

Stanford



Kitch Wilson

Instructor, Pathology

 NIH Biosketch available Online

CLINICAL OFFICES

- **Pathology**

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Bio

CLINICAL FOCUS

- Molecular Genetic Pathology
- Pathology

ACADEMIC APPOINTMENTS

- Instructor, Pathology

HONORS AND AWARDS

- K08 HL119251, National Heart, Lung, and Blood Institute (2016-2021)

PROFESSIONAL EDUCATION

- Medical Education: Duke University (2006) NC
- Fellowship: Stanford University School of Medicine Registrar (2013) CA
- Residency: Stanford University School of Medicine Registrar (2014) CA
- PhD, Stanford University , Bioengineering (2010)
- BS, Stanford University , Mechanical Engineering (1997)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I'm interested in both basic and translational cardiovascular biology, regenerative medicine and genomics. Much of my work merges next generation sequencing (NGS) with iPS cell models to find and characterize primate-specific elements within the noncoding genome (lncRNAs, transposable elements, enhancers). Some of these primate elements appear to regulate heart development, disease and even evolution, and with the enormous growth in pluripotent cell technologies their functions can now be experimentally studied. In translational work, I'm developing custom targeted NGS assays for identifying the DNA mutations that underlie cardiomyopathies and other heart diseases.

Publications

PUBLICATIONS

- **A Rapid, High-Quality, Cost-Effective, Comprehensive and Expandable Targeted Next-Generation Sequencing Assay for Inherited Heart Diseases.** *Circulation research*
Wilson, K. D., Shen, P., Fung, E., Karakikes, I., Zhang, A., Inanloorahatloo, K., Odegaard, J., Sallam, K., Davis, R. W., Lui, G. K., Ashley, E. A., Scharfe, C., Wu, et al
2015; 117 (7): 603-611
- **Induced pluripotent stem cells.** *JAMA*
Wilson, K. D., Wu, J. C.
2015; 313 (16): 1613-1614
- **Dynamic MicroRNA Expression Programs During Cardiac Differentiation of Human Embryonic Stem Cells Role for miR-499** *CIRCULATION-CARDIOVASCULAR GENETICS*
Wilson, K. D., Hu, S., Venkatasubrahmanyam, S., Fu, J., Sun, N., Abilez, O. J., Baugh, J. J., Jia, F., Ghosh, Z., Li, R. A., Butte, A. J., Wu, J. C.
2010; 3 (5): 426-U97
- **MicroRNA Profiling of Human-Induced Pluripotent Stem Cells** *STEM CELLS AND DEVELOPMENT*
Wilson, K. D., Venkatasubrahmanyam, S., Jia, F., Sun, N., Butte, A. J., Wu, J. C.
2009; 18 (5): 749-757
- **Determining the Pathogenicity of a Genomic Variant of Uncertain Significance Using CRISPR/Cas9 and Human-Induced Pluripotent Stem Cells.** *Circulation*
Ma, N., Zhang, J., Itzhaki, I., Zhang, S. L., Chen, H., Haddad, F., Kitani, T., Wilson, K. D., Tian, L., Shrestha, R., Wu, H., Lam, C. K., Sayed, et al
2018
- **SETD7 Drives Cardiac Lineage Commitment through Stage-Specific Transcriptional Activation.** *Cell stem cell*
Lee, J., Shao, N. Y., Paik, D. T., Wu, H., Guo, H., Termglinchan, V., Churko, J. M., Kim, Y., Kitani, T., Zhao, M. T., Zhang, Y., Wilson, K. D., Karakikes, et al
2018; 22 (3): 428-44.e5
- **A Comprehensive TALEN-Based Knockout Library for Generating Human Induced Pluripotent Stem Cell-Based Models for Cardiovascular Diseases.** *Circulation research*
Karakikes, I., Termglinchan, V., Cepeda, D. A., Lee, J., Diecke, S., Hendel, A., Itzhaki, I., Ameen, M., Shrestha, R., Wu, H., Ma, N., Shao, N., Seeger, et al
2017
- **LincRNAs: Systemic Computational Identification and Functional Exploration** *CURRENT BIOINFORMATICS*
Hu, H., Wilson, K. D., Zhong, S., He, C.
2017; 12 (1): 34-42
- **Systematic Characterization of Long Noncoding RNAs Reveals the Contrasting Coordination of Cis- and Trans-Molecular Regulation in Human Fetal and Adult Hearts** *CIRCULATION-CARDIOVASCULAR GENETICS*
He, C., Hu, H., Wilson, K. D., Wu, H., Feng, J., Xia, S., Churko, J., Qu, K., Chang, H. Y., Wu, J. C.
2016; 9 (2): 110-118
- **The role of Hath6, a newly identified shear-stress-responsive transcription factor, in endothelial cell differentiation and function** *JOURNAL OF CELL SCIENCE*
Fang, F., Wasserman, S. M., Torres-Vazquez, J., Weinstein, B., Cao, F., Li, Z., Wilson, K. D., Yue, W., Wu, J. C., Xie, X., Pei, X.
2014; 127 (7): 1428-1440
- **MicroRNA-302 Increases Reprogramming Efficiency via Repression of NR2F2** *STEM CELLS*
Hu, S., Wilson, K. D., Ghosh, Z., Han, L., Wang, Y., Lan, F., Ransohoff, K. J., Burrige, P., Wu, J. C.
2013; 31 (2): 259-268
- **Distinct Roles of MicroRNA-1 and-499 in Ventricular Specification and Functional Maturation of Human Embryonic Stem Cell-Derived Cardiomyocytes** *PLOS ONE*
Fu, J., Rushing, S. N., Lieu, D. K., Chan, C. W., Kong, C., Geng, L., Wilson, K. D., Chiamvimonvat, N., Boheler, K. R., Wu, J. C., Keller, G., Hajjar, R. J., Li, et al
2011; 6 (11)

