

# Curriculum Vitae

Virginia C. Hughes, Ph.D.

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## Education

### 2015 Ph.D. Auburn University

Public Policy and Public Administration

Dissertation: *Determinants of National Policy on Human Embryonic Stem Cell Research in Selected Countries: A Comparative Study*

Defended March 13, 2015

### 1998 M.S. University of Maryland, Baltimore

Biomedical Research

Thesis: *The Effect of Recombinant Bone Morphogenetic Protein 2 on Hematopoietic Stem Cells Isolated from Umbilical Cord Blood*

Defended May 1, 1998

### 1993 B.S. University of Maryland, Baltimore

Medical and Research Technology (School of Medicine)

### Other:

2002 National Institutes of Health (Bethesda, MD)

Certified Specialist in Blood Banking (SBB)

1988 Medical Laboratory Specialist Certificate, Academy of Health Sciences (Ft. Sam Houston, TX)

## Grants

2008 People to People Citizen Ambassador Program: Transfusion Medicine Cultural Exchange with China and Mongolia. Robert B. Adams Foundation \$3200.00

2006 Australian Society for Immunology (Auckland, NZ) Auburn University Montgomery Research Travel Grant \$1900.00

Presented "Correlation of the absolute CD4 count and ATP generated from mitogen stimulated CD4 lymphocytes isolated from umbilical cord blood"

2005 Auburn University Montgomery Research Grant \$14,000.00

*Correlation of the absolute CD4 count and ATP generated from mitogen-stimulated CD4 lymphocytes isolated from umbilical cord blood*

2004 Auburn University Montgomery Research Grant \$2270.00

*The effect of mitogens on CD4 cells isolated from umbilical cord blood*

2003 Auburn University Montgomery Research Grant \$800.00  
*Determination of fibrinogen concentration in patients with polycythemia vera undergoing a therapeutic phlebotomy*

### **Honors and Awards**

2016 Delta Epsilon Sigma Honor Society (Neumann University)  
2010 Joint Legislative Commendation from State of New Jersey for Military Service in the US Army, Awarded Veterans Day 2010  
2009 Pi Sigma Alpha National Honor Society (Auburn University at Montgomery)  
2008 Delta Epsilon Iota National Honor Society (Auburn University)  
2007 Pi Alpha Alpha National Honor Society (Auburn University at Montgomery)  
2002 Fenwal Research Award, AABB \$1500.00  
Study: "Analysis of Transfusion-associated Immunosuppression by Measuring ATP Production in CD4 Cells"  
Allegiance Healthcare Graduate Research Award, American Society for Clinical Laboratory Science (ASCLS) \$3000.00  
Study: "The Effect of Recombinant Bone Morphogenetic Protein-2 on Untreated and CD34-selected Umbilical Cord Blood"  
1993 Who's Who Amongst Students in American Colleges and Universities, University of Maryland, Baltimore  
Outstanding Award in Immunohematology, University of Maryland, Baltimore  
Clinical Laboratory Management Association Scholarship \$500.00  
1991 Army Achievement Medal, Desert Shield/Storm

### **Certifications**

**MT(ASCP) #193555 1994**  
**SBB (ASCP) #4678 2002**

### **Academic Employment**

#### **UNIVERSITY OF DELAWARE – NEWARK, DELAWARE**

2017 – Associate Professor Medical Laboratory Sciences  
College of Health Sciences

#### **NEUMANN UNIVERSITY – ASTON, PENNSYLVANIA**

2016 – Associate Professor of Biology/CLS Division of Arts and Sciences

#### **Key Points**

Judge for Science Olympiad Mar 2, 2016  
Taught Immunohematology, Hemostasis, and Senior Capstone Sp 16  
Taught Hemostasis, Senior Capstone, Human Physiology, Parasitology/Mycolology Fa16  
Committees include CLS Advisory Council and Clinical Affiliates Committee  
Implemented requirement for IRB Approval in BIO 460 Senior Capstone

