CURRICULUM VITAE
Marijo G. Kent–First, B.A, M.S, Ph.D.

CURRENT CORRESPONDING ADDRESS:
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Tallahassee, FL 32303
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BIRTH PLACE **Bainbridge, GA, USA**

NATIONALITY **American/USA**

PERSONAL and PROFESSIONAL INTERESTS:

-Training of students in Basic Sciences, Anatomy, Physiology and Genetics, Veterinary and Human Medicine and Pharmacy
-Maintain animals carrying rare genetic mutation(s) for use in undergraduate research projects.
-Research Focus: Reproductive genetics; embryogenesis/ oxidative stress induced genomic instability and tumorigenesis
- Commercial Focus: Development of novel assays and tools for cancer diagnostics.
- Breed, train & show horses across multiple disciplines

Philosophy:

Excellence in teaching and research is best achieved through active student/mentor relationships!
"The most inspirational pioneers in science are often described as being passionate about their work with a little bit of eccentricity thrown in for good measure --- Science is fun and the process of learning should be an exciting adventure for both professor and student"!

EDUCATION/DEGREES/CERTIFICATIONS

POST-DOCTORAL:

2014-present **Certification for Online Education and Teaching at Jackson State University**
Jackson State University
Jackson, MS.
(Ms. Tamika Morehead)

1990 - 1991 **Reproductive Genetics Consultant- Clinical Embryology**
Bourn Hall Infertility Clinic,
Bourn, Cambridge, UK
(Prof. R.G. Edwards)
Preimplantation Genetic Diagnosis and sex selection in human embryos resulting from in vitro fertilization (IVF)

1988 - 1990 **Genetic Consultant - American Breeders Service**
Deforest, WI
(Dr. R. Walton and Dr. J. Sullivan)
Preimplantation Genetic Diagnosis; Sex selection in bovine

1988 -1990 **Associate Scientist -University of WI, Madison**
Dept. of Meat and Animal Science
(Prof. N.L. First)
Culture and nuclear transfer of blastomeres to study embryo development in cloned calves

***1986 – 1988** **Pre-Doctoral/Post-Doctoral Fellow;**
Head-Equine and Bovine Divisions
Director of clinical cytogenetics laboratory
Center for Reproductive Biology
(Prof. SS Wachtel)
University of TN
Dept. Obstetrics and Gynecology
(Prof. JL Simpson)
Memphis, TN

Separation of fetal cells from maternal blood in human; Development of immunoassay to determine gender of bovine embryos with antibodies to HY antigen

Ph.D. DEGREE

1986 (completed) **University of MN**
***1988 (awarded)Dept. of Veterinary Physiology**
St. Paul, MN
(External Advisors: Prof. Roger Short, Prof. Susumu Ohno; Prof. Charles RE Ford, Prof. KW Jones; Prof. SS Wachtel)
Veterinary Physiology/Molecular Biology/Genetics
Thesis: Testis determination occurs as a developmental spectrum in XY sex reversed mares
TITLE: "XY Sex Reversal Syndrome in the domestic horse: Cytogenetic, genetic, clinical, endocrine and behavioral studies"

Fall 1986 **Sloan Kettering Cancer Institute** **Graduate Study**
Genetics Dept.
New York, NY
(Prof. SS Wachtel)
HY Antigen in XY female horses

Summers 1983 - 1986 **Dept. of Genetics** **Graduate Study**
University of Edinburgh
(Prof. K.W. Jones)
Isolation of repetitive DNA from human and horse Y-chromosomes

M.S. DEGREE

1983 (completed) **University of MN**
***1987 (awarded)** **College of Veterinary Medicine**
St. Paul, MN
(Prof.. AF Weber; Prof. R. Shoffner)
(External Advisors: Professor CRE Ford – Oxford UK Prof. Ann Chandley MRC Edinburgh; Prof. CP Popescu-INRA Laboratory of Cytogenetics; Jouy En Josas, FRANCE)
Veterinary Anatomy / Cytogenetics:
Thesis : XY Sex Reversal Syndrome is a model for human XY gonadal development and sex determination
TITLE: "Cytogenetic evaluation, pedigree studies and characterization of XY sex reversed mares"

Summer 1981-1982 **Dept. Genetics and Animal Breeding** **Graduate Study**
INRA Laboratoire de Cytogenetique
Jouy En Josas, France
(Prof. C. Paul Popescu)
Cytogenetics in horse, cattle, and human

Summer 1980 **Dept. of Animal Biotechnology** **Graduate Study**
University of Naples; Portici, Italy
(Prof. Dino Di Berardino)
Cytogenetics (R- and G- Banding in domestic species)

***AN IMPORTANT NOTE OF CLARIFICATION:** The XY Sex Reversal Syndrome was an original discovery made during the years that I spent in graduate training for the M.S and Ph.D. degrees at the University of MN College of Veterinary Medicine (CVM). During this time I discovered the first male mammalian genetic carrier of the heritable disease, a valuable syndicated Arabian horse stallion (HG) (Kent et al., 1986). This discovery led to litigation between the HG syndicate partners and U. of MN CVM and the HG syndicate and myself (MG Kent). The U of MN took the position that this litigation challenged academic freedom in graduate education and covered the financial cost for the legal defense of both the University and myself as long as I was a graduate student. Thus, although I completed the MS and Ph.D. degrees in 1983 and 1986 respectively, the degrees were not officially awarded until the litigation was finally settled (summary judgment) in 1987. .I was invited to begin work on my first post doctoral position (Dr. Wachtel's lab) late in 1986 technically more than one year before my Ph.D. was officially awarded (1988) and when summary judgement was awarded in our favor.

B.A. DEGREE

1979 **William Woods College, Fulton, MO**
Triple Majors: Animal Science, Biology and Psychology
Double Minors: Chemistry and Equestrian Studies

EMPLOYMENT

ACADEMIC FACULTY:

Fall 2017 to present **Assistant Professor, Florida A&M University**

2016-Summer 2017 **Visiting Assistant Professor, Florida A&M University**
Department of Biological Sciences
Tallahassee, FL

2014-present **Adjunct Associate Professor, Jackson State University**
Department of Biology
Jackson, MS

1994-2012 **Adjunct Clinical Assistant Professor, University of WI School of Medicine**
Department of Obstetrics & Gynecology,
Madison, WI

Jan. 2006 – 2011 **Associate Professor, MS State University**
Reproductive Genetics/Stem Cell Biology Laboratory
Department of Biological Sciences
Faculty of Gender Studies
Starkville, MS

2000 – 2005 **Lecturer - University of WI**
Dept. of Animal Science
Madison, WI

1998 - 2001 **Adjunct Professor-Krems University/University of the Danube**
Dept. of Obstetrics & Gynecology
Online and visiting faculty
Vienna, Austria

1991 - 1993 **Assistant Professor - West GA University**
Dept. of Biology,
Carrollton, GA

1991 **Visiting Lecturer/ Assistant Professor, University of AL-Birmingham**
Dept. of Medical Genetics
(6 month appointment)

INDUSTRY:

2011-present **Co-founder and VP –ROS Emerging Biotechnologies, L.L.C.**
Focus: Research and development of products and diagnostics for reactive oxygen species induced genomic instability and cancer (See Patents and Intellectual Property)

1992-present **Co-founder and C.E.O.-Diagene, Inc.**
Focus: genetics and cytogenetic diagnostics, clinical research: environmentally induced infertility and cancer diagnostics; consulting

2008-2010 **Consultant PROMEGA – Male Infertility/Clinical Genetics**

1993-2005 **New Technology Leader and Senior Scientist - PROMEGA**
Genetic Identity/DNA forensics
Research and Development
Madison, WI

1995 – present **Gala Design, Co-founder and Share Holder**
Focus: Pharmaceuticals from transgenic bovine mammary gland
Madison, WI

POST-DOCTORAL:

1990 – 1991 **Reproductive Genetics Consultant- Bourn Hall Infertility Clinic/Serono**
Clinical Embryology/Preimplantation Genetic Diagnosis
Bourn, Cambridgeshire, UK

1988 - 1990 **Genetic Consultant - American Breeders Service**
Deforest, WI

1988 - 1990 **Associate Scientist - University of WI, Madison**
Dept. of Meat and Animal Sciences

1986 - 1988 **Head-Equine and Bovine Divisions-Center for Reproductive Biology**
Research and Clinical Genetics and Cytogenetics,
Collierville, TN

GRADUATE:

1984 - 1986 **Research and Teaching Assistant-University of MN, St. Paul**
Dept. of Veterinary Physiology
Anatomy and Embryology

1980 - 1984 **Research and Teaching Assistant University of MN-St. Paul**
College of Veterinary Medicine
Dept. of Veterinary Biology
Anatomy and Embryology

1980-1981 **Veterinary Technician - Park Pet Hospital, St. Louis Park; MN**

UNDERGRADUATE:

1974 - 1978 **Veterinary Technician - Callaway Animal Hospital; Fulton, MO**

1970 - 1989 **Horse Trainer, Equitation Instructor, Breeding manager**
various facilities in GA, MO,KS, MN, WI, and TN Saddleseat, Huntseat, Stock Seat (Pleasure, Reining, Cutting) Driving, Sidesaddle, Halter.

1976-1978 **Student Psychometrist – Fulton State Mental Hospital**
Worked as a part time Westminster/William Woods student psychometrist with geriatrics patients, including those housed in maximum security for the criminally insane. My job was to re diagnose patients that had been housed for more than 10 years without evaluation. This required extensive history taking with interviews conducted 3 times/week. Often I would bring my horse as a method to help the patients develop a sense of trust with me to facilitate the interview process.

KEY RESEARCH INTERESTS

Summary-overview

"The overall lab focus is on germ line development and tumorogenesis in human and in mouse and animal models. We are interested in the cells response to elevated ROS (oxidative stress) in normal cell development in vivo and in vitro. Our interest encompasses radiation induced oxidative stress including understanding the differential responses to high energy and acute damage and low energy damage resulting in delayed response and accumulating mutations and genomic instability that may be heritable. Oxidative stress results in DNA strand breaks that are normally repaired or alternatively the cell dies. Our data suggests that in some cells, oxidative stress simply overrides the cells ability to repair the damage. Regions containing DNA repeats are particularly subject to this damage and when it is left unrepaired in a surviving cell, the mutations in the form of new alleles seen as repeat gains or losses are amplified as cells divide in vitro or in vivo. Thus, genomic instability is a hallmark of oxidative stress and over time, can lead to tumor formation. We have shown that the mature germ cells and precursor stem cells are particularly sensitive to oxidative stress. However, developing cells (stem cells and primordial germ cells in culture) respond to oxidative stress differently compared with mature "end stage" cells. Specifically, we measure apoptosis and DNA repair in response to ROS and the role that ROS plays in MMR in mature germ cells and their developmental precursors and tumor formation. We can measure DNA strand breaks as they occur at the single cell level in

parallel to overall chromatin fragility from the progenitor cell and track it over time in culture. Our molecular tools allow us to study the role of ROS induced microsatellite instability in targeted DNA repair genes of functional interest and changes in gene specific methylation."

Experimental focus and questions addressed in the Kent-First lab

I. Defining the mechanism that leads to germ line specific genomic instability and testicular and cancer in the infertile testis exhibiting partial or complete meiotic arrest:

-What role do Reactive Oxygen Species (ROS) play in DNA strand breaks in the germ line of the male and female compared with the soma?

-Is testis specific microsatellite instability (MSI) detected in single cell or small pool experiments on sperm DNA from the infertile testis analogous to MSI associated with MMR gene defects in human and in mouse models?

- Are some repeat motifs more subject to ROS induced genomic instability than others?

-What role does environment (i.e. heat shock, hypoxia, chemicals, radiation, aging) play in elevating free radicals and thus inducing DNA strand breaks and tumorigenesis in the testis?

- Do ES cells similarly exhibit and accrue STR instability over time in culture and over passages?

-What happens to gene expression when genomic instability occurs in coding regions containing genes required for cell cycle?

II. Defining the mechanism that leads to ROS induced germ line genomic instability and oncogenesis with a focus of bladder transitional cell cancer

III. Cancer diagnostics at the single cell and/or small pool level./Next Generation Sequencing

IV. Genetic control of mammalian gonad determination (sex determination):

- ***Use of the horse as both a teaching tool and a model to define the cascade of genetic events leading to testis or ovarian determination***

  Dr. Kent-First has collected and archived tissues, cell lines, DNA, and RNA from hundreds of horses from various affected pedigrees over the last three decades. She also maintains a herd of XY sex reversed mares for use in teaching and research.

- ***Are all Y-haplotypes equal in the equine model for sex determination?***

  Use of Y-linked microsatellites and SNPs to determine whether some Y-chromosomes are more predisposed than others to aberrant ectopic recombination events during male meiosis as is suggested in the human literature.

- ***Women with the analogous syndrome develop gonadoblastoma after puberty. XY mares do not. Why?***

  Gonads have been collected and RNA purified and archived for study of: Comparative gene expression and tumor suppressor mechanisms in the gonads from XY sex reversed mares from the same horse pedigrees in which mares present with gonads that range from FERTILE OVARY to TESTIS.

V. Development of novel molecular tools with a GENOMICS approach for use in DNA forensics and clinical diagnosis of genetic disease in human and animal models.

AWARDS/NOMINATIONS

1. Nominated for FAMU Professor of the Year – 2017/2018.
2. CERTIFICATE OF APPRECIATION - 6 Years Service Award – Mississippi State University **2012**
3. CASE AWARD for mentoring: nominated by Provost and supported by peer faculty, graduate students, undergraduate students, and Department Head– Certificate of recognition -MSU October **2009**
4. Mississippi State University – ***nominee*** Faculty Woman of the Year (Nominated by Dr. N. First (2007, 2008) Dr. N. Reichert (2009 – Dept. Head) Supported by my students at MSU and University of WI **2007** and **2008** and **2009**
5. Mississippi State University – ***nominee*** Oldham Outstanding Faculty Mentor Award (Nominated by Dr. L. Brown and supported by MSU peers and students, colleagues and students at UW-Madison, William Woods University, and Bourn Hall/Cambridge, UK **2008**
6. Awarded: Arabian Horse Association Directors Award for youth education and teaching-Tulsa Oklahoma Convention-**2008**
7. Awarded: Arabian Horse Association Leadership and Breed Promotion National Award – **2007**
8. Awarded: Arabian Horse Association – Directors Award for youth education and teaching- Tulsa, Oklahoma Convention – **2007**
9. Awarded: Region 12 - Arabian Horse Association – Leadership and Service Award – youth educational and teaching **2007**
10. Awarded : Region 10 – Arabian Horse Association – Leadership and Service Award – youth education and teaching and lifetime achievement **2007**
11. Awarded : WI Horseman of the Year-(nominated by my Animal Science undergraduate students)-for excellence in teaching and research using the equine model – **2005**
12. Awarded: Award of Distinction – for scientific contributions in Latin American reproductive medicine – Fertility Society of Latin America – Bogotá, COLUMBIA – **2003**
13. Awarded: Distinguished Senior Investigator Award – European Society for Human Reproduction & Embryology (ESHRE) – **2001**

14. Mentor of the student winning the Junior Investigator Award of ESHRE – **2001**
15. Awarded: Lifetime Achievement Award – South American Medical Association – **2001**
16. Awarded: Outstanding teaching award – Danube University at KREMS, University of Vienna – Masters Program in Clinical Embryology and Reproduction – **2001**
17. Awarded: Alumnus Award of Distinction for lifetime achievement -National Alumni Association – awarded **1995**
18. Awarded: Sigma Xi award for excellence in teaching and research – Awarded at West GA University – **1992**
19. Awarded: Agnes Hanson Award, Sigma Delta Epsilon, **1984, 1985**
20. Awarded: Minnesota Veterinary Council Fellowship Award, **1982, 1984**
21. Awarded: National 4-H Council Award for Career Achievement – **1980**
22. Awarded: Beta Beta Beta, Honorary Biological Society Award of Academic Achievement-**1978, 1979**

