

Donny Hanjaya-Putra

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Chemical and Biomolecular Engineering (concurrent)
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Google Scholar: <https://scholar.google.com/citations?user=LYtBhooAAAAJ&hl=en>

Research ID: <http://www.researcherid.com/rid/P-1611-2017>

Highlights

- Published over 22 articles (*h*-index: 15-Google Scholar), including five invited review or perspective articles, hold or submitted 4 patents, and co-authored two books.
- Funding by private foundations (AHA, ACS) and major federal agencies (NSF, DoD, NIH) totaling over \$6M as PI or Co-PI.
- Advised seven Ph.D. students and three postdoctoral fellows.
- Taught four undergraduate and graduate courses.

Education

2012 Ph.D., Chemical and Biomolecular Engineering, The Johns Hopkins University.
2007 B.S., Chemical and Biomolecular Engineering, University of Notre Dame.

Professional Experience

2017 – Present Assistant Professor.
Aerospace and Mechanical Engineering, University of Notre Dame.
Chemical and Biomolecular Engineering (concurrent), University of Notre Dame.

2012 – 2017 Postdoctoral Research Fellow.
The Wyss Institute for Biologically Inspired Engineering, Harvard University.
Advisor: Elliot L. Chaikof, M.D., Ph.D.

2007 – 2012 Graduate Research Assistant.
Institute for NanoBioTechnology, The Johns Hopkins University.
Advisor: Sharon Gerecht, Ph.D.

2005 – 2007 Undergraduate Research Assistant.
Center for Microfluidics and Medical Diagnostics, University of Notre Dame.
Advisor: Hsueh-Chia Chang, Ph.D.

Awards and Honors

2023 Emerging Investigator – Biomaterials Science
2022 Young Innovator in Cellular and Molecular Bioengineering – CMBE
2021 NIH Maximizing Investigators' Research Award – National Institute of Health
2021 NSF CAREER Award – National Science Foundation
2019 Career Development Award – American Heart Association
2018 Emerging Leaders in Biological Engineering – Journal of Biological Engineering.
2014 JDRF Postdoctoral Research Fellowship – Juvenile Diabetes Research Foundation.
2012 Siebel Scholar Class of 2012 – Siebel Foundation
2011 U.S. New Investigator Travel Award – International Society of Thrombosis and Haemostasis (ISTH).
2011 ISSCR 9th Annual Meeting Travel Award – International Society for Stem Cell Research (ISSCR).
2007 *Magna Cum Laude* – University of Notre Dame.

PUBLICATIONS (***advised/co-advised post-doc*; ***advised/co-advised graduate student*;
**undergraduate student*)

Journal Articles (submitted or in preparation)

1. Fei Fan^{***}, Bo Su, Alexander Kolodychak^{*}, Matthew J. Webber, **Donny Hanjaya-Putra**, “Viscoelastic Supramolecular Hyaluronic Acid Hydrogels as Phototunable Cellular Microenvironments,” (in preparation).
 - *I conceived the project, directed the analysis, and co-write the article with my collaborator Matthew Webber and postdoc Fei Fan.*
2. Fei Fan^{***}, Yueying Liu, Grace Petrosini^{*}, M. Sharon Stack, **Donny Hanjaya-Putra**, “Injectable and Bio-responsive Hydrogels for On-Demand Delivery of Anti-Ovarian Cancer Therapeutics,” (in preparation).
 - *I conceived the project, directed the analysis, and co-write the article with my collaborator Sharon Stack and postdoc Fei Fan.*
3. Laura Alderfer^{**}, Fei Fan^{***}, Eva Hall^{**}, **Donny Hanjaya-Putra**, “Designing Synthetic Matrices to Control Lymphatic Tube Morphogenesis,” (in preparation).
 - *I conceived the project, directed the analysis, and co-write the article with my graduate student Laura Alderfer and Eva Hall, as well as postdoc Fei Fan.*
4. Eva Hall^{**}, Erin Neu^{*}, Laura S. Haneline, **Donny Hanjaya-Putra**, “Neuropilin-1 Improved Angiogenic Potential of Preeclamptic Endothelial Colony-Forming Cells,” (in preparation).
 - *I conceived the project, directed the analysis, and co-write the article with my collaborator Laura S. Haneline and graduate student Eva Hall.*
5. Sanjoy Saha^{**}, Fei Fan^{***}, Laura Alderfer^{**}, **Donny Hanjaya-Putra**, “Hyaluronic Acid Dopamine Coating to Preserve Lymphatic Endothelial Phenotypes, **Biomaterials Science**, (in review).
 - *I conceived the project, directed the analysis, and co-write the article with graduate student Sanjoy Saha, Laura Alderfer, and postdoc Fei Fan. **Donny Hanjaya-Putra is featured as 2023 Biomaterials Science Emerging Investigator in this issue***
6. Donghyun Jeong^{**}, Daniel Montes Pinzon^{**}, Hsueh-Chia Chang **Donny Hanjaya-Putra**, “Fractal Patterns to Analyze Blood and Lymphatic Tube Formation,” **Biophysical Journal**, (in revision).
 - *I conceived the project, directed the analysis, and co-write the article with graduate student Donghyun Paul Jeong and Daniel Motes Pinzon, as well as collaborator Hsueh-Chia Chang.*

