Curriculum Vitae

Dr. Armand L. Balboni

Present Position:

Chief Executive Officer (CEO)
Appili Therapeutics, Inc.

MAJ, Medial Service Corps
U.S. Army Reserves
7458th Medical Operations Readiness Unit (MORU)

Civilian Education:

B.A., Anthropology, Skidmore College (1998)
J.D., Law, Brooklyn Law School (2005)
M.D./Ph.D., Icahn School of Medicine of Mt. Sinai (2006)

Recent Academic Positions:

Assistant Professor (Active Duty – U.S. Army)
Department of Chemistry and Life Sciences United States Military Academy at West Point

West Point, NY **7/1/2018-7/2/2020**

Assistant Professor for Introduction to Biology with lab (Instructor: CH275, non-majors), Introduction to Biology with lab (Course Director: CH375, majors) to include introduction to molecular biology; Human Physiology with lab (Course Director: CH387), Molecular Biology Research (Faculty Research Advisor: CH489/490). Responsible for curricular content including the development of lecture, lab, and graded assessments of students. Mentor and directly supervise undergraduate students in molecular biology research, research methods, and publication of results. Serve as the faculty head (Officer-in-Charge) of the West Point Pre-Medical Society consisting of approximately 200 student members. Member of the college faculty counsel and departmental research working groups.

Adjunct Associate Professor MS Biotechnology Program
University of Maryland, University College
Adelphi, MD **8/1/2015-1/1/2018 (Part-time 10hrs/wk)**

Adjunct Associate Professor, Graduate School, Biotechnology Program. Develop and deliver didactic material in an online format to graduate students. Lecture materials included regulatory and policy issues in biotechnology, bioterrorism and emerging infectious diseases, the impact of regulatory and policy issues on domestic and international affairs, clinical trials and various aspects of a product's life cycle, good laboratory and manufacturing practices.

Tenure Track Assistant Professor Department of Biology Westfield State University
Westfield, MA 8/1/2009-9/1/2013
Tenure track assistant professor responsible for developing lecture and lab-based courses in human anatomy and physiology, developmental biology, and molecular methods. Research focused on the identification, culture, and characterization of microbial populations important in human diseases, particularly those of the upper respiratory tract. Additional work explored the relationship between structure and function in the head and neck in human disease.

Visiting Assistant Professor Department of Biology Marlboro College
Marlboro, VT 9/1/2008-12/1/2009
Assistant Professor responsible for developing a lecture-based course in medical immunology and molecular methods. Conducted honors seminars titled "Epidemiology of HIV/AIDS" and "Epidemiology and Public Health Law". Scholarly research focuses on FDA Emergency Use Authorization (EUA) as well as legal and ethical concerns surrounding pediatric testing and drug development in orphan diseases.

M.D./Ph.D. Student and Senior Teaching Fellow Center for Anatomy and Functional Morphology Department of Medical Education Icahn School of Medicine of Mt. Sinai
New York, NY 9/1/2002-5/15/2006
Directly participated in the teaching of Human Anatomy to first year medical students with an emphasis on providing support during the human cadaveric lab portions of the course. Led small group discussions as well as the delivery of a midterm and final exam review session. Proctored exams and served as support for the primary teaching faculty. Additional teaching experience in other anatomically related fields, embryology, head and neck radiology and histology, lectures and small group discussions.

Recent Non-Academic Positions:

Chief Executive Officer Appili Therapeutics, Inc
Canada/USA 12/2/2019-Present
Seasoned CEO with strong portfolio of success leading the strategic development of a public biotechnology and life sciences anti-infectives company. Instrumental in launching, developing, and significantly enhancing the portfolio of products from early research through commercialization. Cultivate relationships with and presenting to investors, investment banks, analysts, and shareholders. Familiar with corporate governance, regulatory rules, and public company reporting. A long track record of interfacing with government (DoD) partners and obtaining government grant funding as well as success in raising $28.0MM in capital in the public markets in 2020.

