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EDUCATION

2004 – 2008	**Postdoc**	University of North Carolina at Chapel Hill, NC, USA Advisor: Dr. Cam Patterson	Cell Biology
2000 – 2004	**Postdoc**	National Institutes of Health (NIAID), MD, USA Advisor: Dr. Jonathan W. Yewdell	Cell Biology
1997 – 2000	**Ph.D.**	Shanghai Jiaotong University, P. R. China Advisor: Dr. Shi-Shu Chen	Biochemistry
1994 – 1997	**M.Sc.**	Shanghai Jiaotong University, P. R. China	Molecular Biology

ACADEMIC APPOINTMENTS

2018 – Present	**James Jamison Professor** Division of Nutritional Sciences, Cornell University, Ithaca, NY
2014 – Present	**Associate Professor** Division of Nutritional Sciences, Cornell University, Ithaca, NY
2008 – 2014	**Assistant Professor** Division of Nutritional Sciences, Cornell University, Ithaca, NY
2004 – 2008	**Research Fellow (postdoc)** Carolina Cardiovascular Biology Center, University of North Carolina, Chapel Hill, NC
2000 – 2004	**Visiting Fellow (postdoc)** Cell Biology Section, Laboratory of Viral Diseases, NIAID, NIH, Bethesda, MD
1997 – 2000	**Lecturer** Department of Biochemistry & Molecular Biology, Shanghai Jiaotong University Shanghai, P. R. China

HONORS AND AWARDS

2016	**HHMI Faculty Scholar**, Howard Hughes Medical Institute
2014	**DOD Idea Award**, Congressionally Directed Medical Research Programs
2013	**Peter J. Reeds Young Investigator Award**, American Association of Nutrition
2010	**DOD Exploration-Hypothesis Development Award**, Congressionally Directed Medical Research Programs
2009	**NIH Director's New Innovator Award**, National Institutes of Health
2009	**EMF New Scholar Award**, Ellison Medical Foundation
2003	**FARE 2004**, NIH Fellows Award for Research Excellence, National Institutes of Health
2002	**FARE 2003**, NIH Fellows Award for Research Excellence, National Institutes of Health
1999	**National Baogang Fellowship**, Department of Education, China

PROFESSIONAL SOCIETIES

2016	American Association for the Advancement of Science (AAAS)
2015	RNA Society
2011	American Society of Nutrition (ASN)
2010	American Society for Biochemistry and Molecular Biology (ASBMB)

EDITORIAL BOARD

2018 Editorial Board Member, *J Biol Chem*

JOURNAL ARTICLE REVIEWER

Nature (2)
Nature Chemical Biology (3)
Nature Structural & Molecular Biology (6)
Nature Cell Biology (5)
Nature Methods (2)
Nature Communications (10)
Nature Protocol (1)
Nature Review MCB (1)
Nature Review Genetics (1)
Scientific Reports (1)
J Biol Chem (5)
Open Biology (1)
Journal of Cell Stress and Chaperone (1)
Cell (2)
Molecular Cell (9)
Cell Reports (7)
Cell Metabolism (1)
Plant Cell (1)
EMBO J (1)
EMBO Report (1)
Bioinformatics (1)
BMC Genomics (1)
PLOS One (2)
PLOS Pathogen (1)
PLOS Computational Biology (1)
PLOS Genetics (1)
Proc Natl Acad Sci USA (3)
eLife (4)
RNA (4)
Nucleic Acid Research (6)
Molecular & Cellular Biology (1)
Genome Biology (4)
Aging Cell (1)
Journal of Immunology (1)
WIREs RNA (1)
Oncotarget (1)
Current Biology (1)
Advances in Nutrition (1)

GRANT PANELS

2019 US National Institutes of Health (NIH Director's New Innovator Award: ZRG1-MOSS-R70)

2018 US Department of Defense (TSC Research Program)
European Research Council (Advanced Grant)
US National Institutes of Health (NIH study section: CAMP)
Cancer Research UK (Expert Review Panel)
US National Institutes of Health (NIH study section: NDPR)
French National Research Agency (ANR)

2017 W. M. Keck Foundation
European Research Council (Consolidation Grant)
US National Institutes of Health (NIH study section: CAMP)

2016 Helmholtz Association (Young Investigator Award)
French National Research Agency (ANR)
European Research Council (Advanced Grant)
US National Institutes of Health (NIH, study section: ZRG1)

2015 UK Biotechnology and Biological Sciences Research Council (BBSRC)
US National Science Foundation (MCB)

2014 Israel Science Foundation (ISF)
Wellcome Trust (Sir Henry Dale Fellowship)

2013 US Department of Agriculture (Human Nutrition)
UK Medical Research Council (MRC)
Israel Science Foundation (ISF)
US National Institutes of Health (NIH, study section: CMAD)

2012 Human Frontier Science Program (HFSP)
US Department of Defense (TSC Research Program)

SERVICE TO CORNELL UNIVERSITY

2017 Genome Biology Initiative Task Force, Cornell University
2014 Graduate field of Biological and Biomedical Sciences (BBS), Cornell University
2012 Leadership Program for Veterinary Students, Cornell University
2010 Chemical Biology Interface (CBI) program, Cornell University
2010 Graduate field of Biochemistry, Molecular and Cellular Biology (BMCB), Cornell University
2009 Center for Vertebrate Genomics, Cornell University

