2008;8;18.
 - Preshaw P, Novac M, Mellonig J, Magnusson I, Polson A, Giannobile W, Rowland R, Thomas J, Walker C, Dawson D, Sharkey D, and Bradshaw M. Modified-Reclose Subantimicrobial Dose Doxycycline Enhances Sealing and Roof Planning in Subjects with Periodontal Disease. *J. Periodontol*. Feb 2008: 79(3); 440-452.
 - Editorial: Wise MP, Williams DW, Lewis MA, Thomas JG and Frost PJ. Impact of Poor Dental Health on Pneumonia. Editorial to Article Entitled “New Evidence of Risk Factors for Community-Acquired Pneumonia: a Population-based Study”. *Eur. Respir. J*. June 2008: 31(6);1274-1284.

- Thomas, J. Biofilm Update: Importance to Clinical Microbiology Laboratory. Review in Medical Microbiology. G. Hall Ed. (Lippencott, Williams, and Wilkens) (Accepted)
- Thomas JG and Percival S. 8th Meeting of the Biofilm Club, Gregynog, Powys, Wales, UK. “Biofilms: Coming of Age” “Bacterial Synergy: A Common Theme Linking Infections in Chronic Wounds and Endotracheal Tubes/Ventilator Associated Pneumonia (VAP). Sept 5-7, 2007.
- Thomas, J. Microbiology 2006: Back to the Future. ADVANCE for Administrators of Laboratory. Dec 2007; 15(12):64.
- Oxley KS, Thomas JG, and Ramadan HH. Effect of ototopical medications on tympanostomy tube biofilms. The Laryngoscope Oct. 2007; 117(10):1819-1824
- Cross JL, Ramadan HH, and Thomas JG. The impact of a cation channel blocker on *Pseudomonas aeruginosa* (PA01) biofilm architecture. Otolaryngology. July 2007; 137(1):21-26.
- Thomas, J. and Nakaishi, L. Managing the Complexity of a Dynamic Biofilm (Article in Importance of Antiseptic Mouthrinses in the Daily Oral Care Regimen Supplement). J Am Dent Assoc. Nov 2006; 137: Suppl_3, 10S-15S.
- Ramadan, H., Sanclement, J., Thomas, J. Chronic Rhinosinusitis and Biofilms. Otolaryngology March 2005; 132(3):414-417.
- Sanclement, J., Webster, P., Thomas, J., and Ramadan, H. Bacterial Biofilms in Surgical Specimens of Patients with Chronic Rhinosinusitis. Laryngoscope. April 2005; 115(4):578-582.
- Livengood, R. and Thomas, J. *Rhizomucor*: a model for the emerging importance of mould susceptibility testing. Clin Micro Newsletter. Oct. 2006; 28(19):150-152.
- Roy J., Shakleya D., Callery P., and Thomas J. Chemical Constituents and Antimicrobial Activity of a Traditional Herbal Medicine Containing Garlic and Black Cumin. Afr J Trad, Comp and Alt Med. April 2006; 3(2):1-7.
- **Abstracts/Posters**

Presented in 2009

IADR (International Association for Dental Research)

April 1-4, 2009. Miami, Florida.

- Kao EC, Jackfert L, Thomas JG, Ngan P, Gladwin M, Gunel E. Bacterial Adherence on Orthodontic Brackets and Titanium Miniscrew Implants.
- Gray DM, Thomas JG, Crout R, McNeil DW, Weyant RJ, Marazita M. Identifying Abiotic Consequences of Tooth Placement Utilizing Enzymatic Detection.
- Malic S, Thomas JG, Percival SL, Woods E. Characterizing Biofilm Architecture with Quantitative Imaging and 3-D Animation.
- Gadre DV, Olson B, Drake D, Weyant RJ, McNeil DW, Crout R, Thomas JG, Marazita M. Diversity of *Streptococcus mutans* Genotypes from Lower Socioeconomic Appalachian Families.

SAWC (The Symposium on Advanced Wound Care)

April 26-29, 2009. Dallas, Texas.

- Percival SL, Thomas JG, Cutting K. Biofilm Management in Woundcare.
- Thomas JG, Posey SB, Motlagh HM, Percival SL. Profiling the Impact of Chronic Wounds and Biofilms; Population Dynamics, Cost and Reimbursement
- Motlagh HM, Thomas JG. Engineering a Unique Triphasic Chronic Wound Model Employing Prokaryotic Community and Eukaryotic Cells (Sandwich Technique)
- Percival SL, Cutting K, Thomas JG, Cochrane C. Biofilms and gauzes: A concern?
- Percival SL, Thomas JG, Woods E. Biofilms, Microbial Imbalance and Synergy in Chronic Wound Infections: Anti-Pasteur.
- Thomas JG, Malic S, Percival SL, Woods E. Characterizing and Staging Chronic Wound Biofilm Architecture with Quantitative Imaging and 3-D Animation.

ASM (The American Society for Microbiology)

May 17-21, 2009. Philadelphia, Pennsylvania.

- Thomas JG, Posey SB, Campbell TA, Percival S. Effects of Anti-Cancer Drugs on Biofilms: Benign, Prokaryotic Tumors
- Thomas JG, Percival S. Designing, Implementing and Integrating a Biofilm Susceptibility Protocol

IAOO (International Association of Oral Oncology)

July 8-11, 2009. Toronto, Canada

- Thomas JG, Campbell TA, Williams D. Extrapolating Tumor Therapy to Manage Oral Biofilms Simultaneously: A Comparative Model System.

