

CURRICULUM VITAE

Ching Kai Douglas Wu

Louise and James Robert Moffett Molecular Biology Building
2500 Speedway Austin, Austin, TX 78705
wckdouglas.github.io
+1 (310) 658-1540
wckdouglas@utexas.edu

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 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

- Evaluated the use of TGIRT-seq in profiling and differential expression detection from whole cell RNA
- Profiled human plasma cell-free RNA using TGIRT-seq
- Developed a single-stranded DNA-seq method for human plasma cell-free DNA using TGIRT
- Developed a statistical learning pipeline for predicting RNA modifications from TGIRT-seq data
- Collaborated with Center for Quantitative Biology 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

- Developed NGS analytic pipeline for comprehensively profiling of human plasma TGIRT-seq

Prof. Laura Sugg's Laboratory

Austin, TX

Department of Biomedical Engineering

Fall 2013

The University of Texas at Austin

- Quantified magnetic-induced force that directs embryoid bodies into mesodermal lineages using simulation

Prof. Ning Wang's Laboratory

Urbana, IL

Department of Mechanical Engineering

Spring 2010 - Spring 2013

University of Illinois at Urbana Champaign

- Identified force-induced biochemical changes in embryonic stem cells
- Examined pathways in stress-induced disruption of nucleolar protein using FRET
- Identified effect of 3D-culturing melanoma B16F1 cells, tumorigenic cells, embryonic stem cells using fibrin matrix

Prof. Mary Waye's Laboratory

Hong Kong

Department of Biochemistry

Summer 2010

Chinese University of Hong Kong

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

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 Ionestar), SLURM (TACC stampede, Ionestar 4)
- Working knowledge of High throughput Computing/ Grid computing: HTcondor

PUBLICATION

- 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**, Alfredd 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)
- **Douglas C. Wu** and Alan Lambowitz. High-Throughput Single-Stranded DNA Sequencing of Human Genomic and Plasma DNA by Using a Thermostable Group II Intron Reverse Transcriptase (TGIRT) (In preparation)

INVITED TALKS

- 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

- 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