

Curriculum Vitae

Eric A. Banks, Ph.D.

SUMMARY OF QUALIFICATIONS

- Award winning Program Director
- Proven versatile scientist, educator and mentor in academia and government
- Twenty years plus, experience as instructor and curriculum developer in technical and non-technical courses which includes Assistant Professor of Chemistry and Biochemistry at US Air Force Academy and adjunct instructor for US Air Force School of Aerospace Medicine
- Ten years plus, experience in basic science research in academia and government
- Published author in high impact biomedical scientific journals

EDUCATION

Degrees:

- Ph.D. in biochemistry; 2007 University of Texas Health Science Center at San Antonio
Advisor: Dr. Jean Jiang
Dissertation: Connexin45.6 in Lens Development
Abstract: Connexin45.6 (Cx45.6) has a physiological role in lens development apart from its function as a gap junction monomer. Using stem cells from chick lens as a model, I demonstrated lens differentiation is dependent on proper Cx45.6 expression and not Cx45.6 mediated cellular communication. Cx45.6 hemichannel activity is not involved in differentiation as well.
- M.A. in chemistry and biochemistry; 1991 University of Texas at Austin
Advisor: Dr. John Ivy
Thesis: The Effect of Exercise Training on Skeletal Muscle GLUT4 Concentration in the Obese Zucker Rat.
Abstract: Skeletal muscle insulin resistance in the obese Zucker rat is not due to reduced levels of GLUT4 concentration. However, the improved insulin resistance observed with exercise training appears to be due in part to increased GLUT4 expression but only in the muscle fibers recruited during exercise training.
- B.S. in biochemistry; 1981 Texas A&M University
Senior research project: Chronic Wasting Syndrome in Caged Marmosets
Advisor: Dr. Roscoe Lewis

Military Schools:

- Air Command and Staff College Seminar Program (seminar-style; distance learning, 10-month mid-level leadership/management course); 1995
- Academic Instructor School (in-residence 5-week instructor course in Instructional Systems Development (ISD) teaching model; included lesson objective development, exam/test question development/analysis, lecture format selection/preparation and practice teaching; 1986
- Squadron Officer School (in residence 9-week entry-level supervisor leadership/management course), Maxwell AFB, AL; 1984

Continuing Education and Professional Training:

- ACS/AAAS Webinars (multiple topics), 2020 - present
- Radiation Safety Training, 2004
- Security Assistance Management Training Officer Course, 2000 (course provides cultural/historical information on different world regions to better understand management of international military students)
- Contracting Officer's Representative Course, 1998
- Pollution Prevention Tools, Techniques and Technologies, 1998
- Chemical Toxicology (American Chemical Society short course) 1998
- Toxicology for Chemist (American Chemical Society short course) 1998
- USAF Civilian Personnel Management Course (CPMC), 1997
- National Environmental Policy Act (NEPA) Executive Overview, 1997
- Hazardous Waste Operations and Emergency Response Refresher, 1997
- Data Quality Objectives and Analysis of Hazardous Waste (EPA short course) 1996
- Hazardous Materials Incident Response Operations, 1995

AWARDS AND RECOGNITIONS

- Recipient National Research Council Research Associateship Program Postdoctoral Fellowship Award, 2007
- White House Closing the Circle Award recipient for Environmental Management (1999, 1998)
AFCEE 1997 Nominee, Federal Employee of the Year; Alamo Federal Executive Board, San Antonio
AFCEE Superior Military Performer of the Quarter, 1996
- Defense Meritorious Medal, 2002
Meritorious Service Medal: 2000, 1995, 1989
AF Commendation Medal, 1986
AF Achievement Medal, 1983

PROFESSIONAL MEMBERSHIPS

- Society of American Military Engineers
- American Chemical Society
- American Association for the Advancement of Science

