Stanford



Ngan F. Huang

Associate Professor of Cardiothoracic Surgery (Cardiothoracic Surgery Research) and, by courtesy, of Chemical Engineering

Bio

BIO

Ngan F. Huang is an Associate Professor in the Department of Cardiothoracic Surgery at Stanford University and Principal Investigator at the Veterans Affairs Palo Alto Health Care System. Dr. Huang completed her BS in Chemical Engineering from the Massachusetts Institute of Technology, followed by a PhD in bioengineering from the University of California Berkeley & University of California San Francisco Joint Program in Bioengineering. Prior to joining the faculty, she was a postdoctoral scholar in the Division of Cardiovascular Medicine at Stanford University. Her laboratory investigates the interactions between stem cells and extracellular matrix microenvironment for engineering cardiovascular tissues to treat cardiovascular and musculoskeletal diseases. Dr. Huang has authored over 100 publications and patents, including reports in Nat Med, PNAS, and Nano Lett. She has received numerous honors, most recently including the Society for Biomaterials Mid-Career Award, the Alan Hirsch Mid-Career Award in Vascular Medicine from the American Heart Association, and the inaugural Elena Aikawa Trailblazer award from the International Society for Applied Cardiovascular Biology. She has been inducted as a fellow of the American Heart Association as well as the American Institute for Medical and Biological Engineering. Her research is funded by the NIH, Department of Defense, California Institute of Regenerative Medicine, American Heart Association, and Department of Veteran Affairs.

ACADEMIC APPOINTMENTS

- Associate Professor, Cardiothoracic Surgery
- Associate Professor (By courtesy), Chemical Engineering
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Instructor, School of Medicine, (2010-2012)
- Biomedical Engineer, Veterans Affairs Palo Alto Health Care System, (2012- present)
- Assistant Professor, Cardiothoracic Surgery, (2013-2022)
- Steering Committee Member, Cardiovascular Institute, (2013- present)
- Faculty Fellow, Stanford McCormick and Gabilan Faculty Award, (2015-2016)
- Associate Professor, Cardiothoracic Surgery, (2022- present)
- Courtesy Associate Professor, Chemical Engineering, (2022- present)

HONORS AND AWARDS

- Elena Aikawa Trailblazer Award, International Society for Applied Cardiovascular Biology (2024)
- Fellow, American Institute for Medical and Biological Engineering (AIMBE) (2024)
- Research Career Scientist Award, Department of Veterans Affairs (2023-2028)
- Most Talked About Paper: Multi-scale cellular engineering. https://doi.org/10.1063/1.5129788, APL Bioengineering (2020)
- Finalist, RegMedNet Award for Cultivating Excellence, RegMedNet (2017)
- Jay D. Coffman Young Investigator Award, 2nd Place Winner, American Heart Association Council on Peripheral Vascular Disease, (2017)
- Rising Star Award, Cellular and Molecular Bioengineering Annual Conference (2017)
- Young Innovator Award, journal of Cellular and Molecular Bioengineering (2017)
- Young Investigator Award, Tissue Engineering and Regenerative Medicine-Americas (2017)
- Fellow of the American Heart Association (FAHA), American Heart Association (2016)
- Robert W Hobson II MD Early Career Investigator Award, American Heart Association Council on Peripheral Vascular Disease (2012)
- Jay D. Coffman Young Investigator Award, First Place in Basic Science, Society for Vascular Medicine (2011)
- K99/R00 Pathways to Independence, NIH (2010)
- NRSA Postdoctoral Fellowship, NIH (2009-2010)
- Postdoctoral Fellowship, American Heart Association (2008-2009)
- National Scientist Development Grant, American Heart Association (06/01/10-08/31/10)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair-Elect, Biomedical Engineering Society-Cell Molecular Bioengineering (BMES-CMBE) (2025 - 2025)
- Editorial Board Member, Arterioscler Thromb Vasc Biol (2024 - present)
- Chair, Special Interest Group Representative, Society for Biomaterials (2024 - 2025)
- Chair of Membership Committee, Tissue Engineering and Regenerative Medicine-Americas (2023 - present)
- Specialty Chief Editor, Frontiers in Cardiovascular Medicine (2022 - present)
- Chair, Cardiovascular Biomaterials special interest group, Society for Biomaterials (2021 - 2023)
- Women’s Leadership Committee, American Heart Association, Council on Arteriosclerosis Thrombosis and Vascular Biology (2020 - 2024)
- Advisory Board, Biomaterials Science (2019 - present)
- Editorial Board, Frontiers in Bioengineering and Biotechnology (2019 - present)
- Chair, Cardiac & Vascular Regeneration and Remodeling Thematic Working Interest Group, Tissue Engineering and Regenerative Medicine-Americas (TERMIS-Am) (2019 - 2022)
- Editorial Board Member, Communications Biology (2018 - present)
- Membership Committee Chair, International Society of Applied Cardiovascular Biology (ISACB) (2018 - present)
- Fellow of the American Heart Association (FAHA), 2016 American Heart Association Council on Peripheral Vascular Disease (2016 - present)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, University of CA Berkeley , Bioengineering (2006)
- Master of Science, University of CA Berkeley , Bioengineering (2005)
- Bachelor of Science, MIT , Chemical Engineering (2002)

