

EUGENE YUJUN XU

Position

Assistant Professor

Division of Reproductive Biology Research, Department of Obstetrics and Gynecology
Feinberg School of Medicine, Northwestern University

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Education

University of Chicago, Chicago, IL, Ph.D. , Genetics	1996
Chinese Academy of Sciences, Institute of Genetics, Beijing, China, M.S. , Medical Genetics	1988
Anhui Normal University, China, B.S. , Biology	1985

Career

Assistant Professor

Division of Reproductive Biology Research, Department of Obstetrics and Gynecology,
Northwestern University, IL Aug 2005-

Adjunct Assistant Professor

Center for Reproductive Sciences, Department of Obstetrics, Gynecology and Reproductive Sciences,
University of California, San Francisco, CA 2004-2005

Assistant Research Geneticist

Center for Reproductive Sciences, Department of Obstetrics, Gynecology and Reproductive Sciences,
University of California, San Francisco, CA 2002-2004

Postdoctoral Fellow

University of California-San Francisco, Reproductive biology 1999-02

Postdoctoral Fellow

Howard Hughes Medical Institute, Indiana University, Drosophila genetics 1996-99

Honors and Awards

- UC-Mexus Faculty fellowship (Mentor—Edmundo Bonilla) 2004-2005
- Serono 2004 Fellowship in Reproductive Endocrinology (Mentor—Nicholas Salmon) 2005--
- Session Chair on reproduction and aging in German-American Frontiers of Sciences Symposium Jun. 2003
- XVII North American Testis Workshop Travel Award Mar. 2003
- UCSF Academic Senate start-up grant 2002-2003
- First Prize in Research Presentation at UCSF CRS Retreat Apr. 2002
- Travel Award 2001 American Society of Reproductive Medicine Conference Oct. 2001
- NIH National Research Service Awards 1999-2002
- Alfred Sloan/NSF Postdoctoral Fellowship 1996-1998
- N.I.H. Genetics Training Grant Recipient 1994-1996

Research Interests

My career research goal is to understand the genetic and developmental mechanisms responsible for human reproduction, in particular, gamete production as well as how those mechanisms have evolved. In addition to the human genetics tools, I would like to take advantage of model organism systems such as mouse and fly to achieve my goals. My previous research has identified a candidate human meiotic regulator—*BOULE* and demonstrated the conservation of *Boule* gene at sequence, expression and functional levels from flies to human. These findings suggest that despite the strong selective pressure, components of reproductive pathways could still be conserved. **I hypothesize that there exists a conserved pathway regulating key steps of germline development and that the *BOULE* gene is the key regulator that controls the decision to enter meiosis in mammals.**

My current research is focused on:

1. Continuing characterization of mammalian *BOULE* genes through human mutation screening and the generation of mouse *Boule* mutation
2. Identifying proteins that interact with *BOULE*
3. Characterizing murine homologs of putative germline stem cell factor--*pumilio* in another key step of germline development—germline stem cell regulation
4. Identifying other conserved components of the reproductive pathways using comparative genomic approaches
5. Characterizing the function of potential conserved reproductive genes through screening mouse gene trap ES lines and subsequent analyses of mouse mutants

Professional activities

Poster Session Judge for UCSF Career and Research Day	Feb. 27, 2002
Organization committee for 2002 UCSF CRS retreat	Apr. 2002
Ad hoc Reviewers for Mechanism of Development	2002--
Member of American Association for the Advancement of Science	1999--
Steering Committee for NICHD Future of Male Contraception program	2003--

Invited lectures and conferences (past five years)

Xu, E. Y. (Aug 10th, 2004) Conserved regulators for key steps of mammalian germline development. Department of OBGYN, Northwestern University, Chicago, IL.

Xu, E. Y. (Aug 8th, 2004) Sperm development between man and fly: convergence or conservation ? Department of Biology, Indiana University, Bloomington, IL.

Xu, E. Y. (May 4th, 2004) Conserved regulators for key steps of mammalian germline development. Department of Cell Biology, University of Virginia, Charlottesville, VA.

Xu, E. Y. (Sept 9, 2003) Conserved elements in mammalian gametogenesis. Department of OBGYN, Yale University School of Medicine, New Haven, Connecticut.

