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EDUCATION

Ph.D. 1970 Biology, Kansas State University
M.S. 1967 Biology, The Johns Hopkins University
B.A. 1965 Biology, Goucher College

POSITIONS AND EMPLOYMENT

2008- Director, Cooperative Predoctoral Program, The Jackson Laboratory
2011 - Professor, Department of Medicine, Tufts University School of Medicine
2005 - Adjunct Professor, Graduate Faculty, University of Maine
2003 - Professor/Senior Research Scientist, The Jackson Laboratory
2003 - Professor Emeritus, University of Tennessee
1995 - 2003 Professor, Department of Biochemistry and Cellular and Molecular Biology,
 University of Tennessee
1998 - 2003 Faculty, University of Tennessee - Oak Ridge National Laboratory School of
 Genome Science and Technology
1988 - 1995 Professor, Department of Zoology, University of Tennessee
1985 - 1989 Associate Department Head, Department of Zoology, University of Tennessee
1980 - 1995 Faculty, Graduate Program in Cellular, Molecular and Developmental Biology,
 University of Tennessee
1980 - 1988 Associate Professor, Department of Zoology, University of Tennessee
1973 - 1980 Assistant Professor, Department of Zoology, University of Tennessee
1970 - 1973 Postdoctoral Fellow, Biology Division, Oak Ridge National Laboratory

OTHER EXPERIENCE

Faculty, Woods Hole Marine Biological Laboratory, Frontiers in Reproduction, 1999; 2009-2014
Visiting Investigator, The Jackson Laboratory, Bar Harbor, ME, Summers: 1978 - 2002
Faculty, The Jackson Laboratory Course on Experimental Genetics of the Laboratory Mouse,
 1994 - 2000
Faculty Leave, Department of Development, The Babraham Institute, BBSRC Unit, Cambridge,
 England, 1994
Faculty Leave, Dept. Genetics, Catholic University of Nijmegen, The Netherlands, 1985

RESEARCH INTERESTS

Research encompasses genetic, cytological and molecular analysis of meiosis and male germ-cell differentiation, including leadership in a program for unbiased mutagenesis to create mouse models of infertility

AREAS OF TEACHING COMPETENCE

Genetics, Cell Biology, Developmental Biology

ACADEMIC AND PROFESSIONAL HONORS

American Society for Andrology, Steinberger Lecture & Award, 2017
AAAS Fellow, 2010
The Johns Hopkins University School of Public Health Larry Ewing Memorial Lecture, 2002
Association for Women in Science East Tennessee Chapter, Distinguished and Sustained Scientific Contributions Award, 1998
American Society for Andrology, ASA/NME State of the Art Lecture, 1996
University of Tennessee Macebearer, 1994
University of Tennessee Distinguished Service Professor, 1989 - 2002
University of Tennessee Science Alliance Faculty, 1987 - 2002
University of Tennessee Faculty Leave Awards, 1985, 1994

RESEARCH FUNDING

National Institutes of Health, P01 GM99640, 2013-2018, "Molecular Regulation of Mammalian Meiosis," Kenneth Paigen, PI; Subproject "PRDM9 and Control of Meiotic Progression," Mary Ann Handel
National Institutes of Health, R01 HD73077, 2013 - 2018, "Selective Translational Regulation of Male Fertility"
National Institutes of Health, R01 HD33816, 1996-2017, "Cell Cycle Regulation during Spermatogenesis"
National Institutes of Health, P01 HD42137, 2002-2015, "Reproductive Genetics: Mutant Models for Infertility," John Eppig & Mary Ann Handel, PIs; Subproject "Functional Genomics of Male Gametogenesis," Mary Ann Handel
National Institutes of Health, R01 HD48998, 2005-2010, "Chromatin Structure during Spermatogenesis"
National Institutes of Health, R03 HD49430, 2005-2007, "New Mouse Mutation Exhibiting Failed Fertilization"
National Institutes of Health, R13 Conference funding for XVIIth North American Testis Workshop
DoE – Oak Ridge National Laboratory, 1998-2000, "Pilot Study on Sperm FISH as a Phenotype Screen"
National Institutes of Health, R01 HD31376, 1993 - 1999, "Chromosome Structure and Function during Meiosis"
US Department of Agriculture, 91-02503, 1991 - 1996, "Meiotically Expressed Genes of Spermatogenesis"
University of Tennessee Faculty Research Award, 1991 - 1992, "Cultured Mouse Spermatocytes for Analysis of Meiosis"
National Science Foundation, DMB-8905117, 1989 - 1992, "X-Chromosome Function during Spermatogenesis"
National Institutes of Health, R01 HD16978, 1982 - 1988, "Male Sterile Mouse Mutants"
Ford Foundation Research Grant, 1977 - 1979
University of Tennessee Biomedical Sciences Support Grant Awards
University of Tennessee Faculty Summer Research Award, 1975

SOCIETY MEMBERSHIPS

American Association for the Advancement of Science
American Society of Andrology
Genetics Society of America
International Mammalian Genome Society
Society for the Study of Reproduction

PROFESSIONAL ACTIVITIES & SERVICE

Co-Chair, SSR Publications Committee, 2015 -
Chair, SSR Publications Committee, 2013 - 2015
Program Co-Chair, 2014 Cold Spring Harbor Germ Cell Conference, 2012 - 2014
External Advisory Committee, BCMB Dept., Univ. Tennessee, 2010 - 2013
Consulting Editor, *Biology of Reproduction*, 2009 - 2013
Co-Editor-in-Chief, *Biology of Reproduction*, July 2004 – June 2009
Organizer & Program Chair of XVIIth North American Testis Workshop, Phoenix AZ, March 2003:
 Functional Genomics of Male Reproduction
Board of Directors, Society for the Study of Reproduction, 2001 - 2004
Editorial Board: *Molecular Reproduction and Development*, 1994 -2004
Editorial Board: *Biology of Reproduction*, 1999 - 2004
Program Chair, SSR Annual Meeting, 2000
NIH CMIR Study Section: Ad hoc, 2004, 2006, 2008, 2009, 2010, 2015, 2016
NIH CSR Reproductive Biology Study Section: Ad hoc, 1986, 1996; Member, 1987 - 1991; 1998
 - 2002
NIH U54 Centers/P01 Programs Grant Review Committees: 2007, 2008, 2011, 2012, 2013,
 2014, 2015, 2016
NIH CSR Special Emphasis Panel, Chair, 1997; 2014, 2015
DOE Molecular and Cellular Biology Peer Review, 1990
NAS Howard Hughes Predoctoral Fellowship Review Panel: 1990, 1992 - 1993, 1995
Reviewer: *Am J Hum Genet*, *Biol Reprod*, *Cell*, *Cell Motil Cytoskel*, *Develop*, *Dev Biol*, *Eur J Cell
 Biol*, *Genomics*, *Genes Dev*, *Hum Molec Genet*, *Hum Reprod*, *Int Rev Cytol*, *J Androl*, *J
 Cell Sci*, *Mamm Genome*, *Mol Cell*, *Molec Reprod Develop*, *Nature*, *Nature Genetics*, *Nat
 Rev Drug Discov*, *PloS Genetics*, *PLoS One*, *Science*

PUBLICATIONS (109)

Habermann H, MA Handel, P McKellar. 1968. Kinetics of chloroplast-mediated photooxidation of diketogulonate. *Photochem Photobiol* 7:211-224.
Handel MA. 1971. Effects of experimental degradation of microtubules on the growth of cultured nerve fibers. *J Exp Zool* 178:523-532.
Handel MA, LE Roth. 1971. Cell shape and morphology of the neural tube: Implication for microtubule function. *Dev Biol* 25:75-95.
Handel MA, J Papaconstantinou, DP Allison, EM Julku, ET Chin. 1973. Synthesis of mitochondrial DNA in spermatocytes of *Rhynchosciara hollaenderi*. *Dev Biol* 35:240-249.
Bragg P, MA Handel. 1979. Protein synthesis in mouse spermatozoa. *Biol Reprod* 20:333-337.
Handel MA, JJ Eppig. 1979. Sertoli cell differentiation in the testes of mice genetically deficient in germ cells. *Biol Reprod* 20:1031-1038.
Handel MA. 1979. Effects of colchicine on spermiogenesis in the mouse. *J Embryol exp Morph* 51:73-83.