Journal Articles (accepted or published)

7. Donghyun Jeong^{**}, Eva Hall^{**}, Erin Neu^{*}, **Donny Hanjaya-Putra**, “Podoplanin is Responsible for the Distinct Blood and Lymphatic Capillaries,” **Cellular and Molecular Bioengineering**, 2022 Aug 6, PMID:36444348.
 - *I conceived the project, directed the analysis, and co-write the article with graduate student Donghyun Paul Jeong and Eva Hall. **Donny Hanjaya-Putra was featured as 2022 CMBE Young Innovator in this issue***

8. Loan Bui^{***}, Shanique Edwards, Eva Hall^{**}, Laura Alderfer^{**}, Kellen Round^{*}, Madeline Owen^{*}, Pietro Sainaghi^{*}, Siyuan Zhang, Prakash D. Nallathamby, Laura S. Haneline, **Donny Hanjaya-Putra**, "Engineering Bioactive Nanoparticles to Rejuvenate Vascular Progenitor Cells," **Communications Biology**, 2022 June 29. PMID:35768543.
 - *I conceived the project, directed the analysis, and co-write the article with my collaborator Laura S. Haneline and postdoc Loan Bui.*
9. Fei Fan^{***}, Sanjoy Saha^{**}, **Donny Hanjaya-Putra**, "Biomimetic Hydrogels to Promote Wound Healing," **Frontiers in Bioengineering and Biotechnology**, 2021 Sep 20. PMID:34616718.
 - *I oversaw the writings, edits, and revisions together with my postdoc Fei Fan and graduate student Sanjoy Saha.*
10. Laura Alderfer^{**}, Eva Hall^{**}, **Donny Hanjaya-Putra**, "Harnessing Biomaterials and the Lymphatic System for Immunomodulation," **Acta Biomaterialia**, 2021 June 9. PMID:34118451.
 - *This was an invited review article as part of the special issue in Immunomodulatory Biomaterials. I oversaw the writings, edits, and revisions together with my graduate students Laura Alderfer and Eva Hall.*
11. Laura Alderfer^{**}, Elizabeth Russo^{*}, Adriana Archilla^{*}, Brian Coe^{*}, **Donny Hanjaya-Putra**, "Matrix Stiffness Primes Lymphatic Tube Formation Directed by Vascular Endothelial Growth Factor-C," **FASEB**, 2021 March 27, 35:e21498. PMID: 33774872.
 - *I conceived the project, directed the analysis, and co-write the article with graduate student Laura Alderfer.*
12. Zehao Pan^{**}, Loan Bui^{***}, Vivek Yadav^{**}, Fei Fan^{***}, Hsueh-Chia Chang[#], **Donny Hanjaya-Putra**[#], "Conformal Single Cell Hydrogel Coating with Electrically Induced Tip Streaming at an AC Cone," **Biomaterials Science**, 2021 May 4, PMID: 33949367.
 - *I and collaborator Hsueh-Chia Chang conceived the project, directed the analysis, and co-write the article with postdoc Loan Bui and graduate student Zehao Pan.*
 - *This paper was selected as a front cover for the Biomaterials Science journal.*
13. Zeinab Ramshani^{***}, Fei Fan^{***}, Alicia Wei, Matt George, Carter Cliff, Mervin C. Yoder, **Donny Hanjaya-Putra**, Satyajyoti Senapati, Hsueh-Chia Chang, "A Multiplexed Immuno-Sensor for Online and Automated Monitoring of Tissue Culture Protein Biomarkers," **Talanta**, 2021 April 1, 122021. PMID: 33592751.
 - *I helped guide the project, including the experimental design and data interpretation, as well as write and edit the article with all co-authors.*
14. Liu Yang, Loan Bui^{***}, **Donny Hanjaya-Putra**, Merlin L. Bruening, "Membrane-Based Affinity Purification to Identify Target Proteins of a Small-Molecule Drug," **ACS Analytical Chemistry**, 2020 July 28; 92,17. PMID: 32867494.
 - *I helped guide the project, provided materials, and interpreted data with all co-authors.*
15. Laura Alderfer^{**}, Alicia Wei, **Donny Hanjaya-Putra**, "Lymphatic Tissue Engineering and Regeneration," **Journal of Biological Engineering**, 2018 Dec 17; 12,32. PMID: 30564284.
 - *This was an invited review article as part of Emerging Leaders in Biological Engineering special issue. I oversaw the writings, edits, and revisions together with my graduate students Laura Alderfer.*

