CURRICULUM VITAE

Ching Kai Douglas Wu

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EDUCATION

The University of Texas at Austin (UT Austin) **Austin, TX**
PhD candidate, (GPA of 3.84), Institute for Cellular & Molecular Biology ***Fall 2013-present***

- Advisors: Drs. Alan M. Lambowitz and Claus Wilke
- University Graduate Continuing Fellowships (2017-2018)

University of Illinois at Urbana Champaign (UIUC) **Urbana, IL**
B.S. (GPA of 3.67), Biochemistry ***Fall 2009-Spring 2013***

- Biochemistry High Distinction Award
- Dean List (Fall 2010, Spring 2011)
- Member of Alpha Lambda Delta Honor Society (Since 2009)

RESEARCH EXPERIENCE

Prof. Alan Lambowitz's Laboratory **Austin, TX**
Molecular Bioscience and Institute for Cellular & Molecular Biology ***Winter 2013-present***
The University of Texas at Austin

- Develop whole cell RNA-seq library construction using TGIRT
- Work with RNA-seq analysis for exosomal and plasma RNA-seq
- Develop plasma cell-free ssDNA-seq using TGIRT
- Predict RNA modifications from TGIRT-seq data
- Working with Center for Quantitative Biolody to build and manage remote scalable storage server for lab NGS data

Prof. Claus Wilke's Laboratory **Austin, TX**
Institute for Cellular and molecular Biology ***Winter 2013-present***
The University of Texas at Austin

- Develop RNA-seq analysis for plasma RNA-seq

Prof. Laura Sugg's Laboratory **Austin, TX**
Department of Biomedical Engineering ***Fall 2013***
The University of Texas at Austin

- Use computer simulation to quantifying magnetic-induced force that directs embryoid bodies into mesodermal lineages

Prof. Ning Wang's Laboratory **Urbana, IL**
Department of Mechanical Engineering ***Spring 2010 - Spring 2013***
University of Illinois at Urbana Champaign

- Study force-induced biochemical changes in embryonic stem cells
- Examine the stress-induce disruption of cajal body using CFP-SMN, YFP-Coilin Hela cells
- Culture melanoma B16F1 cells, tumorigenic cells, embryonic stem cells in 3D fibrin matrix

Prof. Mary Waye's Laboratory **Hong Kong**
Department of Biochemistry ***Summer 2010***
Chinese University of Hong Kong

- Investigate KIAA0319 gene on suicide and musically perfect pitch using human DNA extracted from saliva

PUBLICATION

- **Douglas C. Wu** and Alan M. Lambowitz (2017). Facile single-stranded DNA sequencing of human plasma DNA via thermostable group II intron reverse transcriptase template switching. *Scientific Reports*.
- Ryan M. Nottingham*, **Douglas C. Wu*** , Yidan Qin, Jun Yao, Scott Hunicke-Smith, and Alan M. Lambowitz (2016). RNA-Seq of human reference RNA samples using a thermostable group II intron reverse transcriptase. *RNA*. Vol. 22, no. 4, pp. 597-613. (*Contributed equally)
- Yidan Qin, Jun Yao, **Douglas C. Wu**, Ryan M. Nottingham, Sabine Mohr, Scott Hunicke-Smith and Alan M. Lambowitz (2016). Profiling of circulating RNAs in human plasma by using thermostable group II intron reverse transcriptase template switching. *RNA*. Vol. 22, no. 1, pp. 111-128.
- Laura R. Geuss, **Douglas C. Wu**, Divya Ramamoorthy, Corinne D. Alford, Laura J. Suggs (2014). Paramagnetic Beads and Magnetically Mediated Strain Enhance Cardiomyogenesis in Mouse Embryoid Bodies. *PLoS ONE*. Vol. 9, no. 12.
- Youhua Tan, Arash Tajik, Junwei Chen, Qiong Jia, Farhan Chowdhury, Lili Wang, Junjian Chen, Shuang Zhang, Ying Hong, Haiying Yi, **Douglas C. Wu**, Yuejin Zhang, Fuxiang Wei, Yeh-Chuin Poh, Jihye Seong, Rishi Singh, Li-Jung Lin, Sultan Doganay, Yong Li, Haibo Jia, Taekjip Ha, Yingxiao Wang, Bo Huang, Ning Wang (2014). Matrix softness regulates plasticity of tumour-repopulating cells via H3K9 demethylation and Sox2 expression. *Nature Communication*. Vol. 5, no. 4691.
- Yeh-Chuin Poh, Junwei Chen, Ying Hong, Haiying Yi, Shuang Zhang, Junjian Chen, **Douglas C. Wu**, Lili Wang, Qiong Jia, Rishi Singh, Wenting Yao, Youhua Tan, Arash Tajik, Tetsuya S. Tanaka, Ning Wang (2014). Generation of organized mouse germ layers from single embryonic stem cell. *Nature Communication*. Vol. 5, no. 4000.
- Yeh-Chuin Poh, Sergey P. Shevtsov, Farhan Chowdhury, **Douglas C. Wu**, Sungsoo Na, Miroslav Dundr, Ning Wang (2012). Dynamic force-induced direct dissociation of protein complexes in a nuclear body in living cells. *Nature Communication*. Vol. 3, no. 866.
- Yuhei Uda, Yeh-Chuin Poh, Farhan Chowdhury, **Douglas C. Wu**, Tetsuya S. Tanaka, Masaaki Sato, and Ning Wang (2011). Force via integrins but not E-cadherin decreases Oct3/4 expression in embryonic stem cells. *Biochemical and Biophysical Research Communications*. Vol. 415, no. 2, pp. 396-400.
- **Douglas Wu** and Mary Waye (2011). The relationship between MicroRNA and Tumor Suppressors, *Tumor Suppressors*, eds Susan D. Nguyen (Nova Science Publishers, New York), pp. 175-188.

