Curriculum Vitae
Marian H. Hettiaratchi, Ph.D.

EDUCATION

2011 – 2016	**Georgia Institute of Technology & Emory University** Ph.D., Biomedical Engineering Thesis Title: Heparin microparticle-mediated delivery of BMP-2 and pluripotent stem cell morphogens for bone repair
2006 – 2011	**University of Calgary** B.Sc., Chemical Engineering with Biomedical Specialization, Internship Program, with Distinction

EMPLOYMENT HISTORY

Jan. 2020 – Present	**Assistant Professor** Knight Campus for Accelerating Scientific Impact, University of Oregon Affiliate Appointments: Department of Chemistry and Biochemistry, Institute of Molecular Biology, Material Science Institute, University of Oregon; Department of Biomedical Engineering, Oregon Health & Science University; School of Chemical, Biological, and Environmental Engineering, Oregon State University
Jan. 2017 – Oct. 2019	**Post-Doctoral Fellow** Department of Chemical Engineering & Applied Chemistry, University of Toronto
Sept. 2010 – Apr. 2011 Apr. 2008 – Aug. 2009	**Undergraduate Researcher (Part-time)** Pharmaceutical Production Research Facility, Department of Chemical Engineering, University of Calgary
Sept. 2009 – Aug. 2010	**Chemical Engineering Internship** Syncrude Research Centre, Syncrude Canada Ltd.
Apr. 2007 – Aug. 2007	**Undergraduate Researcher** Department of Chemical Engineering, University of Calgary

AWARDS AND HONORS

2024	**Rita Schaffer Young Investigator Award**, Biomedical Engineering Society (BMES) News article available at: https://knightcampus.uoregon.edu/hettiaratchi-awarded-bmes-rita-schaffer-young-investigator-award
2024	**Early Career Outstanding Research Award**, University of Oregon News article available at: https://research.uoregon.edu/about/announcements/recognizing-outstanding-research
2024	**Young Investigator Award**, Tissue Engineering Regenerative Medicine International Society – Americas (TERMIS-AM)
2024	**Travel Award and Strategic Planning Leader (Computational Methods)**, National Science Foundation (NSF) ElevateHER Workshop – Engineering Innovations for Women's Health Discovery
2024	**Emerging Investigator**, Journal of Materials Chemistry B
2023	**Rising Star**, Advanced Healthcare Materials
2022	**J.R. Neff Research Award**, MTF Biologics

Awarded for the best proposal of the 2022 MTF Biologics grant competition

2022 **Finalist for Rising Star Award**, RegMedNet

2022 **Guest,** The Stem Cell Podcast
Video available at: https://stemcellpodcast.com/ep-222-protein-delivery-vehicles-for-regenerative-medicine-featuring-dr-marian-hettiaratchi

2021 **Faculty Research Mentor Award**, Center for Undergraduate Research and Engagement, University of Oregon ($2500)
News article available at: https://around.uoregon.edu/content/four-faculty-members-honored-mentoring-student-research

2021 **Emerging Investigator**, Biomaterials Science

2021 **Research Collaboration Award**, Knight Campus for Accelerating Scientific Impact

2019 **Travel Award**, Medicine by Design – Canada First Research Excellence Fund

2018 – 2020 **Post-Doctoral Fellowship**, Natural Sciences and Engineering Research Council (NSERC)

2017 **Distinguished Young Scholar**, University of Washington

2015 **Second Place in 3 Minute Thesis Competition**, Georgia Tech
Video available at: https://www.youtube.com/watch?v=dr3VA3CfCTo&t=54s

2014 – 2015 **Scholar Award**, Philanthropic Educational Organization (PEO)

2014 **Interdisciplinary "Above and Beyond" Leadership Award**, Petit Institute for Bioengineering and Bioscience, Georgia Tech

2014 **Outstanding Poster Award**, Southeast Biomaterials Day

2013 **Travel Award**, Tissue Engineering Regenerative Medicine International Society (TERMIS) – Americas

2012 – 2015 **Post-Graduate Scholarship – Doctoral Level**, NSERC

2011 – 2012 **Post-Graduate Scholarship – Master's Level**, NSERC

2011 **Gold Medal for Chemical Engineering**, Association of Professional Engineers and Geoscientists of Alberta (APEGA)

2009 – 2010 **Edward Wichert Undergraduate Scholarship**, University of Calgary

2009 **Program for Undergraduate Research Experience**, University of Calgary

2008 – 2009 **Markin Undergraduate Student Research Program in Health and Wellness**, University of Calgary ($4500)

2006 – 2009 **Schulich Academic Excellence Scholarship**, University of Calgary

2007, 2008, 2009 **Louise McKinney Scholarship**, Government of Alberta

2006, 2007 **Undergraduate Student Research Award**, NSERC

2006 **Governor General's Bronze Academic Award**, Government of Canada

PEER-REVIEWED JOURNAL PUBLICATIONS

Google Scholar Profile: https://scholar.google.ca/citations?user=v2ulR-MAAAAJ&hl=en

Google Scholar H-Index: 16
Google Scholar Citations: 976
[#] Corresponding Author
[*] Equal Contribution

1. Wiggins, N., Cook, C., Black, M., Cadena, I