

Stanford



William Hiesinger

Assistant Professor of Cardiothoracic Surgery (Adult Cardiac Surgery) at the Stanford University Medical Center

CLINICAL OFFICES

- **Cardiothoracic Surgery**

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ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

Elizabeth Pope - Administrative Associate

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Bio

BIO

Dr. William Hiesinger is an assistant professor in the Department of Cardiothoracic Surgery at Stanford University. There, he serves as the Surgical Director of the Mechanical Circulatory Support (MCS) Program, where he leads and directs the surgical implantation of ventricular assist devices (VADs) in patients with end-stage heart failure. In addition, he runs a basic science laboratory investigating bioengineered devices and the application of angiogenic cytokine therapy and tissue engineering for the treatment of ischemic heart failure. Originally from Philadelphia, PA, Dr. Hiesinger was an undergraduate at Dartmouth College, where he received his B.A. in Psychological and Brain Sciences. He went on to receive his medical degree from the University of Pennsylvania School of Medicine and remained on at the Hospital of the University of Pennsylvania for both his general surgery and cardiothoracic surgery trainings. He has received research fundings from the National Institutes of Health (NIH) and the Thoracic Surgery Foundation (TSF).

CLINICAL FOCUS

- Heart Transplantation
- Mechanical Circulatory Support
- Mitral Valve Repair
- Aortic Aneurysm
- Minimally Invasive Cardiac Surgery
- Cardiac Surgery
- Complex Valve Repair Surgery
- Aortic Valve Repair
- Valve Replacement Surgery
- Surgical Treatments of Cardiomyopathy
- Heart Failure
- Ventricular Assist Device
- Heart-Lung Transplantation
- Coronary Artery Bypass
- Coronary Artery Bypass, Off-pump
- Reoperative Cardiac Surgery
- Clinical Device Trials
- Lung Transplantation
- Thoracic and Cardiovascular Surgery
- Thoracic Surgery

ACADEMIC APPOINTMENTS

- Assistant Professor - Med Center Line, Cardiothoracic Surgery
- Member, Bio-X

HONORS AND AWARDS

- Keith Reemtsma Surgical Resident of the Year Award, Department of Surgery, University of Pennsylvania (2014)
- Jonathan E. Rhoads Research Award, Department of Surgery, University of Pennsylvania (2011)
- Vivien Thomas Young Investigator Award Finalist, American Heart Association (2010)
- Alpha Omega Alpha (AOA) Honor Medical Society, University of Pennsylvania (2007)
- Clyde F. Baker Research Prize, Department of Surgery, University of Pennsylvania (2007)
- First Place, Medical Student Research Day Basic Science Research, University of Pennsylvania (2007)
- I. S. Ravdin Prize, Department of Surgery, University of Pennsylvania (2007)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Society of Thoracic Surgeons Workforce on Surgical Treatment of End-Stage Cardiopulmonary Disease, National Committee (2017 - present)
- Reviewer, Circulation (2017 - present)
- Member, American Heart Association, Council for Cardiothoracic & Vascular Surgery (2017 - present)
- Member, Society of Thoracic Surgeons (2017 - present)

PROFESSIONAL EDUCATION

- Fellowship: Hospital of the University of Pennsylvania Dept of CTS (2016) PA
- Residency: Hospital of the University of Pennsylvania General Surgery Residency (2014) PA
- Medical Education: Perelman School of Medicine University of Pennsylvania (2007) PA
- Board Certification: Thoracic Surgery, American Board of Thoracic Surgery (2017)
- Board Certification: General Surgery, American Board of Surgery (2015)
- M.D., University of Pennsylvania (2008)

LINKS

- Stanford Adult Cardiac Services: <http://med.stanford.edu/ctsurgery/clinical-care/adult-cardiac-surgery-services.html>
- Make an Appointment: <http://med.stanford.edu/ctsurgery/contact-us.html#division-of-adult-cardiac-surgery>
- Stanford Cardiothoracic Therapeutics and Surgery Laboratory: <http://med.stanford.edu/hiesingerlab.html>

Teaching

COURSES

2019-20

- Introduction to Cardiothoracic Surgery Skills: CTS 101SI (Spr)

2018-19

- Introduction to Cardiothoracic Surgery Skills: CTS 101SI (Spr)

2017-18

- Introduction to Cardiothoracic Surgery Skills: CTS 101SI (Spr)

2016-17

- Introduction to Cardiothoracic Surgery Skills: CTS 101SI (Spr)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Rohan Shad

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cardiothoracic Surgery (Fellowship Program)

