CURRICULUM VITAE

Xin Tong, Ph.D.

Department of Pathology
Northwestern University Feinberg School of Medicine
Tarry Building 3-732
303 E. Chicago Ave., Chicago, IL 60611
312-593-4441(C), 312-503-5069 (W)
x-tong1@northwestern.edu

Education & Training

2010 Certificate in Bioinformatics, University of Illinois at Chicago, Chicago, IL
1998 Ph.D. in Biochemistry, Beijing Institute of Radiation Medicine, Beijing, China
1993 B.S. in Biology, Anhui Normal University, Wuhu, China

Research Experience

2007 – Present **Research Assistant Professor**
Department of Pathology, Northwestern University, Chicago, IL

(1) Investigated the important role of Desmoglein1 in keratinocyte-melanocyte crosstalk and the development of melanoma
(2) Characterized molecular mechanisms by which the bioflavonoid apigenin acts as a chemopreventive agent to prevent UV-induced skin cancer
(3) Studied the pathogenesis and molecular biomarkers of pancreatic carcinoma in genetically engineered mouse models and in human, to develop an efficient strategy on the treatment and prevention of pancreatic carcinogenesis
(4) Investigated signaling pathways critical for growth/proliferation, apoptosis, autophagy, cell cycle regulation, DNA damage, metastasis and angiogenesis
(5) Coupled with *in silico* modeling and screening of large chemical libraries to identify small molecules against oncogenic proteins
(6) Explored microRNA as potential biomarkers and targets in cancer treatment by applying next-generation sequencing for miRNA profiling and discovery
(7) Performed bottom-up/top-down proteomics to analyze protein interactions
(8) Validated target function and mechanism of action in different mouse cancer models through short-term and long-term *in vivo* experiments

2002 – 2007 **Research Associate**
Department of Pathology, Northwestern University, Chicago, IL

(1) Interrogated the role of RNA-binding proteins in regulation of gene expression, protein translation and target cellular localization
(2) Identified conditionally essential genes by DNA microarray for detection, quantification and analysis of transposon insertions on a genome-wide scale
(3) Carried out large-scale screen for protein-protein interactions by yeast two-hybrid system
(4) Established a broad range of biochemical and cellular assays to validate targets/pathways involved in various aspects of cancer cellular functions

2000 – 2002 **Postdoctoral Fellow**
Children's Memorial Institute for Education and Research, Northwestern University

(1) Explored extrinsic apoptotic pathway, particularly TRAIL-mediated apoptosis for prostate cancer treatment

(2) Analyzed cellular responses to DNA damage (DNA repair, cell cycle arrest and cell death) and the cross talk between damage-sensing pathways and intrinsic apoptotic signaling
(3) Combined column chromatography and MALDI-MS to isolate and identify functional proteins involved in cancer treatment sensitivity

Research Grants

R01 CA172669 (Pelling/Volpert, PI; Tong, Co-Investigator) 03/06/2013 - 02/28/2018
NIH/NCI
"Apigenin restores TSP-1 expression in UVB-irradiated keratinocytes"

R21 CA161181 (Tong, PI) 06/01/2012 - 05/31/2014
NIH/NCI
"AMPK as a molecular target for chemoprevention by apigenin in preneoplastic skin"

Grant # 167567 (Tong, PI) 03/01/2010 - 02/29/2012
American Cancer Society (ACS) Illinois Division
"Apigenin induces AMPK activation in human keratinocytes"

Mentoring/Supervising Experience

Graduate student/resident fellow mentoring

Co-supervised and provided technical support for graduate students and resident fellow on their research projects.

2004 – 2008	Adnan Abu-Yousif, Ph.D. student
2005 – 2011	Kimberly Smith, Ph.D. student
2006 – 2008	Karen Chiu, MD, resident fellow

Technician supervising

Supervised two technicians and coordinated lab day-to-day operation.

2002 – 2004	Krin Kay, BS
2011 – 2017	Bryan Bridgeman, MS

Honors & Awards

2006	Katten Muchin Rosenman Travel Scholarship Award, Northwestern University.
1999	Zhengji Foundation Best Paper Award, Zhengji Foundation.
1998	Outstanding Graduate Student, Beijing Institute of Radiation Medicine.