PATENTS

- Ji Su, Ngan Huang. "United States Patent 7,252,884 Carbon Nanotube/fiber Reinforced Three Dimensionally Ordered Nano Scale Porous Carbon and the Process", NASA

- Huang NF, Zaitseva T, Paukshto M, Fuller GG, Cooke JP, Martin GR.. "United States Patent 10,238,769B2 A Graft For Directed Vascular And Lymphatic Regeneration And Methods To Guide Endothelial Cell Assembly", Fibralign Corporation and The Board of Trustees of Leland Stanford Junior University, Apr 1, 2019
- Hong G, Lee J, Huang NF, Cooke JP, Dai H. "United States Patent 10,264,974 Vascular imaging using near infrared fluorescence.", The Board of Trustees of Leland Stanford Junior University., Apr 1, 2019

LINKS

- Huang Lab Website: http://huanglab.stanford.edu/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Huang's laboratory aims to understand the chemical and mechanical interactions between extracellular matrix (ECM) proteins and pluripotent stem cells that regulate vascular and myogenic function. The fundamental insights of cell-matrix interactions are applied towards stem cell-based therapies with respect to improving cell survival and regenerative capacity, as well as engineered vascularized tissues for therapeutic transplantation. Current projects focus on various aspects of mechanical and physical factors on tissue regeneration. Examples include:

1) Cellular Biomechanics for in High Through Chemical Screening: To develop new technology for high-throughput quantitative assessment of vascular endothelial cell biomechanics for cardiovascular drug screening. We hypothesize that cellular biomechanics can be a predictive biomarker of endothelial health.

2) Engineered Matrix Microarrays to Enhance the Regenerative Potential of iPSC-Derived Endothelial Cells: We propose to develop a combinatorial family of engineered ECMs (eECMs) with independently tunable biochemical and biomechanical cues, including stiffness and stress relaxation rate for high-throughput, matrix array studies of induced pluripotent stem cell-derived endothelial cell (iPSC-EC) survival and angiogenic potential. The optimally designed eECMs will then be coinjected with iPSC-EC for treatment of peripheral arterial disease in a mouse model of hindlimb ischemia (Sponsor: NIH).

3) iPSC-Derived Smooth Muscle Progenitors for Treatment of Abdominal Aortic Aneurysm: We propose to deliver human induced pluripotent stem cell-derived smooth muscle progenitors to the site of abdominal aortic aneurysm will replenish smooth muscle cells, enhance elastin production, and abrogate wall dilatation in a murine model (Sponsor: CIRM).