PROFESSIONAL EXPERIENCE

2022 – 2024 Adjunct Instructor of Chemistry, Texas A&M University San Antonio

- Instructor for General Chemistry I and II (CHEM 1311/1312), covering fundamental principles of inorganic chemistry, general chemical principles, and theories for science majors.
- Instructor for General Chemistry I and II Laboratory (CHEM 1111/1112), covering fundamental principles of inorganic chemistry, general chemical principles, and theories for science majors.
- Instructor for General Chemistry I (CHEM 1305) for non-science majors
- Instructor for Quantitative Analysis (CHEM 3331), covering theory and application of gravimetric methods; acid-base, precipitation, and complexometric volumetric titrations; analytical separations, spectrophotometric and electroanalytical techniques; statistical and computer tools.
- Instructor for Quantitative Analysis Laboratory (CHEM 3131), covering separation techniques and measuring chemical species concentrations.
- Instructor for Instrumental Analysis (CHEM 4331), covering theory and application of instrumental techniques; spectroscopy, electrochemistry, and chromatography.
- Instructor for Instrumental Analysis Laboratory (CHEM 4131), covering analytical instrument theory and operation.
Science Olympiad Chemistry Event Coordinator
- Faculty Search Committee member
- Chemistry Advisory Board member

2010 – 2021 Adjunct Instructor of Chemistry, Northeast Lakeview College

- Instructor for General Chemistry I and II (CHEM 1411/1412), covering the fundamental principles of inorganic chemistry, general chemical principles, and theories for science majors. Delivered instruction for inaugural General Chemistry for Engineering (combined General Chemistry I/II; CHEM 1409) course as part of Texas A&M Engineering Academy.
- Developed classroom experiments based on real-world environmental issues.
- Science advisor for student summer research.
- Instructor for General, Organic and Biological Chemistry (CHEM 1405), introductory course for non-science majors
- Courses use Canvas, Pearson and McGraw Hill learning systems.

Summer 2016 - Postdoctoral Fellow UT Health Science Center at San Antonio

- Refreshed laboratory skills and supported research to evaluate protein structure using X-ray crystallography.
- Gained proficiency with High Performance Liquid Chromatography.

2014 – 2015 Business Development for Prudent Technologies LLC

- Developed strategies to pursue Air Force science and engineering contracts.
- Interacted with large environmental firms to develop teaming strategies for high dollar Air Force work.

2013 – 2014 Air Force Account Manager for LEIDOS (formerly SAIC)

- Provided services as a key liaison between the corporation and clients, developing optimal support strategies.
- Met with Assistant Secretary of Defense for Environmental Security on high impact Air Force projects.
- Conducted seminar on compound-specific isotope analysis for Leidos Community of Practice on remediation.

2008 - 2013 Assistant Vice President for Program Management, Science Applications International Corporation (SAIC)

- Air Force Account Manager – acts as liaison and develops strategy to support USAF clients.
- Leads 4PAE08 Program Management Office — virtual 50-plus team of project managers, contracting representatives, project controllers, technical and administrative staff; team nominee for SAIC Excellence in Program Management-Small Program, for CY 2010
- Developed SAIC Program Management Plan (PMP) for AFCEE to standardize management of 150 task orders representing \$71 M in awards—PMP considered noteworthy by client.
- Implemented workshops/newsletters to improve communication and project execution.
- Increased task order awards on 4PAE08 contract by \$15M in FY 2009 over FY 2008; moved SAIC from #9 in 2008 to #6 in 2009 of 28 4PAE08 contractors in dollars awarded.
- Improved small business use on contract from 8.3% (2009) to 13.4% (2011)
- Worked with project managers when necessary to recover poor performing task orders – all task orders recovered to satisfaction of end user – overall ACASS ratings at 18% exceptional and 29% very good – no ratings less than satisfactory over 100+ projects.
- Co-author for first-ever SAIC publication in The Military Engineer professional journal.
- Technical reviewer for SAIC science publications – SAIC operates the National Cancer Institute funded by US Congress

2007–2008 Postdoctoral Fellow US Army Institute of Surgical Research Regenerative Medicine Branch