HONORS/NOMINATIONS/SELECTED HONORARY LECTURES

1. Florida A&M University College of Pharmacy and Pharmaceutical Sciences Research Center in Minority Institutions (RCMI) Program 2015 Seminar Series – **GUEST LECTURER**: Discovery of Novel Biomarkers of Reactive Oxygen Species (ROS) Induced Genomic Instability and Testicular Cancer. Nov 5th 2015.
2. BIOTECHNOLOGY EXPERT GUEST LECTURER – Starkville Middle School – "Science in the Space Age" 2011
3. BETTERSWORTH LECTURE - High School in Coldwater, MS.--"Cloning and Embryonic Stem Cell Technology: Separating Fact from Fiction" 2011 (450 students) 2011
4. -BETTERSWORTH LECTURE Mantachie High School--"Cloning and Embryonic Stem Cell Technology: Separating Fact from Fiction" 2011
5. -BETTERSWORTH LECTURE Tupelo High School--"Gender determination: Where Science and Fun Meet" 2010 (Note: one of the Honors students used this topic for her AP Biology Sr. project. At least 12 of the 30+ students have visited MSU with plans to attend since these lectures)
6. Keynote speaker – National Meeting Sigma Delta Epsilon Graduate women in science – University of MN – St. Paul October 2009. Presented the Award of Fellow to Professor Bee Hanlon (my professor)
7. CASE AWARD for mentoring: nominated by MSU Provost – MSU October 2009.
8. Fellow - Institute for Digital Biology – Mississippi State University 2009 to present
9. Keynote speaker for University of MS Medical School - Jackson Grand Rounds: Obstetrics and Gynecology, Oncology and Urology Departments. 2008
10. Who's Who Among Executives and Professionals: Madison Who's Who 2008-2009 Edition
11. Keynote speaker for UW-Madison School of Medicine: Grand Rounds: Obstetrics and Gynecology, 2008
    Academic Keys – Who's Who in Higher Sciences/Higher Education – 2007-2008
12. Mentor of note: University of WI College of Veterinary Medicine – Student nominated honor (Stephanie Greetan) – 2007
13. Keynote Lecture-Mississippi State University College of Veterinary Medicine – Annual Research Scholars Day: Lecture title: *Sex, Science and Serendipity* August 23, 2007
14. Honored Faculty Mentor Delta Gamma –Delta Lambda Chapter – MSU – (nominated by student Allison Vaughn) 2007
15. Keynote Lecture- Florida State University - *J. HERBERT TAYLOR LECTURE IN GENETICS* – 2005
16. Plenary speaker - International Congress on Assisted Reproduction and Embryology hosted by Peru Association of Fertility-Lima, PERU Sept. 14-17, 2005
17. Keynote address to LEADS program – William Woods University – Fulton, MO – May 2004
18. WI Horseperson of the Year – Awarded Honorary Recognition Wisconsin Horse Council- Madison WI A 2004
19. Keynote speaker – Opening of CECOLFES Reproduction Center and Hospital – Medina, COLUMBIA – 2003
20. Plenary speaker – University of Panama Symposium: *Cloning and Assisted Reproduction in Human and Domestic Species* – Panama City, PANAMA – 2003
21. Keynote speaker – Latin American Federation of Infertility Specialists – Celaya, MEXICO – Nov 2002
22. Plenary Lecture – South American Fertility Society – Cartagena, COLUMBIA, March 2002
23. Plenary Lecture – Academy of Sciences, CZECH REP, Jan, 2000
24. Scientific advisory board – Danube University at Krems and University of Vienna, AUSTRIA, 1998-2001
25. Plenary Lecture – British Fertility Society – Cambridge, UK – Dec. 1997
26. Plenary speaker, World IVF Congress, Vancouver, BC – May 1997
27. Keynote Lecturer – Korean Academy of Sciences – Seoul, Korea -Oct. 1997
28. Consultant for National Advisory Board on Ethics in Reproduction (NABER) – 1995-1996
29. HUGO-Y chromosome-gene map committee. 1994, 1996, 1997
30. Sigma Delta Epsilon - National Honorary Society for women in science - 1986-1997
31. Sigma Xi Honorary Lecturer - *"The Making of Sex"* - West Georgia University, 1992
32. Sigma Xi, National Honorary Scientific Society, 1988-present
33. National Delegate, Sigma Delta Epsilon, 1985, 1986

SELECTED HONORS AND AWARDS RECEIVED BY STUDENTS I HAVE MENTORED

-Sigma Xi Honors Research Honors Society– membership approvals during the year of being President Elect and President (2009 and 2010):

K. S. (first student to meet requirements for membership while still a High School Sr.)
Full membership: W. B., MD;H. M.,MD
Associate member: C.E., BSc MSc, B.W.,B.S.,J.W.,BSc, K. W.,BSc, A.A. BSc

MEMBERSHIPS

Academic/reproduction/genetics

American Academy of Forensic Sciences – Associate membership 2016
Society of Male Reproduction and Urology 2009-2016, 2018
Mississippi Academy of Science - 2007-2011
American Association of Clinical Urologists (southeast chapter)– 2007-2016, 2018
Northwest Association for Biomedical Research – 2007-2011
Society for Assisted Reproductive Technology (SART)-1997-2016, 2018
European Society for Human Reproduction and Embryology (ESHRE) – 1985 – 2016, 2018
Sigma Delta Epsilon – (National Honol Society for Women in Science) 1983-present
Sigma Xi –(National Honorary Research Society)National Graduat1987-2018 (Currently launching FAMU Chapter and Bridge with Chiles High School)
Society for Study of Reproduction (SSR) 1989-2016,2018
American Society for Reproductive Medicine (ASRM) 1997-2016, 2018
Genetic Counseling Special Interest Group (ASRM) 2009-2016, 2018
Preimplantation Genetic Diagnosis Special Interest Group (ASRM) 2009-2016, 2018
Women's Council (ASRM) 2009-2016
Environment and Reproduction Special Interest Group (ASRM) 2009-2016, 2018
Reproductive Biologists Professional Group (ASRM) 2009-2016, 2018
American Society for Human Genetics -1994-2016, 2018
American Society for Andrology (ASA) – 1994-2016, 2018
American Association of University Professors – 1989 – 2016. 2018
American Association for the Advancement of Science (AAAS) – 1984-2018
ALPHA (International Society for Clinical Embryology) 1996 – 2010
Wisconsin Space Grant Consortium - 2006-2007
Beta Beta Beta- 1977-present

Equine/non-human species

American Society of Animal Science – (ASAS) 1981-2015, 2016, 2018
International Embryo Transfer Society – IETS – 1988-2010, 2015, 2016, 2018
Arabian Horse Association (Arab Horse Registry and International Arab Horse Assoc.) – 1970-2018
American Horse Shows Association – 1970-2016
American Quarter Horse Association – 2002-2010
Mississippi Arabian Horse Association-2006 -2016
- MAHA Board of Directors
- MAHA Secretary
- MAHA Youth Coordinator

Mid South Arabian Horse Association 2007-2011
- Mid South AHA Vice President
- Mid South AHA Board of Directors
- Mid South AHA Youth Coordinator

Arabian Horse Association Region 12 Youth Coordinator – 2007 - 2009
Wisconsin Arabian Horse Association (WAHA) – 1994-2009
- WAHA Board of Directors – Elected term – 2004 to 2007
  - WAHA Committees served on: Horse Show; Nomination; Midwest Horse Fair; Arabian Horse Promotion; Chicago Thanksgiving Day Parade Equestrian Unit; WAHA Newsletter Editor (4-5 issues per year)

American Horse Council – 1979-2009

GRADUATE STUDENTS TRAINED / DEGREE COMMITTEES

POST DOCTORAL

1. Y. Kataguri, MD: Cornell Institute for Reproductive Medicine, NY, NY

Kent-First Lab UW Madison/Promega - 2002-2005
Gene expression and single cell analysis of spermatogenesis in human and mouse model.
Inheritance of infertility causing mutations on the Y-chromosome in children conceived through ICSI.
Currently: Professor and MD Japan

2. L. Kolodny, MD: Dept. of Endocrinology- UW Medical School
Kent-First Lab UW Madison/Promega -2002-2003
Developing clinical profiles and statistical evaluation of correlations or data trends that relate phenotype to genotype in a population of infertile men whose Y-chromosome integrity was characterized.
Currently: Professor and MD Japan

3. N. Takeshita, MD: Cornell Institute for Reproductive Medicine, NY, NY
Kent-First Lab UW Madison/Promega -2000-2002
Y-chromosome microdeletions in regions required for spermatogenesis.
Currently: Professor and MD Japan

4.T.Q Zhang, DVM: University of MN College of Veterinary Medicine
Kent-First Lab UW Madison/Promega 1998-2001
Cytogenetics and molecular pathways in testis determination in domestic species
Currently: Faculty in China (Professor)

5. E. Memilli DVM,PhD: Dept. of Animal Science, UW-Madison
(Kent-First Lab UW Madison/Promega – 1999
Y-chromosome microdeletions in human male infertility
Linkage analysis of sex determining genes in XY male and XY female horses
Currently – Faculty at MSU

6. A. Agoulnik, PhD: Max Plank Institute for Biology USSR
(Kent-First Lab UW Madison/Promega- 1996-1999)
Cloning of SMCY a gene coding for one of several H-Y antigen epitopes in human.
Cloning of SRY, ZFY, SMCY SMCX, RPS4X and RPS4Y in the horse
Defining mutations in XY Sex Reversed mares
Currently: Medical School faculty FL International Dept. Ob/Gyn

DOCTORAL

1. Fang Wu, MS, Dept. Biological Sciences – JSU-2016
Thesis research Immunological Inhibition of Lung Cancer
(Ph.D. Thesis advisor – Prof. Rhamzy Kafoury Co-Advisor – Adj. Prof. Marijo Kent-First

2.W. Bedran, MS, MD: Dept. Biological Sciences-MSU – 2006 -2010
Thesis Research: Genomic Instability in infertile human sperm and soma exposed to free radicals
(Ph.D. Thesis advisor- Prof. Marijo Kent-First)

3. C. Esteban Perez MS: Dept. Biological Sciences- MSU – 2007-2010
Thesis Research: Genomic instability and patterns of epigenetic programming in stem cells
(Ph.D. Thesis advisor- Prof. Marijo Kent-First)

4. H. Moreno Ortez, MD: Dept. Biological Sciences – MSU – 2007-2010
Thesis Research: Oxidative stress induces DNA strand breaks that lead to alterations in the normal ovary epigenetic pattern involved in ovarian formation and tumorigenesis
Ph.D. Thesis advisor: Prof. Marijo Kent-First

5. E. Deer: Dept. of Biological Sciences
Committee Member- 2009 –2010
(Dr. D. Wise major professor)

6. W. Megid, MD, MS, PhD: Dept. of Animal Science/Dept. of Ob/Gyn- UW-Madison -2002-2007
PhD awarded June 2007 – University of WI - Madison
Thesis research: Germline specific genomic instability/ involved in spermatogenic failure in the human and mouse model
(Thesis advisor- Prof. Marijo Kent-First)
Currently head of an active IVF unit in Madison

7. S. Reslewic, MS, PhD: Dept. of Chemistry- UW Madison – 2003-2006.
Thesis research: Barcoding the genome
(Ph.D. Thesis Advisors- Prof. David Schwarz /Prof. Marijo Kent-First)
(Currently working for a large pharmaceutical company)

8. S. Alex Lim, PhD: Dept. of Chemistry- UW-Madison –2001-2004
Thesis: Single molecule systems: Advancements and applications to microbial and human genome analysis
(Ph.D. Thesis advisors – Prof. David Schwartz/Prof. Marijo Kent-First)

9. E. Dimalata, PhD: Dept. of Chemistry- UW-Madison-2003-2004
Thesis: Rapid System for the Rapid Analysis of Whole Genomes

(Thesis advisor- Prof. David Schwartz)
(Ph.D. Degree Committee-Prof. Marjo Kent-First)

10. G. Coppolla DVM, PhD: University of Naples – Portici, ITALY 2001-2005
Thesis: Relationship between the time of first cleavage and expression patterns of Caspase and Bcl-2 apoptosis family members in in vitro produced bovine embryos.
(Ph.D. Thesis advisors – Prof. Marijo Kent-First/Prof. Dino DiBerardino)
Currently Agricultural School faculty

11. G. Cezar, DVM, PhD: Dept. Animal Science-UW-Madison 2000-2003
Thesis: Epigenetic alterations in cloned bovine fetuses.
(Thesis advisors- Prof. Neal L. First)
(Ph.D. Degree Committee-Prof. Marjo Kent-First)
Currently Asst. Prof. UW Madison

12. Z. Beyhan, DVM, PhD: Dept. Animal Science- UW-Madison 2000-2003
Thesis: Cellular and genomic reprogramming of donor nuclei in bovine nuclear transfer embryos.
(Thesis advisors-Prof. Neal L. First/Prof. Marijo Kent-First)
Currently Director of IVF Lab Clinical Embryology

13. B. Tolif PhD: Dept. of Genetics - LaTrobe University, Melbourne, AU. 2000-2002
Thesis: Evolution of regulatory genes in the testis determining pathway from metatheria to eutheria
(Thesis advisor-Prof. Jenny Graves, Ph.D.
(Ph.D. degree committee -External Examiner- Prof. Marijo Kent-First)
Currently Faculty AU

14. A. Abriazden DVM, PhD: University of Guelph – Ontario, CANADA, 2001
Thesis: Conservation of X-inactivation, Xist, and gene silencing across mammalian taxa
(Thesis advisor- Prof. Parvathi Basrur,)
(Ph.D. degree committee -External Examiner- Prof. Marijo Kent-First)
Currently Faculty Iran

15. R. Benstein, PhD: Rambam Medical Center – Haifa, ISRAEL-1996-1999
Thesis: Y-Deletions in the germline of men with partial or complete meiotic arrest and their sons conceived by ICSI.
(Ph.D. Thesis Advisors-Prof. Marijo Kent-First /Prof. Joseph Itskovitz)

MASTERS DEGREE

1. **Nina Saldago: Department of Biological Science – FAMU FALL 2017**
2. Thesis: ROS induced genomic instability in wildtype bladder epithelial cells exposed to Cadmium chloride and Stage 1a and 3a cells exhibit oxidative stress, genomic instability and a cascade of protein events leading to a mutator phenotype prior to treatment with BCG treatment.
(Thesis Advisers-Prof. Marijo Kent-First and Dr. Carolyn Odewumi
3. **Sydney Dennis: Department of Biological Sciences –FAMU FALL 2017**
Thesis: ROS induced genomic instability in wildtype bladder epithelial cells exposed to Cadmium chloride exhibit oxidative stress and genomic instability and a mutator phenotype prior to treatment with BCG treat.ment
(Thesis Advisers-Prof. Marijo Kent-First and Dr. Carolyn Odewumi)
4. **C. Scott: Department of Biological Sciences – FAMU-2016**
Thesis: Cadmium chloride induces oxidative stress and genomic instability in rat lung macrophage cells
(Thesis Adviser-Prof. Caroline Odewumi)
5. **K. Wilkinson BS: Dept. Of Biological Sciences - MSU – 2008 - 2010**
(Thesis research: Identification of the genetic mechanism of gonad determination in the XY Sex Reversal Syndrome equine
(Thesis Advisor – Prof. Marijo Kent-First)
6. **B. Wilson BS: Dept. of Biological Sciences – MSU – 2008 – 2010**
(Thesis research: The role of ROS induced instability in cultured prenatal mouse neuronal cell
Thesis advisor- Prof. Marijo Kent-First.
7. **A. Adams BS: Dept. of Biological Sciences- MSU-2008 – 2010**
Thesis: Genetic indicators of ROS induced DNA repair in response to UV damage in HERDA-/- Quarter Horses
(Thesis advisor- Prof. Marijo Kent-First)
8. **J. Wright BS: Dept. of Biological Sciences- MSU-2008 – 2009**
Thesis: DNA typing in River cane
(M.S. degree Thesis Committee and Co-Advisor– Prof. Marijo Kent-First)
(Dr. N. Reichert– Major Prof.)
9. **W. Gray III: Dept. of Biological Sciences MSU 2010**
M.S. degree committee-Prof. Marijo Kent-First
Dr. David Chevalier-Major Professor

10. **E. Balconi (Lisa) Evans: Dept. of Biological Sciences – MSU – 2008-2009**
    Thesis: CHO- Human hybrid as models for chromosome nondisjunction
    (M.S. degree Thesis Committee – Prof. Marijo Kent-First)
    Dr. Dwayne Wise– Major Professor)
    Currently earning the Ph.D. degree in Washington (Prof. Pat Hunt lab**)**
11. **L Carlisle: Dept. of Animal Sciences – MSU-2009-2010**
    Thesis: Kiinematic gait analysis of Weimeramers
    (MS degree committee – Prof. Marijo Kent-First)
    (Dr. Molly Nicodemus – Major Prof.)
12. **A. Wilson: Dept. of Poultry Science –MSU-2008-2009**
    Non Thesis (Directed Individual Study)
    M.S. degree committee m ember – Prof. Marijo Kent-First
    (Dr. D. Peebles –Major Prof.)
    Currently in the application process to earn the Ph.D. degree
13. **S. Ferguson: Dept. of Animal Sciences – MSU – 2008-2009**
    Thesis: Variations in gene expression in fertile and infertile bull sperm
    (MS degree Thesis Committee – Prof. Marijo Kent-First)
    (Dr. Erdogan Memilli – Major Prof.)
14. **R.L. Crawford Jr.: Dept. of Agricultural and Biological Engineering MSU – 2007-2008**
    Thesis: Protocols for preconditioning of patellar tendon for anterior cruciate reconstruction: Stress relaxation vs. creep
    (MS degree Thesis committee-Prof. Marijo Kent-First)
    (Dr. Steve Elder – Major Professor)
    Currently in medical school earning the MD degree
15. **W. Bedran, MD: University of Leeds, UK –Graduate program: clinical embryology -2004-05**
    Thesis: Determination of stability of the glutamine rich repeat motif in the Androgen Receptor gene in soma and germline of fertile and infertile Egyptian males
    (Thesis Advisor-Prof. Marijo Kent-First).
16. **C. Esteban: Bogotá University – Graduate program in embryology – 2003-2005**
    Thesis: Phenotype/Genotype correlations: Deletion mapping Y chromosomes from men with male factor infertility
    (Thesis co-advisor – Prof. Marijo Kent-First)
17. **A. Muallem: Dept. Animal Science, UW-Madison-1994-1998**
    Thesis: Development and characterization of a panel of clinically informative and multiplexed Y-linked STS from the AZoospermia Factor (AZF) region
    (Thesis advisor-Prof. Marijo Kent-First)
    Currently: Scientist/Technician in academia)
18. **H. Sagirkaya: Dept. Animal Science, UW-Madison-1994-1997**
    Thesis: Sex Chromosome bovine chimeras and effect of Y chromosome on sexual development of cattle
    (Dr. Neal First– Major Professor)
    (MS degree Thesis Committee – Prof. Marijo Kent-First)
19. **M. Giakoumopulos: Danube University of Krems – 1999-2002.**
    A map of the genetic control of oogenesis via human and animal models with a link to premature ovarian failure
    (Thesis Advisor-Prof. Marijo Kent-First).
    Currently: *(*Working towards a PhD degree at University of Wisconsin)
20. **J. Sehn, MD: Danube University of Krems/University of Vienna -1998-2001**
    Thesis: Defining apoptosis pathways in early embryo development
    (Thesis advisor-Prof. Marijo Kent-First)
    Currently: Lab Director of successful IVF lab
21. **M. Schenk, MD: University of Krems/University of Vienna-1998-2001**
    Thesis: Outcome of ICSI Babies: Is there evidence for possible harm?
    (Thesis Advisor-Prof. Marijo Kent-First)
    Currently: Designed and established his own very successful IVF unit in Austria. Has now expanded to require new staff and premises. This new clinic was the first in Austria to receive ISO accreditation.
22. **W. Megid, MD: Danube University of Krems – 1999-2001**
    Thesis: Auto-ovarian antibodies and poor ovarian function
    Thesis advisor: Prof. Marijo Kent-First)
    Currently: Earned Ph.D. degree at UW Madison and is now lab director at a large IVF clinic
23. **M. Cotton: Danube University of Krems –1999- 2001**
    Thesis: Genetic control of pre-implantation development from an evolutionary perspective