ASM 5th International Biofilm Symposium

Nov. 15-19. Cancun, Mexico

- Thomas JG, Motlagh H. Integrating and Interpreting a Biofilm Susceptibility Protocol for Clinical Microbiology
- Thomas JG, Boas S, O'Malley L. Effects of Mechanical Ventilation and Aerosolized Tobramycin within an Endotracheal Tube Biofilm.
- Thomas JG, Bragg S, Waters C, Posey SB. A Model and Strategy to Compare Anti-Tumor and Anti-Biofilm Efficacy via a Unique Biotyping Classification System.
- Motlagh H, Hearn C, Thomas JG. Unmasking the Benefit of a Probiotic, *Lactobacillus reuteri*, in a Triphasic Biofilm Wound Model.

Presented in 2008

- Thomas JG, Woods E, and Percival S. Biofilms, Microbial Imbalance and Synergy in Chronic Infections: Anti-Koch. ICCAC – Washington DC, October 24-26, 2008
- Thomas JG, Percival S, Woods E, Robinson P, Hayes A, and Malic S. Characterizing and Staging Biofilm Architecture with Quantitative Imaging and 3-D Animation. ICCAC – Washington DC, October 24-26, 2008
- Sarwari AR, Petros KO, Sager RB, Wilson A, Dedhia HV, Mullett CJ, Thomas JG, Miller-Canfield P, Slain D, Moffett K, Palmer, Jr HC. Impact of an Antimicrobial

Stewardship Program on Antimicrobial Use and Resistance in Intensive Care Units (ICU). P18 - Poster Presentation, 2008 Annual Conference on Antimicrobial Resistance. June 23-25, Bethesda, Maryland.

- Sarwari AR, Petros KO, Sager RB, Mullett CJ, Thomas JG, Miller-Canfield P, Dedhia HV, Slain D, Moffett K, Palmer, Jr HC. Efforts to Influence Antimicrobial Use and Resistance at a Tertiary Care Institution Using Collaborative Multifaceted Interventions. S10 - Oral Presentation, 2008 Annual Conference on Antimicrobial Resistance. June 23-25, Bethesda, Maryland
- Thomas JG, Williams DW, Hooper SJ, Malic S and Cairns S. PCR DGGE to Unmask *Streptococcus mutans* in Endotrach Biofilms. IADR General Session – Toronto, June 1-5, 2008
- Thomas JG and Noore J. Comparative Efficacy of an Engineered Cationic Peptide against *E. faecalis*. IADR General Session – Toronto, June 1-5, 2008
- Thomas JG, Noore J, Ellis JS, and Gray D. Influence of pH and Eh upon Endodontic Irrigant Microbial Efficacy. IADR General Session – Toronto, June 1-5, 2008
- Williams DW, Thomas JG, Hooper SJ, Wise M, Frost P, Malic S, Cairns S and Lewis M. Profiling Microbial Diversity in Endotracheal Tube Biofilms. IADR General Session – Toronto, June 1-5, 2008
- Thomas JG, Williams DW, Malic S, Rowe WG. Linking Plaque and Endotrach Biofilm/Matrix by Structure and Composition. IADR General Session – Toronto, June 1-5, 2008

- **Invited Presentations/Workshops/Symposiums/Speaking Engagements**

The focus of the speaking topics and locations was used to highlight the evolving theme of our BRL: “International Microbiological/Global Educator.” This was highlighted by:

1. Asia Pacific Tour, IV, a 30,000 mile unique educational experience in China (Wuhan) and Manila, Philippines. It was unique by my presence during a “Katrina-Like” Typhoon, which cost 200 lives and 270,000 homeless
2. The request to develop and implement the first ever Biofilm Symposium for the Asia-Pacific region, scheduled for September 12-14, 2010. This will be coordinated by Professor Hui Chen, School of Medicine, Zhejiang University.

Invited Presentations (National and International)

2009

- Rotary International “We Live in a Microbial World” Morgantown, WV. Jan 9, 2009
- Regional Dental Association, Virginia Dental Association, Full Day Seminar “Biofilms and Oral Diseases; Management and New Options” Roanoke, VA. Jan 23, 2009
- Introduction of Sunstar G.U.M. PerioBalance, “A Unique Oral Probiotic: What is a Probiotic?” Seattle, WA. Jan 29, 2009
- 15th Annual Dental Research Day, “A Call to Arms: Establishing the Oral Flora as the Key Element in VAP” Morgantown, WV. Feb 3, 2009.
- Norwich University, JT’s Alma Mater. Feb 10-12, 2009. Three lectures:

- “Consequences of a Microbial Ecologic Imbalance: A Global Infectious Disease Tsunami?”
- “Therapeutic Microbiology: Good Bugs vs. Bad Antibiotics”
- “Global Infectious Diseases: We live in a microbial world.”
- Dartmouth College, Department of Microbiology, School of Medicine. “Biofilm and Respiratory Diseases: The Connection.” Hanover, NH. Feb 16, 2009
- Alleghany-Singer Research Institute, Center for Genomic Sciences. “Biofilm Scandal in the Mechanically Ventilated Patient” Pittsburgh, PA. March 3, 2009
- 3rd FDA Presentation: “Silver Coated Endotracheal Tube: 510k Application for Covidien” Bethesda, MD. March 10, 2009
- American Society of Microbiology (ASM): “Ask the Expert” Presentation – BioMeriux Sponsored - ASM Focus Group: “New Alternative Methods for Molecular Testing” Philadelphia, PA. May 18, 2009.
- Sage Products, Inc. Two Presentations: “Biofilms 101” and “Chronic Wounds and Biofilms” Chicago, Illinois. July 16, 2009
- Asia Pacific Tour: IV. September 2009
 - IADR/PAPF/APR, 2nd Meeting of IADR PAPF/1st Meeting of APR, Key Note Speaker “Oral Biofilms: Linking the Systemic Diseases”, Plan 1st Annual Asia-Pacific Global Biofilm Symposium (2010) Wuhan, China. Sept 20-22, 2009
 - Philippine Association of Dental Colleges. “Changing Paradigms in Oral Microbiology: It’s Growing Significance in Systemic Diseases” Manila, Philippines. Sept 27-28, 2009
 - 101st Annual Convention of the Philippine Dental Association “Changing Paradigms in Oral Microbiology: It’s Growing Significance in Systemic Diseases” Pasay City, Philippines. Sept 22-27, 2009
- 20th Annual John G. Thomas WV Microbiology Symposium. Wheeling, WV. Sept 24-25, 2009
- 16th Annual E.G. Scott Symposium. “Biofilms in 3-D and Linking Oral Health to Systemic Diseases: What Can a Microbiologist Do?” Philadelphia (Mendenhall), PA. October 20-21, 2009
- American Institute of Oral Microbiology. Update of Biofilms Using 3-D Imaging: “The Oral Microbial World in 3-D” and “Probiotics and Replacement Therapy: Y/N?” Palm Springs, CA. Sept 29- Nov 2, 2009

Presentations 2008 and 2007

- WV Annual Respiratory Therapy Meeting. Biofilms in 3-D. Wheeling, WV. Sept. 4, 2008.
- US Food and Drug Administration. Biofilms and Resistance. Bethesda, Md. June 19, 2008.
- Clinical Summary Booklet. Introduction and Review. Listerine. British Society of Dental Hygiene and Therapy (BJDHT). June 13, 2008.
- 2008 Microbiology Faculty Meeting. (Medi Media Educational Group) Anti-Infective Franchise. Ortho-McNeil Division. Janssen Pharmaceuticals, Inc. Fort Lauderdale, Florida. May 15-16, 2008.

- “Biofilms and Antibiotic Resistance: A Link?” Center for Veterinary Medicine (CVM) Staff College. FDA. Rockville, MD. June 19, 2008.
- “Wound Microbiology: A Fresh Look” in Satellite Presentation ‘Advancing Your Practice: Understanding Wound Infections and the Role of Biofilms’ Assoc. for Advancement of Wound Care (AAWC) Annual Meeting. Supported by ConvaTec and Bristol-Myers Squibb. San Diego, CA. April 24, 2008.
- Biofilms and Endodontic Infections: Unrecognized Synergy” Dentsply. Tulsa Dental. Tulsa, OK. June 12-13, 2008.
- American Association of Endodontics. Keynote Speaker. Unmasking Biofilms: Translating Microbiology into Advanced Endodontic Management. Philadelphia, PA. April 25, 2007.
- Dentsply Endodontics Seminar. Keynote Speaker. Connecting the Dots: Linking Disparate Facts. Steamboat, CO. February 1, 2007.

International

- “Communication and networking is what a biofilm does: An interview with microbiologist Professor John G. Thomas, USA, about the latest revelations on oral microbes” The Dental Tribune International: Asia Pacific Edition (Printed in 5 Languages). 2008; 4(6):18-19.
- “Changing Paradigms in Oral Microbiology: Probiotics and Useful Biofilms” Official Launch of PerioBalance. Satellite Symposium. Advanced Oral Care with Probiotics. British Dental Assoc. Supported by G.U.M (Sun Star) Manchester, England. April 30, 2008.
- “Changing Paradigms in Oral Microbiology: Growing significance of Biofilms” British Dental Assoc. Annual Meeting. Supported by Philips. Manchester, England. April 2, 2008.
- Asia-Pacific Tour III: April 2008
 - “Changing Paradigms in Oral Microbiology: It’s Growing Significance in Systemic Disease” in Satellite Symposium. ‘Managing Biofilms for Optimal Oral Health’ Suntec Singapore International Convention and Exhibition Centre. Sponsored by J&J. April 5, 2008.
 - “Changing Paradigms: Linking Oral Biofilms, VAP and *Candida albicans* with innovative Therapeutics/Diagnostics (Theragnostics)” National University of Singapore Hospital. Grand Rounds. Singapore, April 4, 2008
 - “Oral Biofilms and Systemic Health: Is there a connection?” National University of Singapore School of Dental-Medicine. Singapore. April 3, 2008.
 - “Biofilms and Oral Health Management” University of Indonesia, School of Dentistry. April 1, 2008
 - “Biofilms and Oral Health: A link to Systemic Diseases” Airlangga University. Surabaya, East Java, Indonesia. April 2, 2008 (Oldest Dental School Est. 1928)
 - ”Control of Plague: A Biofilm Perspective” Royal Indian University, Mumbai, India. April 9, 2008