4) Vascularized Cardiac Patch with Physiological Orientation for Myocardial Repair: The aims are to engineer a vascularized aligned iPSC-derived CM (cardiomyocyte) patch and elucidating the molecular mechanisms of ECM-mediated nitric oxide signaling in enhancing iPSC-CM survival and phenotype; and to determine the therapeutic effect of a vascularized aligned iPSC-derived CM patch for treatment of myocardial infarction (Sponsor: Dept of Veteran Affairs).

Dr. Huang's laboratory research is funded by the National Institues of Health, Department of Defense, California Institute for Regenerative Medicine, and the Department of Veteran Affairs.

Teaching

COURSES

2026-27

- Cardiovascular and Pulmonary Sciences Seminar: MED 223 (Aut, Win)

- Stem Cells in Cardiovascular Regenerative Medicine: CTS 225 (Spr)

2025-26

- Cardiovascular and Pulmonary Sciences Seminar: MED 223 (Aut, Win)
- Stem Cells in Cardiovascular Regenerative Medicine: CTS 225 (Spr)

2024-25

- Cardiovascular and Pulmonary Sciences Seminar: MED 223 (Aut, Win)
- Stem Cells in Cardiovascular Regenerative Medicine: CTS 225 (Spr)

2023-24

- Cardiovascular and Pulmonary Sciences Seminar: MED 223 (Aut, Win)
- Stem Cells in Cardiovascular Regenerative Medicine: CTS 225 (Spr)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Shivesh Anand, Gaoxian Chen, Sha Chen, Ande Marini, Xiaozhuo Wu

Publications

PUBLICATIONS

- **Editorial: Deciphering cardiovascular cell heterogeneity with single cell RNA sequencing.** *Frontiers in medicine*
  Madeddu, P., Huang, N. F.
  2026; 13: 1852794

- **Tissue regenerative medicine: Clinical advances, challenges, and opportunities.** *APL bioengineering*
  Badawy, S., Gopinath, V., Espinosa, A. M., Suthiwanich, K., Kelmser, E. C., Duke, V., Kamaraju, V., Nakayama, K., Manna, M., Liu, J. J., Nunes, S. S., Shen, K., Huang, et al
  2025; 9 (4): 040902

- **Stem cell-based therapies for treatment of abdominal aortic aneurysm: development, application, and future potential.** *npj biomedical innovations*
  Badawy, S., Anand, S., Marini, A. X., Mulorz, J., Tsao, P. S., Huang, N. F.
  2025; 2 (1): 41

- **Geometrically Tunable Scaffold-Free Muscle Bioconstructs for Treating Volumetric Muscle Loss.** *Advanced healthcare materials*
  Ayan, B., Chen, G., Jain, I., Chen, S., Chiang, G., Hu, C., Reyes, R., Oropeza, B. P., Huang, N. F.
  2025: e01887

- **Human iPSC-Based in Vitro Cardiovascular Tissue Models for Drug Screening Applications.** *Current cardiology reports*
  Anand, S., Chen, G., Khanna, A., Huang, N. F.
  2025; 27 (1): 145

- **Filamented Light (FLight) Biofabrication of Aligned Fibrillar Structures to Direct 3D Cell Organization Within Microgels.** *Small (Weinheim an der Bergstrasse, Germany)*
  Joshi, A., Kamaraj, M., Moghimi, N., Heidari, H., Aghamaleky-Sarvestany, A., Rahim, C. S., Rodriguez-Sanchez, D. N., Hu, C., Aravindan, S., Nair, D. S., Huang, N. F., Thomas, B. B., Sareen, et al
  2025: e2500261

- **Combinatorial extracellular matrix tissue chips for optimizing mesenchymal stromal cell microenvironment and manufacturing.** *NPJ Regenerative medicine*
  Jain, I., Chan, A. H., Yang, G., He, H., Lam, J., Sung, K., Huang, N. F.
  2025; 10 (1): 21

- **Bioinstructive scaffolds enhance stem cell engraftment for functional tissue regeneration.** *Nature materials*
  Wu, D., Eugenis, I., Hu, C., Kim, S., Kanugovi, A., Yue, S., Wheeler, J. R., Fathali, I., Feeley, S., Shrager, J. B., Huang, N. F., Rando, T. A.

