Jingyue (Ellie) Duan Ph.D.
Sidney Frank Hall Room 367, 185 Meeting St.
Brown University, Providence, RI 02912
Phone: 860-208-6226, Email: jd774@cornell.edu

SUMMARY

Animal biologist with strong computational biology training who aims to lead an interdisciplinary and independent research program to decipher the transgenerational effect of spermatogenesis and oogenesis on early development by combining genomic experimental approaches with computational modeling. My research group will also translate our findings to provide new insights that will be beneficial to both animal and human health. Our approach will combine embryology, molecular biology, next generation sequencing, multi-omics and computational biology.

EDUCATION

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Sichuan University, Chengdu, China	B.S.	06/2014	Life Science and Biology (Mount Everest Plan*)
University of Connecticut, CT, USA	Non-degree	2013-2014	Microbiology and Food Science
University of Connecticut, CT, USA	M.S.	10/2017	Animal Genomics
University of Connecticut, CT, USA	Certificate	5/2018	Certificate in College Instruction
University of Connecticut, CT, USA	Ph.D.	12/2018	Animal Genomics

* *Mount Everest Program: an experimental program to train the top 2% students of basic disciplines in top 10 Universities started in 2009. The program was initiated by China's Ministry of Education to address the question: "Why our universities always fail to produce innovative talents?"*

RESEARCH EXPERIENCES

Mar. 2019 - present: Postdoctoral Research Associate, Department of Molecular Biology, Cellular Biology and Biochemistry (MCB). Brown University, Providence, RI,
Advisor: Dr. Erica Larschan

1. Role of the CLAMP zinc finger transcription factor (TF) in regulating X-chromosome dosage compensation initiation in *Drosophila* early embryos.
2. The early transcription factors CLAMP and Zelda cooperate to regulate the maternal-to-zygotic transition in *Drosophila* early embryos.
3. Determine the pioneer factor function of CLAMP by nucleosome gel shift.
4. Define the biochemical features of the CLAMP TF as it undergoes phase transition.

Jan. 2019 - Mar.15 2019: Postdoctoral Researcher, Department of Animal Science, UCONN, Storrs, CT, Advisor: Dr. Xiuchun (Cindy) Tian

1. Determine the toxicity of plant derived essential oil eugenol and trans-cinnamaldehyde in mice by intermuscular injection.
2. Develop the protocol for RNA-seq library preparation of *Mycoplasma Bovis.*

Aug. 2014 - Dec. 2018: Graduate student, Department of Animal Science, UCONN, Storrs, CT
Advisor: Dr. Xiuchun (Cindy) Tian

1. Methylome profiling of bovine single pre-implantation embryos by whole genome bisulfite sequencing (WGBS) and reduced representative bisulfite sequencing (RRBS).
2. Methylation profile of bovine embryonic mitochondrial DNA.
3. Effects of poor maternal nutrition during gestation on genomic imprinted genes in sheep day 135 fetuses by RNA and DNA sequencing.
4. Effects of poor maternal nutrition during gestation on gene expressions in sheep fetal brain, kidney, lung and placenta.
5. X-chromosome dosage compensation in bovine germlines, somatic tissues, pre-implantation development and cloned days 25, 45, 75 conceptus, and sheep somatic tissues and fetuses.
6. The effects of cloning technology on fetal tissues and fetal membrane gene expression.
7. Proteomics of whole bovine sperm.

Sep. 2013 - June 2014: Senior Undergrad Thesis Research, Animal Science, UCONN, Storrs, CT
Advisor: Dr. Kumar Venkitanarayanan

1. Effect of eugenol and rutin hydrate on virulence factors of *Vibrio parahaemolyticus*.

Sep. 2012 - June 2013: Undergrad Independent Research, College of Life science, SCU, Chengdu, China
Advisor: Dr. Qun Sun

1. Genotyping of Beijing family of *Mycobacterium tuberculosis* isolates from Sichuan with MIRU-VNTR.
2. The influence of animal age and muscle source on the oxidative stability of yak steaks.