- Handel MA, M Dawson. 1981. Effects on spermiogenesis in the mouse of a male sterile neurological mutation, Purkinje cell degeneration. *Gamete Res* 4:185-192.
- Nestor A, MA Handel. 1984. The transport of morphologically abnormal sperm in the female reproductive tract of mice. *Gamete Res* 10:119-125.
- Handel MA, JR Kennedy. 1984. Situs inversus in *iv/iv* mice without immotile cilia. *J Hered* 75:498.
- Sotomayor RE, MA Handel. 1986. Failure of acrosome assembly in a male sterile mouse mutant. *Biol Reprod.* 34:171-182.
- Handel MA. 1987. Genetic control of spermatogenesis in mice. In: *Spermatogenesis: Genetic Aspects. Results and Problems in Cell Differentiation*, vol 15. (ed W Hennig). Springer-Verlag, Berlin, Heidelberg, New York. pp. 1-62.
- Handel MA, LL Washburn, MP Rosenberg, EM Eicher. 1987. Male sterility caused by p^{6H} and qk mutations is not corrected in chimeric mice. *J Exp Zool* 243:81-92.
- Kot MC, MA Handel. 1987. Binding of morphologically abnormal sperm to mouse egg zonae pellucidae. *Gamete Res* 18:57-66.
- Carlson JG, MA Handel. 1988. Intercellular bridges and factors determining their patterns in the grasshopper testis. *J Morph* 196:173-185.
- Handel MA, PW Lane, AC Schroeder, MT Davisson. 1988. A new mutation causing sterility in the mouse. *Gamete Res* 21:409-423.
- Handel MA. 1990. Use of heritable mutations in the analysis of meiosis. In: *Banbury Report 33: Biology of Mammalian Germ Cell Mutagenesis* (ed JW Allen, BA Bridges, MF Lyon, MJ Moses, LB Russell). Cold Spring Harbor Laboratory Press, NY. pp. 51-65.
- Kot MC, MA Handel. 1990. Spermatogenesis in XO, *Sxr* mice: Role of the Y chromosome. *J Exp Zool* 256:92-105.
- Handel MA, PA Hunt. 1991. Genomic imprinting: Male mice with uniparentally derived sex chromosomes. *Molec Reprod Develop* 28:337-340.
- Caldwell KA, MA Handel. 1991. Protamine transcript sharing among post-meiotic spermatids. *Proc Natl Acad Sci USA* 88:2407-2411.
- Handel MA, PA Hunt, MC Kot, C Park, M Shannon. 1991. Role of sex chromosomes in control of male germ-cell differentiation. In: *The Male Germ Cell: From Spermatogonium to Fertilization*. *Ann NY Acad Sci* 637:64-73.
- Brannan CI, MA Bedell, JL Resnick, JJ Eppig, MA Handel, DE Williams, SD Lyman, PJ Donovan, NA Jenkins, NG Copeland. 1992. Developmental abnormalities in *Steel^{16H}* mice result from splicing defect in steel factor cytoplasmic tail. *Genes Develop* 6:1832-1842.
- Handel MA, PA Hunt. 1992. Sex-chromosome pairing and activity during mammalian meiosis. *BioEssays* 4:817-822.
- McKee BD, MA Handel. 1993. Sex chromosomes, recombination, and chromatin conformation. *Chromosoma* 102:71-80.
- Shannon M, MA Handel. 1993. Expression of the *Hprt* gene during spermatogenesis: Implications for sex-chromosome inactivation. *Biol Reprod* 49:770-778.
- Handel MA, M Shannon, KA Caldwell. 1993. Sex-chromosome activity during meiosis. In: *Meiosis II: Contemporary Approaches to the Study of Meiosis*. *Proceedings of NIH Conference* (ed. FP Haseltine, S Heyner). pp. 55-68.
- Handel MA, C Park, MC Kot. 1994. Genetic control of sex-chromosome inactivation during meiosis. *Cytogenet Cell Genet* 66:83-88.
- Stubbs L, EM Rinchik, E Goldberg, B Rudy, MA Handel, D Johnson. 1994. Clustering of six human 11p15 gene homologs within a 500-kb interval of proximal mouse chromosome 7. *Genomics* 24: 324-332.
- Handel MA, KA Caldwell, T Wiltshire. 1995. Culture of pachytene spermatocytes for analysis of meiosis. *Devel Genet* 16:128-139.
- Wiltshire T, C Park, KA Caldwell, MA Handel. 1995. Induced premature G2/M transition in

pachytene spermatocytes includes events unique to meiosis. Dev Biol 169:557-567.

- Rinchik EM, DA Carpenter, MA Handel. 1995. Pleiotropy in microdeletion syndromes: Neurologic and spermatogenic abnormalities in mice homozygous for the p^{6H} deletion are likely due to dysfunction of a single gene. *Proc Natl Acad Sci USA* 92:6394-6398.
- Feil R, MA Handel, ND Allen, W Reik. 1995. Chromatin structure and imprinting: Developmental control of DNase-I sensitivity in the mouse insulin-like growth factor 2 gene. *Devel Genet* 17:240-252.
- Caldwell KA, T Wiltshire, MA Handel. 1996. A genetic strategy for differential screening of meiotic germ-cell cDNA libraries. *Molec Reprod Devel* 43:403-413.
- Ward-Bailey PF, KR Johnson, MA Handel, BS Harris, MT Davisson. 1996. A new mutation causing male sterility and histoincompatibility. *Mamm Genome* 7:793-797.
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- Cobb J, RK Reddy, C Park, MA Handel. 1997. Analysis of expression and function of topoisomerase I and II during meiosis in male mice. *Molec Reprod Devel* 46:489-498.
- Wiltshire T, C Park, MA Handel. 1998. Chromatin configuration during meiosis I prophase of spermatogenesis. *Molec Reprod Devel* 49:81-91.
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- Handel MA, JJ Eppig. 1998. Sexual dimorphism in the regulation of meiosis. In: *Meiosis and Gametogenesis* (ed. MA Handel). pp. 333-358. San Diego, Academic Press.
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- Handel MA, J Cobb. 1998. Acquisition of competence to enter meiotic metaphase during mammalian spermatogenesis. In: *Germ Cell Development, Division, Disruption and Death, Proceedings of the XIVth Testis Workshop* (ed. BR Zirkin). Serono Symposia, pp. 61-67.
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- Shannon M, L Richardson, A Christian, MA Handel, MP Thelan. 1999. Differential gene expression of mammalian *SPO11/TOP6A* homologs during meiosis. *FEBS Letts* 462:329-334.
- Richardson LL, C Pedigo, MA Handel. 2000. Expression of DNA repair enzymes during spermatogenesis in mice. *Biol Reprod* 62:789-796.
- Handel MA. 2001. The genetics of spermatogenesis: Meiosis and gamete quality. In: *Andrology in the 21st Century, Proceedings of the VIIth International Congress of Andrology* (ed. B Robaire, H Chemes, CR Morales). Medimond Medical Publishing, pp. 3-14.
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- Handel MA and MP Hardy. 2003. Synopsis: XVIIth Testis Workshop, "Functional genomics of male reproduction. *J Androl* 24:629-631.
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- Handel MA. 2004. The XY body: A specialized meiotic chromatin domain. *Exp Cell Res* 296:57-63.