Founding Partner and Director Bloom Burton & Co., Inc.
Toronto, ON 1/1/2008-Present (Part-time 20hrs/month)
Partner, senior advisor and member of the Board of Directors of Bloom Burton & Co. Acts as Bloom Burton's senior most advisor on scientific, regulatory and medical affairs for our incubated companies and clients. Provide highly technical and specialized advice to private and public companies at all stages of development from start-up through multi-national, and with companies

operating in all areas of healthcare including biotechnology, pharmaceutical, medical device, diagnostic, healthcare services, healthcare IT, life science tools, animal health, nutrition and wellness. Keywords: Strategic Planning • Business Development • Mergers & Acquisitions • New Product Development and Opportunity Identification • Investor & Stakeholder Relations • Strategic Alliances • Negotiations • Budget Administration & P&L Accountability • Executive Presentations & Public Speaking Capital Fundraising • Executive & Board Recruitment • Business Analysis

Recent Non-Academic Military Positions:

Assistant Deputy Commander Office of Regulated Activities
U.S. Army Medical Materiel Development Activity (USAMMDA)
Ft. Detrick, MD 8/1/2015-6/30/2018

Serve as Assistant Deputy Commander; Office of Regulated Activities, the Surgeon General's FDA Sponsor for all the Army's medically regulated products and clinical trials (80 products across 110 clinical trials for drugs, devices, and biologics). Manage the operations of a multidisciplinary team of 70 regulatory affairs, medical writing, submissions, safety/compliance, and clinical support professionals. Rate 7 GS-14 DA Civilian Branch Chiefs and Senior Rate 12 DA Civilian GS-7-GS-13 regulatory professionals. Serve as the regulatory representative to scientific and clinical product development teams developing medical countermeasures. Provide senior level strategic and operational support with external partners including the U.S. Army including BARDA, MCS, DTRA, JPEO; U.S. Navy, U.S. Air Force; NIH, CDC, and FDA to meet the USAMMDA statutory obligation and mission to develop FDA approved medical products for the Warfighter. Direct the planning, development and execution of the Division's $15,000,000 annual budget.

Scientist/Subject Matter Expert
Joint United States Forces Korea Portal and Integrated Threat Recognition (JUPITR)
JPEO-Chem Bio Defense, U.S. Army Edgewood Chemical Biological Center (ECBC)
U.S. Army Garrison Yongsan, ROK 3/1/2016-4/2/2016

Provided scientific subject matter and laboratory operations expertise on all available DoD technologies and platforms (qPCR, ECL, BioFire, Microbiology Culture, Microscopy etc.) to improve the capability of USFK to respond to biological/chemical events including emerging infectious agents. Provide USFK/8th Army Surgeon timely, local analyses of potential chemical and biological warfare agents rather than depending entirely on CONUS sampling support.

U.S. Food and Drug Administration (FDA) Department of Defense (DoD)
Senior Staff Fellow
Silver Springs, MD 7/1/2014-7/31/2015

Competitive selection as a Department of Defense (DoD) Senior Staff Fellow and scientific subject matter expert at the U.S. Food and Drug Administration (FDA) in the Center for Drug Evaluation and Research, Office of New Drugs, Division of Anti-Infective Products (OND/CDER/DAIP) and in the Office of the Commissioner, Office of the Chief Scientist, Office for Counter Terrorism and Emerging Threats (OC/OCS/OCET). Served as a Pharmacology/Toxicology reviewer for CDER/DAIP. Attended regulatory meetings with FDA and non-FDA partners.
Reviewed, scored and made recommendations for funding of scientific submissions for a

competitive FDA/NIH grant program to support the eradication of the emerging Ebola threat. Served as a scientific subject matter expert for the review and approval of DoD medical countermeasures for biological and chemical bio warfare agents.