#### **Courses Taught**

BIO 460 Senior Seminar Capstone  
BIO 106 Introduction to Microbiology  
BIO 440 Immunohematology  
BIO 445 Immunohematology Lab  
BIO 370 Hemostasis and Body Fluids  
BIO 375 Hemostasis and Body Fluids Lab  
BIO 305 Parasitology and Mycology  
BIO 206 Human Physiology  
BIO 242 Genetics Lab  
BIO 106 Intro to Microbiology

### **DIXIE STATE UNIVERSITY-ST. GEORGE, UTAH**

2011 – 2015 Director and Assistant Professor of Medical Laboratory Sciences, School of Health Sciences; Assessment Coordinator for MLS

#### **Key Points**

Director of BS and AAS MLS Programs  
Developed curriculum for BS and AAS MLS Programs  
Wrote student handbooks for BS and AAS MLS Programs  
Wrote NAACLS Self-Study for BS and AAS MLS Programs  
Reviewer, Anaphylactoid Syndrome of Pregnancy, *Clinical Laboratory Science*, Nov 2012  
Chair, Allied Health Secretary Search Committee, May 2013  
Member, Undergraduate Research Committee 2012 -  
Chair, Advisory Committee for MLS 2011 - 2015  
Member, School of Health Sciences Curriculum Committee 2013 -  
Member, Faculty Senate 2014-2015  
Member University Curriculum Committee 2014-2015  
Chair, MLS Faculty Search Committee 2014

#### **Courses Taught**

MLS 2215 Principles of Immunohematology  
MLS 3310 Advanced Immunohematology  
MLS 3323 Advanced Hematology/Hemostasis  
MLS 3555 Research Seminar  
MLS 4110 Laboratory Management/Education  
MLS 4020 Capstone  
MLS 1123 Principles of Hematology  
MLS 4330 Clinical Chemistry Practice  
MLS 4410 Clinical Blood Bank Practice  
MLS 4414 Clinical Microbiology Practice  
MLS 4423 Clinical Hematology Practice

### **AUBURN UNIVERSITY - MONTGOMERY CAMPUS**

2006 - 2009 Assistant Professor (tenured) Department of Biology, Division of Clinical Laboratory

Science

2007 - 2008 Acting Director and Assistant Professor, Department of Biology, Medical Technology

Program

2002 - 2006 Instructor, Department of Biology, Division of Clinical Laboratory Science

**Key Points**

Mentored student that resulted in university research award

Incorporated interviews into Medical Technology Program acceptance criteria

Created brochures for Medical Technology Program

Awarded grant funding for a flow cytometer

Mentored students which resulted in research publications

Mentored students in presenting research results at a professional meetings

Wrote curriculum for first online degree program for Montgomery campus

Conducted research studies on cord blood

Developed SBB online curriculum

Served on Department of Biology Tenure and Promotion Committee

Served on Department of Biology Curriculum Committee

Chair of the Alabama Academy of Sciences Health Science Section

Served as an officer and member of the Faculty Senate

Served as a member of Student Grievance Committee

Served as a member of the Killian and Kirschenfield Scholarship Selection Committee

Served as Lambda Tau Faculty Advisor

Served as a member of Search Committee for Cytotechnology Program Director

Served as a member of the Biology Faculty Search Committee

Reviewer "Validation of the efficacy of a practical model for neutrophils isolation from Peripheral blood, *Clinical Laboratory Science*

Reviewer of Clinical Hematology and Fundamentals of Hemostasis, ed 5, FA Davis

Member of the AABB Distance Learning Program Unit

Director, Cord Blood Recruitment, AABB Audioconference

Reviewer of Clinical Laboratory Hematology, 2nd ed, Prentice-Hall

NAACLS Paper Reviewer, Illinois State University Medical Technology Program

Reviewer of "Comparison of two platelet count estimation methodologies for peripheral blood smears", *Clinical Laboratory Science*

Reviewer, "A student authored hematology atlas", *Clinical Laboratory Science*

Reviewer, "Transfusion therapy for Autoimmune Hemolytic Anemia Patients: A Laboratory Perspective", *Clinical Laboratory Science*

Reviewer, "Eradication of transfusion-induced malaria by in vitro processing" *Clinical Laboratory Science*

Reviewer, "Survey of folate status in pregnant women", *Clinical Laboratory Science*

Judge, Gorgas Scholarship Awards, Alabama Academy of Sciences

Reviewer, "Burkitt's Lymphoma involving tumor lysis syndrome: a case study". *Clinical Laboratory Science*

Reviewer, "Fetomaternal hemorrhage detection using Kleihauer technique for postnatal immunoglobulin dose evaluation in Sudan". *Clinical Laboratory Science*

Reviewer, "A student based process for textbook selection". *Clinical Laboratory Science*  
Reviewer, "Assessing reliability and validity measures in managed care studies", *Clinical Laboratory Science*.