- Lin Q, A Inselman, X Han, H Xu, W Zhang, MA Handel, AI Skoultchi. 2004. Reductions in linker histone levels are tolerated in developing spermatocytes but cause changes in specific gene expression. *J Biol Chem* 279:23525-23535.
- Inselman A, MA Handel. 2004. Mitogen-activated protein kinase dynamics during the meiotic G2/M1 transition of mouse spermatocytes. *Biol Reprod* 71:570-578.
- Lessard C, JK Pendola, SA Hartford, JC Schimenti, MA Handel, JJ Eppig. 2004. New mouse genetic models for human contraceptive development. *Cytogenet Genome Res* 105:222-227.
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- Handel MA, Sun F. 2005. Regulation of meiotic cell divisions and determination of gamete quality: Impact of reproductive toxins. *Sem Reprod Med.* 23:213-221.
- Cho YS, Iguchi N, Yang J, Handel MA, Hecht NB. 2005. Meiotic mRNA and non-coding RNA targets of the RNA-binding protein translin (TSN) in mouse testis. *Biol Reprod* 73:840-847.
- Handel, MA, C Lessard, L Reinholdt, J Schimenti, JJ Eppig. 2006. Mutagenesis as an unbiased approach to identify novel contraceptive targets. *Mol Cell Endo* 250:201-205.
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- Davisson M, E Akesson, C Schmidt, B Harris, J Farley, MA Handel. 2007. Impact of trisomy on fertility and meiosis in male mice. *Hum Reprod* 22:468-476.
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- Sun F, MA Handel. 2008. Regulation of the meiotic prophase I to metaphase I transition in mouse spermatocytes. *Chromosoma* 117:471-485.
- La Salle S, F Sun, XD Zhang, MJ Matunis, MA Handel. 2008. Developmental control of sumoylation pathway proteins in mouse male germ cells. *Dev Biol* 321:227-237.
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- La Salle S, F Sun, MA Handel. 2009. Isolation and short-term culture of mouse spermatocytes for analysis of meiosis. In: *Methods in Molecular Biology, Molecular Medicine and Biotechnology* (Series Editor: J. N. Walker), Meiosis Protocols (Ed. S. Keeney). Humana

- Press. 558:279-297.
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- Handel MA, JC Schimenti. 2010. Genetics of mammalian meiosis: regulation, dynamics and impact on fertility. *Nat Rev Genet* 11:124-136.
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doi:[10.3390/genes2010021](https://doi.org/10.3390/genes2010021)
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- Su Y-Q, F Sun, MA Handel, JC Schimenti, JJ Eppig. 2012. Meiosis arrest female 1 (MARF1) has nuage-like function in mammalian oocytes. *Proc Natl Acad Sci USA* 109:18653-18660.
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- Fujiwara Y, H Matsumoto, K Akiyama, A Srivastava, M Chikushi, MA Handel, T Kunieda. 2015. An ENU-induced mutation in the mouse *Rnf212* gene is associated with male meiotic failure and infertility. *Reproduction* 149:67-74. PMID: PMC4248014.
- Sun F, Y Fujiwara, LG Reinholdt, J Hu, RL Saxl, CL Baker, PM Petkov, K Paigen, MA Handel. 2015. Nuclear localization of PRDM9 and its role in meiotic chromatin modifications and homologous synapsis. *Chromosoma* 124:397-415. PMID: PMC4550572.

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- Huang F, G Sirinakis, ES Allgeyer, LK Schroeder, WC Duim, EB Kromann, T Phan, FE Rivera-Molina, JR Myers, I Irnov, M Lessard, Y Zhang, MA Handel, C Jacobs-Wagner, CP Lusk, JE Rothman, DK Toomre, MJ Booth, J Bewersdorf. 2016. Ultra-high resolution 3D imaging of whole cells. *Cell* 166:1028-1040.
- Ball RL, Y Fujiwara, F Sun, J Hu, M Hibbs, MA Handel, GW Carter. 2016. Regulatory complexity revealed by integrated cytological and RNA-seq analyses of meiotic substages in mouse spermatocytes. *BMC Genomics* 17:628.
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- Hu J, F Sun, MA Handel. 2017. Nuclear localization of EIF4G3 suggests a role for the XY body in translational regulation during spermatogenesis in mice. *Biol Reprod* 98:102-114. doi/10.1093/biolre/iox150.
- Bolcun-Filas E, MAH Handel. 2018. Meiosis: The chromosomal foundation of reproduction. *Biol Reprod* doi:10.1093/biolre/ioy021.

BOOKS

Handel MA, ed. 1998. *Meiosis and Gametogenesis*. San Diego, Academic Press.

ABSTRACTS

- Handel MA. 1969. Effects of cold and colchicine on chick embryo neural tube. *Amer Zool* 9:1122.
- Handel MA, ET Chin, J Papaconstantinou, EM Julku, DP Allison. 1971. Characterization of a satellite DNA synthesized during development of *Rhynchosciara* testes. *ASCB*, Nov 1971.
- Handel MA. 1977. Characterization of mouse testicular microtubular protein. *SSR*, 1977.
- Handel MA. 1979. Effects on spermiogenesis in the mouse of a neurological mutation, Purkinje cell degeneration. *Biol Reprod* 20 (Suppl):35A.
- Juntti TM, MA Handel. 1981. Isolation and characterization of fibrous sheaths and outer dense fiber-connecting piece complex of mouse sperm tails. *Biol Reprod* 24 (Suppl):90A.
- Handel MA, WG Beamer, M Allison. 1981. Testicular development and serum FSH levels in dwarf (*dw*) mice. *Biol Reprod* 24 (Suppl):35A.
- Handel MA, LL Washburn, MP Rosenberg, EM Eicher. 1983. Male sterility of p^{6H} and qk is not rescued in mouse chimeras. *Biol Reprod* 28 (Suppl):68.
- Sotomayor RE, T Chen, MA Handel. 1985. Reproductive hormone profile of male sterile mouse mutants. *SE Endocrine Society*.
- Sotomayor RE, J Clark, MA Handel. 1986. Developmental expression of the blind-sterile (*bs*) mutation in mouse testes. *Biol Reprod* 34 (Suppl):60.
- Kot MC, MA Handel. 1987. Spermatogenic kinetics and differentiation in XO, *Sxr* mice. *Biol Reprod* 36 (Suppl):81.
- Handel MA, C Park. 1988. Spermatogenesis and sex-vesicle structure in translocation-sterile mice. *Biol Reprod* 38 (Suppl):88.
- Taylor BA, L Rowe, MA Handel. 1988. Male sterility associated with an ecotropic murine leukemia virus (MuLV) germline insertion. 6th International Workshop on Molecular Genetics of the Mouse, Girton College, Cambridge, England.
- Handel MA, PA Hunt. 1989. Differentiation of germ cells and somatic cells in the gonads of XXY