Publications

Papers

1. **Tong, X.**, Xu, D., Mishra, R.K., Jones, R., Sun, L., Schilts, G.E., Liao, J. and Yang, GY. Homology modeling, interacting pockets and inhibitor development of DnaJ homolog subfamily A member 1 (DNAJA1) and missense mutant $p53^{R175H}$ proteins. *J Biol Chem* (in revision).
2. Xu, D., **Tong, X#.**, Sun, L., Li, H., Jones, R.D., Liao, J. and Yang, GY. Inhibition of mutant Kras and p53 driven pancreatic carcinogenesis by atorvastatin: Mainly via targeting of the farnesylated DNAJA1 in chaperoning mutant p53. *Mol Carcinog* 58(11): 2052-2064, 2019.
3. Mirzoeva, S., **Tong, X.* #**, Bridgeman, B.B., Plebanek, M.P., and Volpert, O.V. Apigenin inhibits UVB-induced skin carcinogenesis: The role of thrombospondin-1 as an anti-inflammatory factor. *Neoplasia* 20(9): 930-942, 2018.
4. Bridgeman, B.B., Wang, P., Ye, B., Pelling, J.C., Volpert, O.V., and **Tong, X.*** Inhibition of mTOR by apigenin in UVB-irradiated keratinocytes: A new implication of skin cancer prevention. *Cell Signal* 28(5):460-468, 2016.
5. **Tong, X.***, Mirzoeva, S., Veliceasa, D., Bridgeman, B.B., Fitchev, P., Cornwell, M.L., Crawford, S.E.,

Pelling, J.C., Volpert, O.V. Chemopreventive apigenin controls UVB-induced cutaneous proliferation and angiogenesis through HuR and thrombospondin-1. *Oncotarget* 5(22):11413-11427, 2014.
6. Smith, K.A., **Tong, X.**, Abu-Yousif, A.O., Mikulec, C.C., Gottardi, C.J., Fischer, S.M, and Pelling, J.C. UVB radiation-induced β-catenin signaling is enhanced by COX-2 expression in keratinocytes. *Mol Carcinog* 51(9):734-745, 2012.
7. **Tong, X.***, Smith, K.A., and Pelling, J.C. Apigenin, a chemopreventive bioflavonoid, induces AMP-activated protein kinase activation in human keratinocytes. *Mol Carcinog* 51(3):268-279, 2012.
8. **Tong, X.** and Pelling, J.C. Enhancement of p53 expression in keratinocytes by the bioflavonoid apigenin is associated with RNA-binding protein HuR. *Mol Carcinog* 48(2):118-129, 2009.
9. **Tong, X.**, Van Dross, R.T., Abu-Yousif, A., Morrison, A.R., and Pelling, J.C. Apigenin prevents UVB-induced cyclooxygenase-2 expression: coupled mRNA stabilization and translational inhibition. *Mol Cell Biol* 27(1):283-296, 2007.
10. **Tong, X.**, Campbell, J.W., Balazsi, G., Kay, K., Wanner, B.L., Gerdes, S.Y., and Oltvai, Z.N. Genome-scale identification of conditionally essential genes in *E. coli* by DNA microarrays. *Biochem Biophys Res Commun* 322(1):347-354, 2004.
11. **Tong, X.**, and Li, H. eNOS protects prostate cancer cells from TRAIL-induced apoptosis. *Cancer Lett* 210(1):63-71, 2004.
12. Sun, G., **Tong, X.**, Dong, Y., Mei, Z., and Sun, Z. Identification of a protein interacting with Apoptin from human leucocyte cDNA library by using yeast two-hybrid screening. *Acta Biochimica et Biophysica Sinica* 34(3):369-372, 2002.
13. Sun, G., **Tong, X.**, Dong, Y., and Sun, Z. Expression, purification and in vitro activity of Apoptin. *Acta Biochimica et Biophysica Sinica* 33(2):225-228, 2001.
14. Wang, Z., Mei, Z., **Tong, X**, Dong, Y., Li, Q., and Sun, Z. Antisense oligonucleotide targeting survivin gene inhibits the proliferation of cancer cells. *Chin J Biochem Mol Biol* 17(6):795-799, 2001.
15. **Tong, X.**, Liu, B., Dong, Y., and Sun, Z. Cleavage of ATM during radiation-induced apoptosis: caspase-3-like apoptotic protease as a candidate. *Int J Radiat Biol* 76(10):1387-1395, 2000.
16. **Tong, X.**, Luo, Y., Dong, Y., and Sun, Z. Caspase-3 gene activity in radiation-induced apoptosis. *Acta Biochimica et Biophysica Sinica* 31(2):129-132, 1999.
17. **Tong, X.**, Liu, B., and Sun, Z. High molecular weight DNA fragmentation in the course of radiation-induced apoptosis. *Bull Acad Mil Med Sci* 23(1):44-47, 1999.
18. Li, X., Song, T., **Tong, X.**, and Sun, Z. Study on the morphology of apoptotic HL-60 cells induced by γ-irradiation. *Acta Anatomica Sinica* 30(4):344-347, 1999.
19. **Tong, X.**, Luo, Y., Dong, Y., and Sun, Z. Isolation and identification of gene mediating radiation-induced apoptosis in human leukemia U937 cells. *Bull Acad Mil Med Sci* 22(1):51-54, 1998.
20. **Tong, X.**, Luo, Y., and Sun, Z. Radiation-induced lymphocyte apoptosis and its inhibition by trolox. *Chin J Radiol Med Prot* 16(5):293-295, 1996.