16. **Donny Hanjaya-Putra**, Carolyn Haller, Xiaowei Wang, Erbin Dai, Bock Lim, Liyung Liu, Patrick Jaminet, Joy Yao, Amy Searle, Thomas Bonnard, Christoph E. Hagemeyer, Karlheinz Peter, Elliot L. Chaikof, "Platelet-Targeted Dual Pathway Antithrombotic Inhibits Thrombosis with Preserved Hemostasis," **JCI Insight**, 2018 Aug 9; 3(15). PMID: 30089712.
- *Article pertaining postdoc research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
17. Nisarga Naik, **Donny Hanjaya-Putra**, Carolyn Haller, Mark G. Allen, Elliot L. Chaikof, "Rapid homogenous endothelialization of high aspect ratio microvascular networks." **Biomedical Microdevices**, 2015 Aug; 17(4):83. PMID: 26227213.
- *Article pertaining postdoc research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
18. Venkata R. Krishnamurthy, Mohammed Y.R. Sardar, Yu Ying, Xuezheng Song, Carolyn Haller, Erbin Dai, Xiacong Wang, **Donny Hanjaya-Putra**, Lijun Sun, Vasilios Morikis, Scott I. Simon, Robert J. Woods, Richard D. Cummings, Elliot L. Chaikof, "Glycopeptide analogues of PSGL-1 inhibit P-selectin vitro and in vivo." **Nature Communications**, 2015 Mar 31; 6:6387. PMID: 25824568.
- *Article pertaining postdoc research. I helped with the intravital imaging and data analysis, as well as helped with the writing of the article.*
19. Sravanti Kusuma, Yu-I Shen, **Donny Hanjaya-Putra**, Prashant Mali, Linzhao Cheng, Sharon Gerecht, "Self-Organized Vascular Networks from Human Pluripotent Stem Cells in a Synthetic Matrix," **Proc Natl Acad Sci U S A**, 2013 Jul 30; 110(31): 12601-6. PMID: 23858432.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
20. **Donny Hanjaya-Putra**, Yu-I Shen, Abby Wilson, Sudhir Khetan, Karen Fox-Talbot, Charles Steenbergen, Jason A. Burdick, Sharon Gerecht, "Integration and Regression of Implanted Human Vascular Networks during Deep Wound Healing," **Stem Cell Translational Medicine**, 2013 Apr; 2(4):297-306. PMID: 23486832.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
21. **Donny Hanjaya-Putra**, Kyle T. Wong, Kelsey Hirotsu, Sudhir Khetan, Jason A. Burdick, Sharon Gerecht, "Spatial Control of Cell-Mediated Degradation to Regulate Vasculogenesis and Angiogenesis in Hyaluronan Hydrogels," **Biomaterials**, 2012, Sep; 33. PMID: 22672833.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
22. Shyam B. Khatau, Sravanti Kusuma, **Donny Hanjaya-Putra**, Prashant Mali, Linzhao Cheng, Jerry S.H. Lee, Sharon Gerecht, Denis Wirtz, "The Differential Formation of the LINC-mediated Perinuclear Actin Cap in Pluripotent and Somatic Cells," **PLoS ONE**, 2012, 7(5):e36689. PMID: 22574215.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
23. **Donny Hanjaya-Putra**, Vivek Bose, Yu-I Shen, Jane Yee, Sudhir Khetan, Karen Fox-Talbot, Charles Steenbergen, Jason A. Burdick, Sharon Gerecht, "Controlled Activation of Morphogenesis to Generate a Functional Human Microvasculature in a Synthetic Matrix," **Blood**, 2011, Jul 21; 118(3):804-15; PMID: 21527523. **Commentary in the same issue:**

Edward K. Geissler and Peter Angele, "Innovative Blood Vessels Bring New Life," **Blood**, 2011, Jul 21; 118 (3):488-90.

- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
24. Derek Yee, **Donny Hanjaya-Putra**, Vivek Bose, Eli Luong, Sharon Gerecht, "Hyaluronic Acid Hydrogels Support Cord-Like Structures from Endothelial Colony-Forming Cells," **Tissue Engineering: Part A**, 2011 May; 17(9-10):1351-61. PMID: 21247340.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
25. Elaine Vo, **Donny Hanjaya-Putra**, Yuanting Zha, Sravanti Kusuma, Sharon Gerecht, "Smooth-Muscle-Like Cells Derived from Human Embryonic Stem Cells Supports and Augment Cord-Like Structures *in vitro*," **Stem Cell Reviews and Reports**, 2010 June; 6(2): 237-47. PMID: 20425149.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
26. **Donny Hanjaya-Putra**, Jane Yee, Doug Ceci, Rachel Truitt, Derek Yee, Sharon Gerecht, "Vascular Endothelial Growth Factor and Substrate Mechanics Regulate *in vitro* Tubulogenesis of Endothelial Progenitor Cells." **Journal of Cellular and Molecular Medicine**, 2010 Oct; 14(10):2436-47. PMID: 19968735.
- *Article pertaining Ph.D. research. I helped conceived the project, conducted the experimental development and analysis, and led the writing of the article.*
27. **Donny Hanjaya-Putra**, Sharon Gerecht, "Vascular Engineering Using Human Embryonic Stem Cells," **Biotechnology Progress**, 2009 Jan-Feb; 25(1):2-9. PMID: 19197982.
- *Invited review article. I helped with the writing and edits of the article.*
28. **Donny Hanjaya-Putra**, Sharon Gerecht, "Mending the Failing Heart with a Vascularized Cardiac Patch," **Cell Stem Cell**, 2009 Dec 4; 5(6):575-576. PMID: 19951684.
- *Invited perspective article. I helped with the writing and edits of the article.*