Publications

PUBLICATIONS

- **The Incremental Value of Right Ventricular Size and Strain in the Risk Assessment of Right Heart Failure Post - Left Ventricular Assist Device Implantation.** *Journal of cardiac failure*
Aymami, M., Amsallem, M., Adams, J., Sallam, K., Moneghetti, K., Wheeler, M., Hiesinger, W., Teuteberg, J., Weisshaar, D., Verhoye, J., Woo, Y. J., Ha, R., Haddad, et al
2018; 24 (12): 823–32
- **Planned Concomitant Left and Right Ventricular Assist Device Insertion to Avoid Long-term Biventricular Mechanical Support: Bridge to Right Ventricular Recovery.** *The heart surgery forum*
Salna, M., Shudo, Y., Teuteberg, J. J., Banerjee, D., Ha, R. V., Woo, Y. J., Hiesinger, W.
2018; 21 (5): E412–E414
- **Right ventricular load adaptability metrics in patients undergoing left ventricular assist device implantation.** *The Journal of thoracic and cardiovascular surgery*
Amsallem, M., Aymami, M., Hiesinger, W., Zeigler, S., Moneghetti, K., Marques, M., Teuteberg, J., Ha, R., Banerjee, D., Haddad, F.
2018
- **Transplant Outcomes in Destination Therapy vs Bridge to Transplant LVAD Patients**
Miller, R. J., Moyaedi, Y., Sharma, A., Zarafshar, S., Varr, B., Haddad, F., Hiesinger, W., Banerjee, D.
ELSEVIER SCIENCE INC.2018: S434–S435
- **RIGHT VENTRICULAR LOAD ADAPTABILITY IN PATIENTS UNDERGOING CONTINUOUS-FLOW LEFT VENTRICULAR ASSIST DEVICE IMPLANTATION**
Amsallem, M., Aymami, M., Hiesinger, W., Zeigler, S., Moneghetti, K., Marques, M., Wheeler, M., Teuteberg, J., Ha, R., Banerjee, D., Haddad, F.
ELSEVIER SCIENCE INC.2018: 1624
- **Prolonged veno-arterial extracorporeal life support for cardiac failure.** *The International journal of artificial organs*
Guenther, S. P., Shudo, Y., Hiesinger, W., Banerjee, D.
2018: 391398818777359
- **Injectable Bioengineered Hydrogel Therapy in the Treatment of Ischemic Cardiomyopathy.** *Current treatment options in cardiovascular medicine*
MacArthur, J. W., Steele, A. N., Goldstone, A. B., Cohen, J. E., Hiesinger, W., Woo, Y. J.
2017; 19 (4): 30-?
- **Operative technique and pitfalls in donor heart procurement.** *Asian cardiovascular & thoracic annals*
Shudo, Y., Hiesinger, W., Oyer, P. E., Woo, Y. J.
2017; 25 (1): 80-82
- **An innovative biologic system for photon-powered myocardium in the ischemic heart.** *Science advances*
Cohen, J. E., Goldstone, A. B., Paulsen, M. J., Shudo, Y., Steele, A. N., Edwards, B. B., Patel, J. B., MacArthur, J. W., Hopkins, M. S., Burnett, C. E., Jaatinen, K. J., Thakore, A. D., Farry, et al
2017; 3 (6): e1603078
- **Biochemically engineered stromal cell-derived factor 1-alpha analog increases perfusion in the ischemic hind limb.** *Journal of vascular surgery*
Edwards, B. B., Fairman, A. S., Cohen, J. E., Macarthur, J. W., Goldstone, A. B., Woo, J. B., Hiesinger, W., Woo, Y. J.
2016; 64 (4): 1093-1099
- **Cell transplantation in heart failure: where do we stand in 2016?** *EUROPEAN JOURNAL OF CARDIO-THORACIC SURGERY*
MacArthur, J. W., Goldstone, A. B., Cohen, J. E., Hiesinger, W., Woo, Y.
2016; 50 (3): 396–99
- **Hybrid coronary revascularization: Ready for prime time, but who should star?** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*

