

CURRICULUM VITAE

**Brooks A. Keel, Ph.D.**

Address: Office of the President  
Georgia Southern University  
P.O. Box 8033  
Statesboro, GA 30460  
912-478-5211  
bkeel@georgiasouthern.edu

Present Positions: **President**

Personal: United States Citizen

Education:

Undergraduate: Augusta College (now Augusta State University), Augusta, GA; B.S. Biology/Chemistry, 1978

Graduate: Department of Endocrinology, Medical College of Georgia, Augusta, GA; Ph.D. in Reproductive Endocrinology, 1982. Major advisor, Dr. Thomas O. Abney

Postdoctoral: 1982-1983: Department of Reproductive Medicine and Biology, University of Texas Medical School at Houston, TX; Postdoctoral Fellow with Dr. H.E. Grotjan, Jr.

1983-1985: Department of Physiology and Pharmacology, University of South Dakota, School of Medicine, Vermillion, SD; Research Associate continuing work with Dr. H.E. Grotjan, Jr.

Professional Certification:

American Board of Bioanalysis, 1987-present, High-complexity Clinical Laboratory Director (HCLD)

Academic Appointments:

**University of Kansas School of Medicine-Wichita**

- 1985-1988: Assistant Professor, Department of Obstetrics and Gynecology, University of Kansas School of Medicine-Wichita
- 1988-1992: Associate Professor, Department of Obstetrics and Gynecology, University of Kansas School of Medicine-Wichita
- 1991-1993: Adjunct Associate Professor of Biological Sciences, The Wichita State University
- 1986-1997: Adjunct Professor of Medical Technology, The Wichita State University
- 1991-2002: Associate Dean for Research, University of Kansas School of Medicine-Wichita
- 1992-2002: Professor, with tenure, Department of Obstetrics and Gynecology, University of Kansas School of Medicine-Wichita
- 1992-2002: Professor, Department of Pediatrics, University of Kansas School of Medicine-Wichita
- 1993-2002: Adjunct Professor of Biological Sciences, Graduate Faculty, The Wichita State University
- 1995-2001: Daniel K. Roberts Distinguished Professor, Department of Obstetrics and Gynecology, University of Kansas School of Medicine-Wichita

**Florida State University**

- 2002-2006: Professor with tenure, Department of Biomedical Sciences, College of Medicine, FSU
- 2002-2006: Associate Vice President for Research, FSU

**Louisiana State University**

- 2006-2009: Professor with tenure, Department of Biological Sciences, LSU
- 2006-2009: Vice Chancellor for Research and Economic Development, LSU

Administrative Responsibilities and Committee Appointments:

**University of Kansas School of Medicine-Wichita**

- 1985-1991: Research Committee, University of Kansas School of Medicine-Wichita (UKSM-W)
- 1988-2002: UKSM-W, Human Subjects Committee (ex officio 1991-2002)
- 1988-1991: Chairman, Human Subjects Committee, UKSM-W
- 1987-1993: Co-Chairman 1st-6th Midwest Reproductive Colloquium, Wichita, KS
- 1989-1992: Institutional Animal Care and Use Committee, Veterans Administration Medical Center, Wichita, KS
- 1992-1993: Executive Vice President, The Women's Research Institute, Wichita, KS
- 1992-1996: Kansas University Research Institute, Board of Directors
- 1997-1998: Associate Dean for Research Search Committee, KUMC, Kansas City
- 1999: Chair, Executive Director Search Committee, Wesley Medical Research Institutes (WMRI), Wichita, KS
- 1987-2002: Projects Committee, WMRI, Wichita, KS
- 1988-2002: Chairman, Projects Committee, WMRI
- 1988-2002: Board of Directors, WMRI
- 1988-2002: HCA/Wesley Medical Center Teaching Staff, Wichita, KS
- 1991-2002: Research and Development Committee, Veterans Administration Medical Center, Wichita, KS
- 1993-2002: Board of Directors, Women's Research Institute
- 1993-2001: President and Chief Executive Officer, The Women's Research Institute, Wichita, KS
- 1994-2002: Scientific Director, WMRI
- 1994-2002: President, Reproductive Medicine Laboratories, Wichita, KS
- 1999-2002: Executive Cabinet (Deans Advisory Group), UKSM-W
- 2000-2002: Research Compliance Committee, KUMC

2001-2002: Chancellor Task Force on Conflicts of Interest and Technology Transfer, KUMC

### **Florida State University**

2002-2006: Biomedical Advisory Committee

2002-2006: Council on Research and Creativity (ex officio)

2003-2006: FSU Liaison, Oak Ridge Associated Universities, Oak Ridge National Laboratory

2004-2006: Member of the Provost Senior Staff

2004-2006: Vice President, Florida State University Research Foundation

2005-2006: Small Business Participation Council

2005-2006: Pathways to Excellence Executive Committee

2005-2006: Member of Search Committee for the President of the FSU Foundation

### **Louisiana State University**

2006-2007: The Women's Ovarian Health Task Force (created by the State of Louisiana Senate); member representing LSU

2006-2009: Chancellor's Executive Cabinet

2006-2009: Louisiana Business and Technology Center; Advisory Board

2006-2008: Louisiana Research Park Corporation; Board of Directors

2006-2009: LSU Honorary Degree Committee

2006-2009: Coastal Restoration and Enhancement through Science and Technology (CREST); Member of the Executive Board

2007: Governor-Elect Jindal Working Group on Higher Education

2008: Chair, Search Committee for the Dean of the E.J. Ourso College of Business

## **LSU Research Centers and Institutes Administratively Reporting to the Vice Chancellor**

Center for Advanced Microstructures and Devices  
Center for Biomolecular Multi-Scale Systems  
Center for Computation and Technology  
Center for Energy Studies (including the Louisiana Geological Survey, Minerals Processing Research Institute and the Louisiana Applied and Educational Oil Spill and Development Program)  
Center for French and Francophone Studies  
Center for Geoinformatics  
Hurricane Center  
Institutional Review Board  
Life Course and Aging Center  
Louisiana Sea Grant Program  
Louisiana Space Grant Program  
National Center for Security Research Training (including the National Center for Biomedical Research and Training, Fire and Emergency Training Institute, and Law Enforcement Online)