MANUSCRIPT

- **Douglas C. Wu**, Alfread Lentzsch, Jun Yao, Ryan M. Nottingham, Yidan Qin, Claus O. Wilke, and Alan M. Lambowitz. TGIRT-HAMR: Thermostable Group II Intron Reverse Transcriptase High Throughput Annotation of Modified Ribonucleotides. (In preparation)

SKILLS

- Languages: Fluent in writing and speaking Mandarin Chinese, Cantonese Chinese
- Programming Languages: *Python, R, Bash, Matlab, Octave*, LaTeX, *C++/C*, *MySQL*, IGV scripts (Ordered by proficiency)
- Working knowledge of High Performance Computing: SGE Batch Environment (TACC lonestar), SLURM (TACC stampede, lonestar 5)
- Working knowledge of High throughput Computing/ Grid computing: HTcondor

INVITED TALKS

- Using TGIRT for ssDNA-seq of cell free DNA in human plasma
  Center for Biomedical Research Support Open House
  The University of Texas at Austin, Austin, TX. April 18, 2017
- Use of TGIRT for ssDNA-seq of Cell-Free DNA in Human Plasma
  RNA & DNA club
  The University of Texas at Austin, Austin, TX. Mar 14, 2017
- High-throughput RNA sequencing with Thermostable Group II Intron Reverse Transcriptase
  Molecular Bioscience retreat
  The University of Texas at Austin, Austin, TX. Mar 5, 2016
- Next generation sequencing of circulating RNA in plasma
  Byte club meeting
  The University of Texas at Austin, Austin TX. Feb 19, 2014

POSTER PRESENTATIONS

- Use of Thermostable Group II Intron Reverse Transcriptases (TGIRTs) for Single- Stranded DNA-seq of Cell-Free DNA in Human Plasma and Molecular Diagnostics
  Advances in Genome Biology and Technology (AGBT)
  Diplomat Resort, Hollywood Beach, FL. Feb 15, 2017
- High Throughput Single-stranded Plasma DNA Sequencing Using Thermostable Group II Intron Reverse Transcriptase
  Procter & Gamble Poster Competition
  The University of Texas at Austin, TX. Nov 9, 2016
- High Throughput Single-stranded Plasma DNA Sequencing Using Thermostable Group II Intron Reverse Transcriptase
  Institute for Cellular and Molecular Biology Retreat
  Horseshoe bay Resort, Marble Fall, TX. Sep 3, 2016
- RNA-seq of Whole Cell, Exosomal, Human Plasma RNAs with Thermostable Group II Intron Reverse Transcriptases (TGIRTs)
  Institute for Cellular and Molecular Biology Recruitment Weekend
  The University of Texas at Austin, Austin TX. Feb 19, 2016