Scientist/Senior Management (Active Duty U.S. Army) Office of Research and Technology Applications (ORTA), U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)
Ft. Detrick, MD 11/1/2011-6/30/2014
Directed the operations of a civilian staff and portfolio of 600 active agreements worth $32,000,000. Managed scientific, regulatory and legal risk, related to the application of technology transfer. Served as the Co-Chair and member of the filovirus vaccine Integrated Project Team (IPT) tasked with ensuring the completion of experimental studies on the natural history of filovirus infection in human disease.

Selected Military Education and Training:
U.S. Army, AMEDD Officer Basic Course (2003)
U.S. Army Health Professions Scholarship Program (HPSP) (2004-2006)
U.S. Army, AMEDD Captain's Career Course (2014)
U.S. Army Long Term Health Education and Training, DoD Staff Fellow, U.S. FDA, (2015)
U.S. Army Field Identification of BioWarfare Agents (FIBWA), (2016)
U.S. Army, Operational Clinical Infectious Disease (OCID) Course (2016)
U.S. Army Master Resilience Trainer (MRT) Level 1 (2017)
U.S. Army Post Graduate Med. Mgt. of Chem. and Biol. Casualties (MCBC) (2017)
U.S. Army Resident Intermediate Level Education for AMEDD (Competitive Select) (2017)

Service and Appointments:

Academic/Military
Member, Integrated Product Teams (IPTs), (Dengue Human Infection Model; Medical Counter Measures for various select agents) Regulatory/Scientific Expert USAMRMC (Appointed)
2015-2018

Co-Chair/Member, Filovirus Vaccine Product Assessment Team (PAT) Correlates of Immunity USAMRIID (Appointed)
2011-2014

Member, U.S. Army, Invention Evaluation Committee (IEC) USAMRMC (Appointed)
2012-2014

Co-Chair, Institutional Animal Care and Use Committee (IACUC) Westfield State University (Appointed)
2009-2011

Service and Appointments:

Corporate
Member, Board of Directors, Bloom Burton & Co. – Biotechnology Investment Bank 2008-Present

Member, Board of Directors, NeuPath, Inc. – Large Multi-Practice Chronic Pain Clinics 2018-Present

Member, Board of Directors, Appili Therapeutics, Inc. – Anti-Infectives Biotechnology Company 2016-Present

Academic Awards and Honors:

American Association of Anatomists Langman Graduate Student Platform Presentation Award Finalist 2003, 2006 Winner 2005

Keith & Marion Moore Young Anatomist's Publication Award Finalist 2006 Sigma Xi, The Scientific

Research Society, Full Member 2008

Military Awards and Honors:

Army Meritorious Service Medal (MSM with two Oak Leaves) 2014, 2018; 2020

Army Commendation Medal (ARCOM) 2003

Army Achievement Medal (AAM with 3 Oak Leaves) 2001, 2002, 2012, 2013

Global War on Terrorism, Service (GWOTSM) 2012

Global War on Terrorism, Expeditionary (GWOTEM) 2016

National Defense Service Ribbon (NDSM with 1 Bronze Star) 1991, 2001

Korea Defense Service Medal (KDSM) 2016

Army Service Ribbon (ASR) 2002

Coast Guard Meritorious Unit Commendation (CGMUC) 1989

Coast Guard Bicentennial Unit Commendation (CGBUC) 1990

Invited Talks and Presentations:

Developmental changes in the petroccipital fissure: Implications for age estimation and biomechanical relationships in the cranial base. Annual Meeting American Association of Physical Anthropologists. Columbus, OH. 1999

Seeking the blueprint to the upper respiratory tract in fossil hominids: New insights from molecular approaches to branchial arch development. Annual Meeting American Association of Physical Anthropologists. Kansas City, MO. 2001

Isolation and characterization of a potential nuclear protein that is expressed in the developing, dorsal neural tube. American Association of Anatomists Annual Meeting at Experimental Biology, Langman Award Graduate Student Platform Session. San Diego, CA. 2003