2009 Graduate field of Genetics, Genomics & Development (GGD), Cornell University
2008 Graduate field of Nutritional Sciences (NS), Cornell University

SERVICE TO THE DEPARTMENT

2017 Graduate Admission Committee, Nutritional Sciences, Cornell University
2016 Faculty Search Committee, Division of Nutritional Sciences, Cornell University
2015 Awards and Nominations Committee, Division of Nutritional Sciences, Cornell University
2014 - 2016 Graduate Admission Committee, Biochemistry Molecular and Cellular Biology, Cornell University
2013 - 2016 Seminar Committee, Division of Nutritional Sciences, Cornell University
2011 - 2014 Curriculum Committee, Division of Nutritional Sciences, Cornell University
2010 - 2012 Graduate Admission Committee, Nutritional Sciences, Cornell University

PUBLICATIONS

PDF: http://qian.human.cornell.edu/Publications.htm

Google Scholar: https://scholar.google.com/citations?user=JQ4hmo4AAAAJ&hl=en
Total citations (as of this month): 4015; *h*-index: 26; i10-index: 35

Peer-Reviewed Publications (corresponding author)*

1. Liu X-M and Qian SB. Assembly en route. **Nat Struct Mol Biol** 2019; (in press)
2. Xi R, Kadur Lakshminarasimha Murthy P, Tung KL, Guy CD, Wan J, Li F, Wang Z, Li X, Varanko A, Rakhilin N, Xin Y, Liu B, Qian SB, Su L, Han Y, Shen X. SENP3-mediated host defense response contains HBV replication and restores protein synthesis. **PLOS One** 2019; 14(1):e0209179
3. Wan J, Gao X, Mao Y, Zhang X, Qian SB. A coding sequence-embedded principle governs translational reading frame fidelity. **Research** 2018 (in press).
4. Zhang X, Shu XE, Qian SB. O-GlcNAc modification of eIF4GI acts as a translational switch in heat shock response. **Nat Chem Biol** 2018; 14(10):909-916.
5. Anders M, Chelysheva I, Goebel I, Trenkner T, Zhou J, Mao Y, VerziniS, Qian SB, Ignatova Z*. Dynamic m6A methylation facilitates mRNA triaging to stress granules. **Life Sci Alliance** 2018; 1(4)
6. Mazor KM, Dong L, Mao Y, Swanda RV, Qian SB, Stipanuk MH. Effects of single amino acid deficiency on mRNA translation are markedly different for methionine versus leucine. **Sci Reports** 2018; 8(1):8076.
7. Zhou J, Wan J, Xin ES, Mao Y, Liu XM, Xin Y, Zhang X, Martin EH, Jens CB, and Qian SB*. 6-Methyladenosine Guides mRNA Alternative Translation during Integrated Stress Response. **Mol Cell** 2018; 69(4):636-647.
   - Highlighted in **Previews**
   - Featured on the **Cover**
8. Li X, Xiong X, Chen Y, Zhang M, Wang K, Zhou J, Mao Y, Yi D, Chen X-W, Wang C, Qian SB, and Yi C*. Single-nucleotide resolution mapping reveals distinct classes of N^1-methyladenosine methylome in nuclear- and mitochondrial-encoded transcripts. **Mol Cell** 2017; 68(5):993-1005.
   - Highlighted in **Previews**
9. Coots RA, Liu XM, Mao Y, Dong L, Zhou J, Wan J, Zhang X, Qian SB*. m^6A facilitates eIF4F-independent mRNA translation. **Mol Cell** 2017; 68(3):504-514.
10. Tang L, Morris J, Wan, J, Moore C, Fujita Y, Gilaspie S, Aube E, Nanda J, Marques M, Jangal M, Anderson A, Cox C, Hiraishi H, Dong L, Saito H, Singh CR, Witcher M, Topisirovic I, Qian SB, and Asano K*. Competition between translation initiation factor eIF5 and its mimic protein 5MP determines non-AUG initiation rate genome-wide. **Nucleic Acids Res** 2017; 45(20):11941-11953
11. Saikia M*, Wang X, Mao Y, Wan J, Pan T and Qian SB*. Codon optimality controls differential mRNA translation during amino acid starvation. **RNA** 2016; 22(11):1719-1727
12. Liu B and Qian SB*. Characterizing inactive ribosomes in translational profiling. **Translation** 2016 4(1):e1138018
13. Qian SB. Step back for seminal translation. **Nat Struct Mol Biol** 2016; 232(5):362-3

