

**BIOGRAPHICAL SKETCH**

NAME Ting Xie, Ph.D.		POSITION TITLE Associate Investigator	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Beijing Agricultural University, P.R. China	B.S.	1983-1987	Plant Genetics
Beijing Agricultural University, P.R. China	M.S.	1987-1990	Plant Genetics
Rutgers University, New Brunswick, NJ	Ph.D.	1991-1996	Molecular Biology and Biochemistry
Carnegie Institution of Washington, Baltimore, MD	Postdoc	1996-1999	Developmental Genetics

**A. Positions and Honors**

Positions Held

- 1987 – 1990 M.S., Research Assistant  
Department of Agronomy, Beijing Agricultural University, Beijing, China.  
Area of research: asparagus anther cultures.
- 1990 Research Scientist  
Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.  
Area of research: alfalfa tissue culture and transformation.
- 1991 Graduate Assistant  
Department of Horticulture, Rutgers University, New Brunswick, NJ.  
Area of research: asparagus tissue culture and transformation.
- 1992 – 1996 Graduate Busch Fellow  
Graduate Program in Molecular Biology and Biochemistry, Rutgers University and the University of Medicine and Dentistry of New Jersey, New Brunswick, NJ (with Dr. Richard W. Padgett)  
Area of research: *Drosophila* as a model system to study TGF- $\beta$ -like signaling pathway
- 1996 – 1999 Postdoctoral Fellow  
Carnegie Institute of Washington/Howard Hughes Medical Institute, Baltimore, MD (with Dr. Allan C. Spradling).  
Area of research: Using *Drosophila* ovarian germline stem cells as a model system to study adult stem cell regulation *in vivo*.
- 2000 – 2003 Assistant Investigator  
Stowers Institute for Medical Research, Kansas City, MO.  
Area of research: Mechanisms regulating stem cells in both *Drosophila* and mouse.
- 2004 – present Associate Investigator  
Stowers Institute for Medical Research, Kansas City, MO.  
Area of research: Mechanisms regulating stem cells in both *Drosophila* and mouse.

### Academic Honors and Fellowships

1984 – 1987 Highest honors from Beijing Agricultural University, Beijing, China  
1987 Excellent GPA Award from Beijing Agricultural University, Beijing, China  
1992 – 1995 Busch Predoctoral Fellowship from Rutgers University, New Brunswick, NJ  
2003 The M. R. and Evelyn Hudson Foundation Prize

### **B. Selected Peer-reviewed Publications**

**Ting Xie**, Alyce L. Finelli and Richard W. Padgett (1994). The *Drosophila saxophone* gene: a serine-threonine kinase receptor of TGF- $\beta$  superfamily. **Science** 263, 1756-1759.

Alyce L. Finelli, Cindy C. Bossie, **Ting Xie** and Richard W. Padgett (1994). Mutational analysis of the *Drosophila tolloid* gene, a human BMP-1 homologue. **Development** 120, 861-870.

Richard W. Padgett, Alyce L. Finelli, Cathy C. Savage, **Ting Xie** and Soe-Hee Cho (1995). The *tolloid*-related genes in invertebrates. In the book, “The Astacins-Structure and Function of a New Protein Family,” R. Zwillig and W. Stocker, eds.

Alyce L. Finelli, **Ting Xie**, Cyndy C. Bossie, Ronald K. Blackman and Richard W. Padgett (1995). The *tolkin* gene is a *tolloid*/BMP-1 homologue that is essential for *Drosophila* development. **Genetics** 141, 271-281.

A. C. Spradling, M. DeCuevas, D. Drummond-Barbosa, L. Keyes, M. Lily, M. Pepling and **Ting Xie** (1997). The *Drosophila* germarium: stem cells, germ line cysts, and oocytes. **Cold Spring Harbor Symposia on Quantitative Biology** Vol. LXII, 25-34.

**Ting Xie** and Allan C. Spradling (1998). *decapentaplegic* is essential for the maintenance and division of germline stem cells in the *Drosophila* ovary. **Cell** 94, 251-260.

Zhao Liu, **Ting Xie** and Ruth Steward (1999). *Lis1*, the *Drosophila* homolog of human lissencephaly disease gene is required for germline cell division and oocyte differentiation. **Development** 126, 4477-4488.

**Ting Xie** and Allan C. Spradling (2000). A niche maintaining germ line stem cells in the *Drosophila* ovary. **Science** 290, 328-330.

**Ting Xie** and Allan C. Spradling (2001). The *Drosophila* ovary: an *in vivo* stem cell system. **Stem Cell Biology** (Cold Spring Harbor Monograph Series), Dr. R. Marshak, R. L. Gardner and D. Gottlieb, eds., 129-148.

Xiaoqing Song, Chun-Hong Zhu, Chuong Doan and **Ting Xie** (2002). Germline stem cells anchored by adherens junctions in the *Drosophila* ovary niches. **Science** 296, 1855-1857.

Xiaoqing Song and **Ting Xie** (2002). DE-cadherin-mediated cell adhesion is essential for maintaining somatic stem cells in the *Drosophila* ovary. **PNAS**, 99, 14813-8.

Xiaoqing Song and **Ting Xie** (2003). *wingless* signaling is required for the maintenance and proliferation of somatic stem cells in the *Drosophila* ovary. **Development** 130, 3259-3268.

Chun-Hong Zhu and **Ting Xie** (2003). Clonal expansion of ovarian germline stem cells during niche formation in *Drosophila*. **Development** 130, 2579-2588.