2025

- **Temporal dynamics of gene and protein signatures following volumetric muscle loss.** *Frontiers in cell and developmental biology*
  Jain, I., Oropeza, B. P., Hu, C., Chiang, G., Aravindan, S., Reyes, R., Li, D. Y., Cheng, P., Huang, N. F.
  2025; 13: 1606609

- **Temporal Tissue Remodeling in Volumetric Muscle Injury with Endothelial Cell-Laden Patterned Nanofibrillar Constructs.** *Bioengineering (Basel, Switzerland)*
  Habing, K. M., Alcazar, C. A., Dobson, N., Tan, Y. H., Huang, N. F., Nakayama, K. H.
  2024; 11 (12)

- **Temporal Tissue Remodeling in Volumetric Muscle Injury with Endothelial Cell-Laden Patterned Nanofibrillar Constructs** *BIOENGINEERING-BASEL*
  Habing, K. M., Alcazar, C. A., Dobson, N., Tan, Y., Huang, N. F., Nakayama, K. H.
  2024; 11 (12)

- **A mouse model of volumetric muscle loss and therapeutic scaffold implantation.** *Nature protocols*
  Hu, C., Chiang, G., Chan, A. H., Alcazar, C., Nakayama, K. H., Quarta, M., Rando, T. A., Huang, N. F.
  2024

- **Editorial: Methods in cardiovascular biologics and regenerative medicine.** *Frontiers in cardiovascular medicine*
  Gurusamy, N., Bergmann, O., Castaldo, C., Huang, N. F., Lien, C. L., Tan, J. J., Engel, F. B.
  2024; 11: 1477927

- **Overcoming big bottlenecks in vascular regeneration.** *Communications biology*
  Fantini, D. A., Yang, G., Khanna, A., Subramanian, D., Phillippi, J. A., Huang, N. F.
  2024; 7 (1): 876

- **Skeletal muscle-on-a-chip in microgravity as a platform for regeneration modeling and drug screening.** *Stem cell reports*
  Kim, S., Ayan, B., Shayan, M., Rando, T. A., Huang, N. F.
  2024

- **Institutional Support for the Career Advancement of Women Faculty in Science and Academic Medicine: Successes, Challenges, and Future Directions.** *Arteriosclerosis, thrombosis, and vascular biology*
  Chen, Z. B., Aikawa, E., Alfaidi, M., Ali, K., Clift, C. L., Erbay, E., Fredman, G., Gomez, D., Huang, N. F., Lu, H. S., Nguyen, P. K., Darc Oliveira, S., Rodriguez-Miguelez, et al
  2024

- **Bioengineering Cell Therapy for Treatment of Peripheral Artery Disease.** *Arteriosclerosis, thrombosis, and vascular biology*
  Huang, N. F., Stern, B., Oropeza, B. P., Zaitseva, T. S., Paukshto, M. V., Zoldan, J.
  2024

- **Special issue: Frontiers in biomaterials for cardiovascular health.** *Journal of biomedical materials research. Part A*
  Bashur, C. A., Huang, N. F.
  2023

- **Editorial: Insights in cardiovascular biologics and regenerative medicine: 2022.** *Frontiers in cardiovascular medicine*
  Madeddu, P., Huang, N. F.
  2023; 10: 1333866

- **Cardiovascular human organ-on-a-chip platform for disease modeling, drug development, and personalized therapy.** *Journal of biomedical materials research. Part A*
  Khanna, A., Oropeza, B. P., Huang, N. F.
  2023