A Physicians Duty to Treat Under the Law (Invited). The Art and Science of Medicine Faculty Development Lecture Series. Mount Sinai School of Medicine, New York, NY. 2005

Comparative analysis of the petro-occipital fissure in humans and rats: Implications for understanding the anatomy of age-related hearing loss. American Association of Anatomists Annual Meeting at Experimental Biology, Langman Award Platform Session. San Diego, CA. 2005

Defining the Greater Basicranium: Presenting molecular and morphological data in support of a new anatomical ontology. American Association of Anatomists Annual Meeting at Experimental Biology, Langman Award Graduate Student Platform Session. San Francisco, CA. 2006

Accelerated Ossification of the Cochlear Canaliculus, TB-Meningitis, and Hearing Loss: Are They Related? American Association of Anatomists Annual Meeting at Experimental Biology, Platform Session, Bone and Cartilage Development. Washington, D.C. 2007

Clinical Anatomy of Head Trauma: A basic science review of first year medical gross anatomy (Invited). Lake Erie College of Osteopathic Medicine, Lake Erie, NY. 2008

Clinical Anatomy of Head Trauma: A case based review of anatomy for clinical practitioners (Invited). Morehouse School of Medicine, Atlanta, GA. 2009

Development of Medical Counter Measures, Challenges and Opportunities for Collaborative Development: A Whole of Government Approach from BSL4 to the Bedside (Invited). U.S. FDA, CDER, Division of Anti-Infective Products, Silver Springs, MD. 2015

Case Studies in Biotechnology: Identifying and Communicating Scientific Risk (Invited). McMaster University, Faculty of Life Sciences, Biomedical Discovery and Commercialization Program Hamilton, ON. Annual 2015

Keynote: Current Regulatory Issues in Cell and Tissue Therapy (Invited) American Society of Regional Anesthesia and Pain Medicine, San Diego, CA Annual Meeting 2016

Innovation in Teaching and Learning: Developing New Teaching Pedagogies in a Blended Learning Environment (Invited) The Citadel, The Military College of South Carolina, Charleston, S.C. 2017

Case Studies in Biotechnology: Identifying and Communicating Scientific Risk (Invited). McMaster University, Faculty of Life Sciences, Biomedical Discovery and Commercialization Program Hamilton, ON. Annual 2018

Professional Panels:

AccelerateCNY, Panelist, Evaluating Emerging Technology: Focusing on Accelerating Growth in the Innovation and Technology Economy.
Syracuse University, Syracuse, NY 2011

Life Sciences Career Development Society (LSCDS), Panelist/Invited Speaker, Career Development Ouside of Academe: Leveraging your Graduate Education in the Sciences. The University of Toronto, Toronto, ON 2011

Bloom Burton & Co. Technology Transfer Conference, Panel Chair
Scientific and Medical Diligence of Biotechnology Companies and Emerging Technologies Toronto, Ontario, Canada 2013, 2014, 2015

Saskatoon Chamber of Commerce and the University of Saskatoon, BIO 2015 Building Better Biotechs: Identifying the Next Best Technology
Saskatoon, Saskatchewan, Canada 2015

Poster Presentations:

Subtractive hybridization of branchial arches in Gallus gallus: A molecular exploration of aerodigestive tract development. American Association of Anatomists Annual Meeting at Experimental Biology, Growth and Development Poster Session. San Diego, CA. 2000

New insights into the development of the aerodigestive tract: Molecular relationships among branchial arches. Annual Meeting, Association of Research in Otolaryngology. St. Petersburg, FL. 2001

Comparative analysis of the petro-occipital fissure in humans and rats: Implications for understanding the anatomy of age-related hearing loss. Mount Sinai Sch. of Medicine Student Research Conference. New York, NY. 2006

Accelerated Ossification of the Cochlear Canaliculus, TB-Meningitis, and Hearing Loss: Are They Related? American Association of Anatomists Annual Meeting at Experimental Biology, Platform Session, Bone and Cartilage Development. Washington, D.C. 2007