14. Zhou J, Rode KA, and Qian SB*. m^{6}A: A novel hallmark of translation. **Cell Cycle** 2015; 10:1-2
15. Meyer KD, Patil DP, Zhou J, Zinoviev A, Skabkin MA, Elemento O, Pestova TV, Qian SB and Jaffrey SR. 5' UTR m^{6}A promotes cap-independent translation. **Cell** 2015; 163(4):999-1010
16. Zhou J, Wan J, Gao, X, Zhang X and Qian SB*. Dynamic m^{6}A mRNA methylation directs translational regulation of heat shock response. **Nature** 2015; 526(7574):591-4
    - Highlighted in **Nat Chem Biol**
    - Recommended by **Faculty 1000**
17. Gao X, Wan J, and Qian SB*. Genome-wide profiling of alternative translation initiation sites. **Methods Mol Biol** 2016; 1358:303-16
18. Wei S and Qian SB*. Ribosome profiling: principles and variations. **eLS** 2015 John Wiley & Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0025984
19. Zhang X, Gao X, Roots RA, Conn CS, Liu B, and Qian SB*. Translational control of cytosolic stress proteins by mitochondrial ribosomal protein L18. **Nat Struct Mol Biol** 2015; 22(5):404-10
    - Featured on News and Views of **Nat Struct Mol Biol**
    - Highlighted in **Science**
20. Bettencourt C1, de Yébenes JG, López-Sendón JL, Shomroni O, Zhang X, Qian SB, Bakker IM, Heetveld S, Ros R, Quintáns B, Sobrido MJ, Bevova MR, Jain S, Bugiani M, Heutink P, Rizzu P. Clinical and neuropathological features of spastic ataxia in a Spanish family with novel compound heterozygous mutations in STUB1. **Cerebellum** 2015; 14(3):378-81
21. Gao X, Wan J, Liu B, Ma M, Shen B, and Qian SB*. Quantitative profiling of initiating ribosomes in vivo. **Nat Methods** 2015; 12(2):147-53. PMCID: PMC4344187
22. Han Y, Gao X, Liu B, Wan J, Zhang X, and Qian SB*. Ribosome profiling reveals sequence-independent post-initiation pausing as a signature of translation. **Cell Res** 2014; 24(7):842-51. PMCID: PMC4085768
23. Liu B and Qian SB*. Invited review: Mechanisms of translational regulation during stress. **Wiley Interdiscip Rev RNA** 2014; 5(3):301-5. PMCID: PMC3991730
24. Wan J and Qian SB*. TISdb: a database for alternative translation initiation in mammalian cells. **Nucleic Acids Res** 2014; 42(1):D845-50. PMCID: PMC3965020
25. Sherman MY* and Qian SB*. Less is more: improving proteostasis by translation slow down. **Trends Biochem Sci** 2013; 13:00158-8. PMID: 24126073
26. Conn CS, and Qian SB*. mTORC1 in protein homeostasis: increase in protein quantity at the expense of quality. **Sci Signal** 2013; 6(271):ra24. PMCID: PMC3992710
    - Editor's choice in **Science**
    - Recommended by **Faculty 1000**
27. Liu B, Han Y, and Qian SB*. Co-translational response to proteotoxic stress by elongation pausing of ribosomes. **Mol Cell** 2013; 49(3):453-463. PMCID: PMC3570626
    - Featured on the cover of **Mol Cell**
    - Highlighted in **Nat Rev Genetics**, **Nat Struct Mol Biol**
    - Recommended by **Faculty 1000**
28. Liu B, Conn CS, and Qian SB*. Viewing folding of nascent polypeptide chains from ribosomes. **Expert Rev Proteomics** 2012; 9(6):579-81. PMCID: PMC3971927
29. Stern-Ginossar N, Weisburd B, Michalski A, Le VT, Hein MY, Huang SX, Ma M, Shen B, Qian SB, Hengel H, Mann M, Ingolia NT, Weissman JS. Decoding human cytomegalovirus. **Science** 2012; 338(6110):1088-93. PMCID: PMC3817102
30. Lee S, Liu B, Lee S, Huang SX, Shen B, and Qian SB*. Global mapping of translation initiation sites in mammalian cells at single-nucleotide resolution. **Proc Natl Acad Sci USA**. 2012; 109(37):E2424-32. PMCID: PMC3443142
    - Highlighted on **GenomeWeb**
31. Han Y, David A, Liu B, Magadán JG, Bennink JR, Yewdell JW, and Qian SB*. Monitoring co-translational protein folding in mammalian cells at codon resolution. **Proc Natl Acad Sci USA**. 2012; 109(31):12467-72. PMCID: PMC3411940

32. Park WJ, Kothapalli KS, Reardon HT, Lawrence P, Qian SB, Brenna JT. A novel FADS1 isoform potentiates FADS2-mediated production of eicosanoid precursor fatty acids. **J Lipid Res** 2012; 53(8):1502-12. PMCID: PMC3540860

33. Liu B, and Qian SB*. Translational regulation in nutrigenomics. **Adv Nutr** 2011; 2(6):511-9. PMCID: PMC3226388
    - Featured on the cover of **Adv Nutr**

34. Zhang X, and Qian SB*. Chaperone-mediated hierarchical control in targeting misfolded proteins to aggresome. **Mol Biol Cell** 2011; 22(18):3277-88. PMCID: PMC3172255

35. Conn CS and Qian SB*. mTOR signaling in protein homeostasis: less is more? **Cell Cycle** *2011;* 10(12):1940-7. PMCID: PMC3154417

36. Sun J, Conn CS, Han Y, Yeung V, and Qian SB*. PI3K-mTORC1 attenuates stress response by inhibiting cap-independent Hsp70 mRNA translation. **J Biol Chem** *2011*; 286(8):6791-800. PMCID: PMC3057780