Reviewer, "Three cases and a brief review describe the clinical utility of BNP". *Clinical Laboratory Science*

Reviewer, "Transfusion Practice Parameters". *Laboratory Medicine*

Reviewer, Textbook of Blood Banking and Transfusion Medicine. Mosby

Presenter, *Basic Antibody Identification*, AABB Audioconference

Director and Moderator, *ISBT 128: Making the Transition*. AABB Audioconference

### **Courses Taught**

Clinical Immunohematology I, II (online/ on campus)

Clinical Hematology I, II, III (online/ on campus)

Laboratory Management (online/on campus)

Immunology and Serology (online/ on campus)

- Clinical Correlations

### **UNIVERSITY OF WYOMING - LARAMIE, WYOMING**

1999 - 2001 Assistant Lecturer, College of Health Sciences, Medical Technology Program,

University of

Wyoming

### **Key Points**

Mentored students which resulted in peer-reviewed publications

Procured clinical affiliates for Medical Technology Program

Served as ASCP State Advisor for Pacific Northwest Region

### **Courses Taught**

Clinical Hematology

Blood Banking

Coagulation

Special Body Fluids

Urinalysis

Special Topics

Interdisciplinary Practicum

### **Professional Employment**

#### **SHORE MEDICAL CENTER- SOMERS POINT, NEW JERSEY**

2009 - 2011 Section Chief of Transfusion Services

### **Key Points**

Member of CAP Inspection Team for Coney Island Hospital

Championed re-accreditation from AABB

Championed ISBT 128 Implementation

Member of Planetree Steering Committee

Chair, American Red Cross Donor Recruitment Committee

Member, Transfusion Committee

Created transfusion history forms for IV Therapy Patients

Developed CBL on Blood Product Compatibility

Incorporated staff competencies in Halogen System  
Championed neonatal transfusions via syringe via collaboration with nursery  
Member, German Society of Pennsylvania  
Championed conversion of FFP to FP<1 day

**NATIONAL INSTITUTES OF HEALTH - BETHESDA, MARYLAND**

2001 - 2002 Staff Medical Technologist and SBB Student

**Key Points**

Worked with Dr. Harvey Alter (Chief, Infectious Disease) on NIH funded research project which resulted in Fenwal Award

Research involved stimulating CD4 cells with strong mitogens and recall antigens from both immunosuppressed and non-immunosuppressed patients; production of ATP was measured using the Immuknow Assay (Cylex Inc) and bioluminescence; mitogens included PHA and Con-A, recall antigens included Tetanus Toxoid, CMV, and Varicella zoster

Certified SBB (ASCP)

Performed irradiation on cellular blood products

Selected HLA matched platelets using HLA-A and B Cregs formulation

Performed pre-transfusion testing using the Gel System

Washed red cell products and platelet products

Manipulated platelets using sterile connecting device

Prepared frozen red blood cells

Performed deglycerolization of red cells

Separated anti-DCE using Rh phenotypes

Separated components from whole blood donor units

**ANNE ARUNDEL MEDICAL CENTER - ANNAPOLIS, MARYLAND**

1990 - 1999 Medical Technologist III

**Key Points**

Worked in all sections of clinical laboratory in all shifts

Operated Coulter hematology analyzers, Beckman Chemistry Analyzers, Instrumentation Laboratory Coagulation Analyzers, performed all pretransfusion testing in blood bank

