

CURRICULUM VITAE

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[Lab website](#)



EDUCATION

Ph.D.	Biomedical Engineering	Boston University	2012
M.S.	Biomedical Engineering	Boston University	2009
M.S.	Mechanical Engineering	Arizona State University (GPA: 4/4)	2007
B.Tech.	Mechanical Engineering	Indian Institute of Technology Delhi	2003

POSTDOCTORAL TRAINING

Wyss Institute at Harvard University (PI: Donald E. Ingber MD, PhD)	2012-16
Division of Hemostasis and Thrombosis, Department of Medicine Beth Israel Deaconess Medical Center, Harvard Medical School	2015-16

DOCTORAL TRAINING

Steele Lab for Tumor Biology, Massachusetts General Hospital and Harvard Medical School (PI: Lance L. Munn, PhD; Rakesh K. Jain, PhD)	2007-11
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APPOINTMENTS

2023-	Barbara and Ralph Cox'53 Faculty Fellow
2022-	Associate Professor of Biomedical Engineering, Texas A&M Engineering
2020-	Department of Medical Physiology, Texas A&M Health Science Center, College of Medicine (0% joint)
2021-	Visiting Scientist, Department of Cardiovascular Sciences, Houston Methodist Research Institute, Texas Medical Center
2016-2022	Assistant Professor of Biomedical Engineering, Texas A&M Engineering

OTHER POSITIONS AND EMPLOYMENT

2024	Scientific Founder, Hemadyne Inc.
2023	Scientific Founder and Board member, Revi Life Science Inc.
2014-15	Consultant, Emulate Bio Inc.

AWARDS AND HONORS

2022	Texas A&M BME Cain Faculty Fellow
2022	Texas A&M Engineering Young Faculty Fellow
2021	Texas A&M BME Excellence Faculty Fellow
2021	AHA Kenneth Brinkhous Prize in Thrombosis (finalist)
2021	Texas A&M Dean of Engineering Excellence Award
2020	NSF CAREER Award
2020	AHA Kenneth Brinkhous Prize in Thrombosis (finalist)
2019	Lab on a Chip Early Career Investigator
2018	NIH NIBIB Trailblazer Award
2015	NIH Ruth L. Kirschstein (NRSA) Fellowship
2014	Tony B. Academic Award, Society for Lab Automation & Screening (SLAS)
2007	Distinguished Biomedical Engineering Fellowship, Boston University
2006	Best Paper Award, Indian Institute of Engineers
2003	Best undergraduate thesis, IIT Delhi
1997	All India Mathematics Olympiad, 98 percentile

RESEARCH

Engineering Medicine with Organ-Chips: A fast-track platform for translational research

My research training as a postdoc (2012-2016) was at the Wyss Institute at Harvard University, at a time when he was spinning out the organ-on-chip biotech company, Emulate. I played an instrumental role in its formation and served as its founding consultant for two years. The publications I produced with the lung-on-chip and thrombosis-on-chip platform also led to three patents, two of which were licensed by Emulate. A translational outcome of my work with the pulmonary vascular organ-on-chip platform has been that Janssen Pharma adopted and published from my devices to identify thrombotic toxicities of immune therapeutic compounds that animal models cannot show, but seen only in human clinical trials.

Since 2016, my lab named as "[Bioinspired Translational Microfluidics Lab](#)" has continued to innovate new organ-on-chips. In this time, I have mentored 1 research assistant professor, 4 postdocs, and more than 10 PhDs, along with uncountable UGs. My lab particularly specializes in making and commercializing patient-specific organ-chip models of rare and orphan diseases with an emphasis on cardiovascular disorders and blood clotting. By establishing and leveraging extensive collaborations across the Texas Medical Center, we have made contributions in advancing the fundamental understanding and drug discovery of sickle cell disease (NIBIB Trailblazer), type-1 diabetes (TAMU X-grant), vein thrombosis (NSF CAREER), ovarian cancer, lymphedema and COVID-19 (NIH R01). My research is founded on a strong culture of interdisciplinary collaboration, diversified and inclusive teamwork and empathetic mentoring. As a result, the impact of our work is far reaching as these synthetic organs that we create mimic complex disease states, and offer a dissectible testbed to perform organ-to-molecular scale analysis. We are steadfast on our way to disrupting traditional preclinical and translational research and proposing gradual reduction and replacement of animals in the process of scientific discovery.

We are currently emphasizing the use of the organs-on-a-chip technology to model thrombosis in COVID-19, a major determinant of SARS-CoV-2 severity. Another emerging focus is on designing a platform to test novel therapeutics for treating orphan pathologies, such as those of the female ovary and human lymphatic system. We have recently developed expertise in integrating contemporary high-throughput transcriptomic analysis and deep machine learning to our organ-on-a-chip methods.

Our lab is commercializing its inventions through a startup, Revi Life Science, that I have founded.

