

ELIZABETH J. TRAN, Ph.D.
ASSOCIATE PROFESSOR OF BIOCHEMISTRY
PURDUE UNIVERSITY

EDUCATION AND TRAINING

Vanderbilt Medical Center	Postdoc Fellow	2004-2009
NC State University	PhD in Biochemistry	1999-2004
Texas A&M University	BS in Genetics, Magna cum Laude	1994-1998

PROFESSIONAL APPOINTMENTS

Associate Professor	Purdue University	2015-present
Member, Purdue Cancer Center	Purdue University	2009-present
Assistant Professor	Purdue University	2009-2015

HONORS AND AWARDS

2018	The RNA Society Lifetime Achievement in Service Awardee
2015-1017	The RNA Society, Elected to Board of Directors
2011	Purdue University, Seeds of Success Award
2010	Outstanding Alumnus Award, College of Agriculture North Carolina State University
2009	Outstanding Postdoctoral Fellow of the Year Award Vanderbilt University Medical Center, Department of Cell and Developmental Biology
2003	Anne A. J. Work Award for Outstanding Graduate Research (North Carolina State University)

SCIENTIFIC SERVICE

2019 - 2023	Permanent Study Section Member, Molecular Genetics A (MGA), NIH
2017 - Present	Associate Editor of Genetics (Journal for Genetics Society of America)
2009 - Present	Reviewer for Journals (EMBO, Nucleic Acids Research, BBA-Molecular Cell Research, Journal of Molecular Biology, RNA Journal, Cancer Discovery, Genetics, PLOS Biology, PLOS Genetics, PNAS)
2014 - 2018	Ad hoc Reviewer for NIH-NIGMS (MGB, MIRA R35 Awards)
2014 - Present	Reviewer for American Heart Association, Basic Cell Genetics/Epigenetics (Ad Hoc)
Fall 2012	Reviewer for Human Frontiers in Science Program (HFSP) (Ad Hoc)
Fall 2012	Reviewer for NSF, Division of Molecular and Cellular Biosciences (Ad Hoc)

PROFESSIONAL SOCIETIES

2017 – Present	Genetics Society of America, Member
2015 - 2017	The RNA Society, Board of Directors
2012 - 2014	The RNA Society, Junior Scientist Co-chair
2006 - 2008	The RNA Society, Postdoctoral Representative
2006 – 2009	American Society for Cell Biology, member

2001 – Present

The RNA Society, member

PUBLICATIONS

1. Lai Y-H.¹, Choudhary, K., Cloutier, S.C., Xing, Z.³, Aviran, S., Tran, E.J. (2019) Genome-wide discovery of DEAD-box RNA helicase targets reveals RNA structural remodeling in transcription termination. *Genetics*. **212**(1):153-174.
2. Choudhary, K., Lai, Y-H.¹, Tran, E.J., Aviran, S. (2019) dStruct: identifying differentially reactive regions from RNA structurome profiling data. *Genome Biol.* **20**(1):40.
3. Xing, Z.³, Ma, W. K., Tran, E. J. (2019) The DDX5/Dbp2 subfamily of DEAD-box RNA helicases. *Wiley Interdiscip Rev RNA*. **10**(2):e1519.
4. Tedeschi, F. A., Cloutier, S. C., Tran, E. J., Jankowsky, E. (2018) The DEAD-box protein Dbp2p is linked to noncoding RNAs, the Helicase Sen1p, and R-loops. *RNA*. **24**(12):1693-1705.
5. Wang, S.¹, Xing, Z.¹, Pascuzzi, P. E., Tran, E. J. (2017) Metabolic Adaptation to Nutrients Involves Coregulation of Gene Expression by the RNA Helicase Dbp2 and the Cyc8 Co-repressor. *G3*. **7**(7):2235-2247.
6. Xing, Z.¹, Wang, S.¹, Tran, E.J. (2017) Characterization of the mammalian DEAD-box protein DDX5 reveals functional conservation with *S. cerevisiae* ortholog Dbp2 in transcriptional control and glucose metabolism. *RNA*. **23**(7):1125-1138.
7. Yang, Y., H. La, K. Tang, D. Miki, L. Yang, B. Wang, C.G. Duan, W. Nie, X. Wang, S. Wang¹, Y. Pan, E.J. Tran, L. An, H. Zhang, and J.K. Zhu. (2017) SAC3B, a central component of the mRNA export complex TREX-2, is required for prevention of epigenetic gene silencing in Arabidopsis. *Nucleic Acids Res.* **45**(1): p. 181-197.
8. Beck, Z.T., Xing, Z., and Tran, E. J. (2016) LncRNAs: Bridging environmental sensing and gene expression. *RNA Biol.* **13**(12): p. 1189-1196.
9. Zhang H, Xing Z¹, Mani SK, Bancel B, Durantel D, Zoulim F, Tran E. J., Merle P, Andrisani O. (2016) RNA helicase DEAD box protein 5 regulates Polycomb repressive complex 2/Hox transcript antisense intergenic RNA function in hepatitis B virus infection and hepatocarcinogenesis. *Hepatology*. **64**(4): p. 1033-48.
10. Ma, W. K., Paudel, B. P., Xing, Z., Sabath, I. G., Rueda, D., Tran, E. J. (2016) Recruitment, Duplex Unwinding and Protein-mediated Inhibition of the DEAD-box RNA helicase Dbp2 at Actively Transcribed Chromatin. *J Mol Biol.* **428**, 1091-1106.
11. Cloutier, S.C., Wang, S., Ma, W. K., Al Husini, N., Dhoondia, A., Ansari, A., Pascuzzi, P. E., Tran E. J. (2016) Regulated formation of lncRNA-DNA hybrids enables faster transcriptional induction and environmental adaptation. *Mol. Cell.* **61**(3): 393-404. ***Highlighted in *Science Signaling*: <http://stke.sciencemag.org/content/9/416/ec36.abstract>
12. Shively, C. A., Kweon, H. K., Norman, K. L., Mellacheruvu, D., Xu, T., Sheidy, D. T., Dobry, C. J., Sabath, I., Cosky, E. E. P., Tran, E. J., Nesvizhskii, A., Andrews, P. C., Kumar, A. (2015) Large-scale Analysis of Kinase Signaling in Yeast Pseudohyphal Development Identifies Regulation of Ribonucleoprotein Granules. *PLoS Genetics*. ***Selected by Faculty of 1000: <http://f1000.com/prime/725838738?ref=ypp>