Mar. 2012-June 2012: Undergrad Research Training, College of Life science, SCU, Chengdu, China
Advisor: Dr. Yi Yang

1. Resistance of Trans-Heat resistant gene *BnTR1* in rice under cold, hot and high salt environment.

PUBLICATIONS

Review article

1. **Duan J** and Larschan E. **(2019)** Dosage Compensation: How to Be Compensated…Or Not? ***Current Biology***. https://doi.org/10.1016/j.cub.2019.09.065

Peer-reviewed full-length publications

2. **Duan JE**, Jiang Z, Alqahtani F, Mandoiu I, Dong H, Zheng X, Marjani S, Chen J and Tian XC. (**2019**) *Whole genome bisulfite sequencing of bovine in vivo gametes and preimplantation embryos.* ***Frontier of Genetics*** doi: 10.3389/fgene.2019.00512
3. **Duan JE,** Flock K, Jue N, Zhang M, Jones A, Seesi S, Mandoiu I, Pillai S, Hoffman M, O'Neill R, Zinn S, Govoni K, Reed S, Jiang H, Jiang Z and Tian XC. (**2019**) *Dosage Compensation and Gene Expression of the X Chromosome in Sheep.* ***G3: Genes Genomes Genetics*** https://doi.org/10.1534/g3.118.200815 selected to publish in **GSA Journal Spotlight 2019**
4. **Duan JE**, Jue NK, Jiang Z, O'Neill R, Wolf E, Blomberg LA, Talbot N, Dong H, Zheng X, Chen J, and Tian XC. (**2019**) *Dosage compensatory of X chromosome in bovine germline cells, early developmental embryos and somatic cells.* ***Genome Biology and Evolution*** doi: 10.1093/gbe/evy270
5. **Duan JE**, Zhu L, Dong H, Zheng X, Chen J, Jiang Z, and X. Tian. (**2019**) *Abundance of mRNA for histone variants, histone, and DNA modification enzymes in bovine in vivo oocytes and pre-implantation embryos.* ***Scientific Reports*** doi: 10.1038/s41598-018-38083-4
6. **Duan JE**, Zhang M, Flock K, Seesi S, Mandoiu I, Jones A, Johnson E, Pillai S, Hoffman M, Mcfadden K, Jiang H, Reed S, Govoni K, Zinn S, Jiang Z and Tian XC (**2018**). *Effects of Maternal Nutrition on the Expression of Genomic Imprinted genes in Ovine Fetuses.* ***Epigenetics*** doi: 10.1080/15592294.2018.1503489
7. Jiang Z, Lin J, Dong H, Zheng X, Marjani SL, **Duan JE**, Ouyang Z, Chen J, and Tian XC. (**2018**) *DNA methylomes of bovine gametes and in vivo produced preimplantation embryos.* ***Biology of Reproduction*** doi:10.1093/biolre/ioy138
8. Wang L, Jiang Z, Huang D, **Duan J**, Huang C, Sullivan S, Vali K, Yin Y, Zhang M, Wegrzyn J, Tian XC, and Tang Y (**2018**) JAK/STAT3 regulated global gene expression dynamics during late-stage reprogramming process. ***BMC Genomics*** 19:183 doi:10.1186/s12864-018-4507-2
9. Huang D, Wang L, **Duan J**, Huang C, Tian XC, Zhang M, and Tang Y (**2018**) LIF-activated Jak signaling determines Esrrb expression during late-stage reprogramming. ***Biology Open*** doi:10.1242/bio.029264
10. Wen W, Luo X, Xia B, Guan J, Nie Y, Li L, **Duan J,** Suman SP, and Sun Q. (**2015**) *Post-mortem oxidative stability of three yak (Bos grunniens) muscles as influenced by animal age.* ***Meat science*** doi: 10.1016/j.meatsci.2015.03.014.
11. Feng Q, Jing Y, Huang Z, **Duan J,** Zhen C, Sun H, Zhong J, and Sun Q. (**2014**) *Genotyping of Beijing family of Mycobacterium tuberculosis isolates from Sichuan with MIRU-VNTR.* ***Journal of Sichuan University (Medical Science Edition)*** doi: 103969/j.issn.0490 6756.2014.04.036