RESEARCH SUPPORT

- Total intra/extramural funding since joining TAMU: \$8M approx.
- Average annual research expenditures: ~\$550,000

Active

- | | | |
|---|---------------------|--------|
| 15. DoD (NOA pending) | 07/01/24-06/30/28 | 1.5CM |
| Ovarian Cancer Research Program (OCRP) Investigator-Initiated Research Award
<i>Platelet Pathophysiology in Resistance to Antiangiogenic Therapy Against Ovarian Cancer Evaluated in a Vascularized TME-Chip</i>
Budget: \$1.2 Million | | |
| 14. TAMUS Office of Innovation | 01/01/24-12/31/24 | |
| <i>Advanced Vein-Chip deployment platform for large scale pharmaceutical testing services</i>
Budget: \$75,000 | | |
| 13. NASA/FDA/BARDA/NIH (PI) | 03/01/23 – 03/31/27 | 2.0 CM |
| NNH21ZDA015N: Extended Longevity of 3D Tissues and Microphysiological Systems for Modeling of Acute and Chronic Exposures to Stressors
<i>Long-term patient iPSC vessel chip model to assess stressors of atherosclerosis and mRNA therapeutics</i>
Budget: \$2,000,000 | | |
| 12. NHLBI R01 (MPI) | 05/01/21 – 08/31/25 | 2.5 CM |
| NIH
<i>Determinants of COVID-19 induced venous thrombosis assessed with microengineered vein-chip</i>
Budget: \$2,913,052 | | |
| 11. CAREER Award (PI) | 08/15/20 – 08/31/24 | 1.2 CM |
| NSF
<i>Modeling human veins and venous pathology with organ-on-chip engineering for basic, translational and educational research</i>
Budget: \$506,000 | | |

Complete:

- | | | |
|--|---------------------|--------|
| 10. X-grant (co-PI) | 09/01/19 – 08/31/22 | 0.5 CM |
| TAMU President's excellence award
<i>3D Printed Bioartificial Pancreas to Treat Diabetes</i>
Budget: \$320,000 | | |
| 9. NHLBI R44 (co-I) | 08/01/21 – 04/31/22 | 1.0 CM |
| NIH/Osciflex
<i>Mechanical device for the prevention of VTE in high risk patient populations</i>
Budget: \$132,415 | | |
| 8. R01 (co-I) | 09/01/19 – 08/31/22 | 0.6 CM |

NIH/NHLBI

Novel Pathways in Ischemic Stroke in Sickle Cell Anemia

Budget: \$1,250,000

7. Pilot Award (co-PI) 07/01/20 – 12/30/22 0.3 CM
Cystic Fibrosis Foundation
Evaluation of CFTR gene-editing using lung-on-a-chip
Budget: \$109,000
6. R21 (PI) 09/01/18 – 08/31/22 1.2 CM
NIH/NIBIB Trailblazer award
An artery-on-a-chip system containing blood outgrowth endothelium as a model of vaso-occlusion and drug testing in sickle cell disease
Budget: \$580,000
5. T3 (PI) 01/01/19 – 01/30/2021
TAMU
Vascular Islet-on-a-Chip Biosystem
Budget: \$35,500
4. Translational seed grant (PI) 05/01/18 – 04/30/19 0.2 CM
Baylor College of Medicine
Design, manufacture, and testing prototypes of new blood clot monitoring devices and sensor equipment
Budget: \$30,000
3. AggieE-Challenge (PI) 09/01/18-05/31/19 0.0 CM
TAMU College of Engineering
Biomimetic engineering of venous thrombosis
Budget: \$12,000
2. AggieE-Challenge (PI) 09/01/17-05/31/18 0.0 CM
TAMU College of Engineering
Biomimetic engineering of venous thrombosis
Budget: \$10,500
1. I-Site Core (PI) 01/01/18-05/31/19 0.0 CM
TAMU College of Engineering
Commercialization potential of 3D bioprinted human vein
Budget: \$3,500

SELECT MEDIA INTERVIEWS/PUBLIC LECTURES

4. [ABC: KRHD Brazos](#), 6 PM News, *Texas A&M researchers tackle Sickle Cell Disease with... USBs?* March 19, 2021
3. [DEBAKEY CV LIVE: At The Cutting Edge of Cardiovascular Science](#), “*Cardiovascular Manifestations of COVID-19: Role of the Endothelium*”, Host: Dr. John P. Cooke (Houston Methodist). Guests: Dr. Abhishek Jain (TAMU), and Dr. John Connor (National Emerging Infectious Disease Lab, BU). June 8, 2020

2. [ISTH Academy](#), *OvCa-Chip: A New Organ-on-a-Chip Experimental Model to Dissect Platelet and Vascular (dys)Function in Ovarian Cancer*, Host: Dr. Kellie Machlus (Harvard University). July 12, 2020
1. [NBC: KAGS College Station](#), 8 PM Primetime, *TAMU device that can change healthcare of lungs*, Oct 20, 2017

INVITED TALKS (2016 -)