37. Qian SB*, Zhang X, Sun J, Bennink JR, Yewdell JW, Patterson C. mTORC1 links protein quality and quantity control by sensing chaperone availability. **J Biol Chem** *2010*; 285(35):27385-95. PMCID: PMC2785368
    - Paper of the week **J Biol Chem**

38. Qian SB*, Waldren L, Choudhary N, Klevit RE, Chazin WJ, Patterson C. Engineering a ubiquitin ligase reveals conformational flexibility required for ubiquitin transfer. **J Biol Chem** *2009*; 284(39):26797-802. PMCID: 19648119

39. McDonough H, Charles PC, Hilliard EG, Qian SB, Min JN, Portbury AL, Cyr DM, Patterson C. Stress-dependent chip/DAXX interaction suppresses the p53 apoptotic program. **J Biol Chem** *2009*; 284(31): 20649-59. PMCID: PMC2742829

40. Xia T , Dimitropoulou C , Zeng J , Antonova GN , Snead C , Venema RC , Fulton D , Qian SB , Patterson C , Papapetropoulos A , Catravas JD . Chaperone-dependent E3 ligase CHIP ubiquitinates and mediates proteasomal degradation of soluble guanylyl cyclase. **Am J Physiol Heart Circ Physiol** *2007*; 293:H3080-3087

41. Qian SB, McDonough H, Boellmann F, Cyr DM, Patterson C. CHIP-mediated stress recovery by sequential ubiquitination of substrates and Hsp70. **Nature** *2006*; 440: 551-555. PMCID: PMC4112096
    - Highlighted in **J Cell Biol**

42. Qian SB, Reits E, Neefjes J, Deslich JM, Bennink JR, and Yewdell JW. Tight linkage between translation and MHC-class I peptide ligand generation implies specialized antigen processing for defective ribosomal products. **J Immunol** *2006*; 177: 227-233. PMCID: 16785518

43. Qian SB, Princiotta MF, Bennink JR, Yewdell JW. Characterization of rapidly degraded polypeptides in mammalian cells reveals a novel layer of nascent protein quality control. **J Biol Chem** *2006*; 281(1):392-400. PMID: 16263705

44. Dai Q, Qian SB, Li HH, McDonough H, Borchers C, Huang D, Takayama S, Younger JM, Ren HY, Cyr DM, Patterson C. Regulation of the cytoplasmic quality control protein degradation pathway by BAG2. **J Biol Chem** *2005*; 280(46):38673-38681. PMID: 16169850

45. Shaffer AL, Shapiro-Shelef M, Iwakoshi NN, Qian SB, Zhao H, Yu X, et al. XBP1 acts downstream of Blimp-1 to regulate ER biogenesis, oeganelle expansion, and protein synthesis during plasma cell differentiation. **Immunity** *2004*; 21(1):81-93. PMID: 15345222

46. Princiotta MF, Finzi D, Qian SB, Gibbs J, Schuchmann S, Buttgereit F, Bennink JR, Yewdell JW. Quantitating protein synthesis, degradation, and endogenous antigen processing. **Immunity** *2003*; 18(3):343-354. PMID: 12648452

47. Qian SB, Ott DE, Schubert U, Bennink JR, Yewdell JW. Fusion proteins with COOH-terminal ubiquitin are stable and maintain dual functionality in vivo. **J Biol Chem** *2002*; 277(41):38818-38826. PMID: 12163494

48. Qian SB, Li Y, Qian GX, and Chen SS. Efficient tumor regression induced by genetically engineered tumor cells secreting interleukin-2 and membrane-expressing allogeneic MHC class I antigen. **J Cancer Res Clin Oncol** *2001*; 127(1): 27-33. PMID: 11206268

49. Qian SB, and Chen SS. Blocked transport of soluble Kb molecules containing connecting peptide segment involved in calnexin association. **Int Immunol** *2000*; 12(10): 1409-1416. PMID: 11007758

50. Xie Q, Liao D, Zhou XQ, Qian SB, Cheng SS. Transduction of primary rat hepatocytes with bicistronic retroviral vector. **World J Gastroenterol** *2000*; 6(5):725-729. PMID: 11819682

51. Qian SB, Qian GX, and Chen SS. Enhanced immunogenecity of human hepatocellular carcinoma cells transduced with human gamma-interferon gene via retroviral vector. **Acta Univ Med 2nd Shanghai** *1999*; 11(2): 90-94
52. Qian SB, and Chen SS. Transduction of human hepatocellular carcinoma cell lines transduced with human gamma-interferon gene via retroviral vector. **World J Gastroenter** *1998*; 4(3): 210-213. PMID: 11819277
53. Qian SB, Zhang TF, and Chen SS. Enhanced expression of HLA class I molecules in human hepatocellular carcinoma cell lines transduced with human gamma-interferon gene. **Chin Med J (Eng)** *1998*; 111(4): 319-322