Manuscripts in Preparation

1. **Duan JE*,** Reider L*, Larschan E. **(2020)** *The transcription factors cooperate to regulate the maternal-to-zygotic transition in Drosophila embryos* **(under review eLife)**

Undergraduate Honor Thesis

Duan J (2014): *Effect of eugenol and rutin hydrate on virulence factors of Vibrio parahaemolyticus. SCU*

Published Conference abstract and associated presentations

1. **Duan JE**, Rieder LE, and Larschan EN. *Cooperation among transcription factors CLAMP, GAF and Zelda during the maternal-to-zygotic transition in the Drosophila early embryo*
   - Poster presentation at Mechanisms of Eukaryotic Transcription, CSHL, 2019
2. **Duan JE**, Jiang Z, Alqahtani F, Mandoiu I, Dong H, Zheng X, Marjani S, Chen J and Tian XC. (**2019**) *Whole genome bisulfite sequencing of bovine in vivo gametes and preimplantation embryos.*
   - Poster presentation at Epigenetics & Chromatin Meeting, CSHL, 2018
   - Oral presentation at the 44nd Annual meeting of IETS, 2019
3. Jiang Z, **Duan J**, Wang T, Zhang M, Tian X, and Seli E. (**2018**) *Evaluating mitochondrial stress response gene CLPP regulated DNA methylome dynamics in female reproductive aging.* ASRM.
4. L.N. Engels, M.C. Wynn, B.I. Smith, M.L. Hoffman, A.K. Jones, S.M. Pillai, S.A. Reed, S.A. Zinn, **J.E. Duan**, X.C. Tian, and K.E. Govoni (**2018**). *The Effects of Poor Maternal Nutrition on Fetal Brain Development.* ASAS.
5. **Duan JE**, Zhang M, Flock K, Seesi SA, Mandoiu I, Jones AK, Pillai SM, Hoffman ML, Jiang H, Reed SA, Govoni KE, Zinn SA, Jiang Z and Tian XC (**2018**). *Effects of Maternal Nutrition on Genomic Imprinting in Fetal Sheep.* PAG.
   - Oral presentation at Graduate Research Forum, College of Agriculture and Natural Resources, UCONN. 03. 2018
   - Oral and poster presentation at Plant & Animal Genome XXVI conference. San Diego, CA. 01. 2018
   - Poster presentation at Institute for Systems Genomics 5-year Celebration, UCONN, Storrs, CT. 11. 2017
6. **Duan J**, Flock K, Zhang M, Hoffman M, Pillai SM, Jones AK, Jiang H, Zinn SA, Reed SA, Govoni KE, Jue NK, O'Neill R, Jiang Z, Tian XC (**2018**) *Dosage compensation of the X chromosome in ovine embryos, late gestation, and adult somatic tissues.* Reproduction, Fertility and Development 30(1) 194-194.
7. **Duan JE**, Jue NK, Jiang Z, O'Neill R, Wolf E, Blomberg LA, Dong H, Zheng X, Chen J, and Tian XC. (**2017**) *Incomplete compensatory up-regulation of X-linked gene in bovine germline cells, early developmental embryos and somatic cells.* Reproduction, Fertility and Development 29(1) 171-171.
   - Poster presentation at Graduate Research Forum, College of Agriculture and Natural Resources, UCONN 3/2017
   - Poster presentation at the 43rd IETS, Austin TX. Jan 2017 **(Best Poster Runner-up Award)**
8. Zhu L, Jiang Z, **Duan JE**, Dong H, Zheng X, Donovan D, Talbot N, Chen J, and Tian XC. (**2017**) *Abundance of mRNA for histone variants, histone, and DNA modification enzymes in bovine in vivo oocytes and pre-implantation embryos.* Reproduction, Fertility and Development 29(1) 172-172.
9. **Duan JE**, Jue NK, Jiang Z, O'Neill R, Wolf E, Blomberg LA, Dong H, Zheng X, Chen J, and Tian, XC. (**2016**) *Dosage compensation and X-linked gene expression in bovine in vivo and in vitro embryos.* Reproduction, Fertility and Development 28(2) 202-202.
   - Oral presentation at Graduate Research Forum, College of Agriculture and Natural Resources, UCONN. 3/2016 **(Best oral presentation)**
   - Poster presentation at the 42nd IETS, Louisville KY. Jan 2016