Eihachiro Kawase, Marco D. Wong, Bee C. Ding and **Ting Xie** (2004). Two BMP-like signaling pathways directly control the maintenance of germline stem cells in the *Drosophila* testis. **Development** 131, 1365-1375.

Xiaoqing Song, Marco D. Wong, Eihachiro Kawase, Rongwen Xi, Bee C. Ding, John J. McCarthy and **Ting Xie** (2004). BMP signals from niche cells directly repress transcription of a differentiation-promoting gene, bag of marbles, in germline stem cells in the *Drosophila* ovary. **Development** 131, 1353-1364.

**Ting Xie**, Eihachiro Kawase, Daniel Kirilly and Marco D. Wong (2005). Intimate relationships with their neighbors: tales of stem cells in *Drosophila* reproductive systems. **Developmental Dynamics** 232, 775-790.

Marco Wong, Zhigan Ji and **Ting Xie** (2005). Molecular and genetic mechanisms underlying stem cell regulation in the *Drosophila* ovary. **Annu. Rev. Genet** 39, 173-195.

Linheng Li and **Ting Xie** (2005). Stem cell niche: Hypothesis, concept, structure and function. **Annu. Rev. Cell Dev. Biol.** 21, 605-631.

Rongwen Xi, Daniel Kirilly and **Ting Xie** (2005). Differences between germline stem cells and somatic stem cells. **Curr. Opin. Genet. Dev.** 15, 381-387.

Daniel Kirilly, Eric Spana, Norbert Perrimon, Richard Padgett and **Ting Xie** (2005). BMP signaling is required for maintaining somatic stem cells in the *Drosophila* ovary. **Developmental Cell** 9, 651-662.

Rongwen Xi and **Ting Xie** (2005). Pelota, a translation regulator, is essential for controlling self-renewal and division of germline stem cells in the *Drosophila* ovary. **Development** 132, 5365-5374.

Rongwen Xi and **Ting Xie** (2005). Stem cell renewal regulated by chromatin remodeling factors. **Science** 310, 1487-1489.

Zhigang Jin and **Ting Xie** (2006). Germline specification: small things have a big role. **Current Biology** 16, R966-967.

Zhigang Jin and **Ting Xie** (2007). Dcr-1 Maintains *Drosophila* ovarian stem cells. **Current Biology** 17, 539-544.

Xiaoqing Song, Gerald B. Call, Daniel Kirilly and **Ting Xie** (2007). Notch Signaling Controls Germline Stem Cell Niche Formation in the *Drosophila* Ovary. **Development** 134, 1071-1080.

Daniel Kirilly and **Ting Xie** (2007). The *Drosophila* ovary: an active stem cell community. **Cell Research** 17, 15-25.

**Ting Xie** and Linheng Li (2007). Stem cells and the niche: an inseparable relationship. **Development** 134, 2001-2006.

Lei Pan, Shuyi Chen, Changjiang Weng, Gerald Call, Dongxiao Zhu, Hong Tang, Nian Zhang, and **Ting Xie** (2007). Stem Cell Aging Is Controlled Both Intrinsically and Extrinsically in the *Drosophila* Ovary. **Cell Stem Cell** 1, 458-469.

Zhigang Jin, Daniel Kirilly, Changjiang Weng, Eihachiro Kawase, Xiaoqing Song, Sarah Smith, Joel Schwartz, and **Ting Xie**. (2008). Differentiation-Defective Stem Cells Outcompete Normal Stem Cells for Niche Occupancy in the *Drosophila* Ovary. **Cell Stem Cell** 2, 39-49.

## C. Research Support

### Ongoing support

1. “Molecular Mechanisms Regulating Stem Cells in the Mouse Testis and Eye.”  
Principal Investigator: Ting Xie, Ph.D.  
Agency: Stowers Institute for Medical Research  
Type: Stowers Institute for Medical Research Fund (SIMR 1002)  
Period: January 1, 2004 through December 31, 2009  
Long-term Objective: to understand the relationship between stem cells and their niche –in the mouse testis and eye – using transgenic and conditional gene knockout mice.
2. “Mechanisms Regulating Germline Stem Cells in the *Drosophila*”  
Principal Investigator: Ting Xie, Ph.D.  
Agency: NIGMS/NIH  
Type: 2 R01 GM64428-01  
Period: January 1, 2007 through December 31, 2011  
Long-term Objective: to understand how signals from niche cells regulate germline stem cell maintenance and differentiation in the *Drosophila* ovary.

### Completed

1. “Molecular Mechanisms Regulating Germline Stem Cells in the Mouse Testis.”  
Principal Investigator: Ting Xie, Ph.D.  
Agency: Stowers Institute for Medical Research  
Type: Stowers Institute for Medical Research Fund (SIMR 1002)  
Period: January 1, 2000 through December 31, 2003  
Long-term Objective: to understand the relationship between germline stem cells and their supporting cells – Sertoli cells – using transgenic and conditional gene knockout mice.
2. “Mechanisms Regulating Germline Stem Cells in the *Drosophila*”  
Principal Investigator: Ting Xie, Ph.D.  
Agency: NIGMS/NIH  
Type: 1 R01 GM64428-01  
Period: January 1, 2002 through December 31, 2006  
Long-term Objective: to understand how signals from niche cells regulate germline stem cell maintenance and differentiation in the *Drosophila* ovary.