platform talks stated in **bold**

25. TAMU Cardiovascular Research Institute (CVRI) in conjunction with the Japan Society for the Promotion of Science (JSPS). Mini Symposium: "Development of Disease Models using Organ on a Chip", October 26th 2023.
24. Department of Biomedical Engineering, Texas A&M University, Sept 1, 2023
23. **(Distinguished speaker)** Department of Biomedical Engineering, George Washington University, April 19, 2023
22. Department of Biomedical Engineering, University of Rhode Island, March 11, 2023
21. Department of Physiology and Biomedical Engineering, Alix School of Medicine, Mayo Clinic, April 26, 2021 (remote)
20. Indian Institute of Technology Madras: AICTE short term course - Advances in Biomaterials and Tissue Engineering, January 25-30, 2021 (remote)
19. Department of Biomedical Engineering, University of Miami, Dec 5, 2020 (remote)
18. Biorheology Subcommittee Sessions, International Society of Thrombosis and Hemostasis (ISTH) Annual Meeting, online, July 15, 2020
17. **AHA Vascular Discovery 2020, May 3-5, Oral talk: Brinkhous Award**
16. **2020 Gordon Conference on Hemostasis, August 2-7, Waterville Valley, NH**
15. Department of Medicine, University of North Carolina Chapel Hill, Dec 13, 2019
14. Thrombosis-on-a-chip for rapid detection and treatment of blood vessel, flow and clots, Workshop on Emerging Frontiers in Quantum-, Nano-, and Bio- Photonics, Department of Physics, Texas A&M University, Sept 10, 2018
13. **(platform) Can We Reproduce Thrombosis Conditions Using in Vitro Assays?, Animal, Molecular and Cellular Models Subcommittee Sessions, International Society of Thrombosis and Hemostasis (ISTH) SSC Annual Meeting, Dublin, July 20, 2018**
12. **(platform) "Thrombosis-on-a-Chip", Earl Davie Annual Symposium, Center for Blood Research, University of British Columbia, Vancouver, Canada, Oct 2017**
11. Biorheology Subcommittee Sessions, International Society of Thrombosis and Hemostasis (ISTH) Annual Meeting, Berlin, July 9, 2017
10. Department of Gynecologic Oncology and Reproductive Medicine, Division of Surgery, The University of Texas MD Anderson Cancer Center, Houston, Feb 28, 2017
9. Department of Surgery, Baylor Scott and White Health Center, Temple, Feb 24, 2017
8. Clinical Science & Translational Research (CST*R) Grand Rounds, Texas A&M College of Medicine, College Station, Feb 7, 2017
7. Institute of Biosciences and Technology, Texas A&M Health Science Center, Houston, Feb 6, 2017
6. Division of Transfusion Medicine & Coagulation, Texas Children's Hospital, Houston, Dec 23, 2016
5. Division of Hematology Oncology, University of Texas Southwestern Children's Medical Center, Dallas, Nov 21, 2016

4. Michael E. DeBakey VA Medical Center, Baylor College of Medicine, Houston, Nov 3, 2016
3. Division of Pediatric Hematology/Oncology, Texas Children's Hospital, Houston, Oct 12, 2016
2. Department of Biomedical Engineering, University of Houston, Sep 30, 2016
1. Department of Medical Physiology, College of Medicine, Texas A&M Health Science Center, College Station, Sept 28, 2016

JOURNAL PUBLICATIONS

Total citations (Feb, 2024): 2,983
h-index (Google scholar): 21

TOP ORIGINAL ARTICLES

(click on icon)



TOP REVIEW ARTICLES

(click on icon)



Submitted/ in review:

47. Ghosh LD, Mathur T, Tronolone J, Sood AK & Jain A. Angiogenesis-enabled human ovarian tumor microenvironment-chip evaluates pathophysiology of platelets in microcirculation. *In review*
46. Hye Won Han, Geetali Pradhan, Daniel Villarreal, Da Mi Kim, Abhishek Jain, Akhilesh Gaharwar, Yanan Tian, Shaodong Guo, Yuxiang Sun. Absence of β -cell GHS-R protects against streptozotocin-induced β -cell damage in the aged mice. *In review*

Published:

45. Mathur T., Tronolone J. & Jain. A. AngioMT: An open source in silico platform for digital sensing of oxygen transport through heterogenous microvascular networks. *PLoS One*, 2024, appearing on March 12, 2024

44. J. J. Tronolone, N. Mohamed, A. Jain, Engineering Lymphangiogenesis-On-Chip: The Independent and Cooperative Regulation by Biochemical Factors, Gradients, and Interstitial Fluid Flow. *Adv. Biology*, 2024, 2400031. <https://doi.org/10.1002/adbi.202400031>

Journal Cover

43. Ghosh LD & **Jain A**. The prospects of microphysiological systems in modeling platelet pathophysiology in cancer, *Platelets*, 34:1, DOI: 10.1080/09537104.2023.2247489
42. Tronolone J, Mathur T, Chaftari C, Sun, Y, **Jain A**. Machine learning chained neural network analysis of oxygen transport amplifies the physiological relevance of vascularized microfluidic systems. *Bioeng Transl Med*. 2023;e10582. doi:10.1002/btm2.10582

Journal Cover

41. Abasi S., **Jain, A**, Cooke JP, Guiseppi-Elie A. Electrically Stimulated Gene Expression under Exogenously Applied Electric Fields, *Frontiers in Molecular Biosciences*, 2023, 10, DOI=10.3389/fmolb.2023.1161191

40. Tronolone, J. J., Mathur, T., Chaftari, C. P., & **Jain, A**. Evaluation of the Morphological and Biological Functions of Vascularized Microphysiological Systems with Supervised Machine Learning. *Annals of Biomedical Engineering*, 2023, 51, 1723-37, <https://doi.org/10.1007/s10439-023-03177-2>

39. Selahi, A. & **Jain, A**. Engineered models of the lymphatic vascular system: Past, Present, and Future. *Microcirculation*, 2023; 30:e12793. doi:10.1111/micc.12793

38. Mathur, T., Kumar, A, Flanagan, J. M., & **Jain, A**. Vascular Transcriptomics: A Protocol for Investigating Endothelial Activation and Vascular Dysfunction Through Blood Outgrowth Endothelial Cells, Organ-Chips and RNA Sequencing. *Current Protocols*, 2022, 2, e582. doi: 10.1002/cpz1.582

37. Selahi, A., Chakraborty, S., Muthuchamy, M., Zawieja, D. C., **Jain, A**. Intracellular calcium dynamics of lymphatic endothelial and muscle cells co-cultured in a Lymphangion-Chip under pulsatile flow. *Analyst*, 2022, 147, 2953-2965