- **Dissecting the Oncogenic and Tumorigenic Potential of Differentiated Human Induced Pluripotent Stem Cells and Human Embryonic Stem Cells** *CANCER RESEARCH*
Ghosh, Z., Huang, M., Hu, S., Wilson, K. D., Dey, D., Wu, J. C.
2011; 71 (14): 5030-5039
- **Single cell transcriptional profiling reveals heterogeneity of human induced pluripotent stem cells** *JOURNAL OF CLINICAL INVESTIGATION*
Narsinh, K. H., Sun, N., Sanchez-Freire, V., Lee, A. S., Almeida, P., Hu, S., Jan, T., Wilson, K. D., Leong, D., Rosenberg, J., Yao, M., Robbins, R. C., Wu, et al
2011; 121 (3): 1217-1221
- **Human germ cell differentiation from fetal- and adult-derived induced pluripotent stem cells** *HUMAN MOLECULAR GENETICS*
Panula, S., Medrano, J. V., Kee, K., Bergstrom, R., Ha Nam Nguyen, N. N., Byers, B., Wilson, K. D., Wu, J. C., Simon, C., Hovatta, O., Pera, R. A.
2011; 20 (4): 752-762
- **Effects of Ionizing Radiation on Self-Renewal and Pluripotency of Human Embryonic Stem Cells** *CANCER RESEARCH*
Wilson, K. D., Sun, N., Huang, M., Zhang, W. Y., Lee, A. S., Li, Z., Wang, S. X., Wu, J. C.
2010; 70 (13): 5539-5548
- **A nonviral minicircle vector for deriving human iPS cells** *NATURE METHODS*
Jia, F., Wilson, K. D., Sun, N., Gupta, D. M., Huang, M., Li, Z., Panetta, N. J., Chen, Z. Y., Robbins, R. C., Kay, M. A., Longaker, M. T., Wu, J. C.
2010; 7 (3): 197-U46
- **Persistent Donor Cell Gene Expression among Human Induced Pluripotent Stem Cells Contributes to Differences with Human Embryonic Stem Cells** *PLOS ONE*
Ghosh, Z., Wilson, K. D., Wu, Y., Hu, S., Quertermous, T., Wu, J. C.
2010; 5 (2)
- **Functional and Transcriptional Characterization of Human Embryonic Stem Cell-Derived Endothelial Cells for Treatment of Myocardial Infarction** *PLOS ONE*
Li, Z., Wilson, K. D., Smith, B., Kraft, D. L., Jia, F., Huang, M., Xie, X., Robbins, R. C., Gambhir, S. S., Weissman, I. L., Wu, J. C.
2009; 4 (12)
- **Current-Controlled Electrical Point-Source Stimulation of Embryonic Stem Cells** *CELLULAR AND MOLECULAR BIOENGINEERING*
Chen, M. Q., Xie, X., Wilson, K. D., Sun, N., Wu, J. C., Giovangrandi, L., Kovacs, G. T.
2009; 2 (4): 625-635
- **Feeder-free derivation of induced pluripotent stem cells from adult human adipose stem cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Sun, N., Panetta, N. J., Gupta, D. M., Wilson, K. D., Lee, A., Jia, F., Hu, S., Cherry, A. M., Robbins, R. C., Longaker, M. T., Wu, J. C.
2009; 106 (37): 15720-15725
- **nAChRs Mediate Human Embryonic Stem Cell-Derived Endothelial Cells: Proliferation, Apoptosis, and Angiogenesis** *PLOS ONE*
Yu, J., Huang, N. F., Wilson, K. D., Velotta, J. B., Huang, M., Li, Z., Lee, A., Robbins, R. C., Cooke, J. P., Wu, J. C.
2009; 4 (9)
- **Bioluminescence reporter gene imaging of human embryonic stem cell survival, proliferation, and fate.** *Methods in molecular biology (Clifton, N.J.)*
Wilson, K. D., Huang, M., Wu, J. C.
2009; 574: 87-103
- **Transcriptional and Functional Profiling of Human Embryonic Stem Cell-Derived Cardiomyocytes** *PLOS ONE*
Cao, F., Wagner, R. A., Wilson, K. D., Xie, X., Fu, J., Drukker, M., Lee, A., Li, R. A., Gambhir, S. S., Weissman, I. L., Robbins, R. C., Wu, J. C.
2008; 3 (10)
- **Transcriptome Alteration in the Diabetic Heart by Rosiglitazone: Implications for Cardiovascular Mortality** *PLOS ONE*
Wilson, K. D., Li, Z., Wagner, R., Yue, P., Tsao, P., Nestorova, G., Huang, M., Hirschberg, D. L., Yock, P. G., Quertermous, T., Wu, J. C.
2008; 3 (7)
- **In vitro and in vivo bioluminescence reporter gene imaging of human embryonic stem cells.** *Journal of visualized experiments : JoVE*
Wilson, K., Yu, J., Lee, A., Wu, J. C.
2008

- **Integration of genomics, proteomics, and imaging for cardiac stem cell therapy** *EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING*

Chun, H. J., Wilson, K. O., Huang, M., Wu, J. C.

2007; 34: S20-S26