- Developed and received prestigious US National Research Council Postdoctoral Research Grant 2007; only 2 of 7 selected to work with principal investigators at US Army Institute of Surgical Research
- Developed quantitative Real Time Polymerase Chain Reaction (qRT-PCR) method to examine gene expression changes in peroxisome proliferator-activated receptors (PPARs) induced by major burn injury in a rat model; evaluated PPAR agonists for novel use as potential therapeutic treatments.
- Presented research results at San Antonio Regenerative Medicine Association

2002-2007 Graduate Student, Biochemistry Department, UT Health Science Center at San Antonio

- Received Doctorate in Biochemistry August 2007
- Research publication from doctoral dissertation selected as a highlight article by editors in Journal of Cell Science October 2007 issue.
- Selected by Dean of Graduate School as graduate student representative on UT System Task Force on Doctoral and Postdoctoral Programs—task force final report accepted by UT Board of Regents with recommendations to be implemented over next few years.
- Graduate student member of UTHSCSA Task Force on Health Promotions
- Teaching Assistant for Medical Biochemistry; recognized by students for excellence in tutoring and received grade of Honors on Satisfactory/Unsatisfactory grading scale for teaching assistants.
- Research presented as poster session at Gap Junction Conference, August 13-18, 2005 Whistler, British Columbia, Canada.

2000-2002 Defense Language Institute English Language Center, Lackland AFB, TX

Commander, Air Force Element/ Chief, Operations Division (equivalent to Dean of Students for a small college)

- Acted as Commandant, DLIEC when needed (equivalent to a small college president)
- DLIELC provides over 100 courses for foreign military personnel to receive English language training to work with US Forces as well as NATO membership and international peacekeeping operations.
- Skillfully provided command and control for 60 permanent party military personnel as well as 2000 international military students (from over 100 countries) plus 700 US Army English language trainees annually; no major incidents between nationalities.
- Routinely resolved administrative, medical, transportation, physical training, feeding, morale, welfare, recreation, housing, and personal issues for a student body ranging from entry-level military to Secretary of Defense-level civilians and met all State Department requirements.
- Commended often by on-campus international liaison officers for approachability and fairness; Division always rated as “best” on student surveys for professionalism/customer service; received coveted Outstanding rating on Air Education and Training Command (parent command overseeing all Air Force schools) on Operational Readiness Inspection
- Battlestaff commander during OPERATIONS ENDURING FREEDOM and NOBLE EAGLE

1998-2000 Chief, Environmental Programs Air Force Center for Environmental Excellence (AFCEE), Brooks AFB, TX

- Led division of 12 subject matter expert engineers, specialists, reservists, and support staff
- Provide execution/obligation and oversight of \$465M AF Pollution Prevention and Compliance budget.
- Acted as Center Director when needed.
- Center Representative on Brooks AFB Resource Protection Executive Committee and Environmental Protection Committee
- US Air Force technical advisor to Strategic Environmental Research and Development Program (SERDP) chartered to prioritize environmental scientific and engineering research proposals for Congressional funding; technical representative to Environmental Security Technology Certification Program (ESTCP) chartered to prioritize environmental research proposals for Department of Defense funding; validated methodologies and advised on process improvements; combined programs equivalent to NIH study sections and set direction for DoD, DOE and EPA environmental programs

- Established Center as best service provider for USAF, DoD model for environmental doctrine.
- Invited lecturer on compliance programs for Air Force Environmental Managers Course
- Presented Air Force environmental program at 9th Southern States Annual Environmental Conference sponsored by Mississippi State University
- Director for AF Environmental Management and Information System used to support hazardous material pharmacies at 168 Air Force installations worldwide.
- Recognized environmental expert, selected by Center Director to assist in planning first-ever international environmental conference between US DoD and Russia's Ministry of Defense
- Instrumental in unit receiving White House Closing the Circle Award for environmental innovation for two consecutive years, 1998-1999