Journal cover

36. Banerjee P, Olmsted-Davis EA, Deswal A, Nguyen MTH, Koutroumpakis E, Palaskas NL, Lin SH, Kotla S, Reyes-Gibby C, Yeung SCJ, Yusuf SW, Yoshimoto M, Kobayashi M, Yu B, Schadler K, Herrmann J, Cooke JP, **Jain A**, Chini E, Le NT, Abe JI. Cancer treatment-induced NAD⁺ depletion in premature senescence and late cardiovascular complications. *J Cardiovasc Aging*, 2022;2:28. <http://dx.doi.org/10.20517/jca.2022.13>

35. Rajput S, Deo KA, Mathur T, Lokhande G, Singh KA, Sun Y, Alge DL, **Jain A**, Sarkar TR, Gaharwar AK. 2D Nanoclay for Additive Manufacturing: Rheological modifier, Sacrificial Ink and Support Bath, *Bioprinting*, 2022, 25(2), e00187

34. Rajeeva Pandian NK, **Jain A**. In silico analyses of blood flow and oxygen transport in microscale human veins and valves, *Clinical Hemorheology and Microcirculation*, 2022, 81(1), 81-96, doi: 10.3233/CH-211345

-----tenured and promoted to Associate Professor-----

33. Selahi A, Fernando T, Muthuchamy M, Zawieja DC, **Jain A**, Lymphangion-Chip: a microphysiological system which supports co-culture and bidirectional signaling of lymphatic endothelial and muscle cells, *Lab on a Chip*, 2022, 22(1), 121-135.

Impact factor: 6.8
32. Cooke JP, Connor JH, **Jain A**. Acute and Chronic Cardiovascular Manifestations of COVID-19: Role for Endotheliopathy, *Methodist DeBakey Cardiovascular Journal*, 2021. 17(5), 53-62
31. Mathur T, Tronolone J, **Jain A**. Comparative Analysis of Blood-Derived Endothelial Cells for Designing Next-Generation Personalized Organ-on-Chips, *J Am Heart Assoc (JAHA)*. 2021. 10, 22:e022795. <https://doi.org/10.1161/JAHA.121.022795>

Impact factor: 5.5
30. Xin S, Deo KA, Dai, J, Rajeeva Pandian NK, Chimene D, Moebius, R, **Jain A**, Han A, Gaharwar AK*, Alge DL*. Generalizing hydrogel microparticles into a new class of bioinks for extrusion bioprinting, *Science Advances*. 2021, 7, 42. DOI: 10.1126/sciadv.abk3087
29. Nava-Medina IB, Gold K, Cooper S, Robinson K, **Jain A**, Cheng Z, Gaharwar A. Self-Oscillating 3D Printed Hydrogel Shapes, *Adv. Materials Technol.* 2021, 2100418.
28. Gold KA, Saha B., Pandian NKRP, Walther BK, Palma JA, Jo J, Cooke JP, **Jain A***, Gaharwar AK*, 3D Bioprinted Multicellular Vascular Models, *Adv. Healthcare Materials*. 2021 Jul 26:e2101141. doi: 10.1002/adhm.202101141
*Jain and Gaharwar contributed equally and co-corresponding authors

Impact factor: **9.93**; Altmetric score: **106**
27. Saha B, Mathur T, Tronolone J, Selahi A, Chokshi M, Lokhande GK, Gaharwar AK, Afshar-Kharghan V, Sood AK, Bao G, **Jain A**. Tumor Microenvironment-Chip evaluates the consequences of platelet extravasation and antitumor-antiplatelet therapy in cancer, *Science Advances*, 2021 July 11, 7, eabg5283

Impact factor: **13.2**; Altmetric score: **106**

[Bio-TM](#); [Texas A&M Today](#); [Technology Networks](#)
26. Walther B, Rajeeva Pandian NK, Kilic ES, Gold K, Sama V, Gaharwar AK, Guiseppi-GE, Cooke JP, **Jain A**. Mechanotransduction-on-Chip: A Vessel-Chip model of endothelial YAP mechanobiology reveals matrix stiffness impedes shear response, *Lab on a Chip*, 2021, doi: 10.1039/d0lc01283a

Impact factor: 6.8; Altmetric score: 14
25. Mathur T, Flanagan JM, **Jain A**. Tripartite collaboration of blood-derived endothelial cells, next generation RNA sequencing and bioengineered vessel-chip may distinguish

vasculopathy and thrombosis amongst sickle cell disease patients, *Bioengineering and Translational Medicine*, 2021, doi: ARTN/e10211.

Impact factor: **10.7**; Altmetric score: **79**

[TAMU Engineering](#); [Drug Target Review](#); [EurekaAlert!](#); [Technology Networks](#)

24. Tronolone JJ, **Jain. A.** Engineering new microvascular networks: ingredients, assembly, and best practices, *Advanced Functional Materials*, 2021 April 1, 31(14), 2007199.

Impact factor: **16.9**

[TAMU Engineering](#)

23. Rajeeva Pandian NK, Walther, B, Suresh R, Cooke JP and **Jain A**, Microengineered Human Vein-Chip Recreates Venous Valve Architecture and Its Contribution to Thrombosis. *Small*. 2020 Dec16, (49):e2003401.

Impact factor: **13.3**; Altmetric score: 18

[Advanced Science News Feature](#); [American Heart Association Newsroom](#); [Medical Dialogues](#); [Medical Express](#); [TAMU Engineering](#); [Texas A&M Today](#)

22. Ngo, B. K. D., Lim, K. K., Johnson, J. C., **Jain, A.**, & Grunlan, M. Thromboresistance of Polyurethanes Modified with PEO-Silane Amphiphiles. *Macromolecular Biosci.* 2020, Dec;20(12):e2000193.