(Thesis Advisor- Prof. Marijo Kent-First)
Currently: Senior Embryologist in a very busy IVF laboratory, Univ of Leeds

24. A. Potroclou, MD: Danube University of Krems – 1998-2000
Chromosome Micro-deletions in an infertility sample of the Cypriot population
Thesis advisor: Prof. Marijo Kent-First)
Currently: Head of a successful IVF Unit in Cyprus

25. A. Jones: Danube University of Krems-1998-2000
Thesis: Lessons from Cloning: somatic cell haploidization via fertilization of oocytes reconstructed by nuclear transfer
(Thesis advisor-Prof. Marijo Kent-First
Currently: Working towards M.D., Ph.D. degree in Virginia

PROFESSIONAL COMMITTEES/SERVICE

Florida A&M University

-MS Degree Graduate Committees
-Sydney Dennis
-Nina Delgado
M.S..Degree Graduate Committees
-
-
-Ph.D. Development and Strategic Planning Committee for Department of Biology 2016-2019
-Research Committee of Dept.of Biology 2018, 2019
-Committee to establish a BSL2 Lab in FAMU Jones Hall
-High School STEM Fair Exhibition – JUDGE -2018, 2019

Jackson State University

-Distance Learning Faculty Advisor – 2014-2017
-Laboratory Equipment Committee – 2015-2016

MSU

-MSU Medical Technology Student Assoc. – Faculty Advisor – 2008-2011
-Mississippi State University Gender Studies Advisory Committee – 2007-2012
-Mississippi State University recruitment and advisory committee for DVM/Ph.D. program 2008-2011
-Alliance for Graduate Education in MS (AGEM) Faculty Advisor/Mentor 2008-2011
-Biology Undergraduate Research Program (*BURP*) – Faculty Mentor 2006-2010
-Mississippi State University Department of Biological Sciences Promotion and Tenure Committee – 2008-2009
-Biological Sciences Strategic Planning Research Objectives Team (SWOT) member 2009
-MSU Department of Biological Sciences -Undergraduate Curriculum Committee -2006-2010
-Sigma Xi-MSU Chapter President-2009-2010
-Sigma Xi –MSU Chapter President Elect – 2008
-MSU - Biology Faculty Liaison – Ingenuity Pathway Analysis Database and Systems Analysis – 2007-2009
-Ad-Hoc Committee – MSU - Office of Research - Transdisciplinary research initiative: Genes Behavior and the Social Environment – 2007-2008
-Ad-Hoc Committee-MSU – The Future of the LSBI Task Force – 2007-2008
-Cell/Developmental Biology faculty Search Committee – MSU 2007-2008
-MSU Dept. of Biological Sciences -Strategic Planning Committee-Overview Section- Co-Chair – MSU-2007
-MSU Faculty Liaison for equipment donation from CDC – 2007-2009
-Cell/Developmental Biology Group -MSU– Whiteboard Development Committee -2007
-National Research Council Program Service Quality Survey invited participant MSU – 2007
-Strategic Planning Committee- The future of graduate studies in Biological Sciences – MSU – 2007-2008

National and International

-University of Missouri Research Board – 2014-2018, 2019
- DOGMAP International canine gene mapping committee. 1994-2011.
-William Woods University Scientific Advisor for Dual Major Program (Pre-Veterinary Medicine/Equestrian Studies) leading to BS degree – 2006 -2009.
-National Delegate Representing Region XII – Arabian Horse Association 2007 and 2009.
-Arabian Horse Association National Convention Organization Committee -2006-2010.
-Arabian Horse Association Youth Education and Development Committee – 2007-2013.
-Arabian Horse Association – National Awards Committee -2007-2008.
-Arabian Horse Association- Amateur Committee – 2007-2008.

-Arabian Horse Association Horse Stress Reduction Committee – 2006-2007.
-Scientific Advisory Board – Leeds University– Graduate program in Clinical Embryology 2004-2006.
-Stem Cell Applications in Clinical Research Platform Team. Promega, Corp. 2000-2006.
-Developing new applications in Genomics and Proteomics Platform Team. Promega, Corp. 2000-2005.
-Molecular Diagnostic Customer Focus Team. Promega, Corp. 1998-2005.
-Scientific Advisory Board – University of Vienna (Krems) – Graduate program in Clinical Embryology, 1998-2001.
-Scientific Leader. Male Infertility and Y-Chromosome Gene Mapping Team. Promega Corporation, 1994-2005.
-Ethical Advisory Board. Invited Consultant. Smith Kline Beacham. 1998.
-Molecular Diagnostic Education Focus Team. Promega, Corp. 1998.
-Hostess and Organizer: X International Congress on Gene Mapping and Cytogenetics in Domestic Species. Apalachicola, FL. 1997.
-HORSEMAP - International equine gene mapping committee. 1994-2004.
-HUGO Y chromosome gene mapping committee. 1994-1999.
-Search Committee. Physiology Assistant Professor. West GA College. 1992 - 1993.
-Search Committee .Molecular Biology. Assistant Professor. West GA College - 1992.
-SACS Self-Study Subcommittee on Undergraduate Curriculum. 1991-1992.
-National Nursing Examination Boards Anatomy/Physiology question standardization committee. 1992.
-Faculty Senate. Student Affairs. West GA College, 1992.
-International Committee for Standardization of Equine Karyotype.1988 -1992.
-International Committee for Standardization of Bovine Karyotype.1988 -1990.
-Sigma Delta Epsilon Committee for National Grant Proposal Review. 1989- 1991.
-USDA Peer Review Council. 1987, 2000, 2003.

CONSULTING and OTHER ACTIVITIES

-Scientific Advisory Board – APCO USA, LLC 2016, 2018, 2019
-Expert legal witness and consultant – DNA forensics and laboratory methods design: 1991-2019
-Expert legal witness and consultant - clinical genetics, reproduction and animal behavior: 1986-2919
-Speakers Bureau: GENZYME GENETICS: 2000-2008
-Consultant for issues pertaining to reproductive genetics stem cell biology and cytogenetics:
Promega – 2008, 2009, 2010 and as needed
Repromedix/ReproSource -2008-2014
Cornell University Center for Assisted Reproduction – NY, NY – 1999-2016, 2017
CECOLFES - Latin American Centers for Assisted Reproduction – Bogota, COLUMBIA 1999-2012
Andros Center for Assisted Reproduction – Palermo, ITALY – 1999-2001, 2007
Center of Reproductive Medicine CONCE VIDAS, Medellin, COLUMBIA , 2003,2006, 2007
Bourn Hall Clinic – Bourn, Cambridgeshire, UK – 1990 -1991, 1997-2001
Procrea Fertility Center – Mont-Royal, Quebec, CANADA – 1998-2000
Serono Pharmaceuticals – Geneva, SWITZERLAND-1998-2001
Genentech – 1999
-Consultant for semen collection and insemination and embryo transfer in equine and bovine: 1995-2016
-Coach – Region XII horse judging team: 2007-2008
-Consultant-Genetics section – Arabian Horse Times Magazine 2006, 2007
-Consultant for behavior issues in horses and companion animals 1995-2006
- Consultant – assessing reproductive potential in the Lippizaner stallion – Spanish Riding School and University of Vienna School of Veterinary Medicine – Vienna AUSTRIA – 1999, 2000
-Consultant for Agricultural Technology Partners in areas pertaining to gene diagnostics – 1998
-Consultant for Arabian Horse Registry (now Arabian Horse Association) in cases of disputed genetic identity: 1988-1998
-Consultant for implementation of Preimplantation Genetic Diagnosis (PGD): Jones Institute. Norfolk, VA. 1991
-Consultant: in-vitro fertilization and micromanipulation. Baptist Hospital, Miami, FLA. 1991
-Consultant: organizing and conducting DNA typing for Rare Horse Breed Society – Bath, UK 1990-1992
-Consultant: cytogenetic analysis of bovine embryos and PCG. AZ Center for Clinical Genetics, Scottsdale. 1989
-Genetics Consultant for Polish Arabian Horse Breeding Foundations and Studs – Janow Podlosky and Michalow: 1985-1989
-Consultant: Equus Magazine and Modern Horse Breeders Journal. 1986 -1989

EDITORIAL ACTIVITIES

Section Editor – Reproductive Physiology – Journal of Livestock Science – 2005-2009
(Elsevier Publisher)

JOURNAL/GRANT REVIEW

The Lancet
Fertility and Sterility
Nature Genetics
Nature Biotechnology
Theriogenology
Human Reproduction
RBM Online
Biology of Reproduction
Journal of Andrology
European Journal of Andrology
University of MO Research Board
Molecular Human Reproduction
Journal of Assisted Reproduction and Genetics
Stem Cell
Molecular Reproduction and Development
Proceedings of the National Academy of Sciences
Natural Science and Engineering Research Council of Canada
Telethon – National Italian Scientific Granting Agency
United States/ Israel Binational Science Foundation
US Department of Agriculture
American Journal of Andrology

TEACHING EXPERIENCE

FLORIDA A&M UNIVERSITY

Developmental Anatomy (ZOO 3653C01) Lecture and Lab- 3 credits Summer 2019
Histology Lecture and Lab (ZOO3753C01 and C02) – 3 credits – Spring 2019
Anatomy and Physiology I Lecture)BSC 2093) – 3 credits – Spring 2019
Anatomy and Physiology II Lab (BSC 2094L-09) – 1 credit Spring 2019
Anatomy and Physiology I Lab (BSC 2093L-04) – 1 credit Spring 2019
General Biology Lab (BSC 1011 L) -1 credit – Spring 2019
Graduate Directed Research – BSC 7010 – Fall 2018
Directed Individual Study BSC 7910 – Fall 2018
Developmental Anatomy (ZOO 3653C01 and 02) Lecture and Lab- 3 credits Fall 2018
Anatomy and Physiology II Lab (BSC 2094L-02) – 1 credit Fall 2108
Anatomy and Physiology I Lab (BSC 2093L-06) – 1 credit Fall 2108
General Biology –Non Majors (BSC 1005) Lecture – 3 credits – Fall 2018
Developmental Anatomy (ZOO 3653C) Lecture and Lab)- 3 credits Summer 2018
Directed Individual Studies-Bridge Program with Chiles High School–Spring 2018 –Mentor for Gifted High School Student form Chiles High School.
Directed Individual Studies (604) BSC 405 1 -2credits –Spring 2018 – Mentor for 1-3 undergraduate students
Anatomy and Physiology I lecture- BSC 2093 -01– 3 credit Spring 2018
Anatomy and Physiology I - BSC 2093 L02– 1 credit Spring 2018
Anatomy and Physiology I- BSC 2093 L04– 1 credit Spring 2018
Anatomy and Physiology II- BSC 2094 L09– 1 credit Spring 2018
Histology ZOO 3753 C01 –Lecture -3 credits Spring 2018
Anatomy and Physiology II- BSC 2094 L04– 1 credit Spring 2018
Directed Individual Studies (604) BSC 405 1 -2credits –Fall 2017 – Mentor for 1-3 undergraduate students on projects related to Cd induced ROS and GI in various cell types.
Anatomy and Physiology II- BSC 2094 L04– 1 credit Fall 2017
Anatomy and Physiology I- BSC 2093- L011 – 1 credit Fall 2017
Anatomy and Physiology I- BSC 2093 -L09 – 1 credit Fall 2017
Anatomy and Physiology I-BSC 2093-L06-1 credit Fall2017
Anatomy and Physiology I -BSC2093 L02 - 1 credit Fall 2017
General Biology I -BSC1010-04 – 3 credits Fall 2017
Developmental Biology BSC XXXX 3 credits Summer 2017
Anatomy and Physiology BSC2094 3 credits Summer 2017
Biological Sciences BSC 1005 (006) 1 credit Spring 2017
General Biology Lab (L10)BSC1010) 1 credit Spring 2017
Anatomy and Physiology I (L04) BSC2093 1 credit Spring2017
Anatomy and Physiology II (L09)BSC2094 1 credit Spring 2017
Directed Individual Studies (604) BSC4905 1 credit Spring 2017 – Mentor for 1-3 undergraduate students on projects to be determined Spring Semester.
General Biology Lab I (L11) (BSC1010) 1 credits Fall 2016
General Biology Lab I (L15) (BSC1010) 1 credit Fall 2016
Anatomy and Physiology Lab I (L12) (BSC2093) 1 credit Fall 2016

Anatomy and Physiology Lab I (L10) BSC 2093) 1 credit Fall 2016
Anatomy and Physiology Lab I (L01) BSC 2093) 1 credit Fall 2016
Undergraduate DIS: Co-mentor (with Dr. Caroline Odewumi) for 1 undergraduate project focused on germ line genomic instability induced by oxidative stress (Fall 2016)

JACKSON STATE UNIVERSITY

General Biology (BIO 111-80) 3 credits ONLINE CURRICULUM Sp Spring 2017
General Biology (BIO 111-100) 3 credits ONLINE CURRICULUM Spring 2017
General Biology Lab (BIO111LAB) 1 credit ONLINE CURRICULUM Spring 2017
General Biology (BIO 111-80) 3 credits ONLINE CURRICULUM Fall 2016
General Biology (BIO 111-100) 3 credits ONLINE CURRICULUM Fall 2016
General Biology Lab (BIO111LAB) 1 credit ONLINE CURRICULUM Fall 2016
General Zoology Lab (BIO 115-03) 1 credit Spring 2016
General Zoology Lab (BIO 115-01) 1 credit Spring 2016
General Biology Lab (BIO 111-100) 1 credit ONLINE CURRICULUM Spring 2016
Human Anatomy and Physiology II (BIO 235-01) 3 credits Spring 2016
General Biology (BIO 112-80) 3 credits ONLINE CURRICULUM Spring 2016
General Biology (BIO 111-100) 3 credits ONLINE CURRICULUM Spring 2016
Introduction to Biological Sciences (Honors) (BIO 101-41) 3 credits Spring 2016
Human Anatomy and Physiology (BIO 234-81) 3 credits ONLINE CURRICULUM Fall 2015
Human Anatomy and Physiology (BIO 235-II) 3 credits Fall 2015
General Biology (BIO-111-80- 3 credits Fall 2015
General Biology (BIO-111-100) 3 credits ONLINE CURRICULUM Fall 2015
General Biology Lab (BIO-111-100 LAB) 1 credit ONLINE CURRICULLUM Fall 2015
Anatomy and Physiology (BIO-234-80) -3 credits ONLINE CURRICULUM Summer 2015
Anatomy and Physiology Lab (BIO 234)- 1 credits Summer 2015
Cell Biology (BIO 440-80) – 3 credits Spring 2015
Cell Biology Lab (BIO 440-80) -1 credit Spring 2015
General Biology (BIO 112-80) 3 credits; ONLINE CURRICULUM; Spring2015
General Biology (BIO 111-100) 3 credits; ONLINE CURRICULUM; Spring 2015
General Biology Laboratory (BIO-100); 1 credit; ONLINE CURRICULUM Spring 2015
General Biology (BIO 111-05) – 3 credits; Fall 2014
General Biology (BIO 111-80) - 3 credits; ONLINE CURRICULUM; Fall 2014
General Biology (BIO 111-100) - 3credits; ONLINE CURRICULUM; Fall 2014
General Biology Laboratory (BIO -100) -1 credit; ONLINE CURRICULUM; Fall 2014
Anatomy and Physiology (BIO 284-81) - 3 credits; ONLINE CURRICULUM; Fall 2014

GLOBE UNIVERSITY

Animal and Exotic Pocket Pets (Vet Tech Class) – 3 credits; Kent-First –visiting Lecturer 2012
Veterinary Nomenclature (Vet Tech Class) – 2 credits; Kent-First – visiting Lecturer 2012

MISSISSIPPI STATE UNIVERSITY

Faculty-Special Topics in Biology: Stem Cell Biology (Bio-4990/6990 -2 credits; Kent-First) Summer 2006.
Faculty-Principals of Zoology (Bio 1504-4 credits; Kent-First) Summer 2006 (Rural Medical Scholars Program) at MSU.
Guest Lecturer – Animal Genetics (Department of Animal Sciences) Fall 2006
Guest Lecturer – Animal Physiology (Department of Biological Sciences) Fall 2006
Special Topics in Reproductive Genetics (Bio-4990/6990) – Fall 2006
Special Topics in Reproductive Biology and Medical Ethics (Bio 4990-6990) – Winter 2007
This class is designed to cover the progression of experiments leading to our current understanding and practices in assisted reproduction and stem cell biology. Students learn the difference between reproductive cloning and therapeutic cloning and then are introduced to the controversies surrounding the two. At the end of class the students formally debate the topics covered in class with moderators present.
Stem Cell Biology/Bioethics – 3 credits BIO 4990/6990 Summer 2007
This class is designed to cover the progression of experiments leading to our current understanding of stem cell biology. Students learn the difference between reproductive cloning and therapeutic cloning and then are introduced to the controversies surrounding the two. At the end of class the students formally debate the topics covered in class with moderators present
Comparative Vertebrate Embryology – 3 credits BIO 4504/6502 – Fall 2007

See description below.