1995-1998 Chief, Environmental Chemistry and Toxicology Consultants, AFCEE

- Supervised 12 chemists, toxicologists, and risk assessors to provide technical expertise for execution of over \$1.2B in remediation contracts at over 90 DoD installations; developed guidance documents to cut costs and streamline processes for environmental program managers
- Coordinated with regional managers from all 10 US EPA regions along with state water boards to ensure Air Force installations were good neighbors and met environmental compliance standards
- Air Force environmental technical advisor for politically sensitive transfer of O'Hare Air National Guard Base to city of Chicago; property transferred, and all parties satisfied
- Lead chemist for emergency identification of unknown compound at Edwards AFB from request of US Senator; compound classified as harmless, advised installation managers on how to prevent future incidents
- Developed first ever comprehensive quality assurance and quality control program to protect \$400M annual US Air Force environmental data investment; program compliant with ISO 14001 standards for ensuring laboratory performance and managing environmental data collection; familiar with GLP requirements
- Invited instructor for basic chemistry in Bioenvironmental Engineer Course
- Invited instructor for environmental sampling and analysis in Environmental Training Symposium
- Air Force lead speaker at Tri-Service Quality Assurance Conference hosted by UC San Diego
- Invited session leader 12th Annual Conference on Hazardous Waste Research, Kansas City, MO
- Described as national asset in science and engineering community involved in cleanup of hazardous waste by Assistant Deputy Undersecretary of Defense

1991-1995 Department of Chemistry, US Air Force Academy, CO

Executive Officer and Assistant Professor

- Responsible for daily operational control of 26 officers and 11 civilians; reported directly to Department Chair
- Provided oversight of departmental suspenses and quality control for administrative reports
- Instructor, Chemistry 481 (provided classroom/laboratory instruction in senior-level main biochemistry course)
- Instructor, Chemistry 141/142; department's new application-based general chemistry course
- Advisor and mentor for student research projects
- Co-investigator on Air Force sponsored research project on circadian biology in collaboration with Armstrong Laboratory group
- Involved with students outside of classroom as Officer-In-Charge of Cadet Karate Club; produced two national champions
- Most versatile instructor (taught in six different courses); set tough standards and praised by students for fairness; mentored students on non-academic issues

- Performed and directed chemistry magic shows as part of community involvement

Course Director

- Chemistry 434 (provided classroom instruction for 1-semester senior-level survey biochemistry course)
- Chemistry 131 (department's largest freshman general chemistry course; coordinated classroom/laboratory instruction for over 1000 cadets with 25 instructors)
- Camp Director and Assistant Camp Director for Chemistry Olympiad sponsored by American Chemical Society; top 20 high school students from US attended a two-week in-residence camp from which the top four were selected for competition, US team had highest finish ever during international competition.

1989-1991 Graduate Student, Department of Chemistry and Biochemistry, University of Texas at Austin

- Received Master of Arts in Chemistry and Biochemistry August 1991
- Interdisciplinary student, cross-appointed with Department of Kinesiology
- Directed biochemistry student symposium on Space and Environmental Medicine
- Developed student presentation evaluation standards adopted by graduate faculty.
- Presented research at Texas Chapter, American College of Sports Medicine Symposium

1986-1989 Squadron Officer School (SOS), Maxwell AFB AL

Officership Curriculum Manager

- Managed the Foundation and Contemporary Climate of the Profession of Arms phase of the Officership curriculum for 4800 officers per year (six 9-week, 800-student classes annually); monitored content and performance of 37 in-house and nationally prominent guest lecturers.
- Instructed and assisted officers through teaching leadership, officership and communications skills
- Built Foundations and Contemporary Climate phase of Officership curriculum in new 7-week format SOS program.
- Stage lecturer each SOS class on Military Professionalism
- Directly contributed to Outstanding rating by Air University Inspector General in primary mission
- Coordinated publication of over 500 pages of curriculum material and errata changes from 14 curriculum managers

Flight Commander

- Annually commanded, instructed and evaluated 60-65 USAF and international junior officers in the resident course (12-13 per section)
- Taught and evaluated various speaking and writing formats and techniques.
- Instructed, assessed, critiqued, and evaluated officers' leadership skills

1983-1986 Analytical Chemist, Occupational and Environmental Health Laboratory, Brooks AFB TX