21. Saha B, Mathur T, Handley KF, Hu W, Afshar-Kharghan V, Sood AK, **Jain A**, OvCa-Chip microsystem recreates vascular endothelium-mediated platelet extravasation in ovarian cancer. *Blood Advances*. 2020 July 27, 4 (14): 3329–3342.

Impact factor: 5.5; Altmetric score: **104**

[Technology Networks](#); [The Times of India](#); [Medical Express](#); [ScienMag](#); [EurekaAlert](#); [Lab Medica](#); [TAMHSC Vital Record](#); [Texas A&M Today](#)

20. Ngo, B. K. D., Mikayla E. Barry, M. E., Lim, K. K., Johnson, J. C., Luna, D. J., Pandian, N. K. R., **Jain, A.**, & Grunlan, M. Thromboresistance of Silicones Modified with PEO-Silane Amphiphiles. *ACS Biomater Sci Eng.* 2020 Mar 10;6(4):2029-2037.

19. Luna D, Pandian NKR, Mathur T, Bui J, Gadangi P, Teruya J, **Jain A.**, Tortuosity-powered microfluidic device for assessment of thrombosis and antithrombotic therapy in whole blood. *Scientific Reports*. 2020 Apr 1, 10:5742.

Impact factor: 4.4; Altmetric score: **157**

[The Hindustan Times](#); [The Times of India](#); [Medical Express](#); [Science Daily](#); [Science and Life Russia](#); [EurekaAlert](#); [Medgadget](#); [Texas A&M Today](#)

18. Mathur T, Singh KA, Pandian NKR, Tsai S, Hein TW, Gaharwar AK, Flanagan JM, **Jain A.** Organ-on-chips made of blood: endothelial progenitor cells from blood reconstitute

vascular thromboinflammation in vessel-chips. *Lab on a Chip*. 2019 Jul 23;19(15):2500-2511. **journal cover**

Impact factor: 6.8; Altmetric score: **50**

[Harvard Apparatus](#); [TrialSite News](#); [Texas A&M Today](#); [TAMU Engineering](#)

17. Papa AL, Jiang A, Korin N, Chen MB, Langan ET, Waterhouse A, Nash E, Caroff J, Graveline A, Vernet A, Mammoto A, Mammoto T, **Jain A**, Kamm RD, Gounis MJ, Ingber DE. Platelet decoys inhibit thrombosis and prevent metastatic tumor formation in preclinical models. *Science Translational Medicine*. 2019 Feb 13;11(479). pii: eaau5898.
16. Gold K, Gaharwar A, **Jain A**. Emerging trends in multiscale modeling of vascular pathophysiology: Organ-on-a-chip and 3D Printing. *Biomaterials*. 2019. 196: 2-17

Impact factor: **12.48**; Altmetric score: 28

[TAMU Engineering](#); [GenEng News](#)
15. Barrile R, van der Meer AD, Park H, Fraser JP, Simic D, Teng F, Conegliano D, Nguyen J, **Jain A**, Zhou M, Karalis K, Ingber DE, Hamilton GA, Otieno MA. Organ-on-Chip Recapitulates Thrombosis Induced by an anti-CD154 Monoclonal Antibody: Translational Potential of Advanced Microengineered Systems. *Clinical Pharmacology & Therapeutics*. 2018; 104(6):1240-1248
14. De Ceunynck K, Peters CG, Jain A, Higgins SJ, Aisiku O, Fitch-Tewfik JL, Dockendorff C, Parikh SM, Ingber DE, Flaumenhaft R. PAR1 agonists stimulate APC-like endothelial cytoprotection and confer resistance to thromboinflammatory injury. *Proceedings of the National Academy of Science of USA (PNAS)*. 2018; 115(5), E982-E991.
13. Pandian NKR, Mannino RG, Lam WA, **Jain A**. Thrombosis-on-a-chip: Prospective impact of microphysiological models of vascular thrombosis. *Current Opinion in Biomedical Engineering*. 2018 March; 5: 29-34.

Impact factor: 4.9
12. Mannino RG, Pandian NKR, **Jain A**, Lam WA. Engineering “Endothelialized” Microfluidics for Investigating Vascular and Hematologic Processes Using Non-Traditional Fabrication Techniques. *Current Opinion in Biomedical Engineering*. 2018 March; 5: 13-20.
11. **Jain A**^{*}, Barrile R^{*}, van der Meer AD, Deceunynck K, Mammoto A, Mammoto T, Aisiku O, Otieno MA, Loudon CS, Hamilton GA, Flaumenhaft R, Ingber DE. A primary human lung alveolus-on-a-chip model of intravascular thrombosis for assessment of therapeutics. *Clin Pharmacol Ther*. 2018 Feb;103(2):332-340.

Impact factor: 7.3; Altmetric score: **59**

[NBC \(KAGS College Station\)](#); [Technology Networks](#); [Medical Express](#); [EurekAlert](#); [Harvard University](#)

10. **Jain A***, van der Meer AD*, Papa AL, Barrile R, Lai A, Schlechter BL, Otieno MA, Loudon CS, Hamilton GA, Michelson AD, Frelinger AL 3rd, Ingber DE. Assessment of whole blood thrombosis in a microfluidic device lined by fixed human endothelium. *Biomed Microdevices*. 2016 Aug;18(4):73

[The Verge](#); [EurekAlert](#); [Medical Express](#)