Book Chapters:

1. Erbil E. Abaci, **Donny Hanjaya-Putra**, Sharon Gerecht, "Hypoxia and Matrix Manipulation for Vascular Engineering," **Biophysical Regulation of Vascular Differentiation and Assembly**, 2011:127-165.
2. **Donny Hanjaya-Putra**, Maureen Wanjare, Sharon Gerecht, "Vascular Tissue Engineering," **Biomaterials for Tissue Engineerings: A Review of the Past and Future Trend**, 2011:89-109

Patents

1. Zehao Pan, Loan Bui, Vivek Yadav, Hsueh-Chia Chang, **Donny Hanjaya-Putra**, "Conformal Single Cell Hydrogel Coating with Electrically Induced Tip Streaming at an AC Cone." (U.S. Provisional Application)
2. **Donny Hanjaya-Putra**, Carolyn A. Haller, Elliot L. Chaikof, "Targeted Anti-FXa for Deep Vein Thrombosis." (U.S. Provisional Application).
3. **Donny Hanjaya-Putra**, Sharon Gerecht, "Hydrogel-Based Vascular Lineage Cell Growth and Uses," U.S. Patent 14/553,442. Issued 2015.
4. **Donny Hanjaya-Putra**, Elaine Vo, Maureen Wanjare, Sharon Gerecht, "Smooth Muscle-Like Cells (SMCs) Derived from Human Pluripotent Stem Cells," U.S. Patent 13/581,341. Issued 2012.

Invited Talks / Lectures:

1. **Donny Hanjaya-Putra**, "Engineering Biomimetic Lymphatic Models," Lymphatic Seminar, March 28, 2022.
2. **Donny Hanjaya-Putra**, "Engineering Approaches for Vascular Regeneration," 7th Bioengineering and Translational Medicine Conference, December 2022.
3. **Donny Hanjaya-Putra**, "Engineering Biomaterials to Control Stem Cell Morphogenesis and Targeted Drug Delivery," Hebei University, May 10, 2022.
4. **Donny Hanjaya-Putra**, "Synthetic Biomaterials to Control Stem Cell Morphogenesis," Biomaterials and Medical Devices, Nanotech Expo, Washington DC, October 20, 2021.
5. **Donny Hanjaya-Putra**, "Biomaterials to Bridge the Blood and Lymphatic Vasculatures," Bioengineering e-Seminar Series, October 9, 2020.
6. **Donny Hanjaya-Putra**, "Delivering Therapeutic Drugs to Rejuvenate Progenitor Cells," 8th International Conference on Bioengineering and Nanotechnology, May 29, 2019.
7. **Donny Hanjaya-Putra**, "Engineering Therapeutics Angiogenesis," Indiana Center for Regenerative Medicine and Engineering, August 26, 2019.

National and International Conferences

Oral Presentations:

1. **Donny Hanjaya-Putra**, "Designing Biomaterials for Therapeutic Lymphangiogenesis," Cellular and Biomolecular Engineering, January 2023.
2. **Donny Hanjaya-Putra**, "Engineering Stem Cell for Therapeutic Lymphangiogenesis," International Vascular Biology Meeting, October 2022.
3. **Donny Hanjaya-Putra**, "Podoplanin is Responsible for the Distinct Blood and Lymphatic Capillaries," Young Innovator Award CMBE, BMES Annual Meeting 2022.
4. **Donny Hanjaya-Putra**, "Biomaterials to Bridge the Blood and Lymphatic Vasculatures," Bioengineering e-Seminar Series, October 9, 2020.
5. **Donny Hanjaya-Putra**, "Engineering Biomaterials with Stem Cells for Lymphatic Morphogenesis," GRC Lymphatics, March 5, 2020.
6. **Donny Hanjaya-Putra**, "Delivering Therapeutic Drugs to Rejuvenate Progenitor Cells," AIChE Annual Meeting, November 11, 2019.
7. Laura Alderfer, **Donny Hanjaya-Putra**, "Co-Regulation of Lymphatic Tube Formation by Matrix Stiffness and VEGF-C," BMES Annual Meeting, October 18, 2019.
8. **Donny Hanjaya-Putra**, "Engineering Bioactive Nanoparticles to Rejuvenate Progenitor Cells," GRC Biomaterials, August 2, 2019. (selected to give the **Young Investigator Presentation**)
9. Laura Alderfer, **Donny Hanjaya-Putra**, "Co-Regulation of Lymphangiogenesis by Mechanical and Biochemical Cues," Lymphatic Forum, May 30, 2019.
10. **Donny Hanjaya-Putra**, "Controlling Vascular Morphogenesis in Tumor Microenvironments," Harper Cancer Research Institute, Jan 28, 2019, (*invited lecture*).
11. Loan Bui, **Donny Hanjaya-Putra**, "Microfluidics Hydrogels-Based Platform to Study Breast Cancer Cell and Lymphatic Capillary Interaction," American Institute of Physics (AIP), Notre Dame, I.N., July 23-24, 2018.
12. **Donny Hanjaya-Putra**, Erbin Dai, Carolyn Haller, Christoph E. Hagemeyer, Karlheinz Peter, Elliot L. Chaikof, "Targeted Anti-Thrombotic Prophylaxis for Deep Vein Thrombosis" Biomedical Engineering Society (BMES) Annual Meeting, Phoenix, A.Z., October, 11-14, 2017.
13. **Donny Hanjaya-Putra**, Erbin Dai, Carolyn Haller, Christoph E. Hagemeyer, Peter Karlheinz, Elliot L. Chaikof, "Targeted Anticoagulation Therapy for the Prevention of Venous Thrombosis." American Institute of Chemical Engineers (AIChE) Annual Meeting, San Francisco, C.A., November 13-18, 2016.

14. **Donny Hanjaya-Putra**, Charles Steenbergen, Jason A. Burdick, Sharon Gerecht, "Functionality and Durability of Engineered Human Vascular Networks from Endothelial Progenitor Cells in a Deep Thermal Wound." International Society of Stem Cell Research (ISSCR) 11th Annual Meeting, Boston, M.A., June 12-15, 2013.
15. **Donny Hanjaya-Putra**, Vivek Bose, Sudhir Khetan, Jason A. Burdick, Sharon Gerecht, "Controlling Morphogenesis of Endothelial Progenitors to Generate Functional Microvasculature in a Synthetic Matrix." International Society of Stem Cell Research (ISSCR) 9th Annual Meeting, Toronto, Canada, June 15-18, 2011.
16. **Donny Hanjaya-Putra**, Sudhir Khetan, Jason A. Burdick, Sharon Gerecht, "Controllable and Robust Morphogenesis of Functional Vascular Network Assembly within Synthetic Environment." Experimental Biology (EB), Washington D.C., April 9-13, 2011.
17. **Donny Hanjaya-Putra**, Rachel Truitt, Jane Yee, Doug Ceci, Derek Yee, Sharon Gerecht, "Angiogenesis by Endothelial Progenitor Cells is co-regulated by Vascular Endothelial Growth Factor and Matrix Stiffness," Experimental Biology (EB), New Orleans, L.A., April 18-22, 2009.

Poster Presentations:

1. Donghyun Paul Jeong, **Donny Hanjaya-Putra**, "Acetyl-CoA mediated differentiation of Lymphatic Endothelial Cells," Biomedical Engineering Society (BMES) Annual Meeting, October 12-15, 2022.
2. Sanjoy Saha, **Donny Hanjaya-Putra**, "Dopamine-HA Coating Preserves Lymphatic Endothelial Phenotypes," Biomedical Engineering Society (BMES) Annual Meeting, October 12-15, 2022.
3. Laura Alderfer, **Donny Hanjaya-Putra**, "Hyaluronic Acid Hydrogels for Controlling Lymphatic Vessel Formation," Biomedical Engineering Society (BMES) Annual Meeting, October 14-17, 2020.
4. Loan Bui, **Donny Hanjaya-Putra**, "Engineering Bioactive Nanoparticles to Rejuvenate Progenitor Cells," Biomedical Engineering Society (BMES) Annual Meeting, October 16-19, 2019.
5. Fei Fan, **Donny Hanjaya-Putra**, "Synthesis and Photopatterning of Norbornene Modified Hyaluronic Acid Hydrogels," Notre Dame-Purdue Symposium on Soft Matter and Polymers, September 21, 2019.
6. Loan Bui, **Donny Hanjaya-Putra**, "Interplay of Lymphatic Vasculature and Breast Cancer on Lymphatic Invasion," Biomedical Engineering Society (BMES) Annual Meeting, Atlanta, G.A., October 17-20, 2018.
7. Laura Alderfer, David B. Go, Hsueh-Chia Chang, **Donny Hanjaya-Putra**, "Early Prediction of Preeclampsia using Maternal Exosomal miRNAs Secreted by Endothelial Colony-Forming Cells," American Institute of Physics (AIP), Notre Dame, I.N., July 23-24, 2018.
8. **Donny Hanjaya-Putra**, Erbin Dai, Carolyn Haller, Christoph E. Hagemeyer, Karlheinz Peter, Elliot L. Chaikof, "Targeted Factor Xa Inhibition for the Prevention of Venous Thrombosis." Biomedical Engineering Society (BMES) Annual Meeting, Minneapolis, M.N., October 5-8, 2016.
9. Venkata R. Krishnamurthy, Mohammed Y.R. Sardar, Carolyn Haller, **Donny Hanjaya-Putra**, Richard D. Cummings, Elliot L. Chaikof, "PSGL-1 Glycomimetic Inhibits P-Selectin in vitro and in vivo." Harvard Medical School Surgery Research Day, Boston, M.A., May 9, 2015.
10. Nisarga Naik, **Donny Hanjaya-Putra**, Carolyn Haller, Mark G. Allen, Elliot L. Chaikof, "Biodegradable Polymer for Spatially Homogenous and Rapid Endothelialization of a High Aspect Ratio Microvascular Construct." Harvard Medical School Surgery Research Day, Boston, M.A., May 10, 2014.