- Microbial Diversity in Biofilms. Cairns S., Williams D., Thomas J., Hooper S., Wise M., Frost P., Malic S., Lewis M., Harding K., Leaper D. World Union of Wound Healing Societies – Toronto, June 6, 2008
- Asia Pacific Educational Tour.
 - Listerine Symposium and Panel Meeting. Biofilms: Scandals in the Oral Cavity. Jakarta ADPC. April 28, 2007.
 - School of Dentistry. Biofilms: Scandals in the Oral Cavity. April 30, 2007.
 - School of Dentistry. Translational Research: Oral to Systemic. Taipei. May 4, 2007.
 - School of Dentistry. Translational Research: Oral to Systemic. Hong Kong. May 2, 2007.
- Eastman Dental Institute. Keynote Speaker. Scandals in the Oral Cavity. London, England. April 20, 2007.
- Established International recognition and created an Asia-Pacific Advisory Committee for Oral Health Awareness

IV. TEACHING/EDUCATION/MENTORING/PRECEPTORSHIPS/FACULTY VISITATIONS

Teaching students was still the highlighted priority of our “student driven biofilm research laboratory.” We continued education of 3 undergraduate students (WV-INBRE), 2 graduates and 3 post graduates (professional students) with an emphasis on post-professional studies for the School of Dentistry (Endodontics and Orthodontics), and WVUH Residents in Surgery and Infectious Diseases.

Highlight, however for 2009 was the integration for 3rd year dental students of WVU and Cardiff University. We catalyzed several studies of shared interest, uncovering significant similarities/dissimilarities of dental education in the USA and UK. An exchange is pending.

1. Teaching/Courses/WVU

Contact HRS 50hrs

- Micro-Immuno (Dental) 702 (9 lectures)
- Dental Hygiene with Dr. Wanker (1 lecture)
- Periodontics (3rd Year) Course (1 lecture) Dr. Crout
- 761T (Course Director, Special Microbial Problems in Endodontics, 4 credit hours) Spring (25 lectures, 6 labs)
- Pathology 751 (2nd Year Medical Students) (1 lecture)
- Medical Technology 402 (3 lectures)

2. Mentoring

A. Dental (3rd Year Dental Student Research)

Contact HRS 100hrs

2009

School of Dentistry

- Cassis D, Little E. “A Comparative Analysis of Endodontic Disinfecting Techniques”
- Haun T, Casto C, Gamble J. WVU SoD & Cardiff University School of Dental Medicine: “A Comparison of Dental Practice & Education.”
- Lindsley HM. “The Effects of Microgravity on *Streptococcus mutans*.”

2008

- Interfaced with 3rd year Dental Students at Cardiff University

2007

- John Pyle: “Synergy of Oral-Systemic Isolates”
- Misty Short: “The Potential Use of Silver-Impregnated Bristles in a Toothbrush.”
- Tony Smallwood and Cody Lockhart: “Microbial Synergy Comparing an Engineered Tooth Model to Broth”

B. Undergraduate (WVU Pre-Dental)

Contact HRS 20 hrs

2009

- Chris Hearn: “Unmasking the Benefit of a Probiotic, *Lactobacillus reuteri*, in a Triphasic Biofilm Wound Model.” WV-INBRE Student

2008

- Curtis Dean: “Coaggregation of Biofilm Organisms” WV-INBRE Student.

2007

- Adam Myers: “Anti-Biofilm Effect of Oral Rinses on an Engineered Tooth Model.”
- Jason Ellis: “MTAD Effectiveness using ZOI Assay in Periodontal Disease.”
- Emily Banser: “MTAD Effectiveness using ZOI Assay in Periodontal Disease.”

C. Dental Post-Doctoral (Master’s Level)

Contact HRS 20 hrs

2009

- Geoffrey Cunningham, DDS “Evaluation of Probiotics and Eucaryotic Cells on Treated HA Disks.”

2008

- Geoffrey Cunningham, DDS, MS Orthodontics. “The Effect of Lasers on Regeneration of Tissue Post Biofilm Treatment.”

2007

- Lindsay Jackfert D.D.S: “A Comparison of Bacterial Adherence on Standard Orthodontic Brackets and Titanium Miniscrew Implants: An In Vitro and In Vivo Study.”
- Kent McBride D.D.S: “An in Vitro Assessment of an Engineered Cationic Antimicrobial Peptide Diseases (eCAP) against planktonic strains of *E. faecalis*.”

D. Medical/Post-Doctoral Research (3 month rotation)

Contact Hours 100 hrs

2009

- Lauren O'Malley (2nd Year Medical Student)
 - a. COHRA – “Data evaluation for OMS (Oral Microbial Signature) and Clinical Outcomes”
 - b. Antibiotic Resistance, VAP – “Tracking MRSA in LRI, VAP, ICU”
- Jodi Posey, MD (2nd year OB Resident) “Biofilms in PrOM: Is there a Link?”
- Clair Bienach, MD (3rd year Orthopedics Resident), “Recovering Biofilms on Weight Bearing Structures”

E. Pharmacy (1 month rotation)

2009

- Scott Bragg (Carla J. See, MA, Director)
Eucaryotic Tumors Mimic Procaryotic Biofilms
“Tumor-Lytic Bacteria and Treatment of Biofilms (Proof of Concept)”

V. SERVICE ACTIVITIES (WVUH CLINICAL LABORATORIES)/ADMINISTRATION (COMMITTEES)

We have always integrated clinical research (Bench) with patient management (Bed) and translated our studies into diagnostic microbiology. This year was our most successful, highlighting diversity and newer applications as described below:

1. Anti-tumor/anti-biofilm testing using a unique poloxamer model
2. Integrating and interpreting a biofilm susceptibility protocol for clinical microbiology
3. Establishing clinical significance of “Critical Colonization,” a ratio of biofilm MBEC: Planktonic MIC.