### Professional Organizations (Member) and National Committees:

Society for the Study of Reproduction  
American Society for Reproductive Medicine (ASRM)  
The Endocrine Society  
American Association for the Advancement of Science  
American Board of Bioanalysis  
American Association of Bioanalysts  
Society for Gynecologic Investigation, full member

1985-1987: By-Laws Committee, The Society for the Study of Reproduction (SSR)

1986-1987: Chairman, By-Laws Committee, SSR

1990-1994: Professional Development Committee, Reproductive Biology Special Interest Group (RBSIG), ASRM

1993-1994: Chairman, Professional Development Committee, RBSIG

1994-1995: Administrative Secretary, Midwestern Region, AAB

1994-1997: Future Meeting Sites Committee, SSR

1995-1996: Chairman, Future Meeting Sites Committee, SSR

1995-1996: Program Chairman, Reproductive Biology Professional Group (RBPBG, formally RBSIG), American Society for Reproductive Medicine (ASRM,

formally AFS)

- 1996: Technical Consultant on Personnel Requirements for Embryo Laboratories, CDC
- 1995-1997: 1st and 2nd Vice President, American Association of Bioanalysts (AAB)
- 1995-1998: Chairman, Midwestern Region, AAB
- 1996-1997: Vice Chairman, RBPG, ASRM
- 1997-1999: Chairman, RBPG, ASRM
- 1997-1998: President-Elect, AAB
- 1998-1999: President, AAB
- 1999-2000: Past-President, Secretary/Treasurer, AAB
- 1994-2000: Board of Directors, AAB
- 1998-2009 : Board of Directors, AAB Board of Registry
- 1999: Organized/Co-Chaired *Challenges and Strategies in Assisted Reproductive Technology: An ART Workshop*; Cozumel, Mexico
- 2000: Organized/Co-Chaired *ART in Y2K: Challenges and Strategies in Assisted Reproductive Technology*; Kona, Hawaii
- 2001: Organized/Co-Chaired *2001: An ART Odyssey. Challenges and Strategies in Assisted Reproductive Technology*; Waikoloa, Hawaii
- 1999-2001: Executive Council Member, Society for Assisted Reproductive Technology (SART)
- 2002: Organizing Committee for *Sustainable Campus Security: The Path Forward*, Oak Ridge Associate Universities National Conference, Atlanta, GA
- 2004-2005: Programming Committee, Oak Ridge Center for Advanced Studies (ORCAS), Oak Ridge National Laboratory
- 2006-2009 : Executive Committee Member, Council on Research Policy and Graduate Education (CRPGE), National Association of State Universities and Land Grant Colleges (NASULGC)
- 2006-2009 : Executive Board Member, Louisiana Universities Marine Consortium

- 2006-2009 : Board Member and Executive Committee Member, Research Partnership to Secure Energy for America (RPSEA)
- 2006-2009 : Board of Trustees Member, Southeastern Universities Research Association (SURA)
- 2007-2009 : Board of Directors, Oak Ridge Associated Universities (ORAU)
- 2008-2009 : Vice Chair of the Board, ORAU
- 2008-2009 : Chair, Search Committee for the President, ORAU
- 1992- : Board of Directors, American Board of Bioanalysis (ABB)
- 1992- : Board of Scientific Advisors, AAB
- 2004- : Vice Chairman, Board of Directors, ABB
- 2008- : Emerging Technology and Research Advisory Committee (ETRAC), Department of Commerce, Bureau of Industry and Security

Grant Awards:

**Medical College of Georgia**

- 1981-1982: Steroid Binding Characteristics of Alphafetoprotein, Brooks A. Keel, Principal Investigator. A Grant in Aid of Research from Sigma Xi, 1981, \$200, 1 year.
- 1982-1983: Effects of Alphafetoprotein on the Ontogeny of the Rat Testicular Cytoplasmic Estrogen Receptor, Brooks A. Keel, Principal Investigator. A Grant in Aid of Research from Sigma Xi, 1982, \$150, 1 year.

**University of Kansas School of Medicine-Wichita**

- 1986-1988: Women's Research Institute Seed Grant for the Establishment of the Institute, Bobby W. Webster and Brooks A. Keel, Program Directors. Hospital Corporation of America, through the Wesley Medical Center, Wichita, KS, \$1,050,000 direct costs, 1/1/86-12/31/88.
- 1986-1986: Aging and Gonadotropin Heterogeneity, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, Wichita, KS, \$10,000 direct costs, 1/1/86-12/31/86.
- 1986-1989: Microheterogeneity of Human Alphafetoprotein, Brooks A. Keel, Principal

- Investigator. Wesley Medical Research Institutes, Wichita, KS, \$5,000 direct costs 6/1/86-5/31/89.
- 1989-1991: Women's Research Institute Three Year Expansion Grant to Equip Laboratories and Recruit Faculty for the Institute, Bobby W. Webster and Brooks A. Keel, Program Directors. Wesley Foundation, Wichita, KS, \$1,200,000 direct costs, 1/1/89-12/31/91.
- 1989-1990: Microheterogeneity of Human Carcinoma Alphafetoprotein, Brooks A. Keel, Principal Investigator. University of Kansas Cancer Center West Fund, \$18,000 direct costs, 7/1/89-6/30/90.
- 1990-1990: Developmental Characterization of Human Alpha Fetoprotein, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, Wichita, KS, \$5,000 direct costs, 1/1/90-12/31/90.
- 1990-1991: Minority High School Student Research Apprentice Program, Brooks A. Keel, Principal Investigator. NIH 1 S03 RR03519, \$7,500 direct costs, 3/1/90-2/28/91.
- 1990-1991: Minority High School Student Research Support, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, \$3,000 direct costs, 1/30/90-2/28/91.
- 1990-1991: Small Instrumentation Grant, Brooks A. Keel, Principal Investigator. NIH 1 S15 HD27658, \$5,000 direct costs, 9/1/90-8/31/91.
- 1990-1991: Interim Funding of Research Salary, Brooks A. Keel. University of Kansas School of Medicine-Wichita, \$10,760 salary support, 11/11/90-3/31/91.
- 1991-1991: Minority High School Student Research Support, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, \$13,000 direct costs, 6/01/91-12/31/91.
- 1992-1994: Women's Research Institute Three Year Transition Grant to Support the Laboratories and Faculty for the Institute, Brooks A. Keel and Bobby W. Webster, Program Directors. Wesley Foundation, Wichita, KS, \$1,867,812 direct costs, 1/1/92-12/31/94.
- 1992-1992: Minority High School Student Research Support, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, \$15,000 direct costs, 6/01/92-12/31/92.
- 1993-1993: Minority High School Student Research Support, Brooks A. Keel, Principal Investigator. Wesley Medical Research Institutes, \$15,000 direct costs, 6/01/93-12/31/93.