RESEARCH SKILLS

1. **Bioinformatics and Animal Genomics**: NGS Data analysis pipelines for RNA-seq, ChIP-seq, ATAC-seq, SNP analysis, WGBS, and RRBS; Ensembl Genome Browser, UCSC Genome Browser, NCBI Database Search, DAVID, KEGG and BLAST
2. **Programming languages**: UNIX/LINUX Shell Scripting, awk, R, Matlab, Perl
3. **Next generation sequencing**: single embryo RNA-seq, single embryo DNA-seq, single embryo WGBS-seq, ATAC-seq library preparation
4. **Molecular Biology:** Protein Co-IP, western blot, electrophoretic mobility shift assay, immunostaining, PCR, qPCR, DNA/RNA/Protein extraction, agarose and polyacrylamide gel electrophoresis, microbial culture, cell culture
5. **Embryology**: fly embryo staging, bovine embryo *in vitro* fertilization

TEACHING AND MENTORING EXPERIENCE

1. Oct. 31th, 2019: Guest lecture "**Method in Genome engineering /Genome-editing: ZFN, TALEN and CRISPR/Cas9**" in Animal Embryology and Biotechnology (ANSC3323/5621), ANSC, UCONN.
2. Dec.4th, 2018: Guest lecture "**Epigenetics--Genomic Imprinting and X Chromosome Inactivation**" in Animal Embryology and Biotechnology (ANSC3323/5621), ANSC, UCONN.
3. Apr. 18th, 2018: Guest lecture "**Animal Genetic Testing and Genomic Selection**" in Animal Breeding and Genetics (SAAS121), ANSC, UCONN.
4. Nov. 10th, 2017: "**Ensembl genome browser tutorial**" in Principles of Animal Genetics (ANSC3121), ANSC, UCONN.
5. Sep. 21st, 2017 and Sep.18th, 2018: Guest lecture "**Preimplantation Genetic Diagnosis**" in Embryo Biotechnology (ANSC3323/5621), ANSC, UCONN.
6. Nov. 4th, 2016 Guest lecture "**X chromosome inactivation**" in Principles of Animal Genetics (ANSC3121), ANSC, UCONN.
7. Fall 2016: Graduate Teaching Assistant in **Reproductive Physiology** (ANSC3122), ANSC, UCONN.
8. Fall 2015, 2017, 2018: Graduate Teaching Assistant in **Animal Embryology and Biotechnology** (ANSC3323/5621), ANSC, UCONN.

Mentoring:

1. 2014-2019: Mentored UConn undergrad and fellow graduate students on RNA-seq data analysis, and use of Ensembl genome browser, UCSC genome browser, NCBI database search, DAVID and BLAST.
2. 2019-present: Mentoring two Brown undergrad students Mary McKenney and Annie Huang in fly cross set up, fly dissection, molecular biology experiments, immunostaining and electrophoretic mobility shift assay.