-----joined Texas A&M University-----

9. **Jain A**, Graveline A, Waterhouse A, Vernet A, Flaumenhaft R, Ingber DE. A shear gradient-activated microfluidic device for automated monitoring of whole blood haemostasis and platelet function. *Nature Communications*. 2016 Jan 6;7:10176. (Editor's choice: [Harvard Gazette](#))
8. Benam KH, Dauth S, Hassell B, Herland A, **Jain A**, Jang KJ, Karalis K, Kim HJ, MacQueen L, Mahmoodian R, Musah S, Torisawa YS, van der Meer AD, Villenave R, Yadid M, Parker KK, Ingber DE. Engineered in vitro disease models. *Annu Rev Pathol*. 2015;10:195-262
7. Leslie DC, Waterhouse A, Berthet JB, Valentin TM, Watters AL, **Jain A**, Kim P, Hatton BD, Nedder A, Donovan K, Super EH, Howell C, Johnson CP, Vu TL, Bolgen DE, Rifai S, Hansen AR, Aizenberg M, Super M, Aizenberg J, Ingber DE. A bioinspired omniphobic surface coating on medical devices prevents thrombosis and biofouling. *Nature Biotechnology*. 2014 Nov;32(11):1134-40.
6. Cooper RM, Leslie DC, Domansky K, **Jain A**, Yung C, Cho M, Workman S, Super M, Ingber DE. A microdevice for rapid optical detection of magnetically captured rare blood pathogens. *Lab Chip*. 2014 Jan 7;14(1):182-8.
5. **Jain A**, Munn LL. Biomimetic postcapillary expansions for enhancing rare blood cell separation on a microfluidic chip. *Lab Chip*. 2011 Sep 7;11(17):2941-7.
4. **Jain A**, Posner JD. Particle dispersion and separation resolution of pinched flow fractionation. *Anal Chem*. 2008 Mar 1;80(5):1641-8.
3. **Jain A**, Munn LL. Determinants of leukocyte margination in rectangular microchannels. *PLoS One*. 2009 Sep 21;4(9):e7104.
2. **Jain A**, Choudhary S, Singh SN, Rai L. Flow characteristics of model can combustor: Effect of casing angle. *Indian Institution of Engineers (ME)*. 2006 April; 87:1-7. (Best Paper Award)
1. **Jain A**, Choudhary S, Rai L, Singh SN. Flow analysis in a model can-type gas turbine combustor. *Indian Journal of Engineering & Materials Sciences*. 2005 October; 12:389-97.

BOOK CHAPTERS

2. **Jain, A**, Mathur T, Pandian NK, Selahi A. Chapter 9: Organ-on-a-chip and 3-D printing in Medical Research. In PRECISION MEDICINE FOR INVESTIGATORS, PRACTITIONERS AND PROVIDERS, Academic Press, 2020, Pages 83-95

1. Munn LL and **Jain A.** Design and Fabrication of Microfluidic Devices for Flow-based Separation of Blood Cells. In *Lab on a Chip Technologies and Applications*, Vol. 2, Horizon Scientific Press, UK, 2008

TRANSLATION/ENTREPRENEURSHIP

STARTUP COMPANIES

- | | |
|------|--|
| 2023 | Revi Life Science Inc.,
Licensing agreement with TAMUS in progress.
NIH c3i Path to Discovery 2023 1-year training (Abhishek Jain and Jason Eades)
NSF I-Core 2021 (Abhishek Jain, Navaneeth Pandian and Pranav Gadangi)
Aggie Challenge 2017-19 (Abhishek Jain and Navaneeth Pandian) |
| 2024 | Hemadyne, Inc,
undergoing customer discovery through NSF I-Core (Abhishek Jain, Ankit Kumar and Sreelakshmy Suresh) |

PATENTS

8. Jain A, Selahi A. SYSTEMS AND METHODS FOR FABRICATING PHYSIOLOGICALLY RELEVANT IN VITRO VESSELS. International PCT Application 18/112,279, filed on Feb 23, 2023
7. Jain A, Tronolone J, Saha B, Microfluidic device mimicking tumor microenvironment, US Application # 63/219,827, filed July 8, 2021
6. Jain A., Mathur T, Flanagan JM., Systems and Methods for Mimicking A Blood Vessel of A Patient, US application #17/352,135, filed June 2021
5. Jain A., Luna D., Microengineered medical device mimicking tortuous blood vessels for measuring thrombus, coagulation and platelet function, US Application # 63/023,893, filed April 2021
4. Jain A., Pandian NKR, Methods and devices to model veins and associated blood vessel components, USA application # 2020/0251018, filed Aug 6, 2020
3. Levner D, Hinjosa CD, van der Meer A, Jain A, Ingber D, Zamani M, Fluidic Device for Quantifying the Dynamic Permeability and Hydraulic Conductivity of Living Tissue Layers. USA Patent No. 20190360994, November 28, 2019
2. Ingber D, Jain A. A Microfluidic Device for Real-Time Clinical Monitoring and Quantitative Assessment of Whole Human Blood Coagulation. USA Patent No. 9,562,914 B2. Date Issued: Feb. 7, 2017
1. Ingber D, Jain A, van der Meer A, Frelinger A, Michelson A, Methods, systems, and compositions for determining blood clot formation, and uses thereof. USA Patent No. 10732172. August 5, 2020