- 1987-1996: Microheterogeneity of Human Alphafetoprotein, Brooks A. Keel, Principal Investigator. NIH R01 HD22465, \$525,422 direct costs, 9/1/87-1/31/96.
- 1996-1998: Signal Transduction in the Granulosa Cell, Brooks A. Keel, Principal Investigator. WMRI, \$20,000 direct costs, 3/1/96-12/31/98.
- 1994-1999: Biomedical Research Initiative Through Education Excellence (B.R.I.T.E.<sup>2</sup>), Brooks A. Keel, Ph.D., Program Director. Howard Hughes Medical Institute 1994 Precollege Science Education Initiative for Biomedical Research Institutions, \$175,000 total costs, 6/01/94-5/31/99.

### **Florida State University**

- 2002: Eliminating Disparities in Perinatal Health, Brooks A. Keel, Ph.D., Project Director. HHS, HRSA 6 H49 MC 00056-02, \$750,000 total costs, 6/1/02-5/31/03. Dr. Keel served as interim project director for this grant during 2002. Total project period: 7/1/01-5/31/05; total project costs \$3,000,000.
- 2003-2005: Staffing for Behavioral Risk Factor and Youth Tobacco Data Analysis Project, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$250,249 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Child Care Food Program Training and Technical Assistance, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$140,878 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Injury Control Epidemiology, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$152,956 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for the Bureau of Chronic Disease Prevention, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$996,772 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Maternal and Child Health Technical Issues, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$2,111,896 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Improvement of Infant Health Care for Florida's Medicaid-Eligible Population, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$220,735 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Improvement of Infant Health Care for Florida's Medicaid-Eligible Population, Brooks A. Keel, Ph.D., Principal Investigator. Agency for Health Care Administration, \$373,894 direct costs, 07/01/03 – 06/30/05.

- 2003-2005: Staffing for the Training and Education for Public Health Preparedness, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$956,440 direct costs, 08/31/03 – 08/30/05.
- 2003-2005: Staffing for the Division of Information Technology, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$1,619,526 direct costs, 07/03/03 – 06/30/05.
- 2003-2005: Staffing for the Office of the Inspector General, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$171,968 direct costs, 08/07/03 – 06/30/05.
- 2003-2005: Staffing for the Division of Health Awareness and Tobacco, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$1,053,772 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for Research and Collaboration on Public Health Issues, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$422,679 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for HIV Prevention and Early Intervention, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$1,345,555 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing for CMS Early Intervention Project, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$523,442 direct costs, 07/01/03 – 06/30/05.
- 2003-2005: Staffing the Division of Information, Technology for the Bio-Terrorism and Public Health Infrastructure Initiatives, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$951,479 direct costs, 09/01/03 – 06/30/05.
- 2003-2005: Staffing the Division of Sexually Transmitted Diseases, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$207,456 direct costs, 10/01/03 – 09/30/05.
- 2003-2005: Staffing the Office of Communications, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$360,039 direct costs, 09/29/03 – 08/30/05.
- 2003-2005: Staffing the Bureau of Statewide Pharmaceutical Services, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$44,506 direct costs, 10/01/03 – 06/30/05.
- 2003-2005: Staffing the James and Esther King Biomedical Research Program, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$147,954 direct costs, 10/01/03 – 06/30/05.

- 2003-2005: Staffing the Florida Department of Financial Services, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Financial Services, \$302,266 direct costs, 09/29/03 – 08/30/05.
- 2003-2005: Staffing Preventive Health Block Grant, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$94,927 direct costs, 11/07/03 – 06/30/05.
- 2003-2005: FSU/USGS Cooperative Research Program, Brooks A. Keel, Ph.D., Principal Investigator. Dr. Keel was appointed PI to this project in February, 2004. U.S. Geological Survey, \$576,235 direct costs, 02/24/03 – 09/30/05.
- 2003-2005: Staffing for Emergency Preparedness for Department of Health Nurses, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$998,351 direct costs, 06/19/03 – 06/30/05.
- 2003-2005: Staffing for Florida Department of Financial Services #2, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Financial Services, \$789,684 direct costs, 01/28/03 – 11/27/05.
- 2004-2005: Staffing for Florida Aquatic Toxins Programs, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$498,825 direct costs, 01/14/04 – 06/30/05.
- 2004-2005: Staffing for the Community Health Assessment Program, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$138,572 direct costs, 07/01/04 – 06/30/05.
- 2004-2005: Staffing for the Bureau of Epidemiology, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$2,018,274 direct costs, 07/01/04 – 06/30/05.
- 2004-2005: Staffing for the Bureau of HIV/AIDS, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$1,382,756 direct costs, 07/01/04 – 06/30/05.
- 2004-2005: Staffing for Children's Medical Services, Bureau of Early Interventions, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$645,317 direct costs, 07/01/04 – 06/30/05.
- 2004-2005: Staffing for the Division of Family Health Services, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$593,781 direct costs, 07/01/04 – 06/30/05.
- 2004-2005: Staffing for Florida Environmental Health Tracking, Brooks A. Keel, Ph.D., Principal Investigator. Florida Department of Health, \$602,282 direct

costs, 01/14/04 – 06/30/05.