- **Combinatorial extracellular matrix cues with mechanical strain induce differential effects on myogenesis in vitro.** *Biomaterials science*
  Chan, A. H., Jain, I., Oropeza, B. P., Zhou, T., Nelsen, B., Geisse, N. A., Huang, N. F.
  2023

- **Development of a rat model of lymphedema and the implantation of a collagen-based medical device for therapeutic intervention.** *Frontiers in cardiovascular medicine*

Nguyen, D., Dionyssiou, D., Zaitseva, T. S., Zhou, A. T., Sue, G., Deptula, P., Moroz, M. A., Tabada, P., Rockson, S. G., Paukshto, M. V., Cheng, M. H., Huang, N. F.
2023; 10: 1214116

- **Multiomics Analyses of Peripheral Artery Disease Muscle Biopsies.** *Circulation research*
  Jain, I., Oropeza, B. P., Huang, N. F.
  2023; 132 (11): 1444-1446

- **Elastin-like protein hydrogels with controllable stress relaxation rate and stiffness modulate endothelial cell function.** *Journal of biomedical materials research. Part A*
  Shayan, M., Huang, M. S., Navarro, R., Chiang, G., Hu, C., Oropeza, B. P., Johansson, P. K., Suhar, R. A., Foster, A. A., LeSavage, B. L., Zamani, M., Enejder, A., Roth, et al
  2023

- **Biomedical Applications of Collagen.** *Bioengineering (Basel, Switzerland)*
  Huang, N. F., Zaitseva, T. S., Paukshto, M. V.
  2023; 10 (1)

- **Chronic nicotine impairs the angiogenic capacity of human induced pluripotent stem cell-derived endothelial cells in a murine model of peripheral arterial disease.** *JVS-vascular science*
  Chan, A. H., Hu, C., Chiang, G. C., Ekweume, C., Huang, N. F.
  2023; 4: 100115

- **Single-Cell Transcriptomic Census of Endothelial Changes Induced by Matrix Stiffness and the Association with Atherosclerosis.** *Advanced functional materials*
  Zamani, M., Cheng, Y. H., Charbonier, F., Gupta, V. K., Mayer, A. T., Trevino, A. E., Quertermous, T., Chaudhuri, O., Cahan, P., Huang, N. F.
  2022; 32 (47)

- **Engineering Spatiotemporal Control in Vascularized Tissues.** *Bioengineering (Basel, Switzerland)*
  Khanna, A., Oropeza, B. P., Huang, N. F.
  2022; 9 (10)

- **Scalable macroporous hydrogels enhance stem cell treatment of volumetric muscle loss.** *Biomaterials*
  Eugenis, I., Wu, D., Hu, C., Chiang, G., Huang, N. F., Rando, T. A.
  2022; 290: 121818

- **Single-Cell Transcriptomic Census of Endothelial Changes Induced by Matrix Stiffness and the Association with Atherosclerosis** *ADVANCED FUNCTIONAL MATERIALS*
  Zamani, M., Cheng, Y., Charbonier, F., Gupta, V., Mayer, A. T., Trevino, A. E., Quertermous, T., Chaudhuri, O., Cahan, P., Huang, N. F.
  2022

- **Editorial: Frontiers in Cardiovascular Medicine: Rising Stars 2021.** *Frontiers in cardiovascular medicine*
  Wang, L., Xu, G. E., Pan, L., Aikawa, E., Aikawa, M., Xiao, J., Huang, N. F.
  2022; 9: 928981

- **Advances in three-dimensional bioprinted stem cell-based tissue engineering for cardiovascular regeneration.** *Journal of molecular and cellular cardiology*
  Khanna, A., Ayan, B., Undieh, A. A., Yang, Y. P., Huang, N. F.
  2022; 169: 13-27