- Analyzed environmental samples for pesticides and trace organics in water, soil and biological samples using gas chromatography; reorganized processes to significantly reduce backlog and routinely exceeded turn around times for results; preferred chemist for handling emergency analyses requiring 24-hour response
- Developed and assured quality control standards were met for 5 analytical procedures which encompassed 75 organic compounds ensuring safe drinking water for all Air Force installations
- Advised water quality managers Air Force wide on sample collection and testing criteria for priority pollutants in water, wastewater, and soils; met all local, state, and federal requirements with no violations
- Able to troubleshoot gas chromatography instruments with photoionization detectors and electroconductivity detectors; increased sample output by 50% while maintaining EPA certification

1981-1983 Research Biochemist, School of Aerospace Medicine, Brooks AFB TX

- Planned, directed, analyzed, and reported field laboratory research pertaining to crew capabilities, fatigue, stress, human factors and safety in operational aerospace and related hazardous environments
- Technical advisor and co-investigator in support of psychophysiological investigations on USAF pilot and flightline crew performance; used electrophysiological measurements (EEG, EOG, EKG) to assess cognitive processing and its relationship to pilot performance under flight stress; also supported investigation of potential flightline hazards for female flightline workers; developed HPLC method to measure hormone responses to heat stress
- Evaluated chemical defense proposals for technical merit and practicability; categorized chemical warfare nerve agents used by Soviet Union/Eastern Bloc for possible prophylaxis development
- Planned and organized symposium for Texas Chapter, American College of Sports Medicine hosted by School of Aerospace Medicine

RESEARCH INTERESTS

Nuclear receptors and transcription factors; PPAR activation/inactivation; cell-to-cell communication, cell cycle control, exercise biochemistry

TEACHING INTERESTS

General chemistry, analytical chemistry, biochemistry

PUBLICATIONS

- Shi Q, Gu S, Yu XS, White TW, Banks EA, Jiang JX. Connexin Controls Cell-Cycle Exit and Cell Differentiation by Directly Promoting Cytosolic Localization and Degradation of E3 Ligase Skp2. *Dev Cell*. 2015 Nov 12; 23:35(4): 483-96
- Fortenberry H, Newman K, Banks EA. Innovating for Cleaner Air. *The Military Engineer*. 2012 Jan-Feb; Vol 104 No. 675
- Shi Q, Banks EA, Yu XS, Gu S, Lauer J, Fields GB, Jiang JX. Amino Acid Residue V362 Plays A Critical Role in Maintaining the Structure of C-Terminus of Connexin 50 and in Lens Epithelial-Fiber Differentiation. *JBC*. 2010 Jun 11; 285(24):18415-22
- Banks EA, Toloue MM, Shi Q, Zou ZJ, Liu J, Nicholson BJ, Jiang JX. Connexin mutation that causes dominant congenital cataracts inhibits gap junctions, but not hemichannels, in a dominant negative manner. *J Cell Sci*. 2009 Feb 1;122(Pt 23): 378-88
- Banks EA, Yu XS, Shi Q, Jiang JX. Promotion of lens epithelial-fiber differentiation by the C-terminus of connexin 45.6 a role independent of gap junction communication. *J Cell Sci*. 2007 Oct 15; 120(Pt 20):3602-12
- HQ AFCEE Quality Assurance Project Plan (1998). Provide guidance on analytical methods for environmental sampling and analysis in accordance with EPA methods to ensure defensibility of data for decision making.
- Best Practices for the Detection and Deterrence of Laboratory Fraud (1997)
- Field Analytical Measurement Technologies, Applications, and Selection (1996)
- Torgan CE, Brozinick JT Jr, Banks EA, Cortez MY, Wilcox RE, Ivy JL. Exercise training and clenbuterol reduce insulin resistance of obese Zucker rats. *Am J Physiol*. 1993 Mar;264(3 Pt 1): E373-9
- Banks EA, Brozinick JT Jr, Yaspelkis BB 3rd, Kang HY, Ivy JL. Muscle glucose transport, GLUT-4 content, and degree of exercise training in obese Zucker rats. *Am J Physiol*. 1992 Nov;263(5 Pt1): E1010-5