- 2005: Graduate Education in the Responsible Conduct of Research and Creativity, Dianne Harrison, Ph.D., Principal Investigator; Brooks A. Keel, Ph.D., Co-Principal Investigator. Council of Graduate Schools through the Office of Research Integrity, \$15,000 direct costs, 01/01/05 - 12/31/05
- 2003-2006: UT-Battelle Core Universities Partnership, Kirby W. Kemper, Ph.D., Principal Investigator; Brooks A. Keel, Ph.D., Co-PI. UT-Battelle, LLC, \$105,000 direct costs, 11/10/03 – 09/30/06.
- 2005: Survival Skills and Ethics Start-Up Grants, Nancy Marcus, Ph.D., Principal Investigator; Brooks A. Keel, Ph.D., Co-Principal Investigator. University of Pittsburgh, \$2,000 direct costs, 11/01/05 - 10/31/06.

#### Clinical Laboratory Experience:

- 1975-1978: Technician, St. Joseph Hospital, Augusta, Georgia. On-the-job training and experience in phlebotomy, immunohematology, hematology, chemistry, serology and microbiology.
- 1978-1979: Supervisor, XYTEX Corporation, Augusta, Georgia. Experience in hematology, serology and microbiology. Intensive experience in semen cryopreservation, semen analysis and infertility testing.
- 1985-1986: Supervisor, Reproductive Medicine Laboratories. Experience in hematology, chemistry, serology and microbiology. Intensive experience in semen cryopreservation, semen analysis, infertility testing and radioimmunoassay.
- 1986-2002: Director and Clinical Consultant, Reproductive Medicine Laboratories and Diagnostic Laboratory Services.

#### Honors:

National Research Service Award, under an institutional grant from the National Institutes of Health, 1982.

Fellowship from the Robert A. Welch Foundation, for postdoctoral training, 1983.

Investigator Recognition Award, from the University of Kansas School of Medicine, 1991.

Daniel K. Roberts Distinguished Professorship, an endowed chair in Obstetrics and Gynecology, University of Kansas School of Medicine-Wichita, 1995.

Distinguished Alumnus Award, from the School of Graduate Studies Alumni Association

of the Medical College of Georgia, 1999.

The 2003 Lucien Dean Hertert Memorial Award from the American Association of Bioanalysts.

Other Appointments:

Editorial Boards:	ARCHIVES OF ANDROLOGY, Member 1987-1990. BIOLOGY OF REPRODUCTION, Member 1990-1995. ARCHIVES OF ANDROLOGY, Member 2000-2003.
Journal Reviewer: (Ad hoc)	FERTILITY AND STERILITY ENDOCRINOLOGY J OF CLINICAL ENDOCRINOLOGY AND METABOLISM BIOLOGY OF REPRODUCTION JOURNAL OF REPRODUCTION AND FERTILITY HUMAN REPRODUCTION MOLECULAR AND CELLULAR NEUROSCIENCES AMERICAN JOURNAL OF PHYSIOLOGY PROC SOC EXP BIOL AND MEDICINE DOMESTIC ANIMAL ENDOCRINOLOGY MOLECULAR REPRODUCTION AND DEVELOPMENT ASIAN JOURNAL OF ANDROLOGY CLINICAL CHEMISTRY AND LABORATORY MEDICINE CLINICA CHIMICA ACTA
Grant Reviewer: (Ad hoc External Reviewer)	THE NATIONAL SCIENCE FOUNDATION THE MARCH OF DIMES USDA OFFICE OF RESEARCH INTEGRITY (ORI) Resource Development Program PENNSYLVANIA DEPARTMENT OF HEALTH PERFORMANCE REVIEW IDAHO HIGHER EDUCATION RESEARCH COUNCIL, One-Time Research Grant Program
Federal Review	NATIONAL INSTITUTES OF ENVIRONMENTAL HEALTH Panel Member SCIENCES, Special Emphasis Panel Member for Review of RFA on Centers for Children's Environmental Health and Disease Prevention, March 1998.
<u>Postdoctoral Fellows Trained</u> :	Juan A. Leal, Ph.D. 1988-1990
:	Yongsheng He, Ph.D. 1992-1994

Courses Organized and Taught at Florida State University:

Compliance and Research Administration Training and Education (CReATE): comprehensive 20 hr. training program in various aspects of research administration compliance, offered to office of research and departmental administrative staff across campus. Dr. Keel was responsible for designing, organizing and coordinating this course.

Responsible Conduct of Research and Creativity: 1.0 hour graduate level course on responsible conduct of research. Offered one semester per year to graduate students (course capped at 100 students) across all academic disciplines. Dr. Keel was the Instructor of Record for this course.

Dr. Keel also served as guest lecturer to 1<sup>st</sup> and 2<sup>nd</sup> year medical students at FSU on the topics of male and female reproductive physiology, contraception and fertility drugs.

Publications, Peer Reviewed Papers:

1. Keel BA (1979) The semen analysis: an important diagnostic evaluation. Lab Med 4:686-688.
2. Keel BA, Karow AM Jr (1980) The motility characteristics of human spermatozoa nonfrozen and cryopreserved. Arch Androl 4:205-212.
3. Keel BA, Black JB (1980) Reduced motility longevity in thawed human spermatozoa. Arch Androl 4:213-215.
4. Keel BA, Abney TO (1980) Influence of bilateral cryptorchidism in the mature rat. Alterations in testicular function and serum hormone levels. Endocrinology 107:1226-1233.
5. Keel BA (1981) Cervical mucus analysis: major component in evaluation of infertility. Lab Med 12:161-164.
6. Keel BA, Abney TO (1981) Alterations of testicular function in the unilaterally cryptorchid rat. Proc Soc Exp Biol Med 166:489-495.
7. Keel BA, Abney TO (1982) Effects of estradiol administration in vivo on testosterone production in two populations of rat Leydig cells. Biochem Biophys Res Comm 107:1340-1348.
8. Grotjan HE Jr, Leveque NW, Berkowitz AS, Keel BA (1984) Quantitation of LH subunits within and released by rat anterior pituitary cells in primary culture. Mol Cell Endocrinol 35:121-129.
9. Keel BA, Abney TO (1984) The kinetics of estrogen binding to rat alphafetoprotein. Experientia 40:503-505.

