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Graduate and postdoctoral training

1995-1998 Ph.D., Shanghai Jiao Tong University School of Medicine, Shanghai, P.R. China

1999-2003 Postdoctoral Fellow, UT Southwestern Medical Center at Dallas, Texas

2006-2011 Postdoctoral Associate, The Rockefeller University, New York

Professional Experience

1995-1998 Graduate student (With Dr. Shishu Chen)

Department of Biochemistry, Shanghai Jiao Tong University School of Medicine

Study of cancer vaccine in hepatoma treatment in mice by engineering interleukin-2, interleukin-12, TNF-alpha, and the herpes simplex virus thymidine kinase genes (TK)/ganciclovir as well as the combinations between different cytokine and TK genes.

1999-2003 Postdoctoral Fellow (with Dr. Hongtao Yu)

2003-2006 Instructor

Department of Pharmacology, the UT Southwestern Medical Center, Dallas, TX

Accurate chromosome segregation is critical for maintaining genome stability during cell division but defect in this process is associated with aneuploidy, the hallmark of cancer cells. The main focus of my project included: (1) studies of the molecular basis of the spindle checkpoint, a surveillance mechanism that controls accurate chromosome segregation during cell division such as the mechanism of inhibition of APC^{cdc20}, an E3 ubiquitin ligase, by spindle checkpoint Mad2, Bub1, and BubR1 in mitosis; (2) investigation of the molecular function of cohesin complex in accurate chromosome segregation in mitosis.

2006-2011 Postdoctoral Associate (with Dr. Robert G. Roeder)

2011-present Research Associate

Laboratory of Biochemistry and Molecular Biology, the Rockefeller University, New York, NY

Tissue or cell type-specific gene expression “on” and “off” is essential for cell growth, proliferation, differentiation, as well as reprogramming during human development. The mechanism that regulates gene expression by other than genome sequence is called epigenetics including DNA methylation, histone modification, chromatin remodeling, and non-coding RNAs. Mis-regulation of epigenetic mechanism is frequently associated with human diseases such as heart disorder, diabetes, and cancers. My main project is to define how

histone modifications control gene-specific transcription, including regulation of p53 function in tumorigenesis and nuclear receptor (NR) function in adipogenesis.

Selected peer-reviewer publications (in chronological order)

1. **Z Tang**, R Bharadwaj, B Li, and H Yu. Mad2-Independent inhibition of APC^{Cdc20} by the mitotic checkpoint BubR1. **Developmental Cell**. 2001 Aug; 1 (2): 227-237.
2. **Z Tang**, B Li, R Bharadwaj, H Zhu, E Ozkan, K Hakala, J Deisenhofer, and H Yu. APC2 Cullin protein and APC11 RING protein comprise the minimal ubiquitin ligase module of the anaphase promoting complex. **Molecular Biological of the Cell**. 2001 Dec; 12 (12): 3839-3851.
3. X Luo*, **Z Tang***, J Rizo and H Yu. The Mad2 spindle checkpoint protein undergoes similar major conformational changes upon binding to either Mad1 or Cdc20. **Molecular Cell**. 2002 Jan; 9 (1): 59-71. (*Contributed equally)
4. R Agarwal, **Z Tang**, H Yu and O Cohen-Fixe. Two distinct pathways for inhibition of Pds1 ubiquitination in response to DNA damage. **Journal of Biological Chemistry**. 2003 Nov 7; 278 (45): 45027-45033.
5. M Araki, RP Wharton, **Z Tang**, H Yu and M. Asno. Degradation of origin recognition complex large subunit by anaphase promoting complex in Drosophila. **The EMBO Journal**. 2003 Nov 17; 22 (22):6115-6126.
6. **Z Tang** and H. Yu. Functional analysis of the spindle checkpoint proteins using an in vitro ubiquitination assay. **Methods Molecular Biology**. 2004; 281:227-242.
7. X Luo*, **Z Tang***, G Xia, K Wassmann, T Matsumoto, J Rizo and H Yu. The Mad2 spindle checkpoint protein has two distinct natively folded states. **Nature Structural and Molecular Biology**. 2004 Apr; 11: 338-344. (*Contributed equally)
8. **Z Tang**, H Shu, D Oncel, S Chen and H Yu. Phosphorylation of Cdc20 by Bub1 provides a catalytic mechanism for APC/C^{Cdc20} inhibition by the spindle checkpoint. **Molecular Cell**. 2004 Nov 5; 16 (3): 387-39.
9. **Z Tang**, Y Sun, SE Harley, H Zou and H Yu. Human Bubi protects centromeric sister-chromatid cohesion through Shugoshin during mitosis. **Proceedings of the National Academy of Sciences**. 2004 Dec 28; 101 (52): 18012-18017.
10. B Liu, S Hong, **Z Tang**, H Yu and CZ Giam. HTLV-1 tax directly binds the Cdc20 associated anaphase promoting complex and activates it ahead of schedule. **Proceedings of the National Academy of Sciences**. 2005 Jan 4; 102 (1): 63-68.
- 11 H Yu and **Z Tang**. Bub1 multitasking in mitosis. **Cell Cycle**. 2005 Feb; 4 (2): 262-265.
12. W Qi, **Z Tang** and H Yu. Phosphorylation- and Polo-Box-Dependent of Plk1 to Bub1 is required for the kinetochore localization of Plk1. **Molecular Biology of the Cell**. 2006 Aug; 17 (8): 3705-3716.