- Hiesinger, W., Atluri, P.
2016; 151 (4): 1090-91
- **Building a better bridge: Remodeling, recovery, and a better understanding of the biologic foundation of mechanical circulatory support** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Hiesinger, W., Atluri, P.
2015; 150 (5): 1342-43
 - **A Tissue-Engineered Chondrocyte Cell Sheet Induces Extracellular Matrix Modification to Enhance Ventricular Biomechanics and Attenuate Myocardial Stiffness in Ischemic Cardiomyopathy** *TISSUE ENGINEERING PART A*
Shudo, Y., Cohen, J. E., MacArthur, J. W., Goldstone, A. B., Otsuru, S., Trubelja, A., Patel, J., Edwards, B. B., Hung, G., Fairman, A. S., Brusalis, C., Hiesinger, W., Atluri, et al
2015; 21 (19-20): 2515-2525
 - **A "Repair-All" Strategy for Degenerative Mitral Valve Disease Safely Minimizes Unnecessary Replacement** *ANNALS OF THORACIC SURGERY*
Goldstone, A. B., Cohen, J. E., Howard, J. L., Edwards, B. B., Acker, A. L., Hiesinger, W., MacArthur, J. W., Atluri, P., Woo, Y. J.
2015; 99 (6): 1983-1991
 - **Ventricular assist device implantation in the elderly.** *Annals of cardiothoracic surgery*
Hiesinger, W., Boyd, J. H., Woo, Y. J.
2014; 3 (6): 570-572
 - **Bioengineered Stromal Cell- Derived Factor-1 alpha Analogue Delivered as an Angiogenic Therapy Significantly Restores Viscoelastic Material Properties of Infarcted Cardiac Muscle** *JOURNAL OF BIOMECHANICAL ENGINEERING-TRANSACTIONS OF THE ASME*
Trubelja, A., MacArthur, J. W., Sarver, J. J., Cohen, J. E., Hung, G., Shudo, Y., Fairman, A. S., Patel, J., Edwards, B. B., Damrauer, S. M., Hiesinger, W., Atluri, P., Woo, et al
2014; 136 (8)
 - **A bioengineered hydrogel system enables targeted and sustained intramyocardial delivery of neuregulin, activating the cardiomyocyte cell cycle and enhancing ventricular function in a murine model of ischemic cardiomyopathy.** *Circulation. Heart failure*
Cohen, J. E., Purcell, B. P., MacArthur, J. W., Mu, A., Shudo, Y., Patel, J. B., Brusalis, C. M., Trubelja, A., Fairman, A. S., Edwards, B. B., Davis, M. S., Hung, G., Hiesinger, et al
2014; 7 (4): 619-626
 - **Preclinical evaluation of the engineered stem cell chemokine stromal cell-derived factor 1a analog in a translational ovine myocardial infarction model.** *Circulation research*
MacArthur, J. W., Cohen, J. E., McGarvey, J. R., Shudo, Y., Patel, J. B., Trubelja, A., Fairman, A. S., Edwards, B. B., Hung, G., Hiesinger, W., Goldstone, A. B., Atluri, P., Wilensky, et al
2014; 114 (4): 650-659
 - **Therapeutic potential of Rb phosphorylation in atherosclerosis** *CELL CYCLE*
Hiesinger, W., Cohen, J. E., Atluri, P.
2014; 13 (3): 352
 - **Sustained release of engineered stromal cell-derived factor 1-a from injectable hydrogels effectively recruits endothelial progenitor cells and preserves ventricular function after myocardial infarction.** *Circulation*
MacArthur, J. W., Purcell, B. P., Shudo, Y., Cohen, J. E., Fairman, A., Trubelja, A., Patel, J., Hsiao, P., Yang, E., Lloyd, K., Hiesinger, W., Atluri, P., Burdick, et al
2013; 128 (11): S79-86
 - **Predicting Right Ventricular Failure in the Modern, Continuous Flow Left Ventricular Assist Device Era** *59th Annual Meeting of the Southern-Thoracic-Surgical-Association (STSA)*
Atluri, P., Goldstone, A. B., Fairman, A. S., MacArthur, J. W., Shudo, Y., Cohen, J. E., Acker, A. L., Hiesinger, W., Howard, J. L., Acker, M. A., Woo, Y. J.
ELSEVIER SCIENCE INC.2013: 857-64
 - **Rapid onset of fulminant myocarditis portends a favourable prognosis and the ability to bridge mechanical circulatory support to recovery** *EUROPEAN JOURNAL OF CARDIO-THORACIC SURGERY*
Atluri, P., Ullery, B. W., MacArthur, J. W., Goldstone, A. B., Fairman, A. S., Hiesinger, W., Acker, M. A., Woo, Y. J.
2013; 43 (2): 379-382
 - **Mathematically engineered stromal cell-derived factor-1 alpha stem cell cytokine analog enhances mechanical properties of infarcted myocardium** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
MacArthur, J. W., Trubelja, A., Shudo, Y., Hsiao, P., Fairman, A. S., Yang, E., Hiesinger, W., Sarver, J. J., Atluri, P., Woo, Y. J.