10. Keel BA, Abney TO (1984) Ontogenetic relationships between two estrogen binding moieties in the male rat: alphafetoprotein and the testicular cytoplasmic estrogen receptor. *Arch Androl* 12:217-223.
11. Keel BA, Melner MH, Abney TO (1984) Effects of the anti-estrogen CI-628 on hCG-induced desensitization of testosterone in purified Leydig cells. *Arch Androl* 13:71-75.
12. Keel BA, Grotjan HE Jr (1984) Characterization of rat lutropin microheterogeneity using chromatofocusing. *Anal Biochem* 142:267-270.
13. Keel BA, Grotjan HE Jr (1985) Influence of bilateral cryptorchidism on luteinizing hormone charge microheterogeneity. *Biol Reprod* 32:83-89.
14. Keel BA, Abney TO (1985) Oestrogenic regulation of testicular androgen production throughout development in the rat. *J Endocrinol* 105:211-218.
15. Keel BA, Grotjan HE Jr (1985) Characterization of rat luteinizing hormone charge microheterogeneity in male and female rats using chromatofocusing: effects of gonadectomy. *Endocrinology* 117:354-360.
16. Grotjan HE Jr, Berkowitz AS, Keel BA (1985) Minimal quantities of FSH beta subunit are released by rat anterior pituitary cell in primary culture. *Mol Cell Endocrinol* 4:205-209.
17. Vasquez JM, Ben-Nun I, Greenblatt RB, Mahesh VB, Keel BA (1986) Correlation between follicle stimulating hormone, luteinizing hormone and prolactin with sperm cell concentration and sperm motility. *Obstet Gynecol* 67:86-90.
18. Abney TO, Keel BA, Myers RB (1986) Depletion - replenishment of the testicular estrogen receptor: sensitivity to cycloheximide and actinomycin D. *J Steroid Biochem* 24:989-995.
19. Abney TO, Keel BA (1986) Temporal nature of the effects of diethylstilbestrol administration in vivo on testosterone production in Leydig cells. *Arch Androl* 17:79-86.
20. Grotjan HE Jr, Padranos-Hicks PA, Keel BA (1986) Ion chromatographic method for the analysis of sulfate on complex carbohydrates. *J Chromatog* 367:367-375.
21. Keel BA, Grotjan HE Jr (1987) Stability of rat pituitary gonadotropins during non-reducing sodium dodecyl sulfate- polyacrylamide gel electrophoresis. *Arch Androl* 17:207-214.
22. Keel BA, Schanbacher BD, Grotjan HE Jr (1987) Ovine pituitary luteinizing hormone I. Effects of castration and steroid administration on the charge heterogeneity of pituitary luteinizing hormone. *Biol Reprod* 36:1102-1113.
23. Keel BA, Schanbacher BD, Grotjan HE Jr (1987) Ovine pituitary luteinizing hormone II. Effects of castration and steroid administration on the levels of uncombined subunits within the pituitary. *Biol Reprod* 36:1114-1124.

24. Keel BA, Grotjan HE Jr (1987) Ovine pituitary luteinizing hormone III. Relationship between the charge heterogeneity of partially purified subunits and the native hormone. *Biol Reprod* 36:1125-1133
25. Keel BA, Kelly RW, Webster BW, Zumbach KL, Roberts DK (1987) Application of bovine cervical mucus penetration test. *Arch Androl* 19:33-41.
26. Keel BA, Schanbacher BA (1987) Charge microheterogeneity of ovine follicle stimulating hormone in rams and steroid treated wethers. *Biol Reprod* 37:786-796.
27. Keel BA, Webster BW, Roberts DK (1987) Effects of cryopreservation on the motility characteristics of human spermatozoa. *J Reprod Fertil* 81:213-220.
28. Keel BA, Webster BW (1988) Correlation of human sperm motility characteristics with an in vitro cervical mucus penetration test. *Fertil Steril* 49:138-143.
29. Cook AS, Webster BW, Terranova PF, Keel BA (1988) Variation in the biological characteristics of human menopausal gonadotropin (hMG). *Fertil Steril* 49:704-712.
30. Keel BA (1988) Effects of age on the absolute amount of biologically active luteinizing hormone. *Arch Androl* 20:203-209.
31. Keel BA, Durfee KK, Cho S (1989) A microcomputer database system for maternal serum alpha-fetoprotein screening programmed in BASIC. *J Perinat Med* 17:221-229.
32. Durfee KK, Keel BA, Cho S (1989) Laboratory components of a maternal serum alpha fetoprotein screening program. *Lab Med* 20:776-782.
33. Keel BA, Webster BW (1989) Semen analysis data from fresh and cryopreserved donor ejaculates: Comparison of cryoprotectants and pregnancy rates. *Fertil Steril* 52:100-105.
34. Keel BA (1989) Role of charge microheterogeneity in gonadotropin action. *Molec Androl* 1:299-315.
35. Leal JA, May JV, Keel BA (1990) Human alpha fetoprotein enhances epidermal growth factor proliferative activity upon porcine granulosa cells in monolayer culture. *Endocrinology* 126:669-671.
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  72. Schalue TK, Tjaden BL, Grainger DA, Keel BA (1997) Within subject variation of semen analysis parameters from patients attending an infertility clinic. ART: State of the Art, Serono Intl. Symposium.
  73. Nguyen VT, Fong H-W, Chen D-B, Davis JS and Keel BA (1998) Tumor necrosis factor alpha (TNF $\alpha$ ) and epidermal growth factor (EGF) activates JNK in porcine theca cells. Biol Reprod 58(Suppl):127.