- **INSULIN-LIKE GROWTH FACTOR-1 LADEN SCAFFOLDS WITH REHABILITATIVE EXERCISE IMPROVES MUSCLE REGENERATION**
  Huang, N. F., Nakayam, K., Alcazar, C., Hu, C., Rando, T.
  MARY ANN LIEBERT, INC.2022: S584

- **Dual delivery of BMP-2 and IGF-1 through injectable hydrogel promotes cranial bone defect healing.** *Tissue engineering. Part A*
  Park, Y., Lin, S., Bai, Y., Moeinzadeh, S., Kim, S., Huang, J., Lee, U., Huang, N. F., Yang, Y. P.
  2022

- **Comparative Effects of Basic Fibroblast Growth Factor Delivery or Voluntary Exercise on Muscle Regeneration after Volumetric Muscle Loss.** *Bioengineering (Basel, Switzerland)*
  Hu, C., Ayan, B., Chiang, G., Chan, A. H., Rando, T. A., Huang, N. F.

1800; 9 (1)

- **Extracellular Matrix-Based Biomaterials for Cardiovascular Tissue Engineering.** *Journal of cardiovascular development and disease*
  Khanna, A., Zamani, M., Huang, N. F.
  2021; 8 (11)
- **What Makes a Great Mentor: Interviews With Recipients of the ATVB Mentor of Women Award.** *Arteriosclerosis, thrombosis, and vascular biology*
  Zhang, H., Chen, Z. B., Fredman, G., Gomez, D., Grumbach, I. M., Huang, N. F., Nguyen, P., Ouimet, M., Sutton, N. R., Aikawa, E.
  2021: ATVBAHA121316558
- **peri-Adventitial delivery of smooth muscle cells in porous collagen scaffolds for treatment of experimental abdominal aortic aneurysm.** *Biomaterials science*
  Mulorz, J., Shayan, M., Hu, C., Alcazar, C., Chan, A. H., Briggs, M., Wen, Y., Walvekar, A. P., Ramasubramanian, A. K., Spin, J. M., Chen, B., Tsao, P. S., Huang, et al
  2021
- **Modest Gains After an 8-Week Exercise Program Correlate With Reductions in Non-traditional Markers of Cardiovascular Risk** *FRONTIERS IN CARDIOVASCULAR MEDICINE*
  Liang, G., Huang, X., Hirsch, J., Mehmi, S., Fonda, H., Chan, K., Huang, N. F., Aalami, O., Froelicher, V. F., Lee, D. P., Myers, J., Lee, A. S., Nguyen, et al
  2021; 8: 669110
- **Recent advances in bioprinting technologies for engineering cardiac tissue.** *Materials science & engineering. C, Materials for biological applications*
  Agarwal, T., Fortunato, G. M., Hann, S. Y., Ayan, B., Vajanthri, K. Y., Presutti, D., Cui, H., Chan, A. H., Costantini, M., Onesto, V., Di Natale, C., Huang, N. F., Makvandi, et al
  2021; 124: 112057
- **Engineering Cardiovascular Tissue Chips for Disease Modeling and Drug Screening Applications.** *Frontiers in bioengineering and biotechnology*
  Chan, A. H., Huang, N. F.
  2021; 9: 673212
- **Transplantation of insulin-like growth factor-1 laden scaffolds combined with exercise promotes neuroregeneration and angiogenesis in a preclinical muscle injury model** *BIOMATERIALS SCIENCE*
  Alcazar, C. A., Hu, C., Rando, T. A., Huang, N. F., Nakayama, K. H.
  2020; 8 (19): 5376–89
- **Pre-Clinical Cell Therapeutic Approaches for Repair of Volumetric Muscle Loss.** *Bioengineering (Basel, Switzerland)*
  Shayan, M., Huang, N. F.
  2020; 7 (3)
- **Delivery of hepatocyte growth factor mRNA from nanofibrillar scaffolds in a pig model of peripheral arterial disease.** *Regenerative medicine*
  S Zaitseva, T., Yang, G., Dionyssiou, D., Zamani, M., Sawamura, S., Yakubov, E., Ferguson, J., Hallett, R. L., Fleischmann, D., Paukshto, M. V., Huang, N. F.
  2020
- **Effects of nicotine on the translation of stem cell therapy.** *Regenerative medicine*
  Chan, A. H., Huang, N. F.
  2020
- **Delivery of Human Stromal Vascular Fraction Cells on Nanofibrillar Scaffolds for Treatment of Peripheral Arterial Disease.** *Frontiers in bioengineering and biotechnology*
  Hu, C. n., Zaitseva, T. S., Alcazar, C. n., Tabada, P. n., Sawamura, S. n., Yang, G. n., Borrelli, M. R., Wan, D. C., Nguyen, D. H., Paukshto, M. V., Huang, N. F.
  2020; 8: 689
- **Multi-scale cellular engineering: From molecules to organ-on-a-chip.** *APL bioengineering*
  Huang, N. F., Chaudhuri, O. n., Cahan, P. n., Wang, A. n., Engler, A. J., Wang, Y. n., Kumar, S. n., Khademhosseini, A. n., Li, S. n.
  2020; 4 (1): 010906

