

Stanford



Kristy Red-Horse

Associate Professor of Biology

CONTACT INFORMATION

- **Administrative Contact**

Elyse Pierson

Email epierson@stanford.edu

Tel 650.725.4816

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Biology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

LINKS

- Lab website: <http://redhorselab.com/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Cardiovascular developmental biology

Teaching

COURSES

2018-19

- Developmental Biology: BIO 160 (Win)

2017-18

- Developmental Biology: BIO 160 (Spr)

2016-17

- Cell and Developmental Biology I: BIO 123A (Aut)

2015-16

- Cell and Developmental Biology I: BIO 123A (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Naomi Genuth, Fabian Suchy

Postdoctoral Faculty Sponsor

Gaetano D'Amato, Soumyashree Das, Siyeon Rhee, Ian Williams

Doctoral Dissertation Advisor (AC)

Karen Gonzalez, Ragini Phansalkar

Doctoral Dissertation Co-Advisor (AC)

Suhaas Anbazhakan

Postdoctoral Research Mentor

Ian Williams

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)

Publications

PUBLICATIONS

- **A Unique Collateral Artery Development Program Promotes Neonatal Heart Regeneration.** *Cell*
Das, S., Goldstone, A. B., Wang, H., Farry, J., D'Amato, G., Paulsen, M. J., Eskandari, A., Hironaka, C. E., Phansalkar, R., Sharma, B., Rhee, S., Shamskhov, E. A., Agalliu, et al
2019
- **Characterization of brain dysfunction induced by bacterial lipopeptides that alter neuronal activity and network in rodent brains.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
Kim, K., Zamaleeva, A. I., Woo Lee, Y., Ahmed, M. R., Kim, E., Lee, H., Raveendra Pothineni, V., Tao, J., Rhee, S., Jayakumar, M., Inayathullah, M., Sivanesan, S., Red-Horse, et al
2018
- **Large-Scale Single-Cell RNA-Seq Reveals Molecular Signatures of Heterogeneous Populations of Human Induced Pluripotent Stem Cell-Derived Endothelial Cells.** *Circulation research*
Paik, D. T., Tian, L., Lee, J., Sayed, N., Chen, I. Y., Rhee, S., Rhee, J., Kim, Y., Wirka, R. C., Buikema, J. W., Wu, S. M., Red-Horse, K., Quertermous, et al
2018
- **Endothelial deletion of Ino80 disrupts coronary angiogenesis and causes congenital heart disease.** *Nature communications*
Rhee, S., Chung, J. I., King, D. A., D'amato, G., Paik, D. T., Duan, A., Chang, A., Nagelberg, D., Sharma, B., Jeong, Y., Diehn, M., Wu, J. C., Morrison, et al
2018; 9 (1): 368
- **Single-cell analysis of early progenitor cells that build coronary arteries.** *Nature*
Su, T., Stanley, G., Sinha, R., D'Amato, G., Das, S., Rhee, S., Chang, A. H., Poduri, A., Raftrey, B., Dinh, T. T., Roper, W. A., Li, G., Quinn, et al
2018
- **DACH1 stimulates shear stress-guided endothelial cell migration and coronary artery growth through the CXCL12-CXCR4 signaling axis** *GENES & DEVELOPMENT*
Chang, A. H., Raftrey, B. C., D'Amato, G., Surya, V. N., Poduri, A., Chen, H. I., Goldstone, A. B., Woo, J., Fuller, G. G., Dunn, A. R., Red-Horse, K.
2017; 31 (13): 1308–24
- **Coronary Artery Development: Progenitor Cells and Differentiation Pathways.** *Annual review of physiology*
Sharma, B., Chang, A., Red-Horse, K.
2017; 79: 1-19