74. Keel BA, Schalue TK, Quinn P, Schmidt CF, Serafy NT Jr, Serafy NT (1998) Results of the American Association of Bioanalysts (AAB) andrology proficiency testing (PT) program. Fertil Steril 70(Suppl. 1):S297.
75. Quinn P, Keel BA, Serafy NT Jr, Serafy NT, Schmidt CF, Horstman FC (1998) Results of the American Association of Bioanalysts (AAB) embryology proficiency testing (PT) program. Fertil Steril 70(Suppl. 1):S100.
76. Keel BA, Stembridge TW, Pineda G, Serafy NT Sr. (2001) Standardization in the performance of the semen analysis among laboratories in the United States. Fertil Steril 76(Suppl. 1):S21.
77. Keel BA, Schalue TK (2003) Within subject variation of semen parameters in infertile men and normal semen donors. Fertil Steril 80(Suppl. 3):S300.
78. Keel BA, Vanderslice WE (2004) Comparison of sperm counting chambers used by participants in a national andrology proficiency testing program. Fertil Steril 82(Suppl. 2):S329.
79. Rollene NL, Morbeck DE, Pomeroy KO, Keel BA, Quinn P (2008) Sensitivity of sperm and embryo bioassays in the American Association of Bioanalysts proficiency testing program. Fertil Steril 90(Suppl. 1):S351-S352.

Invited Presentations to Professional Audiences:

1. Keel BA, Abney TO (1984) Ontogenic Relationships Between Two Estrogen Binding Moieties in the Male Rat; Alpha-Fetoprotein and the Testicular Estrogen Receptor. Alphafetoprotein as a Modulator of Estrogen Response, a Satellite Symposium of the 7th International Congress of Endocrinology.
2. Keel BA, Webster BW (1986) Male Factor Infertility. Also Keel BA, Garner CH, Sperm/Cervical Mucus Interaction. The Female Patient. Reproductive Endocrinology-Advances in Technology, Seventh Annual OB-GYN Update, Wichita, KS.
3. Keel BA, Cho S (1986) Characterization of Human Alphafetoprotein (AFP) by Chromatofocusing. Alpha-fetoprotein as a Regulator and a Regulated Substance, 3rd Annual Symposium of Biological Activities of Alpha-1-Fetoprotein, Albany, NY.
4. Keel BA (1986) Laboratory Evaluation and Treatment of Infertility. American Society of Medical Technologists Region VI Meeting, Topeka, KS.
5. Keel BA (1986) Male Infertility Testing. Insights into Infertility, Wichita, KS.
6. Keel BA (1988) Biochemistry of Reproductive Biology. Wesley Medical Research Institutes 28th Ann. Members Meet. Wichita KS.

7. Keel BA (1988) Sperm Banking: Process/Issues. 5th Annual North Central Kansas Oncology Conference, Salina, KS.
8. Keel BA (1989) Laboratory Evaluation of Fertility. Kansas Society for Medical Technology Annual Meeting, Wichita, KS.
9. Keel BA (1989) The Physiological Role and Biochemical Basis of Micro-Heterogeneity of Glycoproteins. American Assoc. of Pharmaceutical Scientists Eastern Regional Meeting, East Brunswick, NJ.
10. Keel BA (1990) An Introduction to Sperm Banking and Issues Involved. Midwest Cancer Conference, American Cancer Society, Wichita, KS.
11. Keel BA (1990) Biology and Biochemistry of Alpha Fetoprotein. Grand Rounds Program, Department of Obstetrics and Gynecology, Johns Hopkins Medical Institutions, Baltimore, MD.
12. Keel BA (1990) Alpha Fetoprotein as a Modulator of Cell Proliferation. 25th Anniversary of the Endocrine Graduate Program, Medical College of Georgia Symposium, Augusta, GA.
13. Keel BA (1990) Male Infertility - AIH, DI. Concepts in Infertility, Hays, KS.
14. Keel BA (1990) Alpha Fetoprotein as a Modulator of Cell Proliferation. Visiting Scientist Series, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE.
15. Keel BA (1990) Male Infertility Testing and Treatment. Concepts in Infertility 1990, Wichita, KS.
16. Keel BA, Grotjan HE Jr (1991) Data Reduction Methods for Radioimmuno- and Immunochemical Assays. 17th National Meeting of the Clinical Ligand Assay Society, Chicago, IL.
17. Keel BA (1991) Modulation of cell proliferation by alpha fetoprotein. Department of Anatomy, Kansas University Medical Center, seminar series, Kansas City, KS.
18. Keel BA (1991) Control of Cell Growth. Interaction of Alpha Fetoprotein and Growth Factors. Department of General Pharmacology, Abbott Laboratories, Abbott Park, IL.
19. Keel BA (1991) The Andrology Laboratory, Performance of Tests and Certification of Procedures. Kansas Society for Medical Technology Annual Meeting, Hutchinson, KS.
20. Keel BA (1992) Human Alpha Fetoprotein as a Modulator of Cell Proliferation. Oregon Regional Primate Research Center, Beaverton, OR.
21. Keel BA (1992) Human Alpha Fetoprotein as a Modulator of Cell Proliferation and Differentiation. Adeza Biomed., Sunnyvale, CA.

22. Keel BA (1993) Human Alpha Fetoprotein as a Modulator of Cell Proliferation and Differentiation. Department of Biological Sciences, The Wichita State University, Wichita, KS.
23. Keel BA (1993) Effects of Alpha Fetoprotein on Cellular Proliferation and Differentiation. Department of Biological Sciences, Emporia State University, Emporia, KS.
24. Keel BA (1993) Sperm Function Assays: Do They Provide Relevant Information Regarding Male Fertility? Controversies in Reproductive Biology and Technology, Post Graduate Course of the American Fertility Society, Montreal, Canada.
25. Keel BA (1993) Preparation of the Andrology Laboratory for Inspection, CLIA '88 and the CAP Checklist. Accreditation of the Andrology and ART Laboratories: Understanding the Legislation, Administration and Implementation, Post Graduate Course of the American Fertility Society, Montreal, Canada.
26. Keel BA (1993) Male Infertility, Evaluation and Treatment. Concepts in Infertility: 1993, Wichita, KS.
27. Keel BA (1994) In Vitro Fertilization. New Technologies That Are Revolutionizing Laboratory Testing, 38th Annual Meeting of the American Association of Bioanalysts, Kailua-Kona, HI.
28. Keel BA (1994) Maternal Serum Screening: A Program Not a Laboratory Procedure. Ground Rounds, Department of Obstetrics and Gynecology, Kansas University Medical Center, Kansas City, KS.
29. Keel BA (1994) Alpha Fetoprotein: A Biochemical Curiosity or Biological Phenomenon. Department of Biological Sciences, Wichita State University, Wichita, KS.
30. Keel BA (1994) CLIA'88 Accreditation Update. Laboratory Accreditation: Experience of the Inspector and the Inspectee, Postgraduate Course of the American Fertility Society, San Antonio, Texas.
31. Keel BA (1994) CLIA'88-Experiences of the Inspectee. Laboratory Accreditation: Experience of the Inspector and the Inspectee, Postgraduate Course of the American Fertility Society, San Antonio, Texas.
32. Keel BA (1995) Control of Ovarian Cellular Proliferation and Differentiation: Role of Growth Factors and MAP Kinase. Interdisciplinary Reproductive Biology Group Seminar, Department of Animal Sciences, University of Florida, Gainesville, Florida.
33. Keel BA (1995) Assisted Reproductive Technology: The State of the A.R.T. Future Trends in The Laboratory Industry, 39th Ann. Meet of the American Association of Bioanalysts, Las Vegas, NE.
34. Keel BA (1995) Effects of Alpha Fetoprotein on Cellular Proliferation and Differentiation. Department of Physiology, University of Oklahoma Health Science Center, Oklahoma