13. Ma, W.K. and Tran, E.J. 2015. Measuring helicase inhibition of the DEAD-box protein Dbp2 by Yra1 in *RNA Remodeling Proteins: Methods and Protocols*, Vol. 1259. (M. Boudvillain, Ed.), Springer New York, pp. 183-197.
14. Beck, Z., Cloutier, S. C., Schipma, M., Petell, C. J., Ma, W. K., Tran, E. J. (2014) Regulation of Glucose-dependent Gene Expression by the RNA Helicase Dbp2 in *S. cerevisiae*. *Genetics*. 198:1001-1014.
15. Tran, E. J., King, M., Corbett, A. H. (2014) Macromolecular Transport between the Nucleus and the Cytoplasm: Advances in Mechanism and Emerging Links to Disease. *BBA-Molecular Cell Research*. 1843: 2784-2975.
16. Cloutier, S. C., Wang, S., Ma, W. K., Petell, C. J., & Tran, E. J. (2013). Long noncoding RNAs promote transcriptional poisoning of inducible genes. *PLoS Biol.*, 11(11):e1001715. ***Highlighted in Nature: <http://www.nature.com/nature/journal/v504/n7478/full/504011c.html>
17. Wang, S., Tran, E. J. (2013) Unexpected Functions of lncRNAs in Gene Regulation. *Comm and Int. Biol.* e27610
18. Ma, W. K., Cloutier, S. C., Tran, E. J. (2013) The DEAD-box Protein Dbp2 Functions with the RNA-Binding Protein Yra1 to Promote mRNP Assembly. *J Mol Biol.* 425, 3824-3838.
19. Cloutier S. C., Ma W.K., Nguyen L.T., Tran E.J. (2012) The DEAD-box RNA Helicase Dbp2 Connects RNA Quality Control with Repression of Aberrant Transcription. *J Biol Chem*. 287(31):26155-26166. ***Selected for Journal of Biological Chemistry's best publications of 2012.
20. Noble K.N., Tran E.J., Alcázar-Román A.R., Hodge C.A., Cole C.N., Wentz S.R. (2011) The Dbp5 cycle at the nuclear pore complex during mRNA export II: nucleotide cycling and mRNP remodeling by Dbp5 are controlled by Nup159 and Gle1. *Genes Dev.* 25, 1065-77.
21. Hodge C.A., Tran E.J., Noble K.N., Alcazar-Roman A.R., Ben-Yishay R., Scarcelli J.J., Folkmann A.W., Shav-Tal Y., Wentz S.R., Cole C.N. (2011) The Dbp5 cycle at the nuclear pore complex during mRNA export I: dbp5 mutants with defects in RNA binding and ATP hydrolysis define key steps for Nup159 and Gle1. *Genes Dev.* 25, 1052-64.
22. *Carmody S.R., *Tran E.J., Apponi LH, Corbett A.H., Wentz S.R. (2010) The mitogen-activated protein kinase Sit2 regulates nuclear retention of non-heat shock mRNAs during heat shock-induced stress. *Mol. Cell Biol.* 30, 5168-79. *Equal contribution.
23. Kelly, S. M., Leung, S. W., Apponi, L., Bramley, A. M., Tran, E. J., Chekanova, J. A., Wentz, S. R., Corbett, A. H. (2010) The RNA Binding Protein, Nab2, is Required for Correct mRNA 3'-end Formation: Recognition of Polyadenosine RNA by CCCH Zinc Fingers. *J. Biol. Chem.* 285, 26022-26032.
24. Bolger, T. A., Folkman, A. W., Tran, E. J., Wentz, S. R. (2008) The mRNA export factor Gle1 and inositol hexakisphosphate regulate distinct stages of translation. *Cell* 134, 624-633.
25. Tran, E. J., Bolger, T. A., Wentz, S. R. (2007) Snapshot: Nuclear Transport. *Cell* 131: 420.