SERVICE

PROFESSIONAL SERVICE

- 2024 Judge, Texas Science and Engineering Fair 2024, March 22
- 2024- Organization Committee, 8th Bioengineering and Translational Medicine Conference, Oct 2024
- 2024- Editorial Advisory Board, Lab on a Chip, RSC journal, Impact factor: 7.2
- 2024- Associate Editor (Guest), Bioengineering and Translational Medicine, AICHE journal of impact factor: 10.1
- 2024 Vice-Chair, 8th Annual Cardiovascular Bioengineering Symposium, May 22-25, 2024, Houston, TX
- 2023 Reviewer, NASA Translational Research Institute for Space Health (TRISH) 3D Autonomous Tissue Research Program
- 2023 Reviewer, NIH NCATS Translational Centers for Microphysiological Systems (TraCe MPS) (U2C).
- 2023 Track co-chair, Cardiovascular Engineering, BMES Annual Meeting, Oct 2023
- 2022- Co-Chair of International Society for Thrombosis and Hemostasis (ISTH) SSC sub-committee for Biorheology
- 2022- Co-Chair of International Society for Thrombosis and Hemostasis (ISTH) SSC sub-committee for Biorheology
- 2022-25 Research mentor of Dr. Byron Zambrano (TAMU MEEN, Research Assistant Professor), AHA Career Development Program Grant (pending)
- 2021 NSF CBET "Engineering of Biomedical Systems" review panel, October 2021
- 2021 Reviewer, Pilot grants, U54 CCNY-MSK Partnership for Cancer Research, Research Education and Community Outreach
- 2021-23 Editorial Board, Special Topics, "Organ-Chips in Cardiovascular Medicine", *Micromachines*, Impact Factor: 2.6
- 2021 NIH special study section for "Emergency Awards: Rapid Investigation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and Coronavirus Disease 2019 (COVID-19), January 2021
- 2020 NSF CBET CAREER "Tissue Engineering" review panel, October 2020
- 2020-21 NIH-DoD Trans-Agency Blood-Brain Interface Program, March 2020/21
- 2019 NIH NIBIB Immune Chip Special Study Section, July 2019
- 2019 Vascular Malformation (VM) peer review panel, Department of Defense Congressionally Directed Medical Research Programs (CDMRP)
- 2019 NSF CBET Engineering of Biomedical Systems (EBMS) invited reviewer, Study Section: Tissue and Cellular Engineering, Modeling, Imaging and Neuro engineering
- 2017 NIH invited reviewer, Hemostasis and Thrombosis (HT) study section
- 2016 NSF Graduate Research Fellowship Program (GRFP) reviewer

TAMU COLLEGE AND DEPARTMENTAL SERVICE

1. COE Awards committee (2022-)
 - a. Presented 5 departmental nominees to the college committee; 4 were awarded
2. BMEN Graduate committee (2022 -)
3. Preceptor: NIH T32, IMSD at Texas A&M University: Initiative for Maximizing Student Diversity in Biomedical Sciences (TAMU School of Graduate Studies, 2020-24)
 - a. Responsibility of recruitment and training of 2 URM graduate students that will matriculate in the BME department per year.
4. BME Awards committee (Chair, 2021 - 2022)

- a. Created a nomination workflow to eliminate potential intrinsic biases in selection of candidates.
 - b. Nominated more than 50% faculty and 60% staff to atleast one award.
5. BME Strategic Planning Committee Core Group (2021-22)
 - a. Revamped the BME Vision and Mission statement, uplifting excellence and diversity as core values.
 - b. Member of the *ad hoc* sub-committee of the graduate program revision.
6. System Employee Benefits Advisory Council (SEBAC) Nominating & Election Committee (2021)
7. COE Junior Faculty Advisory Council (JFAC) secretary (2020-21)
8. BME Graduate Program Committee, 2018 – present
 - a. Led major change in PhD qualifying exam
 - b. Led recruitment of the first NEFP fellow, who also won the NSF GRFP award
9. BME Awards Committee, 2017-18
 - a. Two nominations led to college awards
10. BME Faculty Search Committee, 2018 – 2020
 - a. Led identification and recruitment of Dr. Tanmay Lele (CPRIT Fellow)
 - b. Led identification and recruitment of 2 female, 1 black and 1 international-origin tenure-track faculty
11. BME Facilities Committee, 2017-18
 - a. Led major upgrade of department tissue-culture facility and purchasing of shared lab equipment more than \$50,000
12. Principal Investigator – BMEN Tissue Culture facility (ETB 3043) (Fall 2017-present)
 - a. Led improvements in biosafety and housekeeping
13. Member, Zachry Common Fluid Mechanics Lab Planning Committee (2017)
14. EnMed Research and Curriculum Development, Summer program (2017)

OTHER PROFESSIONAL SERVICE

Member of Professional Societies

1. Biomedical Engineering Society (BMES)
2. American Heart Association (AHA)
3. International Society for Thrombosis and Haemostasis (ISTH)
4. North American Vascular Biology Organization (NAVBO)
5. American Venous Forum (AVF)

Journal reviewer

Science Translational Medicine
Science Advances
Nature Biomedical Engineering
Nature Communications
Circulation
Small
Biomaterials
Advanced Science
Advanced Materials

Advanced Healthcare Materials
Lab on a Chip
APL Bioengineering
Analyst
Micromachines
Biomedical Microdevices
Journal of Biomedical Materials Research: Part B
Journal of Micromechanics and Microengineering
PLOS One
Scientific Reports
Annals of Biomedical Engineering

TEACHING

POSTDOCTORAL ASSOCIATES

4. Dr. Sushma Indrakumar (Sept 2024 -)
3. Dr. Rashmi Pandey (June 2024 -)
2. Dr. Lopamudra Das Ghosh (May 2021-2023)
 - 2nd prize, TAMU Annual Postdoctoral Symposium, 2022
1. Dr. Biswajit Saha (2018 – 2020, currently Assistant Professor, CSIR Hyderabad)
 - Three journal publications
 - Travel Award, Luminex, 2018

GRADUATE STUDENTS (PhD)