1. Committees

A. International

- Member of the Microbiology Faculty of the Council for Appropriate and Rational Antibiotic Therapy (C.A.R.A.T) (Supported by Ortho-McNeil)
- International Dental Exhibition and Meeting (IDEM) Advisor for Asia-Pacific Committee on Antiseptic Oral Mouthrinses (Supported by Pfizer)

B. National

- Member, Scientific Advisory Board, American Dental Association (ADA). 2008-2009.
- **Nebraska Safety Board of CMTs (Clinically Modified Tetracycline)**
Member, NIH Data and Monitoring Board, National Institutes of Health (1 RO1 DE12872-01A2) Low Dose Doxycycline Affects on Osteopenic Bone Loss, Principal Investigator, Dr. Jeffery Payne, University of Nebraska.

C. WVUH

- International Health Institute (IHI) (Line Sepsis), Committee Member
- International Health Institute (IHI) Ventilator Associated Pneumonia, Committee Member
- Pharmacy and Therapeutics Sub-Committee

D. WVU School of Medicine

- Center for Immunopathology and Microbial Pathogenesis (CIpMP) Coordinating Committee

E. WVU School of Dentistry

- Research Committee
- Admission Committee (Alternate)

2. WVUH Microbiology

A. Hospital Focus

- Developed Biofilm MBEC (Minimal Biofilm Elimination Concentration) for: Systemic (BSI), Urinary, Pulmonary, Dental, and Fungal Diseases.
- Published unique signature for BSI by 6 WVUH service areas
- Modified and updated the Multi-Disease Risk Assessment (MDRA) to reflect newer ICU patient criteria
- Developed Pharmacy and Therapeutics new anti-infective card 2006, 2007, 2008, 2009
Microbiology consultant for the WVUH Pharmacy Antimicrobial Rotation: ICU/BMTU
- MERCK STAR Program: Strategies for Reducing Antimicrobial Resistance

B. New Laboratory Tools

- Poloxamer Biofilm Resistance
- *In vitro* – *in vivo* Chronic Wound Model
- 3 University Consortium to study Resistance and Biofilm known as “The International Tri-University Biofilm Research Consortium.”

VI. TRANSLATIONAL RESEARCH LABORATORY/EXTRAMURAL BIOMEDICAL GRANT SUPPORT/CONTRACT WORK/CONSULTATION (DENTISTRY/MEDICINE)

2009 heralded major shifts in strategy with emphasis on diversity via education, infant VAP (NICU), chronic wounds, and integration with cancer units of WVUH and WVU-HSC. Covidien was still primary support, but in addition to IMD’s (Italy included), considerable effort was spent on 3 educational tools and resources: 1) Manual for engineers and design of new devices (Biofilm 101); 2) DVD, movie with audio of VEL’s, structure function; and 3) Vol. II on “Green Book,” a 2 year competition of Covidien research 12 abstracts and Path Forward.

1. We continued unmasking biofilms of importance in IMDs (Indwelling Medical Devices) with expansion from Adult-Ventilator-Endotrach-Lung (VEL) “Simulator” into new infant simulation in NICU (Ceragenix) with inoculation of OX 174, an H1N1-like virus in size and airway contamination.
2. The expansion of biofilms with “probiotics” and the use of a Triphasic wound model, incorporating a patient-applied-for use of a unique strain of *Lactobacillus reuteri* (Biologics)
3. In both the 1) Adult and Infant VEL Simulators and 2) the chronic triphasic wound model, the development of an organism system/tool to measure development of antibiotics resistance during biofilm growth. This utilized internationally acquired resistant organisms using our Tri University Consortium.
4. The role of a new hypothesis, that tumors are really eucaryotic biofilms, and selection of anti-biofilm therapy could be predicated on anti-tumor therapy, using a new poloxamer-model which stressed collaboration with the WVU-HSC Cancer Center; it could also assist in high through-put, inexpensive evaluations aimed simultaneously at anti-tumor, anti-biofilms in high risk oncology patients.
5. Integration with WVUH Dept. of Surgery (Dr. Alison Wilson) and the new WVU Translational Research Center, several biofilm studies including:
 - a) SAGE (Oral-systemic link) and the inclusion in ICU’s Protocol Improvement for Comprehensive Oral Care to reduce VAP
 - b) Application for a DOD/NIH grant to study the significance of ETT Biofilm Staging and the consequence of the oral-ETT-Lung cascade in military patients suffering from trauma associated pneumonia.

1. Current Biomedical Support

A. Covidien Healthcare, Nellcor Division (Formerly Tyco)

- (Respiratory Group) Dr. Shannon Campbell – Boulder, CO
“*In vitro* Ventilator-Endotrach Tube -Lung Model to Study and Evaluate the Effects of Silver Tracheostomy Tube in Ventilator Associated Pneumonia.”
- (Wound Group) Dr. Min Sue – Boston, MA
“Catheter Related Sepsis and Modeling for Means of Prevention Using Clinical Isolates.”