Xu, E. Y. (June 7, 2003) The biology of aging: conservation in the regulation of life span and reproduction . 9th German-American Frontier of Science Symposium. National Academy of Sciences of

USA, Irvine, CA. June 4 - June 7, 2003

Xu, E. Y., A. Klebbs, P. Turek, T. Kornberg and R. Reijo Pera (March 26, 2003) Conservation of a key component of the meiotic regulatory machinery of *Drosophila* and humans. XVII North American Testis Workshop. Phoenix, Arizona. March 26-29, 2003

Xu, E. Y., D. Lee, P.J. Turek, T. Kornberg and R. Reijo Pera (Jan 26, 2002) Functional and evolutionary analysis of Human Boule—a conserved reproductive gene that rescues meiotic defects in flies carrying boule mutation. The Sixth Annual Reproductive Research Day, Stanford University

Xu, E. Y., D. Lee, P.J. Turek and R. Reijo Pera (Oct 2001) Mutation and SNP detection of human BOULE gene in normal and infertile men (Slide presentation). 57th Annual Meeting of the American Society of Reproductive Medicine

Xu, E. Y., F. Moore and R. Reijo Pera (Oct 2001) The evolutionary history of a human reproductive gene family—*DAZ* (*Deleted in Azoospermia*) family Annual Conference of American Society of Human Genetics, San Diego

Publications

Peer-reviewed publications

Xu, E. Y., D. Lee, A. Klebes, P. J. Turek, T. Kornberg and R. Reijo Pera (2003) Human BOULE rescues the meiotic defects in infertile flies Human Molecular Genetics. Vol 12(2):169-175.

Wu, C.-I. and **E. Y. Xu** (2003) Sexual antagonism and X inactivation- the SAXI hypothesis. Trends in Genetics 19(5): 243-7

Xu, E. Y., F. Moore, R. Reijo Pera (2001) From the cover: A gene family required for human germ cell development evolved from an ancient meiotic gene conserved in metazoans. PNAS Vol 98:7414-7419

Joyce Y. Tung, C. Marc Luetjens, Joachim Wistuba, **Eugene Y. Xu**, Renee A. Reijo Pera, Jörg Gromoll (2005) Evolutionary comparison of the reproductive genes, *DAZL* and *BOULE*, in primates with and without *DAZ* Genes, Development and Evolution accepted

Li, K., **E. Y. Xu**, J.Cecil, R.R. Turner, T. L. Megraw and T.C. Kaufman (1998) *Drosophila* centrosomin protein is required for male meiosis and assembly of the flagellar axoneme J. Cell Biology 141:455-467

C. Marc Luetjens, **E. Y. Xu**, Renee A. Reijo Pera, Axel Kamischke, Eberhard Nieschlag, Jörg Gromoll (2004) Association of meiotic arrest in infertile men and lack of BOULE protein expression. J. Clinical Endocrinology and Metabolism 89(4):1926-33

Y.-M. Kuo, J. Duncan, S. Westaway, H. Yang, G. Nune, **E. Y. Xu**, S. Hayflick, and J. Gitschier (2004) Deficiency in pantothenate kinase 2 in a mouse model for Hallervorden-Spatz Syndrome leads to retinal degeneration and azoospermia Human Molecular Genetics 14(1):49-57

Wu, C.-I., H. Hollocher, D.J. Begun, C. F. Aquadro, **E. Y. Xu** (formerly as Y. Xu) and Mao-Lien Wu (1995) Sexual isolation in *Drosophila melanogaster*: A possible case of incipient speciation. PNAS 92: 2519-2523

Zeng, Yi-tao, X. Qiu and **E. Y. Xu** (formerly as Y. Xu) (1988) Application of DNA RFLP analysis in prenatal diagnosis of DMD. Journal of Chinese Medicine, 8:107-563

Zeng Yi-tao, M. Zhang, M. Chen, **E. Y. Xu** (formerly as Y. Xu), and X. Qiu (1988) A study on RFLP of Xp21 region in a large DMD family. Journal of Shanghai Medicine, 11: 378-322.

Teaching

Formal Classroom Teaching

Genetics and Development (University of Chicago, Teaching Assistant, 1994)

Genetics (University of Chicago, Teaching Assistant, 1992)

Introduction to Genetics (University of Rochester, Teaching Assistant, 1990)

Other Teaching

Mentoring and supervision:

Nick Salmon (Jan 2005 --) Serono Reproductive Endocrinology Fellow

Edmundo Bonilla (Sept 2004--), visiting UC-Mexus faculty fellow, "Comparative genomic analysis of germline gene transcription between mice and flies".

Rhoda Chang (2004--), Research Associate, "Characterization of mouse mutations of *Boule* and *Pumilio*"

Vinh Nguyen (2005--), Research Associate, "Embryonic stem cell models for reproductive research"

Douglas Lee (2002-2003) Research Assistant, "SNP and mutations screening of *BOULE* gene in infertile men"

Research Support

Ongoing research support

U01 HD045871-01 NICHD 2003-2008 Functional genomic approaches to male contraception
\$149,000 (year 1 direct)

Past research support

NSF/Sloan postdoctoral fellowship 1996-1998

NIH National Research Service Award 1999-2002

UCSF Academic Senate start-up fund (2002-2003), Genetic characterization of a candidate human meiotic regulator, the *BOULE* gene. \$35000

Research Evaluation and Allocation Committee, UCSF Characterization of *DAZ* gene family in mammalian germline development \$25,000