Book Chapters

1. Gao X, Wan J, and Qian SB*. Genome-wide profiling of alternative translation initiation sites. **Methods Mol Biol** *2016*; 1358:303-16 Humana Press Inc., Totowa, NJ
2. Qian SB, Patterson C. Up and down: CHIP-regulated stress response. Cell Stress Proteins. **Protein Reviews** (*2007*) Springer, New York, NY
3. Qian SB, Bennink JR, Yewdell JW. Quantitating defective ribosome products. Ubiquitin-proteasome protocols. **Methods Mol Biol** *2005*; 301:271-281 Humana Press Inc., Totowa, NJ
4. Qian SB. Molecular biology of antigen presentation and immune recognition. **Cell and Molecular Biology in Medicine.** 2nd Ed. *2003*; 681-701 Science Press, Beijing, P.R.China

RESEARCH FUNDING

CURRENT

2018 – 2020 **NIH R21** (R21CA227917)
Role: PI (1.2 calendar months) direct costs (2 years) = $ 250,000
Title: Dynamic mRNA m6A modification in Oncogenic Translation

2017 – 2021 **NIH R01** (R01GM1222814)
Role: PI (1.2 calendar months) direct costs (4 years) = $ 800,000
Title: *O*-GlcNAc Signaling in Translational Control of Stress Response

2016 – 2021 **HHMI Faculty Scholar Award** (55108556)
Role: PI (1.2 calendar months) direct costs (5 years) = $ 1,250,000
Title: Re-programming of mRNA translation: from mechanisms to disease

WITHDRAWN

2013 – 2018 **NSF CAREER Award**
Role: PI (1.2 calendar months) direct costs (5 years) = $ 500,000
Title: Deciphering Proteome Diversity and Complexity by High-Resolution Ribosome Profiling

COMPLETED

2013 – 2018 **NIH R01** (1R01AG042400-01A1)
Role: PI (1.2 calendar months) direct costs (5 years) = $ 1,025,000
Title: Linking Nutrient Signaling and Protein Homeostasis in Mammalian Aging

2016 – 2017 **Burroughs Wellcome Fund** Collaborative Research Travel Grant (73261)
Role: PI direct costs (1 year) = $ 6,500
Title: Deciphering Ribosome Dynamics in Translational Control

2014 – 2017 **DOD Idea Development Award** (W81XWH-14-1-0068)
Role: PI (1.2 calendar months) direct costs (3 years) = $ 425,000
Title: Defining Translational Re-programming in Tuberous Sclerosis Complex

2014 – 2016 **NIH R21** (1R21AI105520-01A1)
Role: Co-PI (0.5 calendar months) direct costs (2 years) = $ 150,000
Title: Studies of the Global Translational Response to Human Virus Infection

2014 **CU-WCMC Seed Grant** (2015)

Role: Co-PI (0.5 calendar months) direct costs (1 year) = $ 32,500
Title: Studies of the Global Translational Response to Human Virus Infection

2009 – 2014 **NIH Director's New Innovator Award (**1DP2 OD006449-01)
Role: PI (3.0 calendar months) direct costs (5 years) = $ 1,500,000
Title: Engineering Ubiquitin Ligases to Investigate Protein Aggregation and Neurodegeneration

2011 – 2013 **DOD Exploration-Hypothesis Development Award** (W81XWH-11-1-0236)
Role: PI (0.6 calendar months) direct costs (2 years) = $ 100,000
Title: Genome-Wide Analysis of Translational Control in Tuberous Sclerosis Complex

2009 – 2013 **Ellison Medical Foundation New Scholar Award** (AG-NS-0605-09)
Role: PI (1.2 calendar months) direct costs (4 years) = $ 400,000
Title: The Role of Stress Signaling in mTOR Signaling and Aging

2009 – 2010 **NBTC Integrated Research Grant** (NCB12)
Role: PI (1.2 calendar months) direct costs (1 year) = $ 50,000
Title: Functional Nano-Molecules: Engineering Ubiquitin Ligases to Target Disease Proteins

1998 – 2001 **China National Science Foundation (**# 39800132**)** direct costs (3 years) = RMB $ 120,000
Title: Isolation of Antigenic Peptides Using Green Fluorescent Protein (GFP) Tagged Soluble Class I MHC Molecules

1999 – 2000 **China Educational Bureau Foundation** (# 98BJ01) direct costs (1 year) = RMB $ 50,000
Title: Preparation and Application of Genetically Engineered Human Hepatoma and Gastroma Cells Secreting Interleukin-2

SUPERVISED

2018 – 2020 **NIH Predoctoral Individual Fellowship (F31)** Awardee: Xin Erica Shu
Title: Dynamic *O*-GlcNAcylation of eIF3A in translational control of the integrated stress response

2017 – 2019 **Cornell Chemistry/Biology Interface** Awardee: Robert Swanda
Title: Defining the sulfur amino acid response

2014 – 2016 **AHA Postdoc Fellowship (**14POST20100022) Awardee: Mridusmita Saikia
Title: Deciphering mitochondrial translation control in response to cellular stress

2013 – 2014 **Cornell CVG Scholar Award** Awardee: Botao Liu
Title: Monitor the translational reprogramming of mammalian genome during cell differentiation at single-nucleotide resolution

PATENT

1. GTI-Seq: A Genome Wide Translational Initiation Assay (5611-02-US, LR Ref. 29543.6980)
   Inventor: Shu-Bing Qian, Sooncheol Lee, Botao Liu