- mice. Biol Reprod 40 (Suppl):142.
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- Wiltshire T, KA Caldwell, MA Handel. 1992. Chromosome pairing and transcription in cultured pachytene spermatocytes. Mol Biol Cell 3:101a.
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- Cobb JA, MA Handel. 1995. Role of topoisomerases in meiotic cell cycle transitions in mouse spermatocytes. Mol Biol Cell 6:316a.
- Handel MA, T Wiltshire. 1995. Timing of meiotic prophase events as deduced from premature induction of metaphase in spermatocytes. Mol Biol Cell 6:132a.
- Wiltshire T, C Park, MA Handel. 1995. Assessment of meiotic chromatin configuration in spermatocytes. Mol Biol Cell 6:71a.
- Handel MA, S Gurwitsch, J Cobb. 1996. Analysis of gene expression during meiotic prophase of spermatogenesis in mice. Biol Reprod 54(Suppl 1):108.
- Cobb J, MA Handel. 1997. Localization of topoisomerase IIa during meiosis in the male mouse. Molec Biol Cell 8 (Suppl):217a.
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- Eaker SS, MA Handel. 1999. Transillumination and localization of essential cell cycle proteins in stage XII mouse spermatocytes to order events leading to meiotic division. Biol Reprod 60 (Suppl 1):145.
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- Handel, MA, DK Andreadis, J Cobb. 2000. DNA damage delays induced meiotic G2/M transition in mouse spermatocytes. Biol Reprod. 62 (Suppl 1):334.
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- Handel MA, J Schimenti, B Libby, S Eaker, A Pyle. 2001. Genes and chromosomes: Regulation of meiotic divisions in spermatocytes. Biol Reprod 64 (Suppl):99 (Abstract).
- Inselman AL, S Eaker, MA Handel. 2001. Temporal ordering of events during male germ-cell meiotic prophase and division phase. Biol Reprod 64 (Suppl):217 (Abstract).
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- Matulis S, MA Handel. 2004. Spermatocyte chromatin modification after induced DNA damage and inhibition of topoisomerase II. Biol Reprod (Special Issue):741 (Abstract).
- Lessard C, S Hartford, JC Schimenti, JJ Eppig, MA Handel. 2004. New ENU-induced mouse spermatogenesis mutation with phenotype of sperm tail and neck abnormalities. Biol Reprod (Special Issue):189 (Abstract).
- Handel MA, JJ Eppig, JC Schimenti. 2005. ReproGenomics: A resource for mutant mouse models of infertility. XVIII Testis Workshop, Seattle. (Abstract)
- Lessard C, MA Handel. 2005. *Ferf1*, an ENU-induced mouse mutation with a phenotype of male infertility characterized by fertilization failure. XVIII Testis Workshop, Seattle. (Abstract)
- Lessard C, SA Hartford, JC Schimenti, MA Handel. 2005. Defective sperm tail formation is the phenotype of *repro2* sperm, an ENU-induced mouse mutation. Annual Meeting of the

- Andrology Society of America, Seattle. (Abstract)
- Sun F, MA Handel. 2005. Chromatin remodeling during meiosis in spermatocytes. *Biol Reprod (Special Issue)*: 162 (Abstract).
- Hampton JH, D Johnston, JJ Eppig, MA Handel. 2005. Expression of gremlin, a BMP antagonist, in the mouse testis. *Biol Reprod (Special Issue)*: 178 (Abstract).
- Agbor NL, VA Agbor, L Yang, S Sweeney, MA Handel, MD Griswold, CC Linder. 2006. Developmental and gene expression profiling during spermatogenesis in a chemically induced genetic mouse model of infertility (*repro27*). *Biol Reprod (Special Issue)*: 73 (Abstract).
- Sun F, MA Handel. 2006. An ENU-induced mutation causing arrest of spermatocytes before the first meiotic division. *Biol Reprod (Special Issue)*: 83.
- La Salle S, MA Handel. 2007. Expression dynamics of sumoylation pathway genes in male germ cells. *Biol Reprod (Special Issue)*:116.
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- Reinholdt L, E Akesson, C Schmidt, M Davisson, MA Handel. 2007. The fate of unpaired chromatin during male meiosis in mice. *Biol Reprod (Special Issue)*:198.
- Sun F, MA Handel. 2008. Orientation of Ts65Dn chromosome in meiosis I predicts reduction of metaphase II spermatocytes in a mouse model of Down syndrome. *Biol Reprod (Special Issue)*:157.
- Geyer C, A Inselman, J Summan, S Bornstein, MA Handel, M Eddy. 2008. A missense mutation is present in the *Capza3* gene of ENU-generated *repro32* male infertility mutants. *Biol Reprod (Special Issue)*:212.
- Sun F, K Palmer, K Laws, MA Handel. 2009. Mutation in the mouse *Eif4g3* gene is associated with spermatocytes arrest in meiotic prophase. Presented at Keystone Frontiers in Reproductive Biology and Regulation of Fertility, February 2009.
- Handel MA, C Durkin, F Sun. 2010. Selective regulation of protein translation in mouse spermatocytes. Presented at the 2010 Germ Cells Meeting, Cold Spring Harbor Laboratory.
- Jordan P, MA Handel. 2011. Inhibition of polo-like kinase 1 activity prevents synaptonemal complex disassembly. Presented at the 2011 North American Testis Workshop.
- Handel MA, P Jordan, F Sun. 2011. Regulation of meiotic progression. Presented at the 2011 North American Testis Workshop.
- La Salle S, K Palmer, M O'Brien, H Lothrop, MA Handel. 2011. A novel mammalian protein, SPATA22, is required for progression through meiotic prophase I in both male and female germ cells in the mouse. Presented at the 2011 Meeting of the Andrology Society of America.
- Handel MA, F Sun, S La Salle, JC Schimenti, JJ Eppig. 2012. Mutations affecting male meiosis. Presented at the 2012 Meeting of the Society for the Study of Reproduction.
- Sun F, R Saxl, P Petkov, C Baker, K Paigen, MA Handel. 2012. Meiotic prophase dynamics of PRDM9, a major regulator of mammalian recombination. Presented at the 2012 Germ Cells Meeting, Cold Spring Harbor Laboratory.
- Jordan P, F Sun, M O'Brien, JJ Eppig, MA Handel. 2013. Structural maintenance of chromosomes (SMC) 5/6 complex is essential for chromosome segregation during meiosis. Presented at the 2013 Meeting of the Society for the Study of Reproduction.
- Sun F, L Reinholdt, K Palmer, A Young, K Paigen, P Petkov, MA Handel. 2013. Male mice with mutations in the major recombination gene *Prdm9* exhibit meiotic silencing of unsynapsed chromatin. Presented at the 2013 Meeting of the Society for the Study of Reproduction.
- Fujiwara Y, M Chikushi, MA Handel, T Kunieda. 2013. The *repro57* mutation causes defective meiotic recombination and infertility in male mice. Presented at the 2013 Meeting of the