Advanced Methods in Medical Technology BIO 4990/6990 – 3 credits Spring 2008.

This class is required for undergraduates in the Medical Technology Program prior to their internship in a hospital or laboratory. Students learn to calibrate micro titer pipettes, to accurately pipette, purify DNA, PCR concepts specific for diagnosing a genetic disease. Students learn to perform, sperm counts, determine normal and abnormal sperm morphology, urine analysis and CBCs and other routine procedures. Prerequisite for the class is blood born pathogen training. Student actively participate in ongoing research on human specimen using their developed tools learned in the class. This project is presented as part of the BURP (under graduate biology symposium) in abstract and poster format.

Human Physiology – BIO 3501- 3 credits – Spring 2008.

"This class is required for Kinesiology and Pre-Nursing majors. As such it provides an in depth survey of human physiology including anatomy, and pathophysiology. The class is taught using an integrated approach and student dialog and questions are encouraged. Physiology of humans is compared with other species when appropriate."

Faculty Special Topics in Biology: Animal Behavior and Ethology (BIO-4990/6990-3 credits Summer 2008.

Comparative Vertebrate Embryology–BIO 4504, BIO-4502, BIO-6502 -3 credits(Lecture and Wet Lab)Junior, Senior, Graduate, Honors Levels – Spring 2009.

"This course is designed to provide students with a comprehensive appreciation of the developmental process, presenting detailed descriptions of developmental mechanisms along with conceptual framework for understanding how development occurs. Although discussions focus on developmental processes in a variety of invertebrate and vertebrate embryos at the anatomical, biochemical, cellular, and molecular levels, focus is particularly on mammalian development. Companion laboratory experiences are designed to complement concepts covered in lecture. Students are expected to develop expertise in microscopy, lab method and the language of anatomy and embryo development across amphibian, avian, and mammalian species. Students are graded based upon cumulative grades earned in lecture and in lab. The final project is worth 25% of the total grade. In this project students are provided with a list of "Pioneers" in the area of Developmental Biology. Their task is to become familiar with what each Pioneer's contribution is to the field. The student "picks a pioneer" and together with the Professor, the Pioneer is contacted to schedule an oral/live interview that is podcast across MSU. Students must develop a 15 minute interview in groups of 2-3 individuals. During the last week of class, with the help of IT, the interviews are captured in a permanent document that is available for all students and faculty at the MSU website. This term, our Pioneers are Sean Carroll, Ian Wilmut, James Thomson, Jenny Marshall Graves, Roger Short, Marylyn Renfree, Mark Hughes, Mary Lyon, Sally Perault, and Patricia Hunt. Finally, Shakhoul honors students and graduate students summarize the interviews in a manuscript that is published as an Editorial – The Pioneers Chat with MSU students". Each participating student is an author on the final manuscript, thus giving students the unusual opportunity to meet the Pioneers that "light their fire" , to develop a podcast program and then to publish a formal manuscript."

NOTE: THIS CLASS AND THE ONE ON ONE INTERACTION OF MSU STUDENTS WITH NOBEL LAURIETES WAS FEATURED ON THE MSU WEBSITE, MS PUBIC RADIO, AND THE HARWELL INSTITUTE IN THE UK IN HONOR OF PROF. MARY LYON!

http://www.talkshoe.com/talkshoe/web/talkCast.jsp?masterId=47685&cmd=tc

Fundamentals of Biotechnology –BIO 6013 -3 credits (Co taught with Dr. N.Reichert) Summer 2009 ONLINE CLASS REQUIRED FOR MASTERS DEGREE PROGRAM: BIOLOGY EDUCATION

This class provides a survey of plant and animal biotechnology. The curriculum is designed present advances in genomic and proteomic approaches in plant and animal sciences and includes cloning and embryo biotechnology and assisted reproduction.

Biological Seminar/Biological Sciences Exit Seminar – BIO 8011/8021 1 credit Fall 2009

(Weekly attendance and participation required for all BIO graduate students)

DNA Forensic Methods and Concepts -2 credits BIO 8990 Fall 2009

"Covers the theory behind and laboratory methods associated with modern forensic analyses using capillary electrophoresis-based DNA sequencing. Laboratory and lecture topics include collection and preservation of forensic DNA samples, pre- and post-PCR DNA cleanup techniques, automated DNA sequencing protocols, and theory and operation of the ABI 3100 Genetic Analyzer with data analysis and interpretation"

Embryology, Development & Reproductive Biology-BIO 6043-501-3 credits Fall 2009 ONLINE CLASS REQUIRED FOR MASTERS DEGREE PROGROM: BIOLOGY EDUCATION *"Course goals and objectives: The process of fertilization and embryogenesis is an amazing journey filled with fantastic events and milestones that lead to a normally functioning and phenotypically correct individual that will grow into an adult and reproduce. This course is designed to provide students with a comprehensive appreciation of the developmental process, presenting detailed descriptions of developmental mechanisms along with a conceptual frame work for understanding how development occurs. Although discussions will focus on developmental processes in a variety of invertebrate and vertebrate embryos at the anatomical, cellular, biochemical and molecular levels we will particularly focus our discussions on mammalian development.*

Guest Lecturer-Animal Physiology BIO 3501 Reproduction and Development April 13 Spring 2009

Guest Lecturer- Primate Behavior AN 3333 DNA typing in subhuman primates Spring 2009

UNDERGRADUATE DIRECTED INDIVIDUAL STUDY – MISSISSIPPI STATE UNIVERSITY:
Please note: Blood Borne Pathogen Training is a requirement for working in the Kent-First BSL-2 lab. Prior to initiating individual projects each student becomes proficient in basic techniques in molecular biology including notebook maintenance, pipette skills, DNA purification, quantification, PCR, gel and capillary electrophoresis and data capture and analysis. Research projects are specific for each student and their individual interests and career ambitions:

BIO 4000 – (from 1 – 3 credit hours per student per semester on average) 2006-2009
Special topics related to human genetics, gene mapping and forensics
Special topics related to sex determination, DNA typing in River Cane and in various mammalian Species, ROS induced genomic instability in non human species
Special Topics related to stem cell bioethics and stem cell development
Special Topics in Advanced methods in molecular biology and DNA biotechnology
Special topics in ROS induced DNA damage and DNA repair
Special Topics in clinical detection of micro deletions associated with male infertility
2006-2007
K. Wilkinson, L. Crawford, G. Smith, A. Woodard, A. Vaughn, J. Burns
***2008-2009 students**
***K. R. Pearson, *P. Mathews, *E. Ard, *C. Stroupe, *S. McKay, *R. Bedi, *T. Hawkins, *M. Wade, B. Alday, C. Haynes, J. Burns, *E. Williams, *B. Jones, *S. Dally Smith, *L. Moya*K. Salter**

SUMMER UNDERGRADUATES RECRUITED BY MSU FOR DVM/PhD PROGRAM
C. Hunter – Project: DNA typing in Mountain and Eastern and Western Lowland Gorilla (Summer 2008,2009)
Currently admitted to DVM/Ph.D. program - MSU

MISSISSIPPI SCHOOL FOR MATH AND SCIENCE
Mentor for C. Luck – Special Topics in Medical Genetics – 2006-2007
Mentor for K. Salter- Special Topics in the development of the female germline pathway and ovarian carcinoma. Fall 2008.
Mentor for K. Fang – Special Topics: induction of DNA strand breaks in cultured UV sensitive horse fibroblasts. Spring 2009.
Mentor for S. Batra – Special Topics in the Epidemiology of smoking and gonad cancer. Spring 2009.
Mentor for K. Newman – Special Topics in mapping of deletions in the AZF Region of the Y-chromosome in men with testis failure. Spring 2009.

NEW PROGRAM/CLASS DEVELOPMENT:
Laboratory Methods in DNA Forensics and Biotechnology – BIO 8000 (taught Fall 2009) Preparation and course content development initiated in Fall 2008.

ONLINE MASTERS DEGREE PROGRAM: (2007 -2009)
Developmental and Reproductive Biology – BIO 6043
Fundamentals of Biotechnology – BIO 6013 (Dr. N. Reichert and Dr. M. Kent-First)
Capstone Course in Modern Biology –BIO-8183 Course Development 2009

Established and personally funded a trial "Incentive Programs" (Ph.D. and M.S. students) to encourage graduate students to reach milestones in thesis research following a mentoring model used by NSF. The program was completely voluntary. The program was designed to reward students for focused academic performance in their thesis research in a cadenced fashion aimed at expedited graduation with publishable thesis chapters.

UNIVERSITY OF MISSISSIPPI – Department of Obstetrics and Gynecology
Grand Rounds: Topic - Environmentally induced ROS in Testicular and Prostate cancer - Spring 2010

UNIVERSITY OF WISCONSIN-MADISON
Faculty –Horse Science (Animal Science 250 – 3 credits; Kent-First and First) Spring Semester 2002, 2003, 2004
Class consisted of from 35 to 45 students with horse experience ranging from no experience to highly accomplished. Many were young women that were Animal Science majors interested in becoming equine or companion animal veterinarians. Some were "non-Animal Science" majors but were horse lovers or actively involved in the horse industry. Classes taught included 2 lectures and a 3 hour lab per week. Lecture topics covered included evolution of equids, equine genetics and reproduction, horse safety, nutrition, parasitology, first aid, anatomy and systems physiology, horse diseases, behavior as applied to training, finishing, and schooling the horse, etiology of lameness, gait mechanics and opportunities

in the horse industry. For labs, I used my herd of teaching horses and transported them to campus to use in the class. Students were encouraged to become actively Involved with our herd of 22 horses and learned basic applied horse handling including halter, lounging, ground driving, and long lining; seats (stock seat, hunt seat, dressage, saddleseat, sidesaddle and driving) and tack. The students were required to attend and VOLUNTEER at the Midwest Horse Fair and to complete an advanced research project involving hands on experiments which culminated in a 15 minute Powerpoint lecture with handouts for the last sessions of the class. More memorable projects included – Milk calcium as a predictor of parturition, Developing teaching tools for parturition and care of the newborn foal, and Testing the hypothesis that the shape of the horse skull and eye are predictive of horse temperament.

Faculty – Physiology of Domestic and Laboratory Animals-Advanced topics (AHBS/MAS-301-3 credits; Hellenkamp, First, Kent-First and others) Fall 2004

Lecturer/Faculty – Human Genetics (Genetics 565-3 credits – Prolla and Kent-First) Fall 2003, Fall-2004 Fall 2005

Lecture topic 1 – forensics
Lecture topic 2 – clinical genetics
Lecture topic 3- gonad development
Lecture topic 4-Y-chromsome and development

Menter and advisor: Advanced topics /Independent study (Animal Science 299, 399 or 699- 1-4 credits or Zoology)

*J. Derse 2002,2003
*S. Heath 2002, 2003
*@S. Greetan 2002, 2004
*K. Werner 2003,2003
*M. Maurer 2004
#A. Hilmer – 2003, 2005
^^R. Smith – 2004, 2005
@L.Carey – 2004, 2005
*@A. Wilding – 2004, 2005
^^K. Katz-2002-2004

^^ Scientist in Biotechnology
# MD degree
* DVM degree
@ Honors Thesis

Visiting scholars mentored in undergraduate research in the Kent-First Lab in WI and since Fall 2006, at MSU. These students learned basic methods in molecular biology, genomics, clinical research and for the younger ones – animal husbandry. These students visit our home and farm and occasionally live with our family during blocks of time. Some worked with human and/or equine models (XY Sex Reversal Syndrome Genetics, Physiology, and Behavior):

K. Edwards – honors high school student – Memphis – Admitted to Shakhouls Honors program at MSU in 2009. Came to Starkville some weekends since 2007 and in blocks of time during summer of 2008 to participate with other students in various horse related projects and on the horse judging team for MS.
M. Gratz - honors high school student – Memphis – Honors student at MSU in 2009.
Came weekends and in blocks of time during summer of 2008 to participate with other students in various horse related projects and on the horse judging team for MS.
R. Tomlinson – Starkville High School Honors student – collaborated with students in my lab at MSU and worked for Diagene (my company) in animal related activities. Currently enrolled as a Senior at MSU (2010).
B. Hughes – Cambridge, UK (summer research-High School)1999, 2000, 2001, 2002, 2003
Earned BS in Biochemistry degree at St. Andrews College – Scotland 2006
Senior Scientist Cambridge University
J. Shultes- Vienna, AUSTRIA –(summer research-High School) 1998, 1999, 2000
Completed MD degree University of Vienna, AUSTRIA
A. Sprecher – Madison WI 2002-2004
Completed BS degree 2008 in Genetics at UW Madison.
MD/Ph.D. program -UW Madison Fall 2008.
C. Hassler – Honors Thesis – WI Height High School 2005-2006.
Epidemiology of Male Factor Infertility in Industrialized Regions: What role does environment have?
Accepted in accelerated Pre-med Program at University of Montana – Fall 2006.
Z. Duffy- William Woods University/UW Madison/Promega 2003
Leading Horse Trainer after earning B.S. degree

Earning DVM degree
A. Beabout- William Woods University/UW Madison/Promega 2003
Completed DVM Degree University of MO 2008.

Lecturer: Gamete and Embryo Biology – (UW Animal Science 875--3 credits-Parrish and Kent-First) – Fall - 2000.
Bioethics, science, and implications of cloning and human stem cell biotechnology: A public broadcasted (WORT) forum and debate sponsored by UW Student Association. Prof. A. Charo and Prof.M. Kent-First.1999.
Lecturer: Reproductive Physiology. (UW Animal Science – 875 -3 credits First, Parrish and Kent-First) Winter 1997, 2001, 2003.
Lecturer: Short course held at the UW Biotechnology Center- Advances in Molecular Genetics - Gene Mapping, Diagnostics, and Gene Therapy.1995, 1996, 1997, 1998
Faculty: American Fertility Society - Hands On IVF Cryopreservation and Micromanipulation Workshop and Symposium. Madison, WI. April 25-29, 1988.
Grand Rounds – UW School of Medicine – Dept. Ob/Gyn:
What is the role of genetic testing in obstetrics/gynecology (1999).
Genetics of Testis Function – (2001)
Clinical genetics of testis failure – (2003)
Male Factor Infertility- Genetics- (2004)

Grand Rounds – UW School of Medicine – Dept. of Urology:
Clinical relevance of microdeletions in the AZoospermia Factor (AZF) region of the Y Chromosome (2000. 2001)

WILLIAM WOODS UNIVERSITY
Guest Lecture: Biology Dept. – Mammalian genetics – Let's make a testis and make it function! Spring - 2004
Guest Lecture: Biology Dept. – Special topics in advanced biology – Issues in Animal and Human Cloning – Fact or Fiction? Spring 2004
Guest Lecture: Freshman Biology: Saving our endangered species through genetics and managed reproduction. Spring - 2003
Guest Lecture: Mammalian Genetics – Gender determination in the horse – Spring 2002
Guest Lecture: Required Freshman course for student with career interests in equestrian studies and business, art, or the sciences Spring 2002 -2004
Topic – Combining horses with science for a successful and rewarding career pathway!

Mentor – Independent/Advanced Study: Advanced studies in molecular biology and genetics (Biology Dept.)
Under a scholarship given to William Woods by Diagene Inc., a student that plans for a career combining equestrian studies and basic science or pre-veterinary medicine could travel to Madison or Starkville to study in Dr. Kent-First's laboratory and to actively work on a part of the studies involving sex determination and testis differentiation in the herd of teaching horses owned by Diagene, Inc. These students also actively participated in all facets of horse care, handling, breeding and assisted reproduction. Those needing animal experience generally for veterinary school admission also had the opportunity to work with domestic species such as dairy cows and some marsupial species. Diagene awarded 2 Scholarships annually beginning in 2004. Students lived in the First home during the summer and got training in molecular biology, endocrinology, cell biology methods at the Biotechnology Training Institute at Promega or in the UW labs prior to beginning their research.
Students in 2004: A. Beabout – Junior –Accepted to UM College of Veterinary Medicine - 2005; Z. Duffy- Junior
S. Wilbur - Junior

UNIVERSITY of VIENNA/UNIVERSITY of the DANUBE – AUSTRIA
Faculty: Graduate Program in Clinical Embryology, 1998-2003.
Lectures and Laboratory – Reproductive genetics/molecular biology/embryology/bioethics
Rotated in 10 day modules, one or two times per year, for each of 3 classes held in Vienna and Krems to cover lectures and labs of students earning the MS degree in clinical embryology.