INVITED & SELECTED ORAL PRESENTATIONS

1. Invited speaker, *Translational control: from heat to tail.* **UC Irvine**, Department of Microbiology and Molecular Genetics, Irvine, CA. January 2019
2. Session chair, *Translational Regulation (II).* **Cold Spring Harbor Laboratory Meeting**: Translational Control. Cold Spring Harbor, NY, September, 2018
3. Invited speaker, *m6A-guided mRNA translational regulation.* **EMBL Conference**, The Epitranscriptome. Heidelberg, Germany. April 2018
4. Invited speaker, *Translational control at the start codon.* **MD Anderson Cancer Center**, Blaffer Lecture Series, Houston, TX. September 2017
5. Invited speaker, *Translational control at the start codon.* **UT Southwestern**, Department of Physiology, Dallas, TX. September 2017

6. Invited speaker, *m6A guides mRNA alternative translation during integrated stress response.* **Dynamics of Translation**, Erice, Italy. June 2017
7. Invited speaker, *Translational control at the start codon.* **Fred Hutchinson Cancer Research Center**, Seattle, WA. June 2017
8. Invited speaker, *Translational control of stress response.* **Case Western Reserve University**, Department of Genetics, Cleveland, OH. May 2017
9. Invited speaker, *Translational control of heat shock response.* **Gordon Research Conference**: Translation Machinery in Health and Disease. Galveston, TX, March, 2017
10. Invited speaker, *Translational control in stress response: from ribosomes to mRNA.* **University of Rochester**, Rochester, NY. October 2016
11. Invited speaker, *m6A-mediated cap-independent translation: scope and mechanism.* **RNA modifications and epi-transcriptomics conference.** University of Chicago. Chicago, IL, September, 2016
12. Selected speaker, *m6A-mediated cap-independent translation: scope and mechanism.* **Cold Spring Harbor Laboratory Meeting**: Translational Control. Cold Spring Harbor, NY, September, 2016
13. Invited speaker, *Translational control in stress response: from ribosomes to mRNA.* **University of Georgia**, Athens, GA. April 2016
14. Invited speaker, *Translational control in stress response: from ribosomes to mRNA.* **Indiana University School of Medicine**, Indianapolis, IN. April 2016
15. Invited speaker, *Translational control in stress response revealed by ribosome profiling.* **National Institutes of Health**, NICHD, Bethesda, MD. May 2015
16. Invited speaker, *Regulation of gene expression by alternative translation.* Translational Control: From Basics to Cancer. **Génopolys**, Montpellier, France, April 2015
17. Invited speaker, *Decoding translational control by ribosome profiling*. **Zhejiang University Medical School**, Hangzhou, Zhejiang, P. P. China, April 2015
18. Invited speaker, *Translational control in stress response revealed by ribosome profiling*. Department of Cell Biology Seminar, **Duke University**, Durham, NC, September, 2014
19. Selected speaker, *Quantitative profiling of initiating ribosomes in vivo.* **Cold Spring Harbor Laboratory Meeting**: Translational Control. Cold Spring Harbor, NY, September, 2014
20. Invited speaker, *Decipher alternative translation by quantitative profiling of initiating ribosomes.* **EMBO Workshop:** Recoding: Reprogramming genetic decoding, Killarney, Ireland, May, 2014
21. Selected speaker, *Translational control of chaperone biosynthesis via stress ribosomes.* **Cold Spring Harbor Laboratory Meeting**: Molecular Chaperones & Stress Responses. Cold Spring Harbor, NY, May, 2014
22. Invited speaker, *Monitoring translational control using real-time ribosome profiling*. Department of Cell Biology Seminar, **Yale University**, New Haven, CT, April, 2014
23. Invited speaker, *Translational control in gene expression: from nutrients to ribosome.* Animal Physiology and Biochemistry**,** **Nanjing Agricultural University**, Nanjing, P. R. China, December, 2013
24. Invited speaker, *Nutrient signaling in protein homeostasis: increase in protein quantity at the expense of quality.* **Gordon Research Conference**: Biology of Aging. Lucca, Italy, August, 2013
25. Selected speaker, *Linking Nutrient signaling and protein homeostasis in Growth and Aging.* **EMF Colloquium on the Biology of Aging**. Woods Hole, MA, August, 2013
26. Selected speaker, *Discovering Stress Ribosome in Mammalian Cells.* **Gordon Research Conference**: Stress Proteins in Growth, Development & Disease. West Dover, VT, July, 2013
27. Invited speaker, *Translational control in gene expression: from nutrients to ribosome.* Microbiology and Immunology Seminar, **Cornell University**, Ithaca, NY, December, 2012