26. Tran, E. J., Zhou, Y., Corbett, A. H., Wentz, S. R. (2007) The DEAD-box protein Dbp5 controls mRNA export by triggering specific RNA: protein Remodeling Events. *Mol. Cell* 28, 850-859.
27. Tran, E. J., Wentz, S. R. (2006) Dynamic Nuclear Pore Complexes: Life on the Edge. *Cell* 125: 1041-1053.
28. Alcazar-Roman, A., Tran, E. J., Guo, S. L., Wentz, S. R. (2006) Inositol Hexakisphosphate and Gle1 Activate the DEAD-box Protein Dbp5 for Nuclear mRNA Export. *Nat. Cell Biol.* 8, 711-716.
29. Zhang, X., Champion, E. A., Tran, E. J., Brown II, B. A., Baserga, S. J., Maxwell, E. S. (2006) The Coiled-Coil Domain of the Nop56/58 Core Protein is Dispensible for sRNP Assembly but Is Critical for Archaeal Box C/D sRNP-Guided Nucleotide Methylation. *RNA* 12: 1092-1103.
30. Suryadi, J., Tran, E. J., Maxwell, E. S., Brown II, B. A. (2005) Crystal Structure of the Methanocaldococcus jannaschii Multifunctional L7Ae RNA-binding Protein Reveals an Induced-fit Interaction with the Box C/D RNAs. *Biochemistry* 44, 9657-9672.
31. Tran, E., Zhang, X., Lackey, L., Maxwell, E. S. (2005) Conserved Spacing Between the Box C/D and C'/D' Motifs in Archaeal Box C/D sRNPs is Required for Efficient 2'-O-Methylation Activity. *RNA* 11, 285-93.
32. Singh, S. K., Gurha, P., Tran, E. J., Maxwell, E. S., Gupta, R. (2004) Sequential 2'-O-Methylation of Archaeal Pre-tRNA^{Trp} Nucleotides Guided by the Pre-tRNA's Intron-Encoded, But Trans-Acting Box C/D RNP. *J. Biol Chem.* 279, 47661-47671.
33. Tran, E., Brown, J., Maxwell, E. S. (2004) Evolutionary Origins of the RNA-Guided Nucleotide-Modification Complexes: From the Primitive Translational Apparatus? *Trends in Biochem. Sci.* 29, 343-350.
34. Tran, E. J., Zhang, X., and Maxwell, E. S. (2003) Efficient RNA 2'-O-Methylation Requires Juxtaposed and Symmetrically Assembled Archaeal Box C/D and C'/D' RNPs. *EMBO J.* 22: 3930-3940.
35. Kuhn, J., Tran, E. J., and Maxwell, E. S. (2002) Archaeal Ribosomal Protein L7 is a Functional Homolog of the Eukaryotic 15.5kD/Snu13p snoRNP core protein. *Nucleic Acids Res.* 30: 931-941.

Published Work also on MyBibliography and Google Scholar:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/elizabeth.tran.1/bibliography/43391016/public/?sort=date&direction=ascending>.

<https://scholar.google.com/citations?user=2qVV6uQAAAAJ&hl=en>

CURRENT SUPPORT

R01GM097332

Tran (PI)

04/01/11 – 03/31/2021

Title: The Role of DEAD-box Proteins in Gene Expression

R01DK044533

Andrisani (PI), Tran (co-PI) 04/01/17 – 03/31/2022

Title: Mechanisms of Hepatocyte Transformation by the Hepatitis B Virus X Protein