IMPLEMENTING GENETIC TESTING IN THE CYTOGENETICS LABORATORY
Faculty: Industry sponsored workshops aimed at addressing problems, issues and concerns in laboratories with minimal experience in clinical genetics testing. July 2001, 2002. (four 8 hour workshops – two in Milan and two in Rome, ITALY.

AMERICAN ASSOCIATION OF BIOANALYSIS WORKSHOP: ART IN Y2K
Faculty: Challenges and strategies in Assisted Reproductive Technology: Genetic and Chromosomal Anomalies Associated with ART. Kona, Hawaii Aug. 2000.

AMERICAN SOCIETY of ANDROLOGY LABORATORY WORKSHOP

Faculty: Clinical Applications of Advances in Molecular and Cellular Andrology Laboratory Workshop-Separating the Wheat from the Chaff, Louisville, KY, May 1999.

AMERICAN SOCIETY of ANDROLOGY LABORATORY WORKSHOP

Faculty: Moving Beyond Boundaries: Clinical Andrology in the 21st Century, Baltimore, MD Feb. 1997.

WISCONSIN HEIGHTS HIGH SCHOOL

Biotechnology class – molecular approaches to forensics

Students learned the relationship of DNA typing to crime scene investigation in a series of lectures which included collection of buccal cells from their own mouths and amplification of a polymorphic repeat region by pcr and data analysis –Fall 2004, Spring 2005 and Winter 2005

Advanced Biology class – molecular biology methods

Students learned the principal behind DNA purification and diagnosis of genetic disease in lecture. Then the purified DNA and amplified Y-linked STS to determine the reason for abnormal sperm production in some mock DNA samples. Fall 2004 and Winter 2005.

Mentor in honors research project for Young Epidemiology Scholar (YES) Competition - 2005

Student- Junior C. Hassler

Title: Epidemiology of human male infertility due to deletions of YqAZF

WISCONSIN CENTER FOR ACADEMICALLY TALENTED YOUTH

-Program Instructor: 5th and 6th grade females and their mothers. 1997-2000 and 2002

-Seniors Program Instructor for WCATY. One week of focused instruction for 16 Seniors in the sciences and mentoring them in their individual research projects. 1996.

WEST GEORGIA COLLEGE

Faculty advisor for 19 pre-veterinary program majors, 25 pre-medical program majors, and 22 physician's assistant program majors. 1991-1993.

Courses taught (1991-1993):

-Medical Ethics (Biology Major Elective Course)
-Human Pathophysiology (Graduate Nurses Course)
-Advanced Research in Molecular Biology (Senior's Elective Course)
-Human Physiology lecture and Laboratory (Major's Course)
-Molecular Biology lecture and Laboratory (Major's Course)
-Advanced Topics in Modern Biology (Senior's Course)
-Concepts in Biology I (non-major's course)
-Anatomy and Physiology lecture and laboratory (two quarter sequence (required for nursing, pre-vet/premed programs)
-Cell Biology laboratory (major's course)
-Graduate Seminar (graduate level requirement)
-Concepts in Biology II (non-major's course)
-Special topics in reproductive genetics leading to honors thesis for undergraduates:
TOPICS: semen collection and insemination in the Florida panther: T. Long
(Dr. Long is a successful dentist in North GA)
marsupial reproduction – models – wallaby, suger glider and NA opossum: A. Muellem; B. Spears
XY sex reversal syndrome: T. Long, A. Muellem, B. Spears

UNIVERSITY OF ALABAMA - BIRMINGHAM, DEPT. OF MEDICAL GENETICS

Molecular Genetics lecture and laboratory (required 4 credit graduate level course)
Graduate research project advisor to 6 first and second year PhD students in Medical Genetics. -Program Supervisor and advisor to 3 honors program high school seniors who assisted me during the summer quarter (1991)

BOURN - HALLEM GROUP

Second, Third, Ninth and Twelfth, Fourteenth Foundation Courses On Assisted Human Reproduction, Bourn-Hallem (Serono) –Dr. Kay Elder –Coordinator - Bourn, Cambridge UK, 1990, 1996, 1998. 2000, 2002.

SHELBY COUNTY – TENN- EXTENSION
Equine Management/ Reproduction Series of Courses - State of TN Continuing Education (1987)

DANE COUNTY –WI-EXTENSION
Coach 4-H horse judging team, Hosted and taught 4H meetings and clinics on topics of horse anatomy – form to function, sheath and mammary gland cleaning and preventative hygiene, horse vaccinations and infectious disease, semen collection, parturition, horse coat color genetics (2002-2005)

UNIVERSITY OF MINNESOTA
-Cytogenetics and Cell Genetics – 3 credits – teaching assistant -Dept. of Animal Science - 1985.
-Developmental Biology and Embryology – 4 credits - teaching assistant –College of Veterinary Medicine- 1983-1985.
-Comparative Anatomy – 4 credits- teaching assistant - College of Veterinary Medicine- 1982-1985.

PATENTS

(Timing of invention development, Progressive stages, and patent status is included for clarity)

1a.Methods and Kits for Detecting Mutations United States Patent Application 20090068646
Disclosed are methods and kits for detecting mutations in DNA by comparing the size of an amplified microsatellite locus to the expected size. The methods and kits may be used in various applications, including monitoring exposure of a cell or organism to a mutagen, evaluating the mutagenicity of an agent, and evaluating a putative precancerous or cancerous cell or tumor cell for microsatellite instability. Inventors:
Bacher, Jeffery (Madison, WI, US) Halberg, Richard (Madison, WI, US) **Kent-First, Marijo** (Starkville, MS, US) Wood, Keith V. (Mt. Horeb, WI, US) Application Number: 11/577646 Publication Date: 03/12/2009
1b..Methds and Kits for Detecting Mutations (Attorney Docket No. 016026-9300-US03), the specification of which was filed with our authority, on October 24, 2005, as International Application No. PCT/US2005/038433 and amended on April 20, 2007. **Kent-First, MG** et al.Issued November 2007 (Europe, Asia, Austrialia)
1c. Methods and Kits for Detecting Mutations, 2005. US Provisional Patent # confidential (2006) Detail: A Method for Detecting Germ-Line Genomic Instability and Induced Directly by an Elevation of Free Radicals (ROS damage) and Indirectly by Environmental Factors (Radiation, Chemicals, Heat).
1d.Methods and Kits for Detecting Mutations, 2004. US Provisional Patent # 60/621,277 Detail: Method for Single Cell and single molecule genotyping and mutational Analysis with Microsatellite Markers

2.*a Methods and Kits for Detecting Germ Cell Genomic Instability* *Issued 2009.*Inventors: **Marijo Kent-First** Wael Mohamed Abdel Megid Jeffery Bacher IPC8 Class: AC12Q168FI USPC Class: 435 6 : Disclosed are methods for detecting microsatellite instability in the germ line of males, methods of assessing risk for developing testicular cancer, methods of evaluating the microsatellite stability of putative cancer or precancerous cells or a tumor, methods for evaluating germ cells for exposure to mutagens, and kits for use in the methods of the invention.
Read more: http://www.faqs.org/patents/app/20080311565#ixzz10gXLPYKK
Read more: http://www.faqs.org/patents/app/20080311565#ixzz10gX2djtH
2b.***Methods and Kits for Detecting GermCell Genomic Instability*** (Attorney Docket No. 016026-9304-US01), the specification of which was filed with our authority, on October 24, 2005, as International Application No. PCT/US2005/038179 and amended on April 20, 2007. Issued November 2007 (Europe, Asia, Austrialia) "Summary of invention: USPTO Patent Application #: 20060088874 **Kent-First** , **MG** et al.
Patent Abstract: Disclosed are, methods and kits for detecting mutations in DNA by comparing the size of an amplified microsatellite locus to the expected size. The methods and kits may used in various applications, including monitoring exposure of a cell or organism to a mutagen, evaluating the mutagenicity of an agent, and evaluating a putative precancerous or cancerous cell or tumor cell for microsatellite instability. "
2c..***Methods and Kits for Detecting Germ Cell Genomic Instability*. 2005.** US Provisional Patent# confidential (2006)Detail: A method of using repeats of the Y chromosome to detect germ line genomic instability in sperm but not soma. A subset of these men develop semenoma that are stable when markers specific to MMR defect are used, however the tumors that arise in the failing testis exhibit the same instability as is seen in the germline for detecting Germline instability arising due to elevated levels of ROS. Using long mononucleotide repeats.

3a.***Human SMCY cDNA and related products. 2000.*** Australia Patent #715449 Detail: H-Y antigen epitope Kent-First, M. and Agulnik, A.
3.b***Human SMCY cDNA, related products, utility, and prenatal gene expression. 1996***. Canada Patent # 2,238, 694; Europe Patent #96932987.9; US Patent # 09/043,334; PCT/US96/14547, IS60/003,744, US PCT#60/012.973.
3 c. CA *Patent* 2238694 - HUMAN *SMCY* CDNA AND RELATED PRODUCTS 1997;Kent-First, M. and Agulnik, A. Abstract of CA2238694 Disclosed herein are human *SMCY* cDNA, related products, and methods of making and using such

products.Recently discovered – SMCY is the gatekeeper for prostate cancer metastasis.
www.wiki**patents**.com/...**Patent**.../human-**smcy**-cdna-and-related-products

4.*aMale Infertility Y-Deletion Detection Battery and primer combinations, 1998;* US Patent # 5,840,549; US Patent # 5,783,390; Canada Patent # 2,221,521; Japanese Patent # 501742/1997; EU Patent #97951712.5; Canada Patent # 2,271,948; Japanese Patent #525914/1998; US PCT # US PCT #PCT/US96/09421; PCT/US07/23136; EU PCT#96919190.7 **First, Marijo Kent;** Muallem, Ariege

4b.Male Infertility Y-Deletion Detection Battery (CIP), 1997, US Patent # 5,776,682 First, Marijo Kent; Agoulnik, Alexander I.; The present disclosure describes a method for probing the integrity of a Y chromosome utilizing multiplex PCR reactions which amplify specific regions of the human Y chromosome which have been linked to normal fertility in human males. The method is capable of detecting deletion mutations within the Y chromosome which are predictive of human male infertility. A kit containing reagents needed to practice the method is also disclosed.

***5. Detection of Primate Polymorphisms*, DRS-021, 1998,**Kent-First, M**. (Abandoned)**

6.Vacuum Blot Transfer System, 1986. European Patent #0000000 (LKB Bio Systems)***Jones***, KW, Kent, M., Slowetska, E. **(Patent expired)**

INDUSTRIAL/BIOTECHNOLOGY PRODUCTS RESULTING FROM WORK

1. SMCY(JARAD!) A new marker for prostate cancer! - 2017
2. YDDS Verson 2.2 AZF Analysis System – Promega – CE marked device – 2008
3. Y Chromosome AZF Analysis System from Promega – Catalog number MD1631 - CE marked medical diagnostic device – not available in the US 2007
4. PowerPlex Y-System – Cat#DC6760/DC6761) – 2007
5. Cell Typer System 1.0: System designed to establish stem cell genetic background, purity, stability and lineage. 2005
6. Y-Deletion Detection System 2.0: Second generation panel of Y-linked STS for use in the Clinical Study of Male Factor Infertility and Spermatogenic Arrest, 2004 – Among the top selling product for Promega
7. Y-Deletion Detection System 1.1: First Generation Panel of Y-linked STS's for use in the Clinical Study of Male Infertility and Spermatogenesis, 1998 - Among the top selling product for Promega
8. Species specific HMW genomic DNA (human male, female, mouse male, female, equine, bovine) 1995

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1. Odewumi C, Latinwo, L Badisa, VD, Smith,S, Cobb-Abdullah, A Kent-First, M. and Osborne, D. Modulation of Cadmium Induced Apoptotic, Cancer and Inflammation Related Cytokines by Diallyl Disulfide in Rat Liver Cells. Annals of Tox.(1) 1 May 2018: 1-8.
2. Odewumi C, Latinwo LM, Lyles RL 2nd, Badisa VLD, Ahkinyala CA, Kent-First M. Comparative whole genome transcriptome analysis and fenugreek leaf extract modulation on cadmium-induced toxicity in liver cells. Int J Mol Med. 2018 Aug;42(2):735-744. doi: 10.3892/ijmm.2018.3669. Epub 2018 May 10.s
3. Teague B, Waterman MS, Goldstein S, Potamousis K, Zhou S, Reslewic S, Sarkar D, Valouev A, Churas C, Kidd JM, Kohn S, Runnheim R, Lamers C, Forrest D, Newton MA, Eichler EE, **Kent-First M**, Surti U, Livny M, Schwartz DC. High-resolution human genome structure by single-molecule analysis. Proc Natl Acad Sci U S A. 2010 Jun 15;107(24):10848-53. Epub 2010 Jun 1 (*NOTE: PRESS RELEASE:* ***Barcoding Large Scale Variations in Human DNA*** *6-2-2010 TS-Si News Service SciMed-Horizons)*
4. Bedran WA, Fahmy, I, Abdel-Megid, WM, Elder, K, Mansour, R., **Kent-First, MG**. Length of androgen receptor-CAG repeat l in fertile and infertile Egyptian men. J.Andrology. 2009 Jul-Aug;30(4):416-25. Epub 2009 Jan 22
5. Moreno-Ortiz H, Esteban-Perez C, Badran W, **Kent-First M**.Isolation and derivation of mouse embryonic germinal cells.J Vis Exp. 2009 Oct 22;(32). pii: 1635. doi: 10.3791/1635
6. Abdel-Magid, WM, Bacher, J. **Kent-First, M.G**. The use of tandem repeat markers to detect Y-chromosome mutation in infertile spermatozoa. Fertil.Steril 90: 2008
7. Beyhan Z, Forsberg EJ, Eilertsen KJ, **Kent-First M**, First NL. Gene expression in bovine nuclear transfer embryos in relation to donor cell efficiency in producing live offspring Mol Reprod Dev. (Aug 29;74(1):18-27.2006 epub)2007 Jan;74(1):18-27.
8. Megid WA, Ensenberger MG, Halberg RB, Stanhope SA, **Kent-First MG**, Prolla TA, Bacher JW.A novel method for biodosimetry Radiat Environ Biophys.(Epub 2006 Oct 27).46(2):147-54.Jun; 2007.
9. Bacher, JW, Megid, W., **Kent-First, M**., Sakr, M.E. Halberg, RB. Use of mononucleotide repeat markers for detection of microsatellite instability in mouse tumors. Molecular carcinogenesis. Mol Carcinog. 44(4):285-92. Dec. 2005
10. Esteban C, Lucena E, **Kent-First, M.**. Deletions determination in the Y chromosome, in men infertile candidates to treatments of technical of attended reproduction. ANOVA. 2(2): 16-27. Bogotá 2005