28. Selected speaker, *Deciphering translational re-programming using high-resolution ribosome profiling.* **Cold Spring Harbor Laboratory Meeting**: Translational Control. Cold Spring Harbor, NY, September, 2012
29. Invited speaker, *Translational control in gene expression: from nutrients to ribosome.* VERGE Seminar, **Cornell University**, Ithaca, NY, May, 2012
30. Invited speaker, *Co-translational response to proteotoxic stress by early ribosome pausing.* **2011 ASCB Annual Meeting**, Denver, CO. December, 2011
31. Invited speaker, *Linking Nutrient Signaling and Protein Homeostasis in Growth and Aging.* **The Institute of Nutritional Sciences, Chinese Academy of Sciences**, Shanghai, China. October 2011
32. Selected speaker, *Co-translational response to proteotoxic stress by chaperone-controlled ribosome dynamics.* **Cold Spring Harbor Laboratory Asia Meeting**: Protein Homeostasis in Health and Diseases. Suzhou, China, September, 2011
33. Invited speaker, *Linking Nutrient Signaling and Protein Homeostasis in Growth and Aging.* **The Buck Institute for Research on Aging**, Novato, CA. September 2011
34. Selected speaker, *Co-translational response to proteotoxic stress by chaperone-controlled ribosome dynamics.* **Gordon Research Conference**: Stress Proteins in Growth, Development and Diseases. Lucca, Italy, July, 2011
35. Selected speaker, *Chaperone-mediated hierarchical control in targeting misfolded proteins to aggresome*. **FASEB Summer Research Conference:** The Basic Origins and Medical Consequences of Protein Aggregation. Snowmass Village, Colorado, June, 2011
36. Invited speaker, *Genome-wide analysis of ribosome dynamics and mRNA translation,* **National Institutes of Health**, NIAID, Bethesda, MD. September 2010
37. Invited speaker, *Chaperone stress in growth and aging*. Biomedical Sciences Departmental Seminar, School of Veterinary Sciences, **Cornell University**, Ithaca, NY, March, 2010
38. Invited speaker, *Lost in translation: a tale of protein birth and protein death*. Molecular Biology & Genetics Seminar, Department of Molecular Biology and Genetics, **Cornell University**, Ithaca, NY, March, 2010
39. Selected speaker, *Chaperone-regulated mTOR signaling links protein quality and quantity control*. **Gordon Research Conference**: Stress Proteins in Growth, Development and Diseases. Proctor Academy, New Hampshire, June, 2009
40. Selected speaker, *Engineering co-chaperone ubiquitin ligase CHIP*. **Cold Spring Harbor Laboratory Meeting**: The Ubiquitin Family. Cold Spring Harbor, NY, April, 2009
41. Invited speaker, *Sensing nutrients to growth: the role of chaperone network in mTOR signaling.* Molecular Biology & Genetics Seminar, Department of Molecular Biology and Genetics, **Cornell University**, Ithaca, NY, October 2008
42. Invited speaker, *Engineering ubiquitin ligase.* Human & Molecular Nutrition Seminar, Division of Nutritional Sciences, **Cornell University**, Ithaca, NY, October 2008
43. Special Seminar, Section of Comparative Medicine, **Yale University** School of Medicine, New Haven, CT, April 2008
44. Special Seminar, Department of Biochemistry and Molecular Biology, **Louisiana State University** Health Sciences Center, Shreveport, LA, February 2008
45. Special Seminar, Ben May Department for Cancer Research, **University of Chicago**, Chicago, IL, February 2008
46. Molecular recognition and bioinformatics special seminar, Department of Biochemistry, **SUNY Buffalo**, Buffalo, NY, January 2008
47. Special Seminar, Institute for Diabetes, Obesity and Metabolism, **University of Pennsylvania** School of Medicine, Philadelphia, PA, January 2008
48. Special Seminar, Department of Physiology, **University of Pennsylvania** School of Medicine, Philadelphia, PA, January 2008
49. Special Seminar, Division of Nutritional Sciences, **Cornell University**, Ithaca, NY, December 2007
50. Special Seminar, Department of Physiology, **University of Texas Southwestern Medical Center**, Dallas, TX, November, 2007

51. Special Seminar, Department of Molecular Medicine, **Wake Forest University** School of Medicine, Winston-Salem, NC, November, 2007
52. Invited speaker, *Chaperoning mTOR: linking protein homeostasis in insulin signaling.* Cell and Developmental Biology Seminar, Department of Cell and Developmental Biology, **University of North Carolina** at Chapel Hill, Chapel Hill, NC. October 2007
53. Special Seminar, Department of Genetics & Complex Diseases, **Harvard University** School of Public Health, Boston, MA, June, 2007
54. Special Seminar, Cell Biology Program, **Sloan Kettering Institute** Cancer Center, New York, NY, March, 2007
55. Invited speaker, *A dynamic mechanism of protein ubiquitination.* Cell and Developmental Biology Seminar, Department of Cell and Developmental Biology, **University of North Carolina** at Chapel Hill, Chapel Hill, NC. October 2006
56. Selected Speaker, *Substrate-dependent autoregulation of Hsp70 by CHIP-regulated autocatalysis*. **Gordon Research Conferences**, New Port, RI, July 2005
57. Invited speaker, *The CHIP story.* **National Institutes of Health**, NIAID, Bethesda, MD. May 2005