- Society for the Study of Reproduction.
- Ball RL, Y Fujiwara, F Sun, MA Handel, GW Carter. 2014. Transcriptional deconvolution of meiotic substages using RNA-seq and cytological analysis of the first wave of spermatogenesis in the mouse. Presented at International Mammalian Genome Conference.
- Hu J, F Sun, X Wang, Y Fujiwara, RL Ball, GW Carter, MA Handel. 2016. Selective regulation of translation during spermatogenesis in the mouse. Presented at the 2016 Gordon Conference on Mammalian Reproduction.
- Bhattacharyya T, M Walker, J Hu, C Brunton, K Paigen, P Petkov, MA Handel. 2016. PRDM9 and cohesion proteins act synergistically to promote normal meiotic double-strand break formation in mouse spermatocytes. Presented at the 2016 Germ Cells Meeting, Cold Spring Harbor Laboratory.
- Fine A, Y Fujiwara, T Bhattacharyya, RL Ball, MA Handel, GW Carter. 2016. Integrative genomic analysis of early meiotic prophase. Presented at EMBL Genome Conference.
- Kent T, N Harerimana, MA Handel. 2017. Anchoring the onset of the meiotic division phase within the cycle of the seminiferous epithelium. Trainee Oral Competition presentation at the 2017 Meeting of the Society for the Study of Reproduction.
- Fine AD, RL Ball, Y Fujiwara, G Carter, MA Handel. 2017. An integrative genomic analysis of early meiotic prophase gene expression in mouse spermatocytes. Poster presentation at the 2017 Meeting of the Society for the Study of Reproduction.
- Bhattacharyya T, M Walker, J Hu, A Fine, C Brunton, P Petkov, K Paigen, MA Handel. 2017. Chromosome axis promotes recombination during mammalian meiosis. Poster presentation at 2017 EMBO Conference on Meiosis, Croatia.

INVITED PRESENTATIONS & SEMINARS

- University of Tennessee Centripetals, October 1988
- Department of Biology, Tennessee Technological University, Cookeville, November 1988
- Department of Medical Biology, University of Tennessee Health Sciences Center at Knoxville, December 1988
- Division of Reproductive Biology, Department of Population Dynamics, The Johns Hopkins University, Baltimore, December 1988
- Department of Medical Genetics, Emory University, Atlanta, February 1989
- Laboratories for Reproductive Biology, University of North Carolina, Chapel Hill, March 1989
- University of Georgia, Athens SOTAB (Symposium for Teachers of College Biology) Symposium on Biology of Females, April 1989
- Emory University, Interdepartmental Course on Genetic Models, Atlanta, April 1989
- Sixtieth Anniversary Symposium, The Jackson Laboratory, Bar Harbor, ME, June 1989
- Banbury Conference on Mutation Induction and Heritability in Mammalian Germ Cells, Banbury Center of the Cold Spring Harbor Laboratory, November 1989
- University of Nijmegen, Nijmegen, The Netherlands, December 1989
- Agricultural University of Wageningen, Wageningen, The Netherlands, December 1989
- Washington State University / University of Idaho Joint Seminar Program, Pullman WA and Moscow ID, March 1990
- University of Pennsylvania Reproductive Biology Group, Philadelphia, April 1990
- Texas Tech University Center for Health Sciences, Lubbock, November 1990
- XIth North American Testis Workshop, Montreal, April 1991
- The Jackson Laboratory, Bar Harbor, ME, July 1991
- Gordon Conference on Fertilization, Tilton Academy, NH: Session Chair, July 1991
- NIH Meiosis Conference, Philadelphia, PA, October 1991
- Department of Anatomy and Cell Biology, University of Virginia Medical School, Charlottesville,

February 1992

Gordon Conference on Reproductive Tract Biology, Plymouth State College, NH, July 1992:
Session Chair and Discussant

Department of Cell Biology and Anatomy, Vanderbilt University, Nashville, TN, February 1993

College of Liberal Arts "Pregame Showcase," University of Tennessee, September 1993

Department of Genetics, Hebrew University, Jerusalem, Israel, February 1994

Department of Genetics, University of Edinburgh, Edinburgh, Scotland, March 1994

Conference on Chromosome Mechanics, University of Pavia, Pavia, Italy, May 1994

Department of Physiology, Cornell University, Ithaca, New York, October 1994

University of Tennessee Centripetals: "Genome Knowledge: Boon or Bane;" September 1995

Dept. Biochemistry, Vanderbilt University, Nashville, TN, Special Seminar Series on
Chromosome Structure and Dynamics, March 1996

American Society for Andrology, Minneapolis MN, April 1996, ASA/NME State of the Art Lecture:
"Genetics of Sperm Structure and Function"

University of Tennessee, Phi Beta Kappa Spring Banquet Lecture, April 1996: "Human Genome
Knowledge"

Society for the Study of Reproduction Annual Meeting, London, Ontario, July, 1996: Convener of
Minisymposium on Cell Cycle in Gametogenesis

Gordon Conference on Mammalian Gametogenesis and Early Development, Colby-Sawyer
College, New London, NH, August 1996: Session Chair and Presenter

Department of Anatomy and Cell Biology, Temple University School of Medicine, Philadelphia
PA, October 1996

Serono Symposium/Testis Workshop, Baltimore MD, February 1997: "Acquisition of Competence
to Enter Meiotic Metaphase during Spermatogenesis"

European Meiosis Meeting, Wageningen, The Netherlands, April 1997: "Induced Meiotic
Metaphase"

Department of Developmental Biology, Stanford University, Palo Alto, CA; April 1997

Developmental Biology Program, University of California at San Francisco, San Francisco, CA;
April 1997

25th Anniversary of the Frozen Mouse Embryo Symposium on Cryobiology of Gametes and
Embryos, The Jackson Laboratory, Bar Harbor, ME, September 1997: "Acquisition of
Competence to Enter Meiotic Metaphase during Spermatogenesis"

International Embryo Transfer Society Symposium on Gamete Biology, Boston MA, January
1998: "Monitoring Meiosis in Gametogenesis"

Department of Genetics, Case Western Reserve University School of Medicine, Cleveland OH,
February 1998: "Regulating Entry into Meiotic Division during Spermatogenesis"

Department of Cell Biology, East Tennessee State University Medical School, Johnson City, TN,
April 1998: "Regulating Entry into Meiotic Division during Spermatogenesis"

Department of Developmental Genetics, Babraham Institute, Cambridge, England, May 1998:
"Control of Meiosis in Spermatogenesis"

Department of Obstetrics and Gynecology, Center for Research on Reproduction and Women's
Health, University of Pennsylvania Health System, Philadelphia, PA, November 1998:
"Acquisition of Meiotic Competence during Spermatogenesis"

Department of Biomedical Sciences, College of Veterinary Medicine, Cornell University, Ithaca
NY, May 1999: "What Are the Spermatoocyte's Requirements for Successful Meiotic
Division?"

Annual Meeting of the Society for the Study of Reproduction, Pullman WA, July 1999: Invited
Minisymposium presentation, "What Are the Spermatoocyte's Requirements for Successful
Meiotic Division?"

Biology and Biotechnology Research Program, Lawrence Livermore National Laboratory,
Livermore CA, August 1999: "What Are the Spermatoocyte's Requirements for Successful

Meiotic Division?"