- **Cellular plasticity in cardiovascular development and disease.** *Developmental dynamics*
Das, S., Red-Horse, K.
2017
- **Alternative Progenitor Cells Compensate to Rebuild the Coronary Vasculature in Elabela- and Apj-Deficient Hearts.** *Developmental cell*
Sharma, B., Ho, L., Ford, G. H., Chen, H. I., Goldstone, A. B., Woo, Y. J., Quertermous, T., Reversade, B., Red-Horse, K.
2017
- **Endothelial cells respond to the direction of mechanical stimuli through SMAD signaling to regulate coronary artery size.** *Development (Cambridge, England)*
Poduri, A., Chang, A. H., Raftrey, B., Rhee, S., Van, M., Red-Horse, K.
2017; 144 (18): 3241–52
- **Endothelial APLNR regulates tissue fatty acid uptake and is essential for apelin's glucose-lowering effects.** *Science translational medicine*
Hwangbo, C., Wu, J., Papangeli, I., Adachi, T., Sharma, B., Park, S., Zhao, L., Ju, H., Go, G. W., Cui, G., Inayathullah, M., Job, J. K., Rajadas, et al
2017; 9 (407)
- **MicroRNA 139-5p coordinates APLNR-CXCR4 crosstalk during vascular maturation** *NATURE COMMUNICATIONS*
Papangeli, I., Kim, J., Maier, I., Park, S., Lee, A., Kang, Y., Tanaka, K., Khan, O. F., Ju, H., Kojima, Y., Red-Horse, K., Anderson, D. G., Siekmann, et al
2016; 7
- **Pericytes are progenitors for coronary artery smooth muscle.** *eLife*
Volz, K. S., Jacobs, A. H., Chen, H. I., Poduri, A., McKay, A. S., Riordan, D. P., Kofler, N., Kitajewski, J., Weissman, I., Red-Horse, K.
2015; 4
- **Genetic targeting of sprouting angiogenesis using Aplin-CreER.** *Nature communications*
Liu, Q., Hu, T., He, L., Huang, X., Tian, X., Zhang, H., He, L., Pu, W., Zhang, L., Sun, H., Fang, J., Yu, Y., Duan, et al
2015; 6: 6020-?
- **The sinus venosus contributes to coronary vasculature through VEGFC-stimulated angiogenesis** *DEVELOPMENT*
Chen, H. I., Sharma, B., Akerberg, B. N., Numi, H. J., Kivela, R., Saharinen, P., Aghajanian, H., McKay, A. S., Bogard, P. E., Chang, A. H., Jacobs, A. H., Epstein, J. A., Stankunas, et al
2014; 141 (23): 4500-4512
- **Oxygen regulates human cytotrophoblast migration by controlling chemokine and receptor expression** *PLACENTA*
Schanz, A., Red-Horse, K., Hess, A. P., Baston-Buest, D. M., Heiss, C., Kruessel, J. S.
2014; 35 (12): 1089-1094
- **VEGF-C and aortic cardiomyocytes guide coronary artery stem development** *JOURNAL OF CLINICAL INVESTIGATION*
Chen, H. I., Poduri, A., Numi, H., Kivela, R., Saharinen, P., McKay, A. S., Raftrey, B., Churko, J., Tian, X., Zhou, B., Wu, J. C., Alitalo, K., Red-Horse, et al
2014; 124 (11): 4899-4914
- **Developmental Heterogeneity of Cardiac Fibroblasts Does Not Predict Pathological Proliferation and Activation** *CIRCULATION RESEARCH*
Ali, S. R., Ranjbarvaziri, S., Talkhabi, M., Zhao, P., Subat, A., Hojjat, A., Kamran, P., Mueller, A. M., Volz, K. S., Tang, Z., Red-Horse, K., Ardehali, R.
2014; 115 (7): 625-U81
- **Developmental heterogeneity of cardiac fibroblasts does not predict pathological proliferation and activation.** *Circulation research*
Ali, S. R., Ranjbarvaziri, S., Talkhabi, M., Zhao, P., Subat, A., Hojjat, A., Kamran, P., Müller, A. M., Volz, K. S., Tang, Z., Red-Horse, K., Ardehali, R.
2014; 115 (7): 625-635
- **Human induced pluripotent stem cell-derived cardiomyocytes as an in vitro model for coxsackievirus b3-induced myocarditis and antiviral drug screening platform.** *Circulation research*
Sharma, A., Marceau, C., Hamaguchi, R., Burrige, P. W., Rajarajan, K., Churko, J. M., Wu, H., Sallam, K. I., Matsa, E., Sturzu, A. C., Che, Y., Ebert, A., Diecke, et al
2014; 115 (6): 556-566
- **Exploring the world of human development and reproduction** *INTERNATIONAL JOURNAL OF DEVELOPMENTAL BIOLOGY*
Red-Horse, K., Drake, P. M., Fisher, S.
2014; 58 (2-4): 87-93

- **Subepicardial endothelial cells invade the embryonic ventricle wall to form coronary arteries** *CELL RESEARCH*
Tian, X., Hu, T., Zhang, H., He, L., Huang, X., Liu, Q., Yu, W., He, L., Yang, Z., Zhang, Z., Zhong, T. P., Yang, X., Yang, et al
2013; 23 (9): 1075-1090
- **Radial Construction of an Arterial Wall** *DEVELOPMENTAL CELL*
Greif, D. M., Kumar, M., Lighthouse, J. K., Hum, J., An, A., Ding, L., Red-Horse, K., Espinoza, F. H., Olson, L., Offermanns, S., Krasnow, M. A.
2012; 23 (3): 482-493
- **Coronary arteries form by developmental reprogramming of venous cells** *NATURE*
Red-Horse, K., Ueno, H., Weissman, I. L., Krasnow, M. A.
2010; 464 (7288): 549-U100
- **Lymphatic vessel dynamics in the uterine wall** *PLACENTA*
Red-Horse, K.
2008; 29: S55-S59