TB Meningitis, Reactive Oxygen Species (ROS) and the Pathological Ossification of the Petroccipital Fissure and Cochlear Cannaliculus. American Association of Anatomists Annual Meeting at Experimental Biology, Stem Cells and Cell Biology Poster Session. New Orleans, LA. 2009

ATI-1701, A live attenuated *Francisella tularensis* vaccine for the prevention of pneumonic tularemia in the Warfighter. MHSRS, Kissimmee, FL. 2019

A Novel Negamycin Analogue for the Treatment of Multi-Drug Resistant Gram-Negative Infection. MHSRS, Kissimmee, FL. 2019

Publications: Peer-Reviewed

Jun L., Balboni A.L., Laitman J.T., and Andrew Bergemann (2002). Isolation of DNTNP, which encodes a potential nuclear protein that is expressed in the developing, dorsal neural tube. Dev. Dynamics 224:116-123.

Balboni A.L., Bergemann A.D., Reidenberg J.S., Estenson T.E., Laitman J.T. (2005). Assessing Age Related Ossification of the Petroccipital Fissure: Laying the foundation for understanding clinicopathologies of the cranial base. Anat. Rec. 282A:38-48.

Balboni A.L., Bergemann A.D., Reidenberg J.S., Laitman J.T. (2008). Tuberculosis Induced Changes to the Osseous Cranial Base and Potential Effects on Hearing and Balance. Anat. Rec. 291(5):488-90.

Books and Monographs

Balboni A.L. (2006). The Greater Basicranium During Development and Aging: Searching for Molecular and Biomechanical Mechanisms Underlying Human Clinicopathologies. Ph.D. Dissertation. Mount Sinai School of Medicine of New York University. Ann Arbor, Michigan, University Microforms.

Book Chapters

Som P.M., Smoker R.K., Balboni A.L., Reidenberg J.S., Hudgins P.A., Weissman J.L., Laitman, J. (2003). Embryology and Anatomy of the Neck. In: Head and Neck Imaging. Mosby (New York), 4th Ed. Chapter 33, 1757-1804.

Laitman J.T., Reidenberg J.S., Balboni A.L., Bergemann A.D., Som P.M. (2005). The Branchial Arches and their Derivatives. In: Basic Science Review for Otolaryngology. Thieme Medical Publishers, Inc. (New York).

Som P.M., Smoker R.K., Balboni A.L., Reidenberg J.S., Hudgins P.A., Weissman J.L., Laitman, J. (In Press). Embryology and Anatomy of the Neck. In: Head and Neck Imaging. Mosby (New York), 5th Ed. Chapter 33, 1757-1804.

Publications:

Published Abstracts

Balboni A.L., Reidenberg J.S., Laitman J.T. (1999). Developmental changes in the petroccipital fissure: Implications for age estimation and biomechanical relationships in the cranial base. Am J. Phys Anth. 71: 1101

Balboni A.L., Bergemann A.D., Reidenberg J.S., Laitman J.T. (2000). Subtractive hybridization of branchial arches in Gallus gallus: A molecular exploration of aerodigestive tract development. FASEB J. 11: 805.1

Balboni A.L., Bergemann A.D., Cole F., Reidenberg J.S., Laitman J.T. (2000). New insights into the development of the aerodigestive tract: Molecular relationships among branchial arches. Association of Research in Otolaryngology. 212: 121

Balboni A.L., Bergemann A.D., Marquez S., Reidenberg J.S., Laitman J.T. (2001). Seeking the blueprint to the upper respiratory tract in fossil hominids: New insights from molecular approaches to branchial arch development. Am J. Phys Anth 15: 1003

Balboni, A.L., Bergemann, A.D. and Laitman, J.T. (2003). Isolation and characterization of a potential nuclear protein that is expressed in the developing, dorsal neural tube. 2003 Exp. Bio. Langman Award Finalist, Growth and Development platform FASEB J. 17: 8366