13. **Z Tang**, H Shu, N Mahmood, MC Mumby and H Yu. PP2A is required for centromeric localization of human Sgo1 and proper chromosome segregation. **Developmental Cell**. 2006 May; 10 (5): 1-11.
14. CW Liu, X. Li, D Thompson, K Wooding, TL Chang, **Z Tang**, H Yu, PJ Thomas, GN. DeMartino. ATP binding and ATP hydrolysis play distinct roles in the function of 26 proteasome. **Molecular Cell**. 2006 Oct 6; 24 (1): 39-50.
15. J Kim, M Guermah, RK McGinty, JL Lee, **Z Tang**, TA Milne, A Shilatifard, TW Muir and RG Roeder. RAD6-Mediated Transcription-Coupled H2B Ubiquitylation Directly Stimulates H3K4 Methylation in Human Cells. **Cell**. 2009 May 1; 137(3): 459-71.
16. SM Lauberth, T Nakayama, X Wu, AL Ferris, **Z Tang**, SH Hughes, RG Roeder. H3K4me3 interactions with TAF3 regulate preinitiation complex assembly and selective gene activation. **Cell**. 2013 Feb 28; 152 (5): 1021-36.
17. **Z Tang**, WY Chen, M Shimada, UT Nyguyen, J Kim, XJ Sun, T. Sengoku, RK McGinty, JP Fernandez, TW Muir, RG Roeder. SET1 and p300 act synergistically, through coupled histone modifications, in transcriptional activation by p53. **Cell**. 2013 June 18; 154 (2): 297-310.
18. XJ Sun, Z Wang, L Wang, Y Jiang, N Kost, TD Soong, WY Chen, **Z Tang**, T Nakadai, O Elemento, W Fischle, A Melnick, DJ Patel, SD Nimer, RG Roeder. A stable transcription factor complex nucleated by oligomeric AML1-ETO controls leukaemogenesis. **Nature**. 2013 Aug 1; 500 (7460): 93-7.
19. C Deng, Y Li, S Liang, K Cui, T Salz, H Yang, **Z Tang**, PG Gallagher, Y Qiu, RG Roeder, K Zhao, J Bungert, S Huang. USF1 and hSET1A mediated epigenetic modifications regulate lineage differentiation and HoxB4 transcription. **PLoS Genetics**. 2013 June; 6 (9): e1003524.
20. H Jiang, X Lu, M Shimada, Y Dou, **Z Tang**, RG Roeder. Regulation of transcription by the MLL2 complex and MLL complex-associated AKAP95. **Nature Structural and Molecular Biology**. 2013 Oct; 20 (10): 1156-63.
21. DH Kim, **Z Tang**, M Shimada, B Fierz, B Houck-Loomis, M Bar-Dagen, S Lee, SK Lee, TW Muir, RG Roeder, and JW Lee. Histone H3 K27 trimethylation inhibits H3 binding and function of SET1-like H3K4 methyltransferase complexes. **Molecular and Cellular Biology**. 2013 Dec; 33 (24): 4936-46.
22. BR Sabari, **Z Tang**, H Huang, V Yong-Gonzalez, H Molina, HE Kong, L Dai, M Shimada, JR Cross, Y Zhao, RG Roeder, CD Allis. Intracellular crotonyl-CoA stimulates transcription through p300-catalyzed histone crotonylation. **Molecular Cell**. 2015 Apr 16; 58 (2): 203-15.

23. MT Holt, Y David, S Pollock, **Z Tang**, J Jeon, J Kim, RG Roeder, TW Muir. Identification of a Functional Hotspot on Ubiquitin Required for Stimulation of Methyltransferase Activity on Chromatin. **Proceedings of the National Academy of Sciences**. 2015 Aug 18; 112 (33): 10365-70.
24. M Chen, N Zhu, X Liu, B Laurent, **Z Tang**, R Eng, Y Shi, SA Armstrong, RG Roeder. JMJD1C is required for the survival of acute myeloid leukemia leukemia by functioning as a cocactivator for key transcription factors. **Genes & Development**. 2015, Oct 15; 29(20): 2123-39.
25. Y Xiao, **Z Tang**, J Yin, Y Liang, X Fu, RG Roeder, G Wang. The Mediator subunit MED23 couples H2B mono-ubiquitination to transcriptional control and cell fate determination. **The EMBO Journal**. 2015, Dec 2; 34(23): 2885-902.
26. M Yu, W Yang, T Ni, **Z Tang**, T Nakadai, J Zhu, RG Roeder. RNA polymerase II-associated factor 1 regulates the release and phosphorylation of paused RNA polymerase II. **Science**. 2015 Dec 11; 350 (6266): 1383-6.
27. Z Xie, D Zhang, D Chung, **Z Tang**, H Huang, L Dai, S Qi, J Li, G Colak, Y Chen, C Xia, C Peng, H Ruan, M Kirkey, D Wang, M Tan, DB Lombard, KP White, H Zhao, J Li, RG Roeder, X Yang, and Y Zhao. Metabolic Regulation of Gene Expression by Histone Lysine b-hydroxybutyrylation. (Revising process)