**WALTER REED ARMY MEDICAL CENTER - WASHINGTON, DC**

1991 - 1995 Sergeant, US Army

**Key Points**

Worked during Desert Shield/Storm in procuring adequate blood supplies

Participated in blood drives at Army bases and West Point

Made blood components from whole blood units

Performed serological testing on donor units

**INTERNISTS OF WASHINGTON, CHTD - WASHINGTON, DC**

1988 - 1990 Laboratory Technician

**Key Points**

Performed phlebotomy, EKGs, and laboratory analyses on patients

Wrote laboratory manual for physicians office laboratory

**ENVIRONMENTAL TESTING LABORATORY - ANNAPOLIS, MARYLAND**

1985 - 1988 Laboratory Manager

## Key Points

- Managed budget of environmental water testing lab
- Managed five employees
- Procured certification of water testing laboratory
- Performed atomic absorption studies on water samples
- Collected water samples from Chesapeake Bay for Navy Study
- Performed solids studies on effluent

## Refereed Journal Articles

- Hughes, VC. Transfusion Therapy in Allogeneic Transplantation CACMLE 2012
- Hughes VC. TRALI Revisited. Lab Medicine 2012
- Hughes, VC. *Validation of a new assay for detection of bacteria in Random Donor Platelets*. MLO Special Report March 2011.
- Hughes, VC, Harmening, DM, Brock, K, *Analysis of PHA-stimulated CD4 cells from umbilical cord blood and adult blood using the Immuknow assay*. Transfusion 47(35):63A, 2007.
- Hughes VC: *Stem cell research takes doctoral student down under*. Politix 1(2):5, 2007.
- Utz L, Hughes VC. *Determination of a factor for the white blood cell estimate*. J Ala Acad Sci 78(2):2007.
- Westry J, Hughes VC. *Isoagglutinin titers in Group O apheresis platelets*. J Ala Acad Sci 78(2):2007.
- Hughes VC, Anderson AL, Davidson DC. *Fibrinogen levels in polycythemia vera patients and hematocrit target for performing a therapeutic phlebotomy in Southwest Alabama*. J Ala Acad Sci 77(1): 2006.
- Groves VC, Moore N, Hughes VC. *Crossreactivity of the anti-Cw reagent with Rh antigens in the indirect antiglobulin test*. J Ala Acad Sci 77(2):2006.
- Hughes VC, Cox R, Ernest C et al. *Choosing heparinized over nonheparinized capillary tubes in the centrifuged microhematocrit method: is there a significant difference when testing EDTA samples?* Lab Med 36(9):2005.
- Hughes VC, Harmening DM. *The effect of recombinant human bone morphogenetic protein 2 on untreated and CD34 selected umbilical cord blood*. J Ala Acad Sci 75(1): 2004.
- Hughes VC. *Immune function assay enters the clinical laboratory*. Lab Med 35(11):2004.
- Hughes VC, Toombs RL. *Identification of multiple antibodies in a patient undergoing hip surgery*. ASCP Tech Sample, Chicago, 2004.
- Hughes VC, Qian L, Caldwell E et al. *Evaluation of bias and precision in a prothrombin time method comparison study*. ASCP Tech Sample, Chicago, 2004.
- Barnes BB, Atkins T, Hughes VC. *Application of the correlation coefficient in a method comparison study*. J Ala Acad Sci 76(2):2004.
- Hughes VC. *Analysis of transfusion associated immunosuppression by measuring ATP production in CD4 cells*. S20-030D Transfusion 2002.
- Hughes VC. *An ABO discrepancy caused by anti-M*. ASCP Tech Sample, Chicago, 2002.
- Cippolone K, Hughes, VC, Proctor, JL, Rainer T. *Transfusion investigation in a patient with multiple myeloma who has undergone a stem cell transplant*. ASCP Tech Sample, Chicago, 2002.
- Hughes VC, Fleming J. *Anti-A1 discovered in the serum of an A2 individual*, ASCP Tech Sample, Chicago, 2001.
- Hughes VC. *Cord Blood Transplantation: Hallmarks of the 20th Century*. Lab Med 31(12):2000.

Hughes VC. *Successful haploid identical cord blood transplant in a patient with Fanconi's anemia*. ASCP Tech Sample, Chicago, 2000.

Hughes VC. *A positive direct coombs test caused by maternal alloanti-E*. ASCP Tech Sample, Chicago, 2000.