ACADEMIA CONFERENCES

1. Oct. 2020 Frontiers in Single Cell Genomics (Virtual), CSHL
2. Sep. 2020 Epigenetics & Chromatin (Virtual), CSHL

3. April 2020 Genome Organization & Nuclear Function (Virtual), CSHL
4. March 2020 The Allied Genetics Conference (Virtual), GSA
5. Sep. 2019: Mechanism of Eukaryotic Transcription, CSHL, NY
6. Mar. 2019: The 60th Drosophila conference, Dallas, TX
7. Jan. 2019: The 44nd Annual meeting of IETS, New Orleans, LA
8. Sep. 2018: Epigenetics & Chromatin, CSHL, NY
9. Jan. 2018: Plant & Animal Genome XXVI conference. San Diego, CA
10. June 2017: Impact of CRISPR on Imprinting Disorders. Institute for Systems Genomics, Storrs, CT
11. Jan. 2017: The 43rd Annual meeting of the IETS, Austin TX
12. Jan. 2016: The 42nd Annual meeting of International Embryo Transfer Society (IETS), Louisville KY
13. Sep. 2012: National Conference of Microbial genetics. Southwestern University, Chongqing, China
14. July 2012: Global conference of Chinese geneticists. Zhejiang University, Hangzhou, China

PROFESSIONAL DEVELOPMENT ACTIVITIES

1. Oct 2020: NIH grant writing workshop- Virtual Event
2. July 2020: 23rd Annual NIEHS Biomedical Career Symposium- Virtual Event
3. July 2020: Diversity & Inclusion in STEM Community Conversation, Brown University, RI
4. Oct. 2019: Women in STEM Symposium, Brown University, RI
5. Oct. 2018: Invited participant: Institute on Teaching and Mentoring, VA
6. Jun. 2018: Preparing Future Faculty workshop, Stony Brook university, NY
7. Apr. 2018: 3 Minute Thesis competition, UCONN, Storrs, CT
8. July 2017: The 22nd Summer Institute in Statistical Genetics at the University of Washington in Seattle, Seattle, WA
9. May 2013: Institute Pasteur of Shanghai Course: Detection, isolation, identification, collection and storage of Respiratory Virus, Institute Pasteur, Shanghai, China
10. Aug. 2012: Summer Camp "Swedish Nature". Uppsala University, Uppsala, Sweden
11. July 2011: The “Environment and natural resources” Fieldwork Research at Ruoergai Grasslands, Tibet Plateau, China
12. 2010-2014: Undergrad Training Plan in Basic Disciplines (**Mount Everest Plan**), Life Science department, SCU, China

HONORS AND AWARDS

1. 2020 Postdoc Conference Award, Brown University, RI
2. 2019 Postdoc Travel Award, Brown University, RI
3. 2019 International Travel and Registration Award for six student competition finalists. International Embryo Technology Society (IETS) Foundation, New Orleans, Louisiana
4. 2018 Travel and Registration award, Institute for Teaching and Mentoring, Arlington, Virginia
5. 2018 Epigenetics & Chromatin Meeting Financial aid, Cold Spring Harbor Laboratory

6. 2018 Preparing Future Faculty Scholarship and Travel Fund, Stony Brook University
7. 2018 ANSC Outstanding Graduate (Ph.D.) Student award, UCONN
8. 2018 3 Minute Thesis Competition finalist, UCONN
9. 2018 Doctoral Dissertation Fellowship, UCONN
10. 2018 Doctoral Student Travel Award, UCONN
11. 2017 Travel and Registration Scholarship to attend the 22nd Summer Institute in Statistical Genetics, University of Washington in Seattle
12. 2017 Best Poster Presentation Runner-up Award, IETS
13. 2016 Outstanding Self-financed Xinjiang Students Studying Abroad Scholarship
14. 2016 Jerry Yang Summer Fellowship, ANSC, UCONN
15. 2016 Oral Presentation Award, Graduate Research Forum, CANHR, UCONN
16. 2012-2014 First-Class Scholarship at Sichuan University each year for three years, SCU
17. 2011 Third-Class Scholarship at Sichuan University, SCU