11. Abdel-Megid, W., Sherif, M**., Kent-First. M.,** Auto-Ovarian antibodies and poor responders to superovulation induction Fertil. Steril. (07)315:2004
12. Katagiri Y, Neri QV, Takeuchi T, Schlegel PN, Megid WA, **Kent-First M**, Rosenwaks Z, Palermo GD. Y chromosome assessment and its implications for the development of ICSI children. Reprod Biomed Online. (2004) Mar;8(3):307-18.
13. Lucena Q Elkin, Esteban Pérez Clara, **Kent First Marijo**; Determinación de deleciones en el cromosoma Y en hombres infértiles candidatos a técnicas de reproducción asistida; N O V A 2004; 2(2) : 16-27
14. Katagiri Y, Neri QV, Takeuchi T, Schlegel PN, **Kent-First M**, Rosenwaks Z, Palermo GD. Genetic characterization and eventual transmission of infertility in oligo- and azoospermic men. Hum. Reprod. 18:35-38 May 2003.
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16. Katagiri, Y., Neri, QV., **Kent-First** et al. Chromosomal status of infertile couples and the offspring created by ICSI. Fertility and Sterility (2002) 78, Suppl. S16.
17. Katagiri, Y., **Kent-First. M**., Neri, Q., Rosenswacs, Z, and Palermo, GP. Simple non-invasive screening of fathers and sons for Y-chromosome deletions. Fertil. Steril. 78: Aug. 2002.
18. **Kent-First, MG**, Osredkar T, Memilli E et al. Predisposition of specific regions in AZF to inherent instability and mutation in the soma and germ line in fertile and infertile males. Human Reproduction (2001) 16 - Suppl.S84.
19. Osredkar, T., Frackman, S., Ryan, A., Nolten, W., Meisner, L., Pryor, J., Roberts, K., Lucena, E. Friedman, E., Kol, S., Itskovitz, J., and **Kent-First, M**. Utility and efficiency of three different protocols for assessing the integrity of the Azoospermia Factor (AZF) region(s): Towards the development of standards. Hum. Reprod. 16: 62-64: May 2001.
20. **M Kent-First**. The Y chromosome and its role in testis differentiation and spermatogenesis. Semin Reprod Med. (2000) Jan 18(1): 67-80.
21. **Kent-First M.** The critical and expanding role of genetics in assisted reproduction. Prenat Diagn. (2000) Jul;20(7):536-51. Review.
22. K**ent-First,MG**, First N. Getting genes where we want them. Nat Biotechnol. (2000) Sep;18(9):928-9.
23. **Kent-First M**. Bringing genetics and genetic counseling to assisted reproduction: Building bridges between basic science and medicine. Prenatal Diagnosis Special Issue: Preimplantation Genetics and Diagnosis. Prenat. Diag. (2000) 20:536-551.
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27. Logrono R, C. Harris C., **Kent-First M**.,Meisner L. Response to the editor. AJMG. (1998) 78:390.
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29. **Kent-First MG**.A lesson from mosaics: Don't leave the genetics out of molecular genetics .J.NIH Res. (1997)9(7):29-33.
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34. **Kent-First MG**, Kol S., Muallem A., Ofir R., Manor D., Blazor S., First N., Itskovitz-Eldor J. The incidence and possible relevance of Y-linked microdeletions in babies born after intracytoplasmic sperm injection and their infertile fathers. Mol. Hum. Reprod. (1996) 2(12):943-950.
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42. **Kent MG**. The incidence of the XY Sex Reversal Syndrome in the horse population and fertility in affected individuals. The Proceedings of the XI Eueropean Colloquium on Cytogenetics of Domestic Species. M. Echard (Ed.). CNRZ-INRA Press. 1990: 84-90.
43. **Kent M**, Wachtel S, Thayler S. Direct estimation of serological H-Y antigen by flow cytometry. 1990. Human Genet. 85:124-129.
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45. **Kent MG**, Schneller HE, Hegsted RL, Johnston SD, Wachtel SS. Concentration of serum testosterone in XY sex-reversed horses. 1988. J. Endocrinol. Invest. 11(8):609-613.
46. **Kent MG**, Shoffner RN, Hunter A, Elliston KO, Schroder W, Tolley E, Wachtel SS. XY Sex Reversal Syndrome in the mare: clinical and behavioral studies. 1988. Hum. Genet. 79:321-328.
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48. **Kent M**., Chandler R., Wachtel S. DNA analysis by flow cytometry.1988. Cytogenet. Cell Genet. 47:1-2.
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1. Megid W. Bacher, J, Prolla, T. and **Kent-First, M.G.** Preferential sensitivitity of sex chromosome linked microsatellites to free radical damage and reactive oxygen species. In preparation for submission to PNAS 2019
2. Megid, W., Lucena, E., Palermo, G, Esteban-Perez, C., Bedran, WA, Neri, Q., Bacher, J., and **Kent-First, M**. Infertile men with germline specific genomic instability express a mutator phenotype and increased risk of seminoma. In Preparation for submission to Nature Genetics 2019
3. **Kent-First, M.G**,. Bowling, A., and Ford, C. The XO Mare: An overlooked model for Turners syndrome in the human. 2019
4. **Kent-First, M.G.,** Weber, A, First, N, First, P, Bowling, A., Wilding, A. et al., A mutation upstream to the SRY region and adjacent to the PAR is responsible for XY Sex Reversal Syndrome in the horse. In Preparation for submission to BIOS.2019
5. Lim, S., **Kent-First, M**., Churras, C., Runnheim, R., Forrest, D., Potomousis, K., and Schwartz, DC. Single molecule analysis of flow-sorted human Y chromosomes (Schwartz lab)

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3. **Kent-First, M**., Elder, K., and Schenk, M. A germ cell odyssey: A journey through the genes from germ cell to sperm. Sept. 2000. Alpha. 21:1-3
4. **Kent-First M.** Ryan A., Schifreen R., Frackman S. The genetic basis of male infertility. IVD Technology Nov/Dec.1999:41-46
5. **Kent-First MG**. In Memory of Dr. C.E. "Charlie" Ford – my professor, my mentor, my friend. Cytog.& Cell Genetic.1999. 85:193-195
6. Tarapchek P. (**M.Kent-First**). Keeping the dream alive. Advanced Laboratory. Sept. 1999: 52-60
7. **Kent-First, MG**, Miracle Foal-Arabian filly makes medical history. International Arabian Horse Journal. (1997) July
8. **Kent-First MG**. "To be or not to be…?" Alpha, April, 1996:1-3
9. **Kent-First MG**, First NL. Afterthought for those dam nagging questions. Alpha, June, 1996:6

BOOK CHAPTERS:

1. **Kent-First, M**. and First, N. Cloning of Bovine. 2013. Principals of Cloning, 2ndEdition. J. Cibelli (Ed) Elsevier/Academic Press. Pub. Waltham, Mass.
2. **Kent-First, M**. 2003. Molecular biology of the human Y chromosome. Biotechnology of Human Reproduction. A. Revelli, I. Tur-Kaspa, JG Holte, and M. Massobrio. (Ed.) Parthenon Pub., London 279-299.
3. **Kent-First, M**. 2001. The Y chromosome and its role in testis differentiation and spermatogenesis. Seminars in Reproductive Medicine. E. Y. Adashi (Ed.) Theime Medical Pub. NY.67-80.
4. Elder K., Elliott T. (Ed.s). **M. Kent-First**, contributor. Problem Solving and Troubleshooting in IVF. World Wide Conferences of Reproductive Biology. Ladybrook Publishing Co. 1999.
5. First NL, Mitalipova M., **Kent-First MG**. 1999. Reproductive Technologies and Transgenics. The Genetics of Cattle. R. Fries and A. Ruvinsky (Ed.s) CABI Publishing.
6. Elder K., Elliott T. (Ed.s). **M. Kent-First**, contributor. The use of Testicular and Epididymal Sperm in IVF. World Wide Conferences of Reproductive Biology. Ladybrook Publishing Co. 1998.
7. **Kent-First MG**. 1997. Genetic variants in severe male infertility which will be transmitted by ICSI. Vitro Fertilization and Assisted Reproduction. V. Gomel and P. Leung (Eds.) Monduzzi Editore, Bologna.
8. **Kent MG**. 1993. Standard R-banded karyotype of Equus caballus. Cytogenetics of Domestic Species. C.P.Popescu (Ed.) CNRZ-INRA Press.
9. **Kent, M.G**. 1990. XY sex reversal syndrome in mare. A Century of Excellence: 100th Anniversary of the Agricultural Institute of Krakow. (Polish National Academy of Science). M. Tischner, (Ed.) Rozrod Koni Pub., Krakow.
10. Kenney RM, **Kent MG**, Hurtgen JP. 1990. Subnormal stallion fertility and semen quality in association with chromosomal abnormalities. A Century of Excellence: 100th Anniversary of the Agricultural Institute of Krakow. (Polish National Academy of Science). M. Tischner, (Ed.) Rozrod Koni Pub., Krakow.
11. **Kent MG**, First NL. 1989. Nonantigenic methods of sex selection. Hands-on IVF. Cryopreservation and Micromanipulation. N. First and A. DeCherney (Eds.). Brock Pub . Co., Madison, WI.
12. **Kent M**., Wachtel S. 1988. Development of the XY female: A comparative study. Evolutionary Mechanisms in Sex Determination. S. Wachtel (Ed.) CRC Press, Boca Raton, FL.

BOOK CHAPTERS DEVOTED TO KENT-FIRST RESEARCH CONCERNING TESTIS DETERMINATION IN HORSE MODEL:

1. Embryology: The making of a boy (Chapter 4 –**M.G**, **Kent-First**) In: Men – From Stone Age to Clone Age – The Science of Being Male Beale, Bob. 2001. Penguin Books, Ltd. Harmondsworth, Victoria, UK. Pp 61-90.

SELECTED CONFERENCES/WORKSHOPS/ABSTRACTS

1. **M.G. Kent-First.** A Tribute to Professor Neal. L. First. 2016 IETS Jan.23-26.
2. Ryan M. Centini, Erin Brinkman-Ferguson DVM Dip ACVR, **Marijo Kent-First PhD**[1], Ben Weed[2], Jun Liao PhD[2], Michael K. Brashier, DVM MS Dip ACVIM, Cyprianna E. Swiderski DVM PhD Dip ACVIM, Peter L. Dermal Fibroblast Response to Oxidative Stress and Cardiac Findings in American Quarter Horses with Hereditary Equine Regional Dermal Asthenia. Poster competition Morris Animal Foundation-Dallas Texas 2010. **NOTE: AWARDED HONERABLE MENTION!**
3. Baldwin, B., J. Wright, C. Perez**, M. Kent-First**, and N. Reichert. 2010 Rivercane (*Arundinaria gigantea*) flowering, but no seed production: A potential answer. Seventh Eastern Native Grass Symp. Knoxville, TN. Oct 5-8.
4. Jeremi Wright, Clara Perez, **Marijo Kent-First**, Brian Baldwin*, and Nancy Reichert
   Genetic Diversity among Rivercane (*Arundinaria gigantea*) Brakes in Mississippi Assessed by Short Tandem Repeat (Microsatellite) Analysis(lecture) 2009 Rivercane Symposium – Choctow, MS
5. Ashley Adams, BA, Kortney Wilkinson, BSc, Lakshmi Pulakat, Ph. D, Ann Rashmir, DVM, **Marijo Kent-First, Ph. D**. HERDA as a ROS sensitive model. Graduate Student Symposium. March 2009
6. Ben Jones, Erin Ard, Pamela Matthews, Clara Esteban BSc MSc, Harold Moreno MD Ob/Gyn, Brittney Wilson BSc, and **Marijo Kent-First PhD**. Deletions in Critical Regions of the Y-Chromosome as a cause of Spermatogenesis Failure BURP. March 2009.
7. Laura Moya, Sara Dally-Smith – Undergraduate students
   Kortney Wilkinson BSc, Ashley Adams BSc, Wael Badran MD, MSc, **Marijo Kent-First PhD** Mentors Reproductive Genetics Laboratory, Biological Sciences Department, Mississippi State University DNA Isolation from Frozen Heparinized Blood Samples BURP March 2009.
8. Clara Esteban BSc MSc, Harold Moreno MD Ob/Gyn, Neal First PhD, and **Marijo Kent First PhD.** Comparative Analysis between Feeder Layer and Extracellular Matrix in Mouse Primordial Germ Cell Cultures. Graduate Student Association Seminar. April 2009.

9. Harold Moreno-Ortiz MD Ob/Gyn, Clara Esteban-Perez BSc MSc, Wael Badran MD MSc, Neal First PhD, and **Marijo Kent First PhD**. Derivation of Primordial Germinal Cells from Embryonic Mouse Gonads. Graduate Student Association Seminar. April 2009.
10. Wael Badran MD Msc, Clara Esteban BSc MSc, Brittany Wilson BSc, Neal First PhD, and **Marijo Kent-First PhD**. Separating the Roles of Heritable Y-Chromosome Deletions from Environmentally Induced Free Radical Damage in the Failing Testis. Graduate Student Association Seminar. April 2009. Note***: Poster and Abstract: 1st PLACE AWARD!***
11. Esteban, C., Moreno, H., Bedran, W., Jones, B., Ard, E., Salter, K., First, N, and **Kent-First, M.** Of Mice and Men (and Women, Too) Linking early embryo development with adult infertility and cancer – Poster for MSU Shakhouls Honors College Special Topics in Gender. 2008.
12. Salter, Kaitlyn (MSMS student research mentored by **Kent-First lab**): Oral presentation – MSU/MSMS Symposium of student research at MSU. Development of the female germline pathway and ovarian carcinoma – Fall 2008.
13. Bedi, R., Hawkins, T., Mathews, Mckay,S., Persons, K, Wade, M., and **Kent-First, M**. Male Infertility and Y- Chromosome Microdeletions. BURP Poster/Symposium – 2008.
14. Wilkinson, K. and **Kent-First, MG**. XY Sex Reversal Syndrome in the Horse. BURP Poster/Symposium – 2008.
15. Abdel Megid W, Halberg R, Bacher J. Eisenberg M., , Prolla, T., Bacher, J. **Kent-First, M.G** The use of repeat markers to detect Y chromosome mutations in infertile human sperm. Fertility and Sterility. 2008 (poster) ASRM
16. Abdel Megid,W. Bedran, W., Lucena, E., Palermo, GP, **Kent-First, MG**. ROS induced Germline Genomic Instablity (GI) in the Human Testis: Proceedings of Journal of the Mississippi Academy of Sciences. 52(1). Abstract/lecture. Cellular, Molecular and Developmental Biology Session Annual Research Symposium 22-23, 2007.
17. Abdel Megid, W. Bedran, W., Lucena, E., Palermo, GP, **Kent-First, MG**. ROS induced Germline Genomic Instablity (GI) in the Human Testis: Proceedings of Journal of the Mississippi Academy of Sciences. 52(1). Abstract/lecture. Cellular, Molecular and Developmental Biology Session Annual Research Symposium 22-23, 2007.
18. Abdel Megid W, Halberg R, Bacher J. Eisenberg M., **Kent-First, M.G**. Monitoring of Genetic Damage Caused By Oxidative Stress. In: Proceedings of the 62nd Annual Meeting of the American Society for Reproductive Medicine. (2007) Poster Session-P-850. October 21-25. New Orleans, LA.
19. Bacher, J, Halberg, R., Megid, W., **Kent-First, M**., Prolla, T. Monitering Radiation –Induced Genetic Damage. (2004). In: Proceeding from the 3rd International Workshop on Space Radiation and 15th Annual NASA Space Radiaton Health Investigators' Workshop.
20. Abdel Megid, WM, Sherif, M., **Kent-First, MG**, and Sakr, ME..Auto-ovarian antibodies and poor ovarian function (Poor responders to superovulation induction);Fertility and Sterility 2004 Sep 82(Sup.2): 124-125.
21. Megid, W. and **Kent-First. M**. Auto-ovarian antibodies and poor ovarian function (poor responders to superovulation induction) 9th Annual Midwest Graduate Student Conference in African Studies: Studying Africa in the 21st Centrury. Northwestern University, April 2-3, 2004.
22. Feliciano M, Neri QV, **Kent-First M**, Wehbe SA, Evenson D, Chung P, Rosenwaks Z, Palermo GD. Assays of sperm nuclear status do not correlate with ICSI success. (Abstr. O-146) In the abstract book of the 20th Annual Meeting of the European Society of Human Reproduction and Embryology. June 27-30, 2004. Berlin, Germany. *Abstract nominated for the Established Scientists Award.*
23. Neri QV, Evenson D, Wehbe AS, **Kent-First M**, Squires J, Rosenwaks Z, Palermo GD. Does DNA fragmentation in spermatozoa affect ICSI offspring development? (Abstr. P-308) In the abstract book of the 20th Annual Meeting of the European Society of Human Reproduction and Embryology. June 27-30, 2004. Berlin, Germany.
24. Katagiri Y, Neri QV, Takeuchi T, Schlegel PN, **Kent-First M**, Rosenwaks Z, Palermo GD. Genetic characterization and eventual transmission of infertility in oligo- and azoospermic men. (Abstr. O-099) In the abstract book of the 19th Annual Meeting of the European Society of Human Reproduction and Embryology. June 30-July 2, 2003. Madrid, Spain. *This abstract was selected for ASRM 2003 Press Release.*
25. Lim, A., Dimalanta, ET, Churas, C., Potamousis, K., Schell, K., **Kent-First, M**, Runnheim, R., Severin, J., Goldstein, S., Forrest, D., Lamers, D., Anatharaman, T., Schwartz, DC. Physical mapping of the human Y-chromosome (poster). 226th American Chemistry Society National Meeting – NY, NY, 2003.
26. Lim, A., Dimalanta, ET, Churas, C., Potamousis, K., Schell, K., **Kent-First, M**, Runnheim, R., Severin, J., Goldstein, S., Forrest, D., Lamers, D., Anatharaman, T., Schwartz, DC. Physical mapping of the human Y-chromosome (poster) 2nd Annual Retreat of the Computation and Informatics in Biology and Medicine Program. University of WI-Madison, Oct. 3, 2003.
27. Lim, A., Potamousis, K., **Kent-First, M,**Schell, K Meisner, L., Schwartz, DS. Directed Optical Mapping (poster). Department of Genetics Annual Retreat – University of WI-Madison, 2002.
28. Hughes, Bethany and **Kent-First, MG**. (2001). Characterization of the bimodal inheritance of the XY sex reversal syndrome. . In: Proceedings of the North Am. Colloq. Cytogenet. Domest. Anim., Davis, Abstr., p.11.
29. Katagiri Y, Neri QV, **Kent-First M**, Rosenwaks Z, Palermo GD. Occurrence of Y chromosome microdeletions in infertile men. (Abstr. P-553) In the abstract book of the 18th Annual Meeting of the European Society of Human Reproduction and Embryology. July 1-3, 2002. Vienna, Austria.

30. Katagiri Y, Neri QV, **Kent-First M**, Wang A, Rosenwaks Z, Palermo GD. Chromosomal status of infertile couples, and the offspring created by ICSI. (Abstr. O-41) In the abstract book of the 58th Annual Meeting of the American Society for Reproductive Medicine. October 12-17, 2002. Seattle, Washington, USA.

31. Katagiri Y, **Kent-First M**, Neri QV, Rosenwaks Z, Palermo GD. Simple non-invasive screening of fathers and sons for Y chromosome deletions. (Abstr. O-42) In the abstract book of the 58th Annual Meeting of the American Society for Reproductive Medicine. October 12-17, 2002. Seattle, Washington, USA.

32. Learish, R., Coppola, G., **Kent-First, M.** Monitering telomere sequence content in sub-nanogram quantities of DNA from primary stem-like cells. 2002 In: Proceedings of ASHG. Abstr. 20803.