- Spallanzani Symposium: Reproduction at the End of the Millennium, University of Pavia, Italy, September 1999: "What Are the Spermatoocyte's Requirements for Successful Meiotic Division?"
- Fox Chase Cancer Center, Philadelphia PA, October 1999: "Acquisition of Meiotic Competence during Spermatogenesis in the Mouse"
- Northwestern University Center for Reproductive Science, Evanston and Chicago, IL, April 2000: "Meiotic Processes and Checkpoints in Spermatogenesis"
- Science and Theology Symposium, Oak Ridge, TN, October 2000 "Cloning and Stem Cells: A Long Journey into the Unknown"
- U. S. Environmental Protection Agency, Research Triangle Park, NC, November 2000: "Meiotic Transitions in Spermatogenesis"
- University of North Carolina, Chapel Hill, NC, November 2000 "How the Spermatoocyte Gets Into and Out of Meiotic Division Phase"
- The Population Council, Center for Biomedical Research, New York City, NY, March 2001: "Getting Chromosomes to the Right Place: Meiosis and Male Infertility"
- VIIth International Andrology Congress, Montreal, June 2001 – Invited Plenary Lecture: "The Genetics of Spermatogenesis: Meiosis and Gamete Quality"
- Annual Meeting of the Society for the Study of Reproduction, Toronto, August 2001: Invited Minisymposium presentation, "Genes and Chromosomes: Regulation of the Meiotic Division in Spermatoocytes"
- East Tennessee State University, Johnson City TN, October 2001: "The Genetics of Spermatogenesis: Meiosis and Gamete Quality"
- University of Florida, Gainesville FL, March 2002: "Monitoring Meiosis and Gamete Quality"
- Karolinska Institute, Stockholm Sweden, August 2002: "Ensuring Gamete Quality: Insights from Meiotic Mutants"
- The Johns Hopkins University, Baltimore MD, October 2002: Larry Ewing Memorial Lecture "Ensuring Gamete Quality: Insights from Meiotic Mutants"
- Cold Spring Harbor Conference on Germ Cells, October 2002: "Critical Regulatory Transitions in Male Meiosis"
- Van Andel Research Institute, September 2003: "Regulation of Meiosis in Male Mice"
- MRC/DfID Brainstorming Meeting: UK Contraception Research, Edinburgh, UK, February 2004: "Unbiased Approaches to Identify Novel Ovarian and Testicular Contraceptive Targets"
- Colby College, Waterville, ME, April 2004: "Genetic Models for Analysis of Spermatogenesis"
- Mount Desert Island Stem Cell Symposium, August 2004: "Genetic and Cellular Approaches to the Study of Germ-line Stem Cells"
- Workshop on Assessing Germ Cell Mutagenesis in the Post-Genome Era, The Jackson Laboratory, September 2004: "Germ Cell Biology: Animal Models vs. Human, Male vs. Female"
- Banbury Conference on Chromatin in Male Germ Cells, Banbury Center of the Cold Spring Harbor Laboratory, November 2004: "The XY Body: A Unique SUMO-modified Chromatin Domain"
- University of Tennessee, Knoxville TN, January 2005: "Chromatin Domain Organization of Meiotic Nuclei"
- Testis Workshop, Seattle WA, March 2005, "SUMO Modification of the X Chromosome and Unpaired Chromosomal Axes during Meiosis"
- Chinese University of Hong Kong, Hong Kong China, June 2005: "ReproGenomics: Mutant Mouse Models for Infertility and Contraception"
- Gordon Conference on Fertilization, Holderness NH, June 2005: "ReproGenomics: Mutagenesis for Unbiased Identification of Genes Required for Fertility"
- Center for Research on Reproduction and Women's Health, University of Pennsylvania Medical

Center, Philadelphia PA, September 2005: "Genetic and Cellular Analyses of Chromatin Remodeling"

American Society of Andrology, Women in Andrology Lecture, Chicago IL, April 2006: "On Genes and Infertility: Unbiased Discovery Strategies"

Harvard Reproductive Endocrine Sciences Center, Massachusetts General Hospital, Boston MA, May 2006: "Unbiased Mutagenesis for the Discovery of Fertility Genes"

Gordon Conference on Mammalian Gametogenesis and Embryogenesis, New London CT, June 2006: "Mutagenesis: An Unbiased Approach for Identification Of Genes Required for Gametogenesis"

University of Queensland, Brisbane, Australia, November 2006: "Meiotic Cell Cycle and Chromatin Remodeling"

Queensland Institute of Medical Research, Brisbane, Australia, November 2006: "Unbiased Discovery of Genes Required for Gametogenesis and Fertility"

University of Newcastle, Newcastle, Australia, November 2006: "Meiotic Cell Cycle and Chromatin Remodeling"

Australian Health and Medical Research Congress, Melbourne, Australia, November 2006: "Unbiased Discovery of Genes Required for Gametogenesis and Fertility"

Monash University, Melbourne, Australia, November 2006: "Meiotic Cell Cycle and Chromatin Remodeling"

University of Melbourne, Melbourne, Australia, November 2006: "Mechanisms of Meiotic Cell Cycle Regulation"

M. D. Anderson Cancer Center, Houston TX, February 2007: "Meiotic Cell Cycle and Chromatin Remodeling"

Green Center for Reproductive Sciences, University of Texas Southwestern, Dallas, TX, February 2007: "Meiotic Cell Cycle and Chromatin Remodeling"

Washington State University, Center for Reproductive Biology, Pullman, WA, May 2007: "Genetic Strategies for Analysis of Mammalian Meiosis"

Annual Meeting of the Society for the Study of Reproduction, San Antonio, July 2007: "Invited Minisymposium presentation, "Mutagenesis and Phenotype-driven Approaches for Identification of Male Fertility Genes"

Florence-Utah International Symposium on Genetics of Male Infertility, Florence Italy, September 2007: "Large-scale Identification of Novel Genes Involved in Male Infertility in the Mouse"

University of Illinois College of Veterinary Medicine, Billie Field Memorial Lecture Series, Champaign-Urbana, IL, March 2008: "Biased and Unbiased Approaches to Analysis of Mammalian Meiotic Cell Cycle"

Quebec Research in Reproduction Symposium, Montreal, PQ Canada, November 2008: "The Meiotic Cell Cycle: What Can We Learn from Biased and Unbiased Approaches?"

The Johns Hopkins University Department of Biochemistry and Molecular Biology, Baltimore, MD, April 2009: "The Meiotic Cell Cycle: What Can We Learn from Biased and Unbiased Approaches?"

Frontiers in Reproduction Course, Marine Biology Laboratory, Woods Hole, MA, June 2009: "Genetics of Infertility"

Cornell University, Ithaca NY, October 2009: "The Meiotic Cell Cycle: What Can We Learn from Biased and Unbiased Approaches?"