11. Nisarga Naik, **Donny Hanjaya-Putra**, Carolyn Haller, Mark G. Allen, Elliot L. Chaikof, "Spatially Homogenous and Rapid Endothelialization of a High Aspect Ratio Microvascular Construct." Harvard Medical School Surgery Research Day, Boston, M.A., May 11, 2013.
12. **Donny Hanjaya-Putra**, Vivek Bose, Sudhir Khetan, Jason A. Burdick, Sharon Gerecht, "Controlled Activation of Morphogenesis to Generate a Functional Human Microvasculature in a Synthetic Matrix." XXIII Congress of the International Society on Thrombosis and Haemostasis (ISTH), Kyoto, Japan, July 23-28, 2011.
13. **Donny Hanjaya-Putra**, Derek Yee, Jane Yee, Sharon Gerecht, "Tunable Matrix to Study and Generate Vascular Networks from Endothelial Colony-Forming Cells, New York Stem Cell Foundation (NYSCF) 5th Annual Translational Stem Cell Research Conference, New York City, N.Y., October 12-13, 2010.
14. **Donny Hanjaya-Putra**, Elaine Vo, Sudhir Khetan, Jane Yee, Yuanting Zha, Vivek Bose, Sravanti Kusuma, Jason A. Burdick, Sharon Gerecht, "Controllable and Robust Vascular Differentiation and Assembly Within Synthetic Environment." International Society for Stem Cell Research (ISSCR) 8th Annual Meeting, San Francisco, C.A., June 16-19, 2010.

Research Support: (~6.1 M total as PI and Co-PI)

Completed Research Support:

American Heart Association (PI: Hanjaya-Putra) Career Development Award 2019	07/2019-09/2022 \$ 70,000 Annual Direct \$ 231,000 Total Cost	1.0 calendar
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"Engineering Therapeutic Lymphangiogenesis to Heal the Heart"

The major goal of this project is to promote lymphangiogenesis in cardiac wound using biomaterials. Hanjaya-Putra Lab contributed protocol to control lymphatic morphogenesis using synthetic biomaterials.

Indiana CTSI (PI: Hanjaya-Putra, co-I: Haneline) Collaboration in Translational Research	05/2018 – 02/2021 (NCE) \$ 37,500 Annual Direct \$ 75,000 Total Cost	0.5 calendar
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"Therapeutic Cell Engineering with Synthetic Nanoparticles to Rejuvenate ECFCs."

The major goal of this project is to improve the clinical potential of endothelial colony-forming cells (ECFCs) isolated from diabetic patients. Hanjaya-Putra Lab contributes nanoparticles to release bioactive molecules to rejuvenate ECFCs.

ARMI BioFab USA (PI: Chang, co-I: Hanjaya-Putra) Technical Project Grant 2019	07/2019-06/2021 \$ 442,220 Annual Direct \$ 1,443,163 Total Cost	1.0 calendar
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"An Automated High-Throughput Multiplexed Detection Platform for Real-Time Monitoring of Protein Fingerprints in Cell Culture Media"

The major goal of this project is to engineer sensitive biosensor for real-time monitoring of protein from tissue engineered products. Hanjaya-Putra Lab contributes clinically-relevant ECFCs differentiated from hPSCs.

Active External Research Support:

National Science Foundation (PI: Hanjaya-Putra) 08/2021-07/2026 1.0 calendar
NSF CAREER \$ 70,489 Annual Direct
\$ 548,840 Total Cost

“CAREER: An Integrated Research and Education Program to Investigate Hypoxia and Matrix Remodeling During Stem Cell Differentiation and Lymphatic Morphogenesis.”

The major goal of this project is to determine the roles of oxygen signaling and matrix remodeling in regulating stem cell differentiation and morphogenesis during early embryonic development. In addition, the integrated education and outreach program aims to promote learning at all levels by focusing on early engagement of students in service learning to inspire their interests in STEM fields.