TEACHING

2018 - present	**BIOMG8369 BMCB: Foundation & Frontiers** 2-credit graduate course that consists of lectures and weekly paper discussions Department of Molecular Biology & Genetics, Cornell University
2009 - present	**NS3200 Human Biochemistry** 4-credit undergraduate course Division of Nutritional Sciences, Cornell University
2011 - 2015	**NS7030 Graduate Student Seminar** 1-credit graduate course that consists of weekly paper presentation Division of Nutritional Sciences, Cornell University
2010 - 2013	**BioMG8370 Problems in Biochemistry, Molecular and Cell Biology** 2-credit graduate course that consists of weekly paper discussions Department of Molecular Biology & Genetics, Cornell University
2008 - present	**NS4010 Empirical Research** Laboratory research for biochemistry and molecular biology 3-credit undergraduate course Division of Nutritional Sciences, Cornell University
2006 - 2008	**Biology 4050 Laboratory Research** Department of Cell and Developmental Biology University of North Carolina, Chapel Hill, NC
1997 – 2000	**Graduate Course Biochemistry and Molecular Biology** Department of Biochemistry & Molecular Biology Shanghai Second Medical University, Shanghai, P.R.China

TRAINING AND ADVISING

POSTDOC FELLOWS

Current

2018 – present	**Longfei Jia**, Ph.D.
2017 – present	**Quanquan Ji**, Ph.D.
2016 – present	**Xiao-Min Liu**, Ph.D.
2015 – present	**Yuanhui Mao**, Ph.D.
2014 – present	**Leiming Dong**, Ph.D.

Previous

2008 – 2018 **Xingqian Zhang,** Ph.D. (current position: PTC Therapeutics)
2013 – 2018 **Jun Zhou**, Ph.D. (current position: China Pharmaceutical University)
2014 – 2016 **Saisai Wei**, Ph.D. (current position: Zhejiang University)
2013 – 2016 **Mridusmita Saikia**, Ph.D. (current position: Baker Institute)
2013 – 2017 **Ji Wan**, Ph.D. (current position: Curacloud Corp)
2012 – 2015 **Xiangwei Gao**, Ph.D. (current position: Zhejiang University)
2011 – 2012 **Sooncheol Lee, Ph.D.** (current position: Harvard University)
2011 – 2011 **Soonhyun Lee, Ph.D.** (current position: Harvard University)
2009 – 2012 **Yan Han, Ph.D.** (current position: Shanghai Jiaotong University)

VISITING FELLOWS

2018 – present **Jingfan Qiu**, Ph.D. (Nanjing Medical University)

2016 – 2017 **Wenqiang Ma**, Ph.D. (Nanjing Agriculture University)

GRADUATE STUDENTS

Current (Committee Chair)

2017 – present **Xia He**, NS graduate student — Expected graduation: 2022
2017 – present **Robert Swanda**, BBS graduate student — Expected graduation: 2022
2016 – present **Erica (Xin) Shu**, NS graduate student — Expected graduation: 2019
2015 – present **Yifei Gu**, NS graduate student — Expected graduation: 2020

Current (Committee member)

2018 – present **Semira Ortiz**, NS graduate student
2015 – present **Wendy Beck**, BMCB graduate student

Graduated (Committee Chair)

2011 – 2016 **Ryan A. Coots**, NS graduate student
2010 – 2015 **Botao Liu**, G&D graduate student
2009 – 2013 **Crystal Conn,** G&D graduate student

Graduated (Committee member)

2013 – 2018 **Jui-Yun Liao**, Plant Science graduate student
2013 – 2018 **Kristeen Pareja**, Pharmacology graduate student
2014 – 2017 **Peter Sullivan**, BMCB graduate student
2011 – 2016 **Kevin Mazor**, NS graduate student
2009 – 2012 **Hong Chen,** Nutrition graduate student
2009 – 2012 **Yingying Zhao,** BMCB graduate student

Visiting non-degree Graduate Students

2016 – 2017 **Xin Zong**, Zhejiang University, School of Animal Sciences
2015 – 2017 **Longfei Jia**, Nanjing Agriculture University
2013 – 2014 **Juliana Magdalon**, University of Sao Paulo, USP, Brazil

UNDERGRADUATE STUDENTS

2018 – present **Yifei (Amy) Han**, CALS Major
2015 – present **Kevin Lin**, HBHS Major
2015 – 2016 **Xin Yuan**, Biology Major
2015 – 2016 **Yunqi Li**, HBHS Major
2015 – 2016 **Ian Lei Chan**, HBHS Major
2014 – 2017 **Holly Deng**, HBHS Major (Hunter Rawlings III College Presidential Research Scholar)
2013 – 2014 **David Ko**, Biology Major
2013 – 2014 **Joo Won Lee**, HBHS Major
2012 – 2013 **Blake Barr**, HBHS Major
2012 – 2014 **Hyunsoo Lim**, Biology Major
2012 – 2014 **Elizabeth Ferrie**, Biology Major (honors research)
2011 – 2012 **Esther Kwon**, Nutrition Major

2011 – 2012	**Ivor (Xiaoxing) Shen**, Nutrition Major
2010 – 2011	**Kathleen Phung**, HBHS Major
2009 – 2012	**Hae Jin Kang**, HBHS Major (Hunter Rawlings III College Presidential Research Scholar)
2009 – 2012	**Haerin Palk**, HBHS Major (honors research)
2009 – 2011	**Josephine Lee,** HBHS Major
2009 – 2010	**Jessie Luk,** HBHS Major
2008 – 2012	**Vincent Yeung,** Biology Major
2008 – 2009	**Najah Levers,** Biology Major (Hunter Rawlings III College Presidential Research Scholar)
2006 – 2008	**Lauren Waldren,** Biology Major (University of North Carolina)