Cold Spring Harbor Conference on Germ Cells, October 2010: "Selective Regulation of Protein Translation in Mouse Spermatocytes"

University of Vermont, Burlington VT, November 2010, Reproductive Sciences Annual Research Retreat keynote address: "Mutagenesis: An Unbiased Strategy for Identification of Novel Fertility Genes"

North American Testis Workshop, Montreal, March 2011, Invited plenary presentation: "Regulation of Meiotic Progression"

Kansas University Medical Center, Kansas City KS, April 2011, Osborn Memorial Lecture: "Regulation of Meiotic Progression"
Bowdoin College Department of Biology, Brunswick ME, April 2011: "Regulation of Meiotic Progression"
World Congress of Reproductive Biology, Cairns, Australia, October 2011: "Regulation of Exit from Meiotic Prophase"
Monash University, Clayton, Melbourne, Australia, October 2011: "Regulation of Meiotic Progression"
University of Southern California, Los Angeles CA, March 2012: "Genetic Regulation of Meiotic Progression"
University of Tennessee, Knoxville TN, April 2012: "Molecular Models for Human Infertility"
NIEHS, Research Triangle NC, April 2012: "Regulation of Meiosis in Male Germ Cells"
University of Connecticut, Department of Molecular, Cell and Developmental Biology, Storrs, CT, April 2014: "Meiotic Chromosome Dynamics: Entering and Exiting Meiotic Prophase"
Japan, Nov-Dec 2014: Okayama University; NIBB, Okazaki; RIKEN BioResource Center, Tuskuba; Univ. Tokyo
Cornell University, Ithaca NY P50 Symposium, April 2016: Genetic and Epigenetic Regulation of Recombination Initiation
Maine Medical Center Research Institute, Portland, September 2017: The Chromosome Axis in Meiosis

FELLOWS AND STUDENTS SUPERVISED

Postdoctoral Fellows

Nivedita Ganguly; Currently: Oak Ridge High School; Consultant, ETS
Laura Richardson (1997 – 2000); Currently Professor and Head, Section on Anatomy, Dept. of Anatomy and Pathology, Joan Edwards School of Medicine, Marshall Univ.
Stefan Kirov (2000 – 2002)
Carl Lessard (2002 – 2006); Currently Agriculture and AgriFood Canada, Saskatoon
Laura Reinholdt (2004 – 2007); Currently Research Scientist, Genetic Resource Science, The Jackson Laboratory
Fengyun Sun (2004 – 2014); Currently Research Scientist, University of Massachusetts
Sophie La Salle (2006 - 2011); Currently Associate Professor, Midwestern University
Philip Jordan (2010 - 2013); Currently Assistant Professor, Johns Hopkins University
Yasuhiro Fujiwara (2013 - 2015); Currently postdoctoral fellow, Univ Tokyo
Tanmoy Bhattacharria (2015 -)
Travis Kent (2015 -)

Graduate Students

Paul Bragg, 1977, MS Thesis: A Study of Protein Synthesis in Mouse Spermatozoa (deceased)
Dale Hansen, 1977, MS Thesis: Electrophoretic Analysis of the Proteins in the Developing Mouse Testis (deceased)
Alfred Martin, 1981, PhD Dissertation: Evaluation of Pesticide Effects on Parameters of Male Reproduction in the Mouse; Currently: Professor, Benedictine University, Naperville IL
Rene Sotomayor, 1986, PhD Dissertation: Analysis of Action of a Male-Sterile Mutation of the Mouse, Blind-Sterile, *bs*; Currently: Supervisory Research Biologist, US FDA
Mary Crecink Kot
1984, MS Thesis: Binding of Morphologically Abnormal Sperm to Mouse Egg
Zonae Pellucidae

1989, PhD Dissertation: Spermatogenesis in XO,*Sxr*, XX,*Sxr* and XY,*Sxr* Mice
 Currently: Professor, Mercer University, GA

Mark Shannon, 1992, PhD Dissertation: Developmental Analysis of the Expression of the Hypoxanthine Phosphoribosyltransferase (*Hprt*) Gene in the Mouse Testis

Kim Neifer Caldwell
 1989, MS Thesis: *In Situ* Hybridization Analysis of Transcript Sharing
 1995, PhD Dissertation: Strategies for the Isolation of Genes Expressed during Mouse Spermatogenesis
 Currently: Professor, Univ. Alabama, Tuscaloosa AL

Raju Reddy, 1995, MS Thesis: Analysis of the Expression of Topoisomerase I and IIa during Spermatogenesis in Mice

Timothy Wiltshire, 1996, PhD Dissertation: Mammalian Meiosis: Events of Meiotic Prophase I in Spermatogenesis; Currently: Associate Professor, UNC School of Pharmacy

Susan Gurwitch, 1997, MS Thesis: Analysis of Sequences Expressed during Meiosis

John Cobb, 1998, Ph.D. Dissertation: Requirements and Characterization of the Transition from Meiotic Prophase to Metaphase I during Mouse Spermatogenesis; Currently Associate Professor, University of Calgary, Calgary

Shannon Eaker, 2001, Ph.D. Dissertation: Cell Cycle Checkpoints in Meiosis

April Pyle, Ph.D. 2002: Meiotic Origin of Sperm Aneuploidy; Currently: Associate Professor, UCLA

Amy Inselman, Ph.D. 2003: Cell Cycle Regulation in Meiosis; Currently National Center for Toxicological Research, US FDA, Jefferson, AK

Shannon Matulis, Ph.D. 2006: Impact of DNA Damage during Meiosis; Currently Postdoctoral Fellow, Emory University School of Medicine

Alex Fine, Tufts University, 2015 -

Teacher Interns

Ashley Young, University of Maine – 2012
 Justin Lewin, University of Maine – 2014

Undergraduate Research Students (with final degree)

John Moore, 1974 - 1977 (MD)
 Kenneth Leal, 1977 - 1980 (DVM)
 Nancy Allen, 1977 - 1981 (MD)
 John Rush, 1977 - 1981 (MD)
 Anne Nestor, 1981 - 1983 (MD)
 Steve Clark, 1981 - 1984
 Judy Daniel, 1981 - 1984 (MD)
 Bill Perry, 1983 - 1986 (PhD)
 Flora Shrode, 1984 - 1986 (MLS)
 Samuel Brown, 1985 - 1988 (JD)
 Lynn Lameier, 1985 - 1988 (MD)
 Jada Lewis, 1989 - 1992 (PhD)
 Kathy Rosser, 1981 - 1993 (MD)
 Shawn Collier, 1992 - 1993 (MD)
 Lucy Lu, 1993 - 1996 (MD)
 Sayeeda Khan-Gori, 1993-1996 (MD, MPH)
 Rimma Finkle, 1994 - 1997 (MD)
 Diane Gammon, 1994 - 1995

Lauren MacLanahan, 1994 - 1996
Ben Cargile, 1995 - 2000 (PhD)
Kristen Paige Johnson, 1996 - 1998 (MD)
Samar AlSharif, 1997 - 1998 (MD)
Brent Bowker, 1997 - 1999 (JD)
Camille Pedigo, 1998 - 1999 (MD)
Lori Kellam, 1998 – 2001 (PhD; currently postdoc with John Gearhart)
Jason Dapper, 2000 – 2001 (PhD)
Jeremy McDuffie, 2000 – 2002
Ayesha Elias, 2001 – 2003 (PhD)
Crystal Dover – 2001 – 2003
Pam Monahan, 2001 – 2003 (PhD; currently postdoc with Kelly Mayo)
Jennifer Luedtke – 2002 – 2003
Jessica Deane (University of Maine) – 2005
Jenny Tiskus (High school) – 2005
Rufus Nicholl (Oberlin College) – 2007 (BA)
Constantine Monzidelis (Gettysburg College) – 2008 (BA)
Kaitlin Laws (Clemson University) – 2008 (PhD, Johns Hopkins University)
Jesse Karppinen (College of the Atlantic) – 2011 (BA)
Muriel Schwinn (Hamilton College) – 2012 (BA)
Nadia Harerimana (College of the Atlantic) – (2015 -)