Balboni A.L., Reidenberg J.S., Bergemann A.D., Laitman J.T. (2005). Comparative analysis of the petro-occipital fissure in humans and rats: Implications for understanding the anatomy of age-related hearing loss I. FASEB J. 18: 501

Balboni A.L., Reidenberg J.S., Bergemann A.D., Laitman J.T. (2006). Defining the Greater Basicranium: Presenting molecular and morphological data in support of a new anatomical ontology. FASEB J. 20: A443-c

Balboni A.L., Reidenberg J.S., Bergemann A.D., Laitman J.T. (2006). Comparative analysis of the petro-occipital fissure in humans and rats: Implications for understanding the anatomy of age-related hearing loss. Mount Sinai J. Med. 73:4; 719

Yemin A.Y., Salinas H.M., Balboni A.L., Fritton J.C., Reidenberg J.S., Bergemann A.D., Schaffler M.B., Smouha E.E., Laitman J.T. (2007). New imaging visualizations of the posterior cranial base in rats via micro-CT: Implications for uncovering anatomical correlates of age- related hearing loss. FASEB J. 21:777.1

Salinas H.M., Yemin A.Y., Balboni A.L., Reidenberg J.S., Bergemann A.D., Gannon P.J., Smouha E.E., Laitman J.T. (2007). Development of an experimental model for the study of the ossification of the petro-occipital fissure and its ties to age-related hearing loss. FASEB J. 21: 777.2

Balboni A.L., Bergemann, A.D., Reidenberg, J.S., Laitman J.T. (2007). Accelerated Ossification of the Cochlear Canaliculus, TB-Meningitis, and Hearing Loss: Are They Related? FASEB J. 21: 315.8

Bergemann A.D., Pagano A.S., Reidenberg J.S., Simon R., Balboni A.L., Laitman J.T. (2008). Skeletal Variations in the Fam53A mutant mouse. FASEB J. 22: 521.2

Balboni A.L., Bergemann A.D., Laitman J.T. (2009). TB Meningitis, Reactive Oxygen Species and the Pathological Ossification of the Petroccipital Fissure and Cochlear Cannaliculus. FASEB J.

Media Interviews:

Indigenous Services considers Canadian trial of antiviral drug that may prevent COVID-19, Canadian Broadcasting Corporation https://www.cbc.ca/news/indigenous/drug-department-trial-1.5610093

IT'S NOT A CURE BUT IT MAY HELP YOU SURVIVE COVID-19. A HALIFAX FIRM IS WORKING ON A PREVENTATIVE PILL, NewsTalk 1010, https://www.iheartradio.ca/newstalk-

1010/audio/podcasts/it-s-not-a-cure-but-it-may-help-you-survive-covid-19-a-halifax-firm-is-working-on-a-preventative-pill-1.12881083?mode=Article

Evaluating Favipiravir for COVID-19, Contagion Live: Infectious Disease Today
https://www.youtube.com/watch?v=7kFwjSXpE4M

Pharmaceutical Business Review: Appili announces dosing of first patient in phase 3 Covid-19 trial

Developing a therapeutic for the most vulnerable in the first 48 hours of testing positive for the coronavirus: **The John Batchelor Show**

Current Grants:
Department of Defense – Congressionally Directed Medical Research Programs (CDMRP) FY21 Peer Reviewed Medical Research Program (PRMRP): W81XWH1910308 - $3,500,000 (3YR) Co-Investigator, "A Novel Negamycin Analog for the Treatment of Multi-drug Resistant Gram-negative Bacterial Infection"

Department of Defense – Defense Threat Reduction Agency (DTRA) FY17 HDTRA-1-C-16-0028 - $6,000,000 (Completion 2020). Co-Investigator, "A live attenuated *Francisella tularensis* vaccine for the prevention of pneumonic tularemia in the Warfighter"

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