Hughes VC, Harmening DM. *The effect of recombinant bone morphogenetic protein 2 on three populations of hematopoietic cells in umbilical cord blood*. Blood 90:146b, 1997.

Hughes VC. *A positive antibody screen caused by anti-Sda*. ASCP Tech Sample, Chicago, 1996.

### **Published Books/Book Chapters**

Immunohematology, in Harr, R Medical Laboratory Science Review, ed 4, FA Davis, 2013.

*Donor Selection and Component Preparation*, in Harmening DM, Modern Blood Banking and Transfusion Practices, ed 6, FA Davis, 2012

*Routine Hematology Methods*, in Harmening DM, Clinical Hematology and Fundamentals of Hemostasis, ed 5, FA Davis 2008

*Hematopoiesis*, In Harmening DM, Clinical Hematology and Fundamentals of Hemostasis, ed 5. FA Davis, 2008

*Immunohematology*, in Harr R, Clinical Laboratory Science Review, ed 2 FA Davis 2007

*Donor Selection and Component Preparation*, in Harmening DM, Modern Blood Banking and Transfusion Practices, ed 5. FA Davis 2005

*The Red Blood Cell: Structure and Function*, in Harmening Clinical Hematology and Fundamentals of Hemostasis, ed 4. FA Davis, 2002

*Routine Hematology Methods*, in Harmening DM, Clinical Hematology and Fundamentals of Hemostasis, ed 4. FA Davis 2002

*Donor Selection and Component Preparation*, in Harmening DM, Modern Blood Banking and Transfusion Practices, ed 4. FA Davis 1999

*Routine Hematology Methods*, in Harmening DM, Clinical Hematology and Fundamentals of Hemostasis, ed 3. FA Davis 1997

*Hematopoiesis*, in Harmening DM, Clinical Hematology and Fundamentals of Hemostasis, ed 3. FA Davis 1997.

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### **Reviews**

Title Design and Validation of a Survey Questionnaire for the Assessment of Physician Transfusion Medicine Knowledge, *Clinical Lab Science ASCLS* 8/2016

### **Invited Presentations**

*RBC Transfusions: Premature vs Full Term Neonates, Physiology 2016 Dublin Ireland July 29-31, 2016*

*Broadening Horizons in MLS. Curricula for the 21<sup>st</sup> Century, St. Petersburg, FL Jan 10*

*National Determinants of Embryonic Stem Cell Policy in Fifty Countries, ISSCR Annual Meeting, June 18<sup>th</sup>, 2014 Vancouver, BC*

*The Effect of Biotechnology, government, and public opinion on ESC research policy in Europe. World Stem Cell Summit, San Diego December 2013*



*Mentoring MLS students in research, writing, and conference presentations: Reap the Benefits.* Curricula for the 21<sup>st</sup> Century, St. Petersburg, FL January 2013

*Evaluating the Overall Process of Quality in the Clinical Laboratory.* School of Nursing and Allied Health, Dixie State College, St. George, Utah. September 2011

*Transfusion-transmitted Babesiosis in the presence of a warm autoantibody.* American Red Cross, Philadelphia. 2010

The effect of glass tubes on the activated partial thromboplastin time, Undergraduate Research Symposium, Auburn University at Montgomery. 2009 (**Award Winner**)

*Basic Antibody Identification,* University of Mongolia Hematology and Transfusiology Department, Ulanbaatar, Mongolia 2008

*Analysis of PHA stimulated CD4 cells from umbilical cord blood using the Immuknow Assay.* Australian Society for Immunology Conference, University of Auckland (New Zealand). 2006

Analysis of cord blood CD4 stimulation by standard mitogens using the Immuknow Assay. AABB Annual Meeting, Seattle. 2003

*Determination of fibrinogen concentration in polycythemia vera patients undergoing a therapeutic phlebotomy.* Alabama Academy of Sciences Annual Meeting, Birmingham 2004

*Basic Antibody ID,* AABB Audioconference 2005

*Transfusion Reaction Investigation.* ASCP Workshops for Laboratory Professionals, Chicago 2005

*Transfusion Reaction Investigation,* ASCP Workshops for Laboratory Professionals, Teaneck NJ 2005

*Transfusion Reaction Investigation,* ASCP Workshops for Laboratory Professionals, Anaheim 2004