- **Vascularization of Engineered Spatially Patterned Myocardial Tissue Derived From Human Pluripotent Stem Cells in vivo** *FRONTIERS IN BIOENGINEERING AND BIOTECHNOLOGY*
  Wanjare, M., Kawamura, M., Hu, C., Alcazar, C., Wang, H., Woo, Y., Huang, N. F.
  2019; 7
- **Vascularization of Engineered Spatially Patterned Myocardial Tissue Derived From Human Pluripotent Stem Cells in vivo.** *Frontiers in bioengineering and biotechnology*
  Wanjare, M., Kawamura, M., Hu, C., Alcazar, C., Wang, H., Woo, Y. J., Huang, N. F.
  2019; 7: 208
- **Treatment of volumetric muscle loss in mice using nanofibrillar scaffolds enhances vascular organization and integration** *COMMUNICATIONS BIOLOGY*
  Nakayama, K. H., Quarta, M., Paine, P., Alcazar, C., Karakikes, I., Garcia, V., Abilez, O. J., Calvo, N. S., Simmons, C. S., Rando, T. A., Huang, N. F.
  2019; 2
- **Engineering Biomimetic Materials for Skeletal Muscle Repair and Regeneration** *ADVANCED HEALTHCARE MATERIALS*
  Nakayama, K. H., Shayan, M., Huang, N. F.
  2019; 8 (5)
- **Endothelial Cell Mechanotransduction in the Dynamic Vascular Environment** *ADVANCED BIOSYSTEMS*
  Charbonier, F. W., Zamani, M., Huang, N. F.
  2019; 3 (2)
- **Treatment of volumetric muscle loss in mice using nanofibrillar scaffolds enhances vascular organization and integration.** *Communications biology*
  Nakayama, K. H., Quarta, M. n., Paine, P. n., Alcazar, C. n., Karakikes, I. n., Garcia, V. n., Abilez, O. J., Calvo, N. S., Simmons, C. S., Rando, T. A., Huang, N. F.
  2019; 2 (1): 170
- **Small Molecule Derived From Carboxyethylpyrrole Protein Adducts Promotes Angiogenesis in a Mouse Model of Peripheral Arterial Disease.** *Journal of the American Heart Association*
  Hou, L., Yang, G., Tang, S., Alcazar, C., Joshi, P., Strassberg, Z., Kim, M., Kawamura, M., Woo, Y. J., Shrager, J., Ding, S., Huang, N. F.
  2018; 7 (18): e009234
- **Rehabilitative exercise and spatially patterned nanofibrillar scaffolds enhance vascularization and innervation following volumetric muscle loss** *NPJ REGENERATIVE MEDICINE*
  Nakayama, K. H., Alcazar, C., Yang, G., Quarta, M., Paine, P., Doan, L., Davies, A., Rando, T. A., Huang, N. F.
  2018; 3: 16
- **Near-Infrared IIb Fluorescence Imaging of Vascular Regeneration with Dynamic Tissue Perfusion Measurement and High Spatial Resolution** *ADVANCED FUNCTIONAL MATERIALS*
  Ma, Z., Zhang, M., Yue, J., Alcazar, C., Zhong, Y., Doyle, T. C., Dai, H., Huang, N. F.
  2018; 28 (36)
- **Protein-engineered hydrogels enhance the survival of induced pluripotent stem cell-derived endothelial cells for treatment of peripheral arterial disease** *BIOMATERIALS SCIENCE*
  Foster, A. A., Dewi, R. E., Cai, L., Hou, L., Strassberg, Z., Alcazar, C. A., Heilshorn, S. C., Huang, N. F.
  2018; 6 (3): 614–22
- **Aligned Nanofibrillar Scaffolds for Controlled Delivery of Modified mRNA.** *Tissue engineering. Part A*
  Zaitseva, T. n., Alcazar, C. n., Zamani, M. n., Hou, L. n., Sawamura, S. n., Yakubov, E. n., Hopkins, M. n., Woo, Y. J., Paukshto, M. n., Huang, N. F.
  2018
- **Multicellular Interactions in 3D Engineered Myocardial Tissue.** *Frontiers in cardiovascular medicine*
  Zamani, M., Karaca, E., Huang, N. F.
  2018; 5: 147
- **Big bottlenecks in cardiovascular tissue engineering** *COMMUNICATIONS BIOLOGY*
  Huang, N. F., Serpooshan, V., Morris, V. B., Sayed, N., Pardon, G., Abilez, O. J., Nakayama, K. H., Pruitt, B. L., Wu, S. M., Yoon, Y., Zhang, J., Wu, J. C.
  2018; 1