11. Evren Oktem (August 2024 -)
10. Sreelakshmy Suresh (Sept 2023 -)
9. Nadin Mohamad (Sept 2023 -)
8. Ankit Kumar (Sept 2021 -)
7. Jason Eades (Sept 2021 -)
 - CEO, Revi Life Sciences
 - Predoctoral fellowship, IFER (2022-24)
 - 3rd prize, TAMU Aggie Pitch 2023
6. Jim Tronolone (Sept 2019 -)
 - CAAT Humane Science Award, 2024
 - Travel Award, Microphysiological Systems World Conference, 2022
 - **American Heart Association Predoctoral Fellowship (2022-24)**
 - **NSF Graduate Research Fellowship, 2019-22**
 - TAMU BMEN National Excellence Fellowship (2019)
5. Amirali Selahi (Jan 2019-22)
 - Zweifach Travel Award, Experimental Biology Annual Meeting, 2022
 - Three Minute Thesis Competition (3MT), TAMU. Finalist. Nov, 2018
 - Oral Presentation Award, Annual Biomedical Engineering Research Symposium, 2019. TAMU.
4. Tanmay Mathur (Sept 2018- May 2022)
 - Travel Award, Microphysiological Systems World Conference, 2022
 - **2022 Texas A&M AFS Distinguished Graduate Student Award for Excellence in Research**
 - **2021 AHA-ATVB Elaine W. Raines Award (finalist)**
 - 2nd Best Oral Presentation, 3rd BMEGSA Annual Research Symposium, 2019
 - International Society on Thrombosis and Hemostasis New Investigator Award, 2019

- OGAPS Research and Presentation Travel Award, TAMU, 2019
 - Biomedical Engineering Graduate Student Association Travel Award, TAMU, 2019
 - 2nd Best Poster, Microscopy and Imaging Centre Open House, TAMU, 2018
3. Navaneeth KR Pandian (graduated July 2021, currently postoc w/ Dr. Chris Chen at BU/Harvard Wyss Institute)
 - **2021 Texas A&M AFS Distinguished Graduate Student Award for Excellence in Research**
 - [Picture of the month](#), Texas A&M University, Microscopy and Imaging Center, November 2020.
 - CIRTL Associate-MOOC - An Introduction to Evidence-Based Undergraduate STEM Teaching
 - CIRTL Associate Fellowship of the Academy for Future Faculty (April 2020)
 - Third Place - Poster Award - Microscopy and Imaging Center, October 5, 2018
 - Poster Award- Second Annual Biomedical Engineering Research Symposium, August 22, 2018.
 - New Investigator Travel Grant - International Society on Thrombosis and Haemostasis, 2018
 - Biomedical Engineering Travel grant 2018
 - All India Rank 30 in Graduate Aptitude Test in Engineering (GATE) 2011 (Top 0.04%)
 2. Brandon Walther (co-chair, Dr. John Cooke; graduated March 2021, currently MD student)
 - MD PhD scholar
 1. Karli Gold (co-chair, graduated, Jan 2020, currently in industry)
Thesis: Multicellular bioprinting of blood vessel models
 - Graduate Teaching Fellow, Texas A&M University, Spring 2019
 - **Graduate Diversity Fellowship, Texas A&M University, Fall 2016 – Summer 2019**
 - BMEN Travel Award, Biomedical Engineering, Texas A&M University, 2018
 - Student Travel Award for Research (STAR) Honorable Mention, Society for Biomaterials Annual Meeting, 2018
 - BMEN Travel Award, Biomedical Engineering, Texas A&M University, 2017

GRADUATE STUDENTS (MS)

2. Jennifer Lee (Jan 2024-)
 - Excellence in Research, Undergraduate, BMEN@TAMU 2023
1. David Luna (graduated, May 19, currently in industry)
Thesis: A tortuosity-driven microfluidic thrombosis and hemostasis monitoring device applied in a pediatric critical care unit

VISITING SCHOLARS

1. Ashwin Ananta, IIT Bombay, Khorana Scholar (May – July 2023)
2. Piyashi Biswas, Birla Institute of Technology Pilani Goa Campus (July 2018-Dec 2019)
3. Katherine Nguyen, University of California San Diego (June – Sept 2018)
4. Tarun Muthuchamy, Georgia Institute of Technology (June – Sept 2017)
5. Merin Priyanka Don Bosco, Texas A&M Health Science Center (2016-17)

UNDERGRADUATE RESEARCH STUDENTS

1. Richa Patel (Luce Boothe Scholar award, declined)
2. Justin Bui
3. Pranav Gadangi (EnMed 1st batch)
4. Travis Pyle
5. Carlos Reyes
6. Sakshi Kulkarni
7. Krishna Ambati

8. Teshan Fernando
9. Shenze Sun
10. Ecem Kilic
11. Ritika Bhattacharji
12. Wahibah Hannan
13. Rishi Suresh
14. Chris Chaftari
15. Daniel Presca-Chamorro (won NSF GRFP, currently in Rice)
16. Jacob Wright (co-advisor: Dr. Dave Zawieja, TAMHSC)
17. Mytreysi Ubburi
18. Anish Easwaran
19. Anna Khan
20. Jennifer Lee
21. Priyansh Verma
22. Ashley Chuong
23. Collin Bohannon
24. Nakiyah Borsadwala
25. Maria Husain
26. Ethan Mahalingam
27. Allie Morton
28. Rushangi Patel

UNDERGRADUATE RESEARCH STUDENTS (USRG)

1. Richa Patel (2017)
2. Dale Conrad (EnMed, 2018)
3. Ecem Kilic (EnMed, 2019)
4. Reem Elshabasy (2023)
5. Wardah Shan (2023)
6. Ashley Chuong (2023)
7. Jennifer Lee (2023)