*Analysis of transfusion-associated immunosuppression by measuring ATP production in CD4 cells,* AABB Annual Meeting, Orlando 2002

### **Workshops/Seminars/Meetings**

Physiology 2016, July 29-31, Dublin Convention Center, Ireland

Science Olympiad, Mar 2, 2016 Neumann University

UCUR, Dixie State University, Feb 27, 2015

Curricula for the 21<sup>st</sup> Century, St. Petersburg, FL Jan 8-11, 2015

Taskstream Training, Nov 20, 2014 Dixie State University

ISSCR Annual Meeting, June 18, 2014 Vancouver, BC

Moderator, UCUR Brigham Young University Feb 28, 2014

Heart Regeneration, Webinar, ISSCR Feb 6, 2014

World Stem Cell Summit, San Diego Dec 4-6, 2013

Transfusion Medicine Symposium, NIH Clinical Center Sept 18, 2013

Program Assessment Workshop, Dixie State University, August 2013

Curricula for the 21<sup>st</sup> Century, St. Petersburg, FL Rush University Jan 2013

Education Assessment Training Workshop: Course Curriculum Mapping, March 8, 2012 Dixie State College, St. George, Utah

The Standards They are a Changin-An Overview of the Proposed NAACLS Standards, Feb 23, 2012, Salt Lake City, Utah

CLEC, Feb 23-25, 2012, Salt Lake City, Utah

Creating Content with Respondus 4.0, Jan 2012, Webinar, DSC  
Serological Case Studies: Ask the experts. AABB Audioconference 2009 1.5 CEUs  
Changes to the 26 edition of Standards for Blood Banks and Transfusion Services, th AABB Audioconference 2009 1.5 CEUs  
TAC, American Red Cross, Penn-Jersey, Philadelphia October 2010  
“Just Culture”, Harbor Pines CC, Egg Harbor Twp, October 2010  
Ortho Symposium, Transfusion Medicine, Baltimore Hilton, 2010  
S - The Second Special Summer Serological Symposium, American Red Cross, 5 Philadelphia 2010  
Women’s Leadership: Dealing with Dysfunctional Toxic Coworkers. Webinar 2010  
ASCLS-PA Annual Spring Meeting, King of Prussia. 2010  
The Florence Prescription: from Accountability to Ownership. Somers Point, NJ 2010  
Technical Advisory Committee Meeting, American Red Cross, Philadelphia. 2010  
Changes in the Circular of Information for the use of human blood and blood components, AABB Audioconference 2010  
Technical Advisory Committee Meeting, American Red Cross, Philadelphia 2009  
Changes to the 26th edition of Standards for Blood Banks and Transfusion Services, AABB Audioconference 2009  
Raising expectations be decreasing your tolerance: how to deal with negative energy. Planetree Audioconference 2009  
Integrating Planetree with highly structured approaches to custom. Planetree Webinar 2009  
Alabama Academy of Sciences Annual Meeting, Tuskegee University 2008  
AABB Distance Learning Program Unit Annual Meeting, Bethesda, Maryland 2006  
NAACLS Workshop, Accreditation Standards, Chicago 2007  
Australian Society for Immunology Annual Meeting, University of Auckland, NZ 2006  
Alabama Academy of Sciences Annual Meeting, Troy University 2006  
American Society of Hematology, Annual Meeting Georgia World Congress Center, Atlanta 2005  
AABB Annual Meeting, Seattle 2004  
Alabama Academy of Sciences Annual Meeting, Jacksonville University AL 2003  
ASCLS Annual Meeting World Congress, Orlando 2002  
Annual Symposium of Immunohematology and Blood Transfusion, NIH 2002  
Problem Solving in Blood Banking, AABB Audioconference 2001  
Wyoming State Society for Clinical Laboratory Science, Cheyenne 1999  
ASCP-AMS Matrix Meeting, Chicago 1999  
Interstate Mountain States Seminar, Jackson Hole WY 1999

### **International Experience**

Austria, Belgium, Canada, China, Estonia, France, Germany, Ireland, Luxembourg, Mexico, Mongolia, New Zealand, Sweden, United Kingdom