FACULTY MENTORING AT THE JACKSON LABORATORY

Mentoring Committees for 4 Assistant Professors
Research Grants Committee (this committee acts like a study section by reviewing proposals and meeting with all young faculty members one month prior to proposal submission)

TEACHING

U TN Courses:

Lower division: General Genetics

Upper division: Human Genetics (senior and graduate credit); Genetics Laboratory

Graduate: Mammalian Genetics and Genomics, Advanced Cell Biology, Advanced Developmental Biology, Seminars in Genetics and Development, Journal Club

JAX: organization of and participation in graduate courses through U Maine and Tufts

Courses: Functional Genomics, Positional Cloning Module, Foundations in Biomedical Sciences, Mammalian Genetics

JAX: Courses and Conferences courses: 21st Century Mouse Genetics, Colony Management

ACADEMIC & INSTITUTIONAL SERVICE

University of Tennessee

University Committees

College Scholars Committee, 1976 - 1979

Science and Mathematics Triad Committee, 1979 - 1982

Institutional Animal Care and Use Committee, 1979 - 1993

UT-ORNL Biomedical Graduate School Review, 1982 - 1983

Dean's Liberal Arts Advisory Committee, 1982 - 1984
University of Tennessee Biology Reorganization Task Force, 1983 - 1984
UT-ORNL Joint Life Sciences Review Committee, 1984 - 1985
Chair, UT-ORNL Graduate School Director Tenure Review, 1986
UT-ORNL Biomedical Graduate School Director Search, 1986 - 1987
Chair, Department of Microbiology Head Search, 1987 - 1988
Chair, Graduate Recruitment and Admissions, Graduate Program in Cellular, Molecular
and Developmental Biology, 1990 - 1993
Biology Reorganization Planning, 1990
Chair, Division of Biology Director Search, 1991 - 1993
Search Advisory Committee for Dean, College of Arts and Sciences, 1995 - 1996
Academic Hall of Fame Committee, 1995 - 1998
UT-ORNL Biomedical Graduate School Reorganization, 1998
University of Tennessee Focus Area Advisory Committee, Health and Biomedicine, 1998
- 2002
UT-ORNL School of Genome Science and Technology Steering Committee, 1998 - 2002

UT-ORNL School of Genome Science and Technology Curriculum Committee, Chair,
1998 - 2002

Department Committees

Zoology Department Undergraduate Curriculum Committee, 1973 - 1974
Zoology Department Zoology Department Graduate Affairs Committee, 1974 - 1977
Zoology Department Graduate Affairs Committee, Chair, 1975 - 1976
Zoology Department Physiological Ecologist Search Committee, 1977
Zoology Department Head Search Committee, 1977 - 1978
Zoology Department Cell Biologist Search Committee, 1978 - 1979
Zoology Department Planning Committee, 1979 - 1981
Zoology Department Research Review Committee, 1981 - 1982
Zoology Department Graduate Affairs Committee, 1983 - 1985
Zoology Department Developmental Biologist Search Committee, 1984
Zoology Department Head Search Committee, 1986
Zoology Department Geneticist Search Committee, Chair, 1989 - 1990
Zoology Department Undergraduate Curriculum Committee, 1991 - 1992
BCMB Department Graduate Curriculum Committee, 1995
BCMB Department Executive/Advisory Committee, 1995 -
BCMB Department Development Committee, 1995 - 1998
BCMB Department, Neurogeneticist Search Committee, 1998 – 1999
BCMB Department, Mammalian Geneticist Search Committee, Chair, 2001 – 2002
BCMB Department, Faculty Workload Committee, Chair, 2001-2002
BCMB Department, Curriculum Committee 2001-2002

Other University Service

Faculty, College of Liberal Arts Institute for Creative Leadership, 1992

The Jackson Laboratory and University of Maine

JAX Research Grants Committee, 2006 -
Chair, Pre- and Post-doctoral Training Committee, 2014; Member 2015 -
UConn-JAX ISG Planning Committee, 2012 - 2014
Chair, Education Cabinet, The Jackson Laboratory, 2012 - 2013
Scientific Director, Cooperative Predoctoral Program, 2008 –
ME INBRE Steering Committee Member, 2008 – 2016
Maine GSBS Steering Committee Member, 2008 -
JAX Postdoctoral Training Committee, 2004 – 2014
JAX K-16 Education Committee, 2011 - 2013
JAX Seminar Committee, 2004 – 2006
Chair, JAX Seminar Committee, 2005
JAX Cancer Core Support Grant Committee, 2005 – 2008
JAX Associate Director Search Committee, 2006-2007
Maine Functional Genomics Graduate Curriculum Committee, 2005 – 2008
ME INBRE Mentor, Dr. Antony Planchart (MDI Biological Laboratory and College of the
Atlantic)
NM INBRE Mentor, Dr. Carol Linder (New Mexico Highlands University)
ME INBRE Mentor, Dr. Jake Bateman (Bowdoin College)

Public Sector

Webb School of Knoxville, January 1995: Molecular Biology Laboratory Field Day;
Continuing Medical Education, Fort Sanders Health System, Molecular Medicine, Fall

1995: The Basic Biology behind the Clinical Applications (a course of 4 lectures),
Ijams Nature Center, Knoxville, TN, January 1996: Lecture to Naturalists on Cell Motility
O'Connor Senior Citizen Center, Knoxville TN, May 1996: Lecture on Human Genome
Thursday Luncheon Group, Knoxville TN, April 1997: Lecture on Human Genome Ethical
Issues
Heska Amuna Synagogue, Knoxville TN, February 1998: 4-week course on Jewish
Genetic Disease and Bioethics - Science and Ethics in the Next Century
Student Radio, UTK, Knoxville TN, February 1998: Interview on Human Cloning
Heska Amuna Synagogue, Knoxville TN, January - February 1999: 4-week course on
Human Cloning and Stem Cell Use
Public Schools:
Vine Middle School, October 1999: Opportunities for Women in Science (6th
grade)
South Doyle High School, November 1999: Human Genome Project (9th grade)
John Sevier Elementary School, January 2000: Human Traits (1st grade)
WATE Channel 6 News, June 2000: Interview on Human Genome
Knoxville Science Forum, Knoxville, TN, September 2001: Lecture on Stem Cell Therapy
Knoxville News-Sentinel, October 2001: Interview on Human Cloning
O'Connor Senior Citizen Center, Knoxville TN, October 2002: Lecture on Promise and
Potential of Stem Cells

COMMUNITY SERVICE

Board of Directors, Planned Parenthood of East Tennessee, 1979 - 1983, Secretary, 1980 -
1982; Planning Committee, 1981 - 1982; Chairperson, Education
Committee, 1980 - 1983
Member, Planned Parenthood of East Tennessee, 1979 -
Board of Directors, Heska Amuna Synagogue, 1991 - 1993; 1997 - 1999
Chairperson, Adult Education Committee, 1991 - 1993, Member, 1996 - 1999
Co-Chairperson, Career and Professional Women's Group of the Knoxville Jewish Federation,
1992 - 1993
Board of Directors, Planned Parenthood of East Tennessee, 1997 - 1999, Secretary, 1998,
Resource Committee, 1997 - 1998, Finance Committee, 1999
Ijams Nature Center Education Committee, 1997 - 1998
Conservation Commission, Town of Bar Harbor, ME, 2006 - 2012
Wild Gardens of Acadia Volunteer, Acadia National Park, ME, 2006 -