City, OK.

35. Keel BA (1996) The Physician-Lab Relationship. Andrology and Embryology-Back to Basics, AAB Eastern Regional Workshop, London, Ontario, Canada.
36. Keel BA (1996) Coordination of Lobbying Efforts – Panel Discussion, American Association of Tissue Banks, Reproductive Council Meeting, Washington, DC.
37. Keel BA (1996) CLIA, CDC, SART, CAP, AAB and ABB: What is the Current State of the ART? St. Louis ART Group Meeting, St. Louis, MO.
38. Keel BA (1997) CLIA'88: A Review. AAB Andrology and Embryology Review Course, San Diego, CA.
39. Keel BA (1997) Overview of Male Reproduction. AAB Andrology and Embryology Review Course, San Diego, CA.
40. Keel BA (1997) The Semen Analysis. AAB Andrology and Embryology Review Course, San Diego, CA.
41. Keel BA (1997) The Semen Analysis. Kansas Medical Technology Society Annual Meeting, Wichita, KS.
42. Keel BA (1997) To Be Regulated, or Not To Be Regulated; That Is The Question!! Northern California Association of Reproductive Biology, San Francisco, CA.
43. Keel BA (1997) Banking of Gametes and Reproductive Tissues: Should There be More Regulation? Workshop, American Association for Reproductive Medicine Annual Meeting, Cincinnati, OH
44. Keel BA (1997) ART: To Be Regulated, or Not To Be Regulated; That Is The Question. Eastern Regional Meeting of the American Association of Bioanalysis, Cherry Hill, NJ.
45. Keel BA (1998) The Basics of Laboratory Quality Control and Quality Assurance. Primer Taller de la Region Norteamericana y del Caribe de la Red Latinoamericana de Reproduccion Asistida (First Workshop of the North American and Caribbean Region of the Network of Latin American Assisted Reproduction), Mexico City, Mexico.
46. Keel BA (1998) Quality Control and Quality Assurance in the Embryology Laboratory. Primer Taller de la Region Norteamericana y del Caribe de la Red Latinoamericana de Reproduccion Asistida, Mexico City, Mexico.
47. Keel BA (1998) Quality Control and Quality Assurance in the Andrology Laboratory. Primer Taller de la Region Norteamericana y del Caribe de la Red Latinoamericana de Reproduccion Asistida, Mexico City, Mexico.
48. Keel BA (1998) General Laboratory Management. AAB Andrology and Embryology Review Course, Chicago, IL.

49. Keel BA (1998) Andrology Checklist. CAP Surveyor Training Workshop, Charleston, SC.
50. Keel BA (1998) MAPing EGF Action in the Ovary: The Role of Mitogen Activated Protein Kinase. Symposium on Reproductive Biology and Hormone Action, Augusta, GA.
51. Keel BA (1999) Quality Control in the ART Laboratory. Serono Simposio de Medicina Reproductiva, Mexico City, Mexico.
52. Keel BA (1999) Quality Control of High Technology. Serono Simposio de Medicina Reproductiva, Mexico City, Mexico.
53. Keel BA (1999) Quality Control in the Clinical Endocrinology Laboratory. Serono Simposio de Medicina Reproductiva, Mexico City, Mexico.
54. Keel BA (1999) Reproductive Technologies: Is More regulation Needed? Ethics at the Beginning of Life: Nurturing Life in its Early Stages. Kansas Health Ethics Ann. Conference, Wichita, KS.
55. Keel BA (1999) How to Prepare ART Laboratories for Inspection. Challenges and Strategies in Assisted Reproductive Technology: An ART Workshop, Cozumel, Mexico.
56. Keel BA (1999) From the Testis to the Ovary: 20 Years of Study, a Lifetime of Rewards. School of Graduate Studies, Medical College of Georgia, Augusta, GA.
57. Keel BA (1999) Andrology Checklist. CAP Surveyor Training Workshop, Toronto, Canada.
58. Keel BA (1999) Basic Conditions of an Assisted Reproductive Laboratory. Red Latinoamericana de Reproduccion Asistida Preparation Workshop for the Accreditation of the Centers. Mexico City, Mexico.
59. Keel BA (1999) Low Complexity: Minimum Conditions of an Assisted Reproduction Laboratory. Red Latinoamericana de Reproduccion Asistida Preparation Workshop for the Accreditation of the Centers. Mexico City, Mexico.
60. Keel BA (1999) Embryo Transfer: The Embryologists Point of View. Red Latinoamericana de Reproduccion Asistida Preparation Workshop for the Accreditation of the Centers. Mexico City, Mexico.
61. Keel BA (1999) Laboratory Information Registry System. Red Latinoamericana de Reproduccion Asistida Preparation Workshop for the Accreditation of the Centers. Mexico City, Mexico.
62. Keel BA (2000) American Board of Bioanalysis Certification of Embryology and Andrology Laboratory Directors. Florida Board of Clinical Laboratory Personnel. Jacksonville, FL.