PEER REVIEW AND PROFESSIONAL SERVICE

Reviewer for the following scientific journals:

a) 2020 Journal (date): BMC Biology (3/12), Animal Genetics (7/19)
b) 2019 Journal (date):
   1) Nature Communication (3/4)
   2) EMBO Reports (3/27)
   3) PLOS One (4/17)
   4) Molecular Biology and Evolution (5/28)
   5) Theriogenology (6/10)
   6) Cellular reprogramming (6/28)
   7) Journal of Reproduction (7/3)
   8) BMC Genomics (7/16)
   9) Scientific Data (8/22)
   10) PLOS One (9/22)
   11) *Cells* (11/23)
c) 2018 Journal: Reproduction, Fertility and Development: (11/14)
d) 2017 Journal: BCM genomics (5/4), (9/17); Biology of Reproduction (5/19); PLOS ONE (11/6)

Professional Memberships

1. 2019 - present Genetics Society of America (GSA)
2. 2017 - 2018 Plant & Animal Genome (PAG)
3. 2015 - 2019 International Embryo Technology Society (IETS)
4. 2014 - 2017 American Association for the Advancement of Science (AAAS)

Lab and Department Services

1. Lab management: lab contact person, data management, lab orders, instrument log, user training and annual maintenance
2. Graduate Student Council, College of Agriculture (2017-2018)
3. Event coordinator, Department of Animal Science Graduate Student Association (2016-2017)

GRANT WRITING EXPERIENCE

1. Aug. 2019. Damon Runyon Postdoc Scholarship: Define pioneer transcription factors function in male fertility and prostate cancer. **PI.** Not funded.
2. Oct. 2019. AACR Anna D. Barker Research Fellowship. Define pioneer transcription factors function in male fertility and prostate cancer. **PI.** Not funded.

GEO DATA SUBMISSIONS

1. **GSE121758: Duan JE**, Jiang Z, Alqahtani F, Mandoiu I, Dong H, Zheng X, Marjani S, Chen J and Tian XC. *Whole genome bisulfite sequencing of bovine in vivo gametes and preimplantation embryos.* 2019
2. **GSE111306**: **Duan JE**, Zhang M, Flock K, Seesi SA, Mandoiu I, Jones AK, Pillai SM, Hoffman ML, Jiang H, Reed SA, Govoni KE, Zinn SA, Jiang Z, Tian XC. *Effects of Maternal Energy Intake on Genomic Imprinting in Fetal Sheep*. 2018
3. **GSE110400**: Jiang Z, Lin J, Dong H, Zheng X, Marjani SL, **Duan J**, Ouyang Z, Chen J, Tian XC. *DNA methylomes of the bovine gametes and in vivo preimplantation embryos*. 2018
4. **GSE97261**: Wang L, Jiang Z, Huang D, **Duan J**, Huang C, Sullivan S, Vali K, Yin Y, Zhang M, Wegrzyn J, Tian X, Tang Y. *Jak/Stat3 regulated global gene expression dynamics during late-stage reprogramming process.* 2017

REFERENCES

Dr. Xiuchun (Cindy) Tian (Ph.D. advisor)
Professor
Department of Animal Science, University of Connecticut
1390 Storrs Road, Storrs, Connecticut 06269-4163
Office: ABL 220D
Tel: (860) 486-9087; Email: xiuchun.tian@uconn.edu

Dr. Erica Larschan (Post-doc advisor)
Richard and Edna Salomon Associate Prof. of Biology
Department of Molecular Biology, Cellular Biology and Biochemistry, Brown University
Sidney Frank Hall Room 368
185 Meeting St. Providence, RI 02912
tel: 401-863-1070
Email: erica_larschan@brown.edu

Dr. Ion Mandoiu (Ph.D. advisory committee member and collaborator)

Curriculum Vitae of Dr. Jingyue (Ellie) Duan

Professor
Computer Science & Engineering Department, University of Connecticut
371 Fairfield Way, Storrs, CT 06269-4155
Office: ITEB 261
Tel: 860-486-3784
E-mail: ion@engr.uconn.edu