33. Palermo, GD, **Kent-First, M**, Osredkar, T, /NERI, AV, Takeshita, n., Rosenwaks, Z, Gener]tic screening of ICSI families. (Abstract for poster). 57th Annual Meeting of the American Society for Reproductive Medicine Oct. 20-25, 2001. Orlando, FLA - *This abstract was selected for Preliminary Poster Award.*

34. *Hughes, B. and **Kent-First, MG*** Global approaches to characterizing the genetics of gonadal and early embryo development. . In: Proceedings of the 12th North Am. Colloq. Cytogenet. Domest. Anim., Davis, CA. 2001.

35. **Kent-First, MG.** Mammalian Cloning and Stem Cell Biotechnology: Can it be made more efficient? (March, 2000) The Banbury Center. Cold Spring Harbor Laboratory.

36. **Kent-First, M.G.** Muallem, A.,Memillli, E., Osredkar, T., Pryor,J. Roberts, K., Miesner, L., Nolten, W., Chandley, A., Itskovitz, J., Kol. S. Inheritance of Y-linked deletions in infertile males: Cryptic mosaicism as a new etiology of idiopathic male infertility.(1999) In: Proceedings of the ASRM/CFAS. Toronto.

37. NABER Workshop on current need in ART. Washington, DC. June. 1998.

38. HUGO Y-Chromosome Gene Mapping Workshop. Development of a standardized system to study the infertile male. Asilomar, CA. 1998.

39. NABER (National Ethics Advisory Board) Conference on the Status and Future of Embryo Research. Beckman Center, Irvine, CA. March 1994.

40. **Kent, M.G.** Evolutionary conservation of Bkm repeats in subhuman primates. (1993) In: Proceeding of the XII North American Colloquium for Cytogenetics and Gene Mapping of Domestic Species. Guelph, CN.

41. **Kent M**., Hartshorn G., Olsezawka E., Jones K., Edwards R. Amplification of sex-specific sequences in individual haploid and diploid human cells.(1991) In: Proceedings of the First International Symposium on Preimplantation Genetics.

42. Kenney, R. M., **M.G. Kent**, and M.C. Garcea. Estimation of stallion infertility: the use of DNA index and karyotype as adjuncts to traditional tests. (1991). In: The Proceedings of the Fifth International Equine Reproduction Symposium, Deauville, France. 1991.

43. **Kent, M.G**. The incidence of the XY Sex Reversal Syndrome in the horse population and fertility in affected individuals. (1990) In: The Proceedings of the XI European Colloquium on Cytogenetics of Domestic Species. M. Echard (Ed.). CNRZ-INRA Press.

44. **Kent M.G**. Genetic control of sex determination. In: Proceedings of the Biennial Reproduction Symposium. (American Society of Animal Science), Mar.1990.

45. **Kent, MG**. (1989) Fertility among XY sex reversed mares. In: Proceedings of the 6th North Am. Colloq. Cytogenet. Domest. Anim., Purdue, Abstr., p. 16.

46. **Kent, MG.**, Shroeder, W., and Jones, KW. Diagnosis of a Y fragment in an XO mare and fertility in an XX/XO mare: Two case histories. (1989). In: Proceedings of the 6th North Am. Colloq. Cytogenet. Domest. Anim., Purdue, Abstr., p.13.

47. **Kent M.G**. XY Sex Reversal Syndrome: A model for sex determination. (1989) In: Proceedings of the X Colloquium for Cytogenetics of Domestic Species. Perdue University. West Lafayette, IN.

48. **Kent M.**, Douglas M., Schneller H., Wachtel S. Infertility related to cytogenetic causes in Arteodactyla. (1988) In: Proceedings of the XI Colloquium of the American Zoological Association. Honolulu, HA.

49. **Kent MG**, Jones KW, Wachtel SS. Insitu hybridization of Bkm DNA with chromosomes derived from equine.(1987). In: Proceedings of the VIII Colloquium for Cytogenetics of Domestic Species (American Society of Animal Science). Columbia, MO.

50. **Kent MG**, Wachtel SS, Guise K., Jones K., Hunter A. Bkm Sequences related to sex determination in normal males and XY sex-reversed females. (1986) In: Proceedings of the VII Colloquium for Cytogenetics of Domestic Species. Warsaw, POLAND.

51. **Kent, M.G**., and R.N. Shoffner. 1985. Variation in genetic expression in The XY Sex Reversal Syndrome. (1985) In: Proceedings of the VI Colloquium for Cytogenetics of Domestic Species (American Society of Animal Science), Champaign-Urbana, IL.

52. Kent, M.G. and G.F. Hanlon. Lymphocyte synchronization used in the study of R-and G- banding n the canine and bovine species. (1984) In: Proceedings of the V European Colloquium for Cytogenetics of Domestic Species. Zurich. pp. 287-290.

53. Buoen, LC, **Kent, MG**, Madi, J, and Weber, AF. Variety of cytogenetic anomalies encountered during a two year period in a veterinary cytogenetics laboratory. (1983). In: Proceedings of the 3rd North Am. Symp. Cytogenetics and Cell Biology Domestic Animals, Abstr. P.246.

54. **Kent, M.G**., A.F. Weber, and R.N. Shoffner. Y- or autosomal-linked inheritance of The XY Sex Reversal Syndrome. (1983) In: Proceedings of the IV Colloquium for Cytogenetics of Domestic Species (American Society of Animal Science), Madison, WI.
55. **Kent, M.G**. and R.N. Shoffner. Standardization of percent sister chromatid exchange in the equidae.(1982) In: Proceedings of the III European Colloquium for Cytogenetics of Domestic Species. Milano. pp.324-330.
56. **Kent, M.G**., L. Buoen, A.F. Weber and R.N. Shoffner. XY Sex Reversal Syndrome in the horse. (1982). In: Proceedings of the III European Colloquium for Cytogenetics of Domestic Species. Milano. pp.331-335.
57. **Kent, M.G**., L. Buoen, and A.F. Weber. Cytogenetic Studies in Equine, Bovine, and Porcine. (1981). In: Proceedings of the 1981 Conference for Research Workers In Animal Disease. Chicago, IL.
58. **Kent, M.G**., L. Buoen, and A.F. Weber. XY gonadal dysgenesis in the mare. (1980) In: Proceedings of the Conference for Research Workers in Animal Disease. Chicago, IL.

INVITED SPEAKER

SELECTED LECTURES

1. Invited speaker –Florida A&M University –Department of Animal Science – XY Sex Reversal Syndrome in horse and human. 2017
2. Invited speaker-Florida A&M University –Department of Biology – Sex Determination: What it takes to make a male a man! 2017
3. Invited speaker-Florida A&M University School of Pharmacy – ROS Induced Genomic Instability and New Discovery in the Cancer Pathway 2016.
4. Invited speaker-Jackson State University, Jackson, MS – The pathway to ROS induced genomic instability and tumorigeneisis- Spring 2015.
5. Invited speaker- Maryville University, St.Louis, MO – Microsatellite instability and cancer diagnostics –Spring 2014.
6. Invited speaker – Mayo Clinic, Rochester, MN – Clinical relevance of ROS induced germline specific genomic instability in the infertile male. Fall 2012.
7. Keynote speaker – National Meeting Sigma Delta Epsilon Graduate women in science – University of MN – St. Paul October 2009. Presented the Award of Fellow to Professor Bee Hanlon (my professor).
8. -BETTERSWORTH LECTURE - High School in Coldwater, MS.--"Cloning and Embryonic Stem Cell Technology: Separating Fact From Fiction" 2010 (450 students) TBA
9. -BETTERSWORTH LECTURE Mantachie High School--"Cloning and Embryonic Stem Cell Technology: Separating Fact From Fiction" 2010
10. BETTERSWORTH LECTURE – Tupello High School -"Gender Determination: Where Science, Horses and Fun Meet!": Separating Fact From Fiction" 2010
11. - BETTERSWORTH LECTURE – Tupello High School -"Cloning and Embryonic Stem Cell Technology: Separating Fact From Fiction" 2009
12. The Biology of Gender Development – MSU Transgender Student Remembrance Day – invited speaker and panel member for discussion session. MSU Library – Fall 2008.
13. Germline Specific Genomic Instability and the Mutator Phenotype in a Failing Testis – Brain Storming in New Approaches in Assisted Reproductive Technology – First Annual Latin American Symposium – Summer 2008.
14. Clinical Indicators of Tumorogenesis in the Urological Practice: Grand Rounds – University of MS – Dept. of Urology and Department of Obstetrics and Gynecology - 2008.
15. Transgender Remembrance Day Invited Speaker: The Genetics of Gender Determination 2008 MSU
16. Sex, Science, and Serendipity! Shackouls Honors College Lecture Series – Griffis Hall – Fall 2007 and Spring 2008.
17. Men - From Stone Age to Clone Age: What does it take to make a male a man? – Mississippi State University Gender Identity Lecture Series. October 2007.
18. The failing testis in a urology. Grand Rounds: University of WI School of Medicine – Urology/ObGyn – Spring 2007.
19. Germline genomic instability and MSI in the testis: Implications to male infertility and testicular cancer –Promega - R&D meeting – Sept. 2004.
20. Sex selection in sperm and embryos – historical perspectives, progress and the future. 27th Annual Meeting of the American Association of Tissue Banks. San Diego, CA August, 2003.
21. Embryonic stem cells –new hope for the preservation of life- Keynote Lecture – 1st International Symposium on Cloning Today and in the Future – Panama City, Republic of Panama – 2003
22. What Determines that a testis is functional? Keynote lecture- Opening Ceremony celebrating the opening of the Center for Assisted Reproduction of Medellin - Medellin, COLUMBIA – 2003.
23. Stem Cells Cloning: Separating Fact From Fiction – Keynote Lecture – Bainbridge (South Georgia) College – September, 2001.

24. Opening ceremony lecture for the opening of CECOLFES infertility center and laboratories. Cartegena, COLUMBIA. June 2001.
25. Defining regions of inherent instability on the Y chromosome: The role of Human Retroviral Insertions (HERVS) in male infertility. Dept. of Genetics, Cambridge University. UK. June 2001.
26. Using Molecular approaches to define mammalian gender differences. Department of Anatomy, Physiology and Pharmacology; College of Veterinary Medicine. Auburn, AL April – 2001.
27. Bringing genomics to veterinary practice in the new millennium. University of Guelph, Guelph Ontario, Canada. Jan. 2001.
28. Genetic considerations for the infertile couple in ART for the 21st Century. ART in Y2K: Challenges and strategies in assisted reproductive technology. Workshop and Educational Short Course. American Association of Bioanalysts. Kona, HA. August 2-5, 2000.
29. The XY sex reversal syndrome: Incidence, etiology, mechanism of occurrence and transmission in the equine model. Second International Symposium of Vertebrate Sex Determination. Honolulu, HA. April 10-14, 2000.
30. Mechanisms of mutagenesis and allele conversion. CZ.REP. Academy of Sciences, Prague. Jan. 2000
31. Applied gene mapping in mammalian reproduction. Amsterdam, NTH. Oct. 1999.
32. Diagnosis of genetic anomalies common to couples seeking Assisted Reproductive Technology (ART). Third National Congress on ART: "The IVF Lab, State of the ART and Controversies". Rome, IT. Oct. 1999.
33. The role of repeats in disease progression in infertility. University of Catania. SICALY. Oct. 1999.
34. Construction of the cascade of genetic events that result in a fertile ovary. University of Naples. IT. Oct.1999.
35. The Y-Chromosome and it's role in spermatogenesis and gonadoblastoma. University of Nijmegen, Nijmegen, The Netherlands. Oct. 1999.
36. Genetic Testing in the Andrology Laboratory. American Society of Andrology. Louisville, KY. May, 1999.
37. Evolution of and conservation of genes involved with testicular differentiation and function. Southwest Research Foundation. San Antonio, TX. Feb.1999.
38. Bringing genetics testing to Assisted Reproductive Technology (ART). Grand Rounds. University of WI School of Medicine. Feb.1999.
39. Mutational load in the aging male testis. UCLA Conference on Hormonal Changes in Aging Men. LA, CA Feb. 1999
40. Genetic causes of infertility in the couple seeking ART: Moving basic science to the clinical research. University of Vienna. Dept. of Obstetrics and Gynecology. AU. Jan. 1999.
41. Applying genetic discoveries to veterinary medicine: What is really important for the practicing veterinarian? University of Vienna Biotechnology Institute and College of Veterinary Medicine. Tullin, AU. Jan. 1999.
42. Real and potential genetic consequences of I.C.S.I.: The need for pre-procedure genetic counseling and informed consent. American Society for Reproductive Medicine. Oct. 1998.
43. Characterization of genes affecting spermatogenesis in mammals. Reproduction in the 21st Century. Bogotá, COLUMBIA. March 1998.
44. The genetics of oogenesis and spermatogenesis: Applications to the infertile couple. Grand Rounds. Midwest Fertility Center. Chicago, IL. Feb. 1998.
45. Genetic testing in assisted reproduction. Grand Round. Procrea IVF Center. Montreal,CAN Jan. 1998
46. The application of molecular diagnostics in assisted reproduction: The Present and Future. British Fertility Society. Cambridge. Dec. 1997.
47. In-vitro fertilization and socio-bioethics. 25th Symposium of the Korean Academy of Sciences: Science and Bioethics of Cloning. Seoul KOREA. Oct. 1997.
48. Incidence, etiology, and ramification of Y-linked microdeletions in male infants derived from ICSI.10th World Congress on IVF and Assisted Reproduction. Vancouver BC. May 1997.
49. Genetic regulation of spermatogenesis. VI Annual Congress on Developmental Biology and Reproduction. San Antonio, TX. March 1997.
50. What role does the Y-chromosome have in sex determination, differentiation, and spermatogenesis? Bat Sheva Seminar on Physiological and Molecular Processes Leading to Fertilization in Mammals. ISRAEL. Apr.1997.
51. Heritability of microdeletions significant to male fertility. Rambam Medical Center, Haifa, ISREAL. Apr. 1997.
52. Genetic control and regulation of spermatogenesis. Symposium on Milestones in Reproduction. Koret School of Veterinary Medicine. Bet Dagon. ISRAEL Apr. 1997.
53. Y-chromosome microdeletions: Significance, etiology, and potential ramification for patients aimed at IVF and ICSI. The Basic Research and Clinically Applied Technology of IVF. San Francisco, CA.Feb.1997.
54. Preparing for successful careers in science. William Woods University Distinguished Alumnus Lecture Series. Nov. 1996.
55. Applying biotechnology to preserve our endangered species. William Woods University Distinguished Alumnus Lecture Series. Nov.1996.
56. Building for success in science, academics, and industry: A female's perspective. William Woods University Distinguished Alumnus Lecture Series. Nov. 1996.

57. Marketing strategies and informing the patient/consumer. National Advisory Board for Ethics in Reproduction (NABER) Workshop. Washington, DC. Aug. 1996.
58. Gene mapping in the canine species. Badger Kennel Club. Madison, WI. Aug.1996.
59. Comparative gene mapping. HUGO Y Chromosome Conference, Asilomar, CA Dec.1995.
60. Genetic applications in assisted reproductive technologies - The "slippery slope". Reproductive-Endocrinology Training Program Lecturer. University of WI. Madison. Sept.1995.
61. Developing clinical and diagnostic standards for assessing the genetic status of the infertile couple. University of CA. Harbor. March 1995.
62. Development and characterization of a panel of STR's for use in DNA -typing in bovine. CSRO. Brisbane AUST. Aug.1994.
63. Genetic regulation of X-inactivation, University of WI. Dept. of Genetics. Madison. May. 1994.
64. A comparative look at mammalian species regulation and control of male infertility. Medical College of WI. Apr. 1994.
65. Genetic etiology of human male infertility. University of MN School of Medicine. Mpls. Feb. 1994.
66. XY sex reversal syndrome in the horse: A model for the study of sexual differentiation. La Trobe University. Melbourne, AUST. Jan. 1993.
67. Methods for the analysis of products of nuclear transfer of blastomeres and totipotent bovine stem cells. NZ Dept. of Agriculture. Rurakura. Jan.1993.
68. Cytogenetic analysis and DNA typing of stem cell cultures and calves derived from nuclear transfer of bovine stem cells. Massey University. Palmerston North, NZ. Jan.1993
69. The gene mapping effort in domestic species: Present status and significance. USDA. Washington, DC. March 1992.
70. Sex determination and the "genetic flavor of the month" Promega, Corp. Jan.1992.
71. Isolation and expression of a suppressor to *SRY*. State of WI Hygiene Lab and Dept. of Genetics. University of WI. Madison. Jan. 1992.
72. Downstream regulating factors to *SRY*: Structure and function. Monash Medical Center. Melbourne AUST. Nov. 1991.
73. Establishing preimplantation genetic diagnosis in the US. The Jones Institute. Norfolk, VA Feb. 1991.
74. Genetic factors involved in early embryonic development. Markey Foundation Lecture Series. Northwestern University Medical School. Chicago IL. Jan. 1991.
75. Gonadal differentiation and sex determination across the taxa. Friday Lecture Series. University of AL. Birmingham. Dept. of Medical Genetics. Jan. 1991.
76. Requirements for a successful program in preimplantation genetic diagnosis. First International Symposium on Preimplantation Genetic Diagnosis. Chicago IL. Oct. 1990.
77. Bkm sequences and their relevance in the mammalian genome. Visiting Lecturer Series. University of Edinburgh. UK. Dec.1990.
78. DNA fingerprinting: It's role in forensic investigation. Bureau of Forensic Science. Springfield, IL. Sept. 1990.
79. Assessing reproductive capacity in XY and XO females. XI International Colloquium on Cytogenetics of Domestic Species. Niece FRANCE. July 1990.
80. Evolutionary studies in Equid. Caspian Pony Society of Great Britain. Bath UK. June 1990
81. Mapping domestic animal genomes: Needs and opportunities (USDA). University of IL. March1990.
82. Genetic control of gender determination. Biennial Reproduction Symposium. University of KY. Lexington. May 1989.
83. The Second International Conference on Karyotype Standardization of Domestic Animal Karyotypes, Jouy En Josas, FRANCE, 1989
84. Immunologic and genetic methods of sex selection in cattle. AZ Center for Clinical Genetics. Scottsdale. Jan. 1989.
85. The XY sex reversal syndrome. University of Edinburgh. UK. Jan. 1989.
86. Genetic causes of infertility in the horse. National Equine Breeding Station. Pordabiche. CZ. June 1988.
87. Preimplantation genetic diagnosis. American Fertility Society Hands On IVF Cryopreservation and Micromanipulation Workshop and Symposium. Madison, WI. March 1988.
88. Genotype, phenotype, and the Arabian horse. National Arabian Horse Breeding Station. Michalow. POLAND June 1988.
89. Genotype, phenotype, and the Arabian horse. National Arabian Horse Breeding Station. Janow Podlaskie. POLAND June 1988.
90. XY sex reversal syndrome in mares. Centennial Celebration. Polish Academy of Sciences and National Agricultural Institute. Krakow POLAND.June 1988.
91. Genetic causes of male infertility in domestic species. College of Veterinary Medicine. New Bolton Center. Kennett Square, PA. May 1988.
92. Cytogenetic studies in equine. Dept. of Veterinary Science. University of KY. Lexington. Apr. Feb.1988.
93. Molecular cytogenetics: Its role in diagnosis of infertility. College of Veterinary Medicine. Cambridge University. UK. Feb. 1988.
94. The application of animal models to the study of gender anomalies in human. Southern Society of Obstetrics and Gynecology. Memphis, TN. Jan.1988.