National Institute of Health (PI: Hanjaya-Putra) 08/2021-07/2026 1.5 calendar
NIH MIRA R35 \$ 250,000 Annual Direct
\$ 1,956,250 Total Cost

“Engineering the Stem Cell Microenvironment for Lymphatic Regeneration.”

The major goal of this project is to utilize scalable and high-throughput approaches to map the cellular reprogramming of hPSCs, which can be used to emulate lymphatic function and physiology in a “lymphatic-on-a-chip” model. In addition, the resulting stem cells will be engineered within a synthetic and controllable matrix environment as a therapeutic approach to promote lymphatic regeneration in an *in vivo* model of wound healing.

National Science Foundation (PI: Hanjaya-Putra) 09/2022-08/2026 0.5 calendar
NSF RECODE \$ 240,000 Annual Direct
\$ 1,500,000 Total Cost

“RECODE: Vascular Differentiation and Morphogenesis Controlled with Hybrid Memristors.”

The major goal of this project is to exploit calcium signaling for reproducible directed differentiation of hiPSCs into vascular endothelial cells. The overall goal is to develop an autonomous coupled cellular and memristor circuitry with its own local memory and range-weighted coupling that serve as an artificial neuronal network to generate long-range patterns of cell differentiation and morphogenesis through synthetic control of multicellular gene regulatory and physiological networks.

Pending Research Support:

Burroughs Wellcome Fund (PI: Hanjaya-Putra)
2023 Next Gen Pregnancy Initiative (finalist interview)
“Human Progenitor Cells for Predicting and Improving Developmental Health Outcomes Precipitated by Preeclampsia”

National Science Foundation (PI: Phillip, co-I: Schaefer)
“REU Site: Soft Materials for Applications in Sustainability and Healthcare Engineering.”

National Science Foundation (PIs: Reeves, Zartman, Hanjaya-Putra, Umulis)
“Precision Control of Cell Differentiation via Regulation of Bone Morphogenetic Protein Pathway Signaling Dynamics.”

National Institute of Health (PI: White, co-I: Hanjaya-Putra)

NIH PSOC UO1

“Bidirectional Roles of ECM Stiffness and Intracellular pH Dynamics in Cancer”

Teaching and Advising

University of Notre Dame

- AME 20231 Thermodynamics (undergraduate required course)
 - 88 students (Spring 2023)
- AME 30386 / CBE 30386 Introduction to Bioengineering (undergraduate course)
 - 52 students (Spring 2020)
- AME 50571 Biomaterials (undergraduate and graduate elective course)
 - 12 students (Spring 2018)
 - 35 students (Fall 2018)
 - 21 students (Fall 2019)
 - 28 students (Fall 2020)
 - 29 students (Fall 2021)
 - 15 students (Fall 2022)
- AME 50571 Stem Cell Engineering (graduate course)
 - 7 students (Spring 2019)
 - 6 students (Spring 2021)
 - 4 students (Spring 2022)

Post-doctoral Scholars

- Dr. Loan Bui, Post-doctoral Scholar, 01/2018-07/2020
Current Position: Assistant Professor, University of Dayton, Ohio
- Dr. Zeinab Ramshani, Post-doctoral Scholar, 05/2018-04/2020
- Dr. Fei Fan, Post-doctoral Scholar, 03/2019-11/2022
Current Position: Michigan State University

Graduate Students

Ph.D.

- Laura Alderfer (March 2023), WCF Interdisciplinary Fellowship, Fulbright Fellowship, 2023 Eli J. and Helen Shaheen Graduate School Award in Engineering
- Eva Hall (anticipated 2025)
- Sanjoy Saha (anticipated 2025), MSE Student
- Donghyun Paul Jeong (anticipated 2026), Remick Fellowship, 2023 NSF GRFP
- Brenda Cruz Gonzalez (anticipated 2027)
- Daniel Montes Pinzon (anticipated 2027)
- Ellie Johandes (anticipated 2028)

Undergraduate Students – Notre Dame

- Elizabeth Russo, Aerospace and Mechanical Engineering (Fall 2017, Spring 2018, Fall 2018, Spring 2019). Current position: BME graduate student at Johns Hopkins University
- Brian Coe, Aerospace and Mechanical Engineering (Summer 2018, Fall 2018, Spring 2019)
- Henry Davis, Aerospace and Mechanical Engineering (Summer 2018, Fall 2018, Spring 2019) Current position: Accenture Health Consulting
- Kellen Round, Biological Science (Fall 2018, Spring 2019)
- Grace Petrosini, Biological Science (Fall 2018, Spring 2019)
- Madeline Owen, Stamps Scholar (Spring 2019-Spring 2021, Valedictorian 2021)
Current Position: Medical student at Northwestern University