63. Keel BA (2000) General Laboratory Management. AAB Andrology and Embryology Review Course. Chicago, IL
64. Keel BA (2000) Clinical Laboratory Improvement Amendments of 1988: A Review. AAB Andrology and Embryology Review Course. Chicago, IL.
65. Keel BA (2000) Overview of the ABB Certification and Examination Process. AAB Andrology and Embryology Rev. Course. Chicago, IL.
66. Keel BA (2000) Board Certification of Personnel and Accreditation of Assisted Reproductive Technology Laboratories in the United States. ART in Y2K: Challenges and Strategies in Assisted Reproductive Technology. Kona, HI.
67. Keel BA (2001) Using the Computer and Internet for Business and Personal Tasks. American Association of Bioanalysts Annual Meeting and Educational Conference, Las Vegas, NV.
68. Keel BA (2001) Are Sperm Counts Declining? 2001 An ART Odyssey: Challenges and Strategies in Assisted Reproductive Technology. Waikoloa, HI.
69. Keel BA (2001) Accreditation of Laboratories, Certification of Personnel. 1st Annual Meeting of the Assisted Reproductive Medical Technology Program, Tokyo, Japan.
70. Keel BA (2001) Are Sperm Counts Declining? St. Luke Medical Clinic and Hospital, Oita City, Japan.
71. Keel BA (2002) What Impact Does HIPAA Have on Human Subjects Research? HARK HIPAA Summit, Topeka, KS.
72. Keel BA (2002) Are Sperm Counts Declining in Midwestern Men? Department of Biological Sciences Seminar Program, Wichita State University, Wichita, KS.
73. Keel BA (2002) Are Sperm Counts Declining in Men? Department of Biology Natural Sciences Seminar Series, Florida State University, Tallahassee, FL.
74. Keel BA (2002) Establishing Productive University/Industry Relationships: Transferring Technology While Protecting Academic Freedom, Graduate Students: Face-to-Face With Intellectual Property Protection and Commercialization Issues, American Chemical Society Southeast Regional Meeting, Charleston, SC.
75. Keel BA (2003) The Sperm Chronicles: Confessions of a Clinical Andrologists. College of Medicine Seminar Series, Florida State University, Tallahassee, FL.
76. Keel BA (2003) Protecting America's Secrets, While Maintaining Academic Freedom. Sustainable Campus Security: The Path Forward, Oak Ridge Associate Universities National Conference, Atlanta, GA.

77. Keel BA (2003) The Semen Analysis. AAB Andrology and Embryology Review Course. Chicago, IL.
78. Keel BA (2003) Lab Management (HCLD Level), Part I and II. AAB Andrology and Embryology Review Course. Chicago, IL
79. Keel BA (2003) Overview of the ABB Certification and Examination Process. AAB Andrology and Embryology Review Course. Chicago, IL.
80. Keel BA (2003) The Andrology Laboratory: How to Do it *Wrong*. 2003 Annual Scientific Meeting of the Society for the Study of Male Reproduction, Chicago, IL
81. Keel BA (2003) The Semen Analysis. AAB Annual Meeting, Denver, CO.
82. Keel BA (2003) Establishing productive university/industry relationships: transferring technology while protecting academic freedom. Face-to-Face with Intellectual Property Protection and Commercialization Issues. 226<sup>th</sup> National Meeting of the American Chemical Society, New York, NY.
83. Keel BA (2003) Protecting America's Secrets While Maintaining Academic Freedom. University Security Workshop, Clemson University, Clemson, SC.
84. Keel BA (2004) Semen Analysis. AAB Andrology and Embryology Review Course. Dallas, TX.
85. Keel BA (2004) Lab Management (HCLD Level), Part I and II. AAB Andrology and Embryology Review Course. Dallas, TX.
86. Keel BA (2004) The AAB Exam – Logistics, Grading, etc. AAB Andrology and Embryology Review Course. Dallas, TX.
87. Keel BA (2004) Male Reproductive Physiology. AAB Andrology and Embryology Review Course. Dallas, TX.
88. Keel BA (2006) Male Reproductive Physiology. AAB Andrology and Embryology Review Course. Dallas, TX.
89. Keel BA (2006) Antisperm Antibodies and Sperm Cervical Mucus Testing. AAB Andrology and Embryology Review Course. Dallas, TX.
90. Keel BA (2006) Sperm Function Testing. AAB Andrology and Embryology Review Course. Dallas, TX.
91. Keel BA (2006) Semen Analysis. AAB Andrology and Embryology Review Course. Dallas, TX.
92. Keel BA (2006) Lab Management (HCLD Level), Part I and II. AAB Andrology and Embryology Review Course. Dallas, TX.

93. Keel BA (2006) Teaching RCR: The FSU Experiment. Central States Communication Association Annual Meeting Plenary Lecture, Indianapolis, IN.
94. Keel BA (2006) Authorship: Misconduct or Misbehavior? Handling Conflicts of Interests and Authorship Disputes. Council on Research Policy and Graduate Education Summer Forum, Portland, ME.
95. Keel BA (2006) The Sperm Chronicles: Confessions of a Clinical Andrologist, Seminar to the Department of Biological Sciences, LSU.
96. Keel BA (2008) Establishing Productive University/Industry Relationships. Patenting and Technology Transfer in University-Industry Collaboration: CHAL's 25<sup>th</sup> Anniversary Series, 235<sup>th</sup> National Meeting of the American Chemical Society, New Orleans, LA.
97. Keel BA (2008) Male Reproductive Physiology. AAB Andrology and Embryology Review Course. Dallas, TX.
98. Keel BA (2008) Antisperm Antibodies and Sperm Cervical Mucus Testing. AAB Andrology and Embryology Review Course. Dallas, TX.
99. Keel BA (2008) Sperm Function Testing. AAB Andrology and Embryology Review Course. Dallas, TX.
100. Keel BA (2008) Semen Analysis. AAB Andrology and Embryology Review Course. Dallas, TX.
101. Keel BA (2008) Lab Management (HCLD Level), Part I and II. AAB Andrology and Embryology Review Course. Dallas, TX.
102. Keel BA (2008) The Nuts and Bolts of Sponsored Program Administration. Council on Research Policy and Graduate Education Summer Forum. Monterey, CA.

Revised: 01/27/10