95. The application of animal models for the study of XY gonadal dysgenesis in the Human. Symposium on Evolutionary Mechanisms of Sex Determination. March of dimes and Center for Reproductive Biology. Memphis, TN. 1987.
96. Cell Cycle Synchronization and Replication Banding Studies In Bovine. VI International Conference On Cytogenetics in Domestic Species. Warsaw, Poland. 1986.
97. The XY sex reversal syndrome. Symposium on Evolutionary Mechanisms of Sex Determination. Kenyon College. Gambier, OH. 1984.
98. XY Sex Reversal Syndrome in the Horse: A Model for Sex Determination. Dept. of Human Genetics. Oxford University. UK. 1983.

FUNDED RESEARCH:

FAMU - 2017 QEM NSF Scholarships in Science, Technology, Engineering, and Mathematics Program (S-STEM) PROPOSAL WORKSHOP (Washington DC) Submitted a letter of intent for a Broadening Participation Research Project entitle ENHANCING SUCCESS AND PARTICPATION OF UNDERGRADUATE STUDENTS FROM HBCU'S IN STEM BASED APPLIED RESEARCHAND INNOVATION THROUGHOUT THE ACADEMIC YEAR. The pre-proposal was written and quickly funded! Two of our three team members Dr. Kent-First and Dr. khalil) traveled to Washing DC to develop the proposal which was strongly intended to have an Education Component. Dr. Ellis did agree to serve but unforeseen circumstances prevented him from following through. Since the grant was so readily funded up front and given the loss of our team members), I suggested that we pause and submut on the next cyedcle using our partially completed full proposal. It is my understanding that Dr. Khalil decided to submit the grant on his on and of course we wish him the best of luck! Total money's received from the funding of the preproposal was approximately $3000.00 . A TIPP proposal to NSF is currently underway which will enhance undergraduate education and research.

INDUSTRIAL PROJECTS/PRIVATE SUPPORT/DONATIONS:

Promega reagents and supplies donated to Kent-First lab for training students in DNA forensics Estimated value: $15,000. (2007-2009)

Diagene, Inc. donated $4200 to MSU Foundation DNA Forensics Fund (2008

Office of Research (Dr. Kirk Schultz) undergraduate teaching award $7500. (2009)

MG Kent-First donated $9923 (salary) to MSU to fund graduate and undergraduate research (2009)

Diagene, Inc. donated approximately $7700.00 reagents and supplies to MSU (2009)

Development of a sentinel assay to measure global mutagenesis and chromatin instability in the germ line and somatic cells including tumors. Principal Investigator (PI) Promega 2000-2005

Development of an assay to detect Estrogen Receptor SNPs as a predictor of oocyte reserve and predisposition to ovarian cancer using "READ-IT". Promega (PI). 2001-2003

Genetics of idiopathic male infertility. Promega Corp. (PI). 1994-2005

Effect and etiology of Y chromosome microdeletions in male babies and/or their infertile or sub fertile fathers derived from IntraCytoplasmic Sperm Injection (ICSI). Promega (PI) 1995-2003

Development of arrays for the study and diagnosis of testicular and ovarian failure. Promega (PI) 2000-2005

Cloning, sequencing and gene expression studies of SMCY (HY antigen) cDNA, Promega (PI) 1994-1996

Development of systems to assess genetic polymorphisms associated with enhanced milk production in bovine.
Promega/ WI Milk Marketing Board. (PI) 1994-1995

The development of microsatellite sequences for use in DNA typing in equine, bovine, porcine and subhuman primates. Promega (PI) 1994-1995

Isolation of genetic markers for canine hip dysplasia. Promega (PI) 1993-1994

Establishment of preimplantation genetic diagnosis of gender for sex-linked genetic disease, HPRT, and DMD from single blastomeres. Bourn-Hallem Research Group (Serono) (PI) 1990, 1991

Evaluation of the incidence of monozygotic versus dizygotic twins resulting from superovulation and IVF by DNA-typing. Bourn-Hallem Group (Serono), (PI) 1990, 1991

Methods to determine chromatin damage in in-vitro matured vs non in-vitro matured ocytes. W.R. Grace Co 1989

Sex selection in bovine using Y-specific primer and polymerase chain reaction. W.R. Grace Co. N First (PI) M Kent (Co-PI) 1988-1989

ACADEMIC/STATE/FEDERAL SUPPORT (PI/C0-PI):

National Science Foundation – EPSCoR grant proposal – ROS induced genomic instability in the early detection of lung cancer; Ramsy Kafoury and Marijo Kent-First Co-PIs. Jackson State University Submitted May 2015 - $350,000.

Recovery Act NIH R 21 grant proposal: Epigenetic changes in autism spectrm disorder RFA-MH-09-172 PI from MSU Kent-First – in collaboration with pediatrics at U. of MS $539,000.
Summer 2009. **Not funded** (**Resubmit in 2011**).

NASA Grant-02-0BPR-02-0070-0056 $896,866 Bacher(Co-PI) **Kent-First** (Co-PI) 6-1-03-6-30-07
Title: *A Novel Biodosimetry Method for Monitoring Radiation-Induced Genetic Damage*
Goals: The overall goal of this study is to investigate the efficiency of a novel biodosimetry method for monitoring mutational load resulting from radiation-induced mutations. The aims are to: (a) screen repetitive DNA sequences to identify loci most sensitive to high-LET radiation-induced mutations, (b) show that radiation-induced mutations in progenitor stem cells are cumulative and that mutational load can be quantitatively measured by sampling a population of single or small pools of progeny blood or sperm cells for alterations in repetitive DNA sequences, and (c), investigate role of mismatch repair and oxidative stress in radiation-induced genomic instability of repetitive DNA sequences.

West GA. College Learning Resource Grant. $72,000. **MKent** (PI) 1991-1993.
Title: *Regulatory Sequences involved in Sex Determination in the XY Sex Reversed mare.*

NIH-SBIR 21838. $165,000. S. Wachtel (PI), **M Kent** (Co-PI). 1987-1988
Title: *Sex selection and embryo transfer*.

NIH-RFP-NICHHD-CRMC-8614. $135,000. S. Wachtel (PI), **M Kent**, (Co-PI). 1988-1989
Title: *Evaluation of methods for the detection of fetal cells in maternal circulation*.

NIH A1-23479. $85,000 S. Wachtel (PI), **M. Kent** (Co-PI). 1985-1987
Title*: Immunogenetics of sex determination*.

USDA. $45,000 AF Weber (PI), **MKen**t (Co-PI). 1983-1985
Title: *Cytogenetic and clinical investigation of the XY Sex Reversal Syndrome.*

USDA. $40,000 AF Weber (PI), **MKen**t (Co-PI). 1984-1985
Title: *XY Sex Reversal Syndrome: Hormonal and clinical studies conducted in the horse.*

PLANNED SUBMISSION

NIH-R01 - PA-005 $867,000 Kent-First (PI)
Title: ROS induced *Germline Genomic Instability and Cancer* Cycle 3 2018

PLANNED SUBMISSION
NIH –RO1-
ACADEMIC/STATE/FEDERAL SUPPORT (COLLABORATOR/CONSULTANT):

NIH R-15 (PI Dr. S. Elder and **Consultant Dr. M Kent-First**): NIH Academic Research Enhancement Award proposal1R15AR057934-01A1"Self Assembly of Cartilage by Mesenchymal Stem Cells on Porous Chitosan/CaP." ; $346,784 submitted 2009 funded 2010.

NIH R-15 (PI Jun Liao and **Consultant Dr. M. Kent-First**): Consultant in establishing cultures in vitro: "Tissue Engineered Cardiac Patches: Multifaceted Stimulation of Stem Cells in Decellularized Myocardium" 2009 .

Howard Hughes Medical Institute departmental grant to establish a summer undergraduate research program **Participant Dr. M. Kent-First** Submitted Fall 2009. **Not Funded** 2010.

Recovery Act Academic Research Enhancement Award (R15)(PI Dr. D. Chevielier and Collaborator: **Dr. M. Kent-First**): proposal entitled "Role of DAWDLE in RNA stability in *Arabidopsis*". Fall 2009 – **Not Funded** 2010
National Science Foundation proposal entitled "CAREER: DNA repair in plants".PI: Dr. D. Chevalier (Kent-First collaborator on investigating the presence on DNA damage in the At3G02400 mutants by studying microsatellites instability) Submitted 2009.

USDA $159,000 N.L.First (PI), **M Kent-First** (Consultant/Collaborator) 1999-2001.
Title: *Regulation of gene expression in bovine oocytes and embryos*.

USDA $155,000. NL First (PI), **M Kent-First** (Consultant/Collaborator).1992-1993.
Title: *Production of calves derived from nuclear transfer of totipotent embryonic stem cells: genetic characterization.*

USDA $135,000 NL First (PI), **M Kent-First** (Consultant/Collaborator). 1993-1995.
Title: *Genetic characterization of embryos and calves derived from aggregation of embryonic stem cells*.

UAB- Dept. of Medical Genetics Training Grant. $25,000. W.Finley (PI) **M. Kent** (consultant/visiting faculty). 1991.
Title: Development and validation of genetic assays for Tay Sachs, Cystic Fibrosis and Leche Nyhan.
Establishment of a clinical genetics laboratory with diagnostic and training missions.

PRIVATE FUNDING

Morris Animal Foundation (PI **MG Kent-First**) Development and Application of a Mountain Gorilla Genetic Identity DNA Typing Health Management System.; Spring 2009 Submitted: Scored/not funded.

*Morris Animal Foundation: $48,000.(**MG Kent-First** PI) R.Minnis and M Cranfield (Co-PIs) Applied 2008 Oct Title: Genetic Identity in Endangered Gorilla Populations - Resubmitting 2011.

*AQHA : $29450. **MKent-First** (PI) A Rashmire (Co-PI) Funded
Applied 2008 November Title: Determination of the role of UV radiation damage in Hyperelastosis Cutis (HERDA) and the potential for DNA repair (Resubmitting 2011)

*Caspian Pony Society of Great Britain. $15,750 **MKent**(PI) Funded 1990 Title: *Evolution of short tandem repeats in the Caspian pony and development of an informative DNA Typing system*.

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*Hooper Farms of Ocala and College of Veterinary Medicine, UFL Gainesville $5000.**MKent** (PI) Funded 1990.
Title: *Chromosome assessment of the male pronuclei in zygotes derived from fertilization of zona-stripped hamster eggs with stallion sperm.*

*Morris Animal Foundation. $60,000 **M Kent**, RM Kenney, D. Evenson (Co-PIs) 1987-1990.(Funded)
Title: *Genetic and chromosomal causes of male infertility in equine*.

*Memphis Plough Foundation. $37,000. **MKen**t (PI) (Funded) 1987-1988.Title: Studies of genetic causes of infertility in Artiodactyla.
*Minnesota Veterinary Council. $80,000. **MKent**(PI) (Funded) 1983-1986.. Title: *Study of the gene locus responsible for the XY Sex Reversal Syndrome*. Collaborative study with University of Edinburgh,UK.

*Private donations: Multiple horse and breed foundations. $125,000. **MKent**(PI) (Funded) 1983-1988.
Title: *Study of infertility due to chromosomal abnormalities in the horse*.

*Minnesota Equine Research Foundation $5000 **MKent** (PI) (Funded) 1984. Title: *Pedigree studies in the XY Sex Reversal Syndrome*

AREAS OF RESEARCH TRAINING AND MENTORS

Cytogenetics and molecular cytogenetics (ES and pluripotent cells/tumor cell lines in mouse, human and bovine models):
-University of MN, Dept. of Oncology/Dept. Animal Science - Prof. J. Cervenka, Prof. R. Shoffner (Deceased)

-Cytogenetics Lab-State Lab of Hygiene UW-Madison – Dr. L. Meisner
-National Agricultural Research Institute), Jouy En Josas, FRANCE - Prof. C.P. Popescu (Deceased)
-University of Naples, Dept. of Animal Breeding, Portici, ITALY - Prof. D. Di Berardino
-Oxford University, Dept. of Genetics, UK - Prof. C. Ford (Deceased)
- Medical Research Council, Edinburgh – Prof. Anne Chandley (retired)

Molecular and clinical genetics, proteomics, microarrays, bioinformatics, genomics:
-University of WI, Biotechnology Center, Madison (Prof. T. Prolla/ Prof. D. Schwartz
-University of Edinburgh, Dept. of Genetics, UK - Prof. K.W.Jones (Retired)
-University of MN. Dept. of Veterinary Physiology St. Paul - Prof. K.W. Guise (deceased)
-Promega, Corp. Dr. J. Grosch – VP R&D, Steve Ekenberg.

Embryology and gamete biology in mammals and birds:
-University of Minn. Dept. Veterinary Biology. Prof. A. Weber, Prof. A. Hunter
-University of Minn. Dept. Animal Science. Prof. R. Shoffner
-Monash Medical Center. Prof. R. Short (external mentor)
-University of WI, Dept. Meat and Animal Sciences, Madison - Prof. N.L. First
-Bourn Hall Infertility Clinic, Bourn, Cambridge, UK - Prof. R.G. Edwards (2010 Nobel Prize) and Prof. Kay Elder
-University of Edinburgh, Dept. of Genetics, UK - Prof. K.W. Jones (retired)

Anatomy:
-University of Minn. Dept. Veterinary Biology. Prof. A. Weber, Prof. A. Hunter, Prof. L. Rosensweig.
-University of MN – College of Veterinary Medicine – Prof. G. Hanlon

Cell Biology - Methods including flow sorting of cells and chromosomes, DNA indexing, chromosome micro-dissection and In-vitro transcription /translation:
-University of WI–Madison – Prof. R. Auerbach
-Sloan-Kettering Cancer Institute, NY - Prof. S.S. Wachtel, Dr. M. Brunner
-University of MN, Dept. Veterinary Physiology - Prof. A.Hunter
-Center For Reproductive Biology, Memphis, TN - Prof. S.S. Wachtel
-Cambridge University, Dept. of Genetics – Prof. Malcom Ferguson-Smith

Specialized clinical:
-University of MN, College of Veterinary Medicine, St. Paul - Dr. W. Schroeder, Prof. B Crabo, Prof. A. Hunter (deceased), Prof. E. Graham (deceased), Prof. D. Peterson, Prof. A. Weber, Prof. G. Hanlon (deceased)
-University of PENN, New Bolton Center, Kennett Square - Prof. R. "Bob" Kenney (deceased)
-University of WI, Dept. Meat and Animal Sciences, Madison - Prof. N.L First(deceased)
- Bourn Hall Infertility Center -Bourn Cambridgeshire, UK – Prof. R. G. Edwards(deceased), Dr. Kay Elder

Special Training/Certification

JSU Certification for Online Education and Teaching 2014-2017
MSU IACUC mouse Protocol approved 2008, 2009
Hazardous Waste Training and Certification - 2007-2009
Blood Born Pathogen Training and Certification – 2007-2009
IBC Lab Certification – BSL-2 – 2007 2009
Radiation Biology/Radioisotopes Certification -2006-2008

Broadcast/Interviews/Public Relations

Podcast: The students of MSU Interview the Pioneers in Genetics and Developmental Biology 2010-11
PBS-Mississippi Connections to Nobel Lauriat RG "Bob" Edwards 2010
WCBI Columbus Tupelo – ES Cells, Cloning and Bioethics 2008
PBS-"ES Cells, Cloning and Bioethics: Change in stem cell rules could affect MS!" – 2009
Vision: A publication of the Mississippi State College of Arts and Sciences+ Fall 2007
Feature story: Love of Horses Leads to Lifelong Career (Andrea Mead)