2013; 145 (1): 278-284

- **Re-Engineered Stromal Cell-Derived Factor-1 alpha and the Future of Translatable Angiogenic Polypeptide Design** *TRENDS IN CARDIOVASCULAR MEDICINE*
Hiesinger, W., Goldstone, A. B., Woo, Y. J.
2012; 22 (6): 139-144
- **Myocardial tissue elastic properties determined by atomic force microscopy after stromal cell-derived factor 1 alpha angiogenic therapy for acute myocardial infarction in a murine model** *37th Annual Meeting of the Western-Thoracic-Surgical-Association*
Hiesinger, W., Brukman, M. J., McCormick, R. C., Fitzpatrick, J. R., Frederick, J. R., Yang, E. C., Muenzer, J. R., Marotta, N. A., Berry, M. F., Atluri, P., Woo, Y. J.
MOSBY-ELSEVIER.2012: 962-66
- **Oxygen-dependent quenching of phosphorescence used to characterize improved myocardial oxygenation resulting from vasculogenic cytokine therapy** *JOURNAL OF APPLIED PHYSIOLOGY*
Hiesinger, W., Vinogradov, S. A., Atluri, P., Fitzpatrick, J. R., Frederick, J. R., Levit, R. D., McCormick, R. C., Muenzer, J. R., Yang, E. C., Marotta, N. A., MacArthur, J. W., Wilson, D. F., Woo, et al
2011; 110 (5): 1460-1465
- **Computational Protein Design to Re-Engineer Stromal Cell-Derived Factor-alpha (SDF) Generates a Supra-Efficient Angiogenic Polypeptide Analog**
Hiesinger, W., Perez-Aguilar, J., Atluri, P., Marotta, N. A., Frederick, J. R., Fitzpatrick, J. R., McCormick, R. C., Muenzer, J. R., Levit, R. D., Yuan, L., MacArthur, J. W., Saven, J. G., Woo, et al
LIPPINCOTT WILLIAMS & WILKINS.2010
- **Acute Myocardial Rescue with Endogenous Endothelial Progenitor Cell Therapy** *HEART LUNG AND CIRCULATION*
Atluri, P., Panlilio, C. M., Liao, G. P., Hiesinger, W., Harris, D. A., McCormick, R. C., Cohen, J. E., Jin, T., Feng, W., Levit, R. D., Dong, N., Woo, Y. J.
2010; 19 (11): 644-654
- **Spliced stromal cell-derived factor-1 alpha analog stimulates endothelial progenitor cell migration and improves cardiac function in a dose-dependent manner after myocardial infarction** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Hiesinger, W., Frederick, J. R., Atluri, P., McCormick, R. C., Marotta, N., Muenzer, J. R., Woo, Y. J.
2010; 140 (5): 1174-1180
- **Stromal Cell-Derived Factor-1 alpha Activation of Tissue-Engineered Endothelial Progenitor Cell Matrix Enhances Ventricular Function After Myocardial Infarction by Inducing Neovascuogenesis** *82nd National Conference and Exhibitions and Annual Scientific Session of the American-Heart-Association*
Frederick, J. R., Fitzpatrick, J. R., McCormick, R. C., Harris, D. A., Kim, A., Muenzer, J. R., Marotta, N., Smith, M. J., Cohen, J. E., Hiesinger, W., Atluri, P., Woo, Y. J.
LIPPINCOTT WILLIAMS & WILKINS.2010: S107-S117
- **Rapid Onset of Fulminant Myocarditis Portends a Favorable Prognosis and Ability To Bridge Mechanical Support to Recovery**
Atluri, P., Ullery, B. W., Howard, J. L., Hiesinger, W., Fitzpatrick, J., Jessup, M., Acker, M. A., Morris, R. J., Woo, Y.
CHURCHILL LIVINGSTONE INC MEDICAL PUBLISHERS.2010: S51
- **Early planned institution of biventricular mechanical circulatory support results in improved outcomes compared with delayed conversion of a left ventricular assist device to a biventricular assist device** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
Fitzpatrick, J. R., Frederick, J. R., Hiesinger, W., Hsu, V. M., McCormick, R. C., Kozin, E. D., Laporte, C. M., O'Hara, M. L., Howell, E., Dougherty, D., Cohen, J. E., Southerland, K. W., Howard, et al
2009; 137 (4): 971-977
- **Off-pump, minimally invasive and robotic coronary revascularization yield improved outcomes over traditional on-pump CABG** *INTERNATIONAL JOURNAL OF MEDICAL ROBOTICS AND COMPUTER ASSISTED SURGERY*
Atluri, P., Kozin, E. D., Hiesinger, W., Woo, Y. J.
2009; 5 (1): 1-12
- **Cardiac retransplantation is an efficacious therapy for primary cardiac allograft failure** *JOURNAL OF CARDIOTHORACIC SURGERY*
Atluri, P., Hiesinger, W., Gorman, R. C., Pochettino, A., Jessup, M., Acker, M. A., Morris, R. J., Woo, Y. J.
2008; 3
- **Ischemic heart failure enhances endogenous myocardial apelin and APJ receptor expression** *CELLULAR & MOLECULAR BIOLOGY LETTERS*
Atluri, P., Morine, K. J., Liao, G. P., Panlilio, C. M., Berry, M. F., Hsu, V. M., Hiesinger, W., Cohen, J. E., Woo, Y. J.
2007; 12 (1): 127-138