- Abigayle Batkoff, Biological Science (Spring 2019)
- Erin Neu, Chemical and Biomolecular Engineering (Fall 2020)
- Alexander Kolodychak, Chemical and Biomolecular Engineering (Fall 2020)
- Onyi Okwueme, Biological Science (Fall 2021)
- Francine Graham, Chemical and Biomolecular Engineering (Fall 2022)
- Maddie Klefeker, Chemical and Biomolecular Engineering (Fall 2022)
- Jamil Allan, Biological Science (Spring 2023)

Visiting Undergraduate Students

- Eric Pfrender, Chemical and Biomolecular Engineering, Northwestern University (Summer 2018)
- Adriana M. Archilla, Chemical and Biomedical Engineering, Syracuse University (Summer 2019)
- Aisling Hanrahan, Biomedical Engineering, Naughton Fellowship (Summer 2023)

High School Students

- Benjamin Capdevielle, Trinity High School (Fall 2018, Spring 2019).
- Christin Preuss, Trinity High School (Fall 2018, Spring 2019).
- Mylia Vigue, St. Anthony de Padua (RC3 Summer 2022).

Qualification Exam, Candidacy Exam, and Dissertation Committees

- Tyler Finamore, Aerospace and Mechanical Engineering (expected 2021)
- Kimberly Curtis, Bioengineering Graduate Program (expected 2019)
- Dharsan Soundarrajan, Chemical and Biomolecular Engineering (expected 2022)
- Chenguang Zhang, Chemical and Biomolecular Engineering (expected 2022)
- John Nganga, Aerospace and Mechanical Engineering (expected 2023)
- Dharsan Soundarrajan, Chemical and Biomolecular Engineering
- Chenguang Zhang, Chemical and Biomolecular Engineering
- Matthew Sis, Chemical and Biomolecular Engineering
- Francisco Huizar, Chemical and Biomolecular Engineering
- Zhe Feng, Aerospace and Mechanical Engineering
- George Ronan, Aerospace and Mechanical Engineering
- Mayesha Sahir Mim, Chemical and Biomolecular Engineering
- Jack Consolini, Aerospace and Mechanical Engineering
- Vivek, Chemical and Biomolecular Engineering
- Lan Li, Bioengineering Graduate Program

Service and Outreach

Service to the Profession

Invited Ad Hoc Reviewer:

- | | |
|--|---|
| • PloS ONE, Scientific Reports. | • Annals of Biomedical Engineering. |
| • Cell Tissue Organs. | • Cellular and Molecular Life Sciences. |
| • BMC Technology. | • Journal of Vascular Research |
| • Journal of Visualized Experiments. | • Acta Biomaterialia |
| • Stem Cell Translational Medicine. | • Biomicrofluidics |
| • Journal Biomedical Materials Research. | • Science Advances |
| • Cardiovascular Research. | • Nature Communications |

Invited Grant Reviewer:

- I-CTSI Core Pilot Grant Review Panel (May 2018, May 2019, October 2020).
- I-CTSI Surgical Device Review Panel (June 2018).
- Peer Reviewed Medical Research Program of the Congressionally Directed Medical Research Program (CDMRP, July 2018, July 2019).
- ACS-HCRI Grant Review Panel (Dec 2018, July 2019).
- Swiss National Science Foundation (June 2021, January 2023).
- NSF Center for Single-Cell Omics, Regeneration and Engineering (February 2023).
- NSF EBMS Panel, (May 2023).

Scientific Organizations:

- Member, American Institute of Chemical Engineering (AIChE).
- Member, Biomedical Engineering Society (BMES).
- Member, International Society of Stem Cell Research (ISSCR).
- Member, International Society for Thrombosis and Haemostasis (ISTH).
- Member, American Heart Association (AHA).
- Organizer, 2019 Midwest Tumor Microenvironment Meeting
- Co-Chair, 8th International Conference on Bioengineering and Nanotechnology (ICBN) Meeting
- Co-Chair, Biomaterials and Vascular Therapeutics, Vascular Biology 2021
- Award Committee, Biomedical Engineering Society (BMES).

Service to the Department, College, and University

Departmental Committees and Service

- AME *Ad Hoc* Committee on Strategic Planning (2018)
- Bioengineering Seminar Coordinator (2020-present)
- Bioengineering Graduate Student Recruitment Coordinator (2021-present)
- Faculty Search Committee (2022-2023)

Outreach

- Co-Coordinator, MATHCOUNTS Competition, St. Joseph Valley Chapter, Indiana
- Module organizer, DNA Learning Center, University of Notre Dame, Indiana.

Service

- Volunteer, Scientific Judges for Siemens Region 3 Competition, Notre Dame, Indiana.
- Faculty advisor, Indonesian Student Association PERMIAS Club, Notre Dame, Indiana.
- Mentor, Building Bridges Mentoring Program, Notre Dame, Indiana.
- Mentor, Mary E. Galvin Science and Engineering Scholars Program, Notre Dame, Indiana.