Assessment of Silver Coated Endotrachs in Biofilm Formation (“Guardian and Sentinel”)

- In Spring 2008, Covidien expanded the responsibilities of Dr. Thomas in a new 2 year Grant to include research on anti-infectives and other indwelling medical devices.
- Principal Investigator: John G. Thomas (\$136,000). Expanded to 6 workstations (\$380,000) supporting additional graduate student and lead technologist. Supports, 50% of PI Salary and one full-time technologist.
 - An industry based study investigating biofilms on a silver anti-biofilm endotrach tube (ETT) and prevention of VAP (ventilator associated pneumonia).

“Guardian” ETT Pressure Drop Study

- Principal Investigator: John G. Thomas
 - A prospective, multi-center, controlled study to evaluate the safety and the effect of the Guardian on the extubated endotracheal tube’s Pressure Drop from intubated subjects who require more than 24 hours of mechanical ventilation.

B. Center for Oral Health in Rural Appalachia (COHRA)

Genetic Factors Contributing to Oral Health Disparities in Appalachia NIDCR 1-R01-DEO14899 (2002-2009)

- Principal Investigator: Mary Marazita. Support 15% of salary and full-time technologist (\$224,993).
 - NIH Grant, in conjunction with The University of Pittsburg, investigating oral health disparities in rural West Virginia and Pennsylvania.
 - 2009 – One year extension awarded

Awarded new Microbiology Supplemental Grant. NIDCR 1-R01-DEO14899-S1 (2006-2009)

- Principal Investigator: J. Thomas, Supports 50% of PI salary and 60% of technologist salary (\$224,000).
 - NIH Grant, in conjunction with the University of Pittsburg, which investigates the Oral Microbial Signature (OMS).

C. Pfizer (Phase II)

Immune Modulator, Azithromycin and Endotrach Intra-Luminal Biofilms

- Principal Investigator: J. Thomas Phase II (\$12,000)
 - Study to determine effect of AZ on luminal biofilm development, when administered at different times.

D. KeyBay Pharma, Pittsburgh, PA

Use of Engineered Cationic Polypeptides (eCAP) as Anti-infectives in Endodontic Infections

- Principal Investigator: J Thomas. Supported 40% overhead and one full time Ph.D. Post-Doc (\$71,000)

E. Tulsa – Dentsply (Endodontics)

The Use of BioPure MTAD as an Anti-Biofilm Irrigation in Endodontic Infections

- Principal Investigator: J. Thomas. Supported 40% overhead and one full time Ph.D. Post-Doc (\$75,000)

F. SAGE Products, Chicago, ILL.

The Use of Oral Products in the ICU to Reduce VAP

- Principal Investigator: John G. Thomas, PhD

2. Support Applied For (As of 10-30-09)

- Paul Robinson, PhD, Purdue University, JG Thomas (NIH) “Distributed Biowarning Intelligent Network for Rapid Pathogen Identification”
- Alison Wilson, MD, WVUH Chief of Surgery (DOD – National Trauma Institute) “Pulmonary colonization and Pneumonia in the Mechanically Ventilated Patient: Impact of an Oral-Endotracheal Tube Microbial Cascade.”
- Savage PB, Brigham-Young University, Albertine K, Yoder B, Thomas JG, Neiderman M. Thrasher Research Fund (Ceragenix). “Neonatal Endotracheal Tubes Designed to Significantly Reduce the Risk of Morbidity and Mortality from Biofilm Related Ventilator Associated Pneumonia.”
- Merck, Inc. Thomas JG, Bragg S, Posey SP. “Linking Eucaryotic Tumor Therapy to Procaryotic Biofilm Biotypes (I-V) Focusing on *Candida albicans* in a Mixed Species Poloxamer Biofilm Model.”

3. Potential Biomedical Support – Ongoing Preliminary Studies

A. Carl Genberg – Ceragenix

Impact of a Nebulized Novel, Anti-Infective on the Colonization and Development of our Endotracheal, Lumenal Biofilm Formed under COPD Respiratory Environment.

- Principal Investigator: J. Thomas

B. DRG (Drug Related Group) (WVU)

Investigation of DRGs and Costs

- Principal Investigator: J. Thomas and P&T Antibiotic Sub-Committee

VII. OUTREACH/DISTANT LEARNING (WEB-BASED LEARNING)/COMMUNITY SERVICES

Our growing interest and energy levels in international education reflected our global travels and the recognition that there is an international void in translational research and clinical microbiology. Hence we expanded both our national and international presence, highlighting the use of the internet and distant-learning.

1. We added to our popular Mini Micro Educational Series, two new topics: Chronic Wounds and Probiotics
2. We made available via video and audio the 19/20th John G. Thomas Clinical Microbiology Symposium, particularly in Asia-Pacific
3. We developed with the help of Dr. Shelia Price, Dean for Education, SoD, WVU, and Hon Montop a major global educational grant, entitled “Creating a Step-Wise Global Pre-Dental Classroom for the Disadvantaged” and submitted to Robert Woods Johnson (2) Foundation.
4. Utilized for the first time, internet education, and broadcast live from the Philippines our part of the 20th JGT Microbiology Symposium, supported in large part by J + J (Listerene)
5. We’ve been asked to organize and implement the first ever Asia-Pacific Biofilm Symposium to be held in Wuhan China, SoD, Dr. Chen Professor, Zhejiang University School of Medicine, September 12-14.