(* corresponding author, # co-first author)

Reviews

1. Klionsky, D., Abdel-Aziz, A., Abdelfatah, S., …, **Tong, X.**, … Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition). *Autophagy* (in press)
2. Jones, R.D., Liao, J., **Tong, X.**, Xu, D., Sun, L., Li, H. and Yang, GY. Epoxy-oxylipins and soluble epoxide hydrolase metabolic pathway as targets for NSAID-induced gastroenteropathy and inflammation-associated carcinogenesis. *Front Pharmacol* 10:731, 2019
3. **Tong, X*.**, and Pelling, J.C. Targeting the PI3K/Akt/mTOR axis by apigenin for cancer prevention. *AntiCancer Agents Med Chem* 13(7):971-978, 2013.
4. Sun, G., **Tong, X.**, and Sun, Z. Apoptin induces apoptosis in human tumorigenic cells but not in normal cells. *Bull Acad Mil Med Sci* 23(4):299-301, 1999.
5. **Tong, X.**, and Sun, Z. Caspases and apoptosis. *Prog Biochem Biophys* 25(5):418-421, 1998.
6. **Tong, X.**, and Sun, Z. Molecular mechanism of radiation-induced programmed cell death. *For Med Sci-Mol Biol* 17(3):131-135, 1995.

(* corresponding author)

Book Chapters

1. **Tong, X.**, and Sun, Z. Molecular mechanisms of radiation-induced cell death. In: Xia, S. (Ed.), *Radiation Biology*, Beijing: Mil Med Sci Press, pp178-218, 1998.
2. Li, Y., Peng, R., and **Tong, X.** Programmed cell death and its assays. In: Ma, L., and Wang, Q. (Eds.), *Recent Progress in Genetic Diagnosis*, Beijing: New Time Press, pp71-78, 1997.
3. Sun, Z., Chen, H., and **Tong, X.** Isolation and purification of protein, enzyme and recombinant protein. In: Sun, Z. (Ed.), *Modern Biochemistry Theory and Research Techniques*, Beijing: Mil Med Sci Press, pp363-391, 1995.

Recent Seminars Presented

Sep 2018 "Inhibition of pancreatic carcinogenesis: The crucial role of the interplay between mutant p53 and farnesylated DNAJA1", Lurie Cancer Center's TEAM program research conference

Sep 2016 "Targeting mTOR pathway and inducing autophagy to prevent UV-induced skin cancer", 12th International Skin Carcinogenesis Conference, Austin, Minnesota

Apr 2015 "Restoration of thrombospondin 1 expression in UVB-irradiated keratinocytes: A new strategy for skin cancer prevention and treatment", Calandra Forum, Northwestern University

Jun 2014 "Post-transcriptional regulation of thrombospondin-1 by apigenin in UVB-irradiated skin: The role of RNA-binding protein HuR", 11th International Skin Carcinogenesis Conference, Tucson, Arizona

May 2013 "Apigenin regulates TSP1 expression in UVB-irradiated keratinocytes", Department of Pathology Retreat, Northwestern University

Nov 2012 "AMPK/mTOR axis as a key target for chemoprevention of UV-induced skin cancer", Calandra Forum, Northwestern University

Jul 2012 "Apigenin inhibits UVB-induced skin cancer: Critical role of AMPK and RNA-binding proteins", Department of Cancer Biology, University of Kansas Medical Center

Apr 2012 "Apigenin, RNA-binding proteins and skin cancer", Department of Pathology, University of Illinois at Chicago

Professional Associations

American Association for Cancer Research, member since 2005

Robert H. Lurie Comprehensive Cancer Center, Northwestern University, member since 2012