- **Microfibrous Scaffolds Enhance Endothelial Differentiation and Organization of Induced Pluripotent Stem Cells** *CELLULAR AND MOLECULAR BIOENGINEERING*
  Kim, J. J., Hou, L., Yang, G., Mezak, N. P., Wanjare, M., Joubert, L. M., Huang, N. F.
  2017; 10 (5): 417–32
- **Delivery of Hepatocyte Growth Factor mRNA From Nanofibrillar Scaffolds for Treatment of Peripheral Arterial Disease**
  Huang, N. F., Hou, L., Alcazar, C., Strassberg, Z., Hopkins, M., Zaitseva, T., Yakubov, E., Paukshto, M. V.
  LIPPINCOTT WILLIAMS & WILKINS.2017
- **Combinatorial Extracellular Matrix Microenvironments for Probing Endothelial Differentiation of Human Pluripotent Stem Cells**
  Hou, L., Kim, J. J., Wanjare, M. J., Patlolla, B., Coller, J., Natu, V., Hastie, T., Huang, N. F.
  FEDERATION AMER SOC EXP BIOL.2017
- **Regulation of the microenvironment for cardiac tissue engineering.** *Regenerative medicine*
  Wanjare, M., Huang, N. F.
  2017; 12 (2): 187-201
- **A comparison of the pro-angiogenic potential of human induced pluripotent stem cell derived endothelial cells and induced endothelial cells in a murine model of peripheral arterial disease.** *International journal of cardiology*
  Clayton, Z. E., Yuen, G. S., Sadeghipour, S., Hywood, J. D., Wong, J. W., Huang, N. F., Ng, M. K., Cooke, J. P., Patel, S.
  2017
- **Boosting the down-shifting luminescence of rare-earth nanocrystals for biological imaging beyond 1500 nm.** *Nature communications*
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