2009

National

- 20th Annual 2-Day John G. Thomas, PhD West Virginia Microbiology Symposium
West Virginia University, Department of Pathology (D)
Oglebay Park, Wheeling, WV – September 24-25, 2009
 - 5 speakers
 - Simultaneous Audio/Video integration with 101st Philippine Dental Association (PDA), Manila, and 1st International Association for Dental Research (IADR), Asia Pacific Division, Wuhan, China via webcam. (Supported by Johnson & Johnson International)
Created new online availability of both the 19th and 20th John G. Thomas West Virginia Fall Microbiology Symposium (B)
Complete Lecture PowerPoints with video and audio, Titled Clinical Microbiology Symposium, integrated with WVU E-Commerce and HSC SOLE.
- Organized Dr. Milton R. Hales 2-Day Lectureship in Pathology
Zubair Boloch, MD, PhD. University of Pennsylvania “Thyroid Pathology, Thyroid Cytopathology” Dec. 10-11, 2009. WVU HSC, Morgantown, WV

International

- John G. Thomas, PhD, Hamed Motlagh, BS, Sheila Price, DDS, PhD.
“Creating a Step-Wise Global Pre-dental Class Room for the Disadvantaged”
Robert Wood Johnson Foundation Grant Application (C)
- Organize and Coordinate, First Asia Pacific, Global Biofilm Symposium,
Wuhan, China Co-Directed by Dr. Hui Chen, Professor, School of Medicine, Zdejiang University and Dr. Steven Percival, Advanced Medical Solutions, Manchester, England, UK.
- The Biofilm Buzz, 3rd Edition. International Newsletter from the Biofilm Research Laboratory,
A Student/Resident focused Research Laboratory.

2008/2007

- Thomas et al. 19th Annual Microbiology One Day Symposium. Oglebay Park, Wheeling, West Virginia. September 25-26, 2008.
- Thomas et al. 18th Annual Microbiology One Day Symposium. Stonewall Jackson Resort, West Virginia. September 24-25, 2007.
- Updated online Multi-Disease Risk Assessment (MDRA) form for clinic use in China:
<http://www.hsc.wvu.edu/som/pathology/Facultybio/thomas.asp>
- Created new WVU website for “Clinical Tools” and “Educational Resources.”
- Created 4 “Mini-Microbiology” presentations posted on my webpage, which cover 1. Biofilms, 2. The Medical-Dental Link, 3. The VEL Model and 4. Microbiology.

VIII. ACKNOWLEDGEMENTS AND RECENT AWARDS

- The Student Research Development Award from the WVU School of Dentistry. Oct. 15, 2009. (3rd time receiving award: 1998, 2006, and 2009)
- Patent Applications
 1. I-VEL: Infant-Ventilator Endotrach Lung Simulator “A Respiratory Simulator for MV Patients in NICU to Study Microbial Colonization.”
 2. Chronic Wound and Biofilm Model: A Triphasic Matrix “A Eucaryotic/Procaryotic Matrix to Simulate Wound Infections and Impact of Biofilms.”

3. “Eucaryotic Tumors are Really Procaryotic Biofilms: Linking Tumor Therapy to Anti-Biofilm Activity using a Poloxamer Model.”
- Certificates/Awards of “Profound Appreciation/Awards for recognizing the selfless support and extensive knowledge of Professor John G Thomas.”
 1. 1st Secretary, China National Society, Wuhan, China IADR, Asia-Pacific Branch, September 22, 2009
 2. General Chair, 101st Annual PDA (Philippine Dental Association) Convention, SMX Convention Center, Pasay City, September 23, 2009.
 3. President, Philippine Association of Dental Colleges, Manila, September 26, 2009.
 - **WVU Faculty Recognition Teaching Award**, March 2, 2007.
Presented by WVU President, David C. Hardesty Jr. and the Honorable Joseph Manchin, III, Governor of the State of West Virginia

Introduction by a WVU Professional Student:

“I stand before you today to introduce you to Dr. John Thomas, husband of Penny, who is also with us tonight, father of three daughters, and a valuable asset to the WVU community, the State of West Virginia, and the nation. While I have never had Dr. Thomas in class, his reputation in the classroom and the laboratory greatly precedes him. A veteran of the WVU Hospital and Health Sciences campus since 1990, Dr. Thomas is a familiar face and lecturer to Dentistry, Medical, Medical Technology, and Pharmacy students alike.

A microbiologist by trade, some of Dr. Thomas’s titles include: Senior Microbiology Consultant and Antibiotic Outcome Director, Director of the Biofilm Research Laboratory, WVU School of Dentistry’s Director of Periodontics, and Director of the WVU Hospital’s Microbiology and Virology Laboratories. Needless to say, Dr. Thomas has poured his heart and life into WVU and the health-field. His list of publications, presentations, and awards seems nearly endless, and his dedication and expertise in his field is known around the world, as he has presented in the U.S, Europe, and Asia. In fact, Dr. Thomas just recently concluded a 6 country, 14 lecture tour that saw him trekking across more than 29,000 miles of terrain as the keynote speaker of Pfizer’s Asia-Pacific Educational Tour. On a local note, however, Dr. Thomas has also sponsored the Microbiology Symposium since 1993 and continues to profess that “teaching” is the “best part of (his) academic career,” a claim which all of his students vividly attest too.

An “enthusiastic” teacher in the classroom, Dr. Thomas’s passion, energy, and enthusiasm also does not miss a beat in the laboratory. In fact, the “Dental Tribune” also known as “The World’s Dental Newspaper” quoted Dr. Thomas in an October 2006 feature of him saying, “My job is so fascinating it keeps me awake at night. I think about it all the time.” This “thinking” undoubtedly pays off, as his research alongside CollaGenex Pharmaceuticals led to the establishment of the Mountain State Oral Facial Laboratory, which is one of only seven of its kind in the United States.

Dr. Thomas’s most recent research is proving to leave its mark as well. Operating under very generous and well-deserved grants from Tyco/Nellcor, Tyco/US Surgical, Pfizer, and

the Center for Oral Health in Rural Appalachia, Dr. Thomas has been focusing on ventilator-associated pneumonias as a leading cause of hospital-associated infections in the ICU. His research has led him to conclude that dental caries and periodontal disease, alongside other bacteria, colonize in the endotrach and ultimately lead to pneumonia. Thus, Dr. Thomas, as a precautionary note, has stressed that dental evaluations should be conducted on intubated patients, as the link between oral health and pulmonary disease is a very real one. In addition, further research and inventions under Dr. Thomas's lease regarding this matter have proved very promising and will undoubtedly save countless lives, lives that once would have been lost to ICU pneumonia.

While Dr. Thomas's teaching responsibilities and research demands call for frequent 70 to 80 hour work weeks, he still manages to find time to do other things that he loves. An avid runner, kayaker, and hockey goalie, Dr. Thomas is also an expert snow skier and volunteers his time and his talents to Wisp Mountain and the National Ski Patrol. In fact, Dr. Thomas had to switch shifts with a fellow ski patroller to make it to tonight's [meeting].

While it is true that I could stand here and talk to you about Dr. Thomas's achievements, contributions, and service to WVU and the medical community all night, I will simply close by saying that I believe Dr. Thomas has been answering the call since he first stepped foot on WVU's campus some seventeen years ago, and I know that he epitomizes the Mountaineer Spirit. So, please join me in welcoming Dr. John Thomas."

- **International Peer Recognition:**

The following email was sent to the School Faculty at Newcastle University, UK, by an Endodontic Staff member on December 3, 2007:

"Dear All,

I was stunned to see notices around the school advertising a lecture by John Thomas on 5th December, 2007.

For those who have not met him before, he is one of the most exciting speakers I've ever encountered – one not to be missed unless you have a good reason.

He will give a thrilling and perhaps alarming account of human biofilms and leave the audience in no doubt that the actions we take and the drugs we apply in the management of oral biofilms have far-reaching effects throughout the body.

This is an absolute top-notch speaker and I encourage you to attend,
JW"

- **Review of Sabbatical on Jan 25, 2008 from Cardiff University, School of Dental-Medicine, Wales, UK. July 1 – Dec 31, 2007.**

"Dear [Chair, Dept of Pathology, WVU]

Re: Professor John Thomas

I am writing to thank you for enabling Professor John Thomas to spend a six-month period of sabbatical leave in my department here in Cardiff University. I must say that I believe that this particular period of sabbatical study has been one of the most productive six months that I can remember in recent years. John has been tremendously successful in achieving his research aims whilst learning contemporary molecular biology techniques from Dr David Williams, Reader in Microbiology within the department. I am in no doubt that a number of scientific publications and further research funding will develop out of the work that John has performed over here the past six months. I was also delighted that following collaboration with the School of Medicine, John was able to further his research into endo-tracheal and ventilator associated pneumonia. The targets we had set for this particular part of the research were easily achieved and indeed the clinical material was well in excess of what we had hoped for.

In addition to achieving the research goals based in the laboratory and clinics, John contributed to the undergraduate teaching programme for our dental students. I must say that the feedback from this contribution was extremely positive. As I am sure you will know it is extremely difficult not to be enthused about microbiology from John's style of lecturing.

John integrated incredibly well with our research team, both with our PhD students and postdoc scientists. He is truly missed now and I hope that it will be possible in the future for him to spend a further period of time here in our Dental School. As I have indicated, I have no doubt that due to the extreme success we have achieved in the past six months that ongoing productive research collaboration will now occur. It has been an absolute pleasure having John in the Faculty and I would wish it to be recognized at West Virginia University that Cardiff University has truly appreciated John's period of time here and he has represented West Virginia University in a superb way.

Yours sincerely,

[Head of Oral Surgery, Medicine, & Pathology]

Please Note:

A complete CV (>100 pages) highlighting multiple awards, >500 presentations, >70 publications, and outlining the accomplishments of over 40 years as an international educator and global microbiologist is available upon request. Included are topics such as Dr. Thomas's time as a USA Army Captain, stationed at Letterman General Hospital, Presidio, San Francisco, CA, his membership of the Charter Faculty of the North East Ohio University, College of Medicine (NEOUCOM), and his time spent working as a Researcher and teacher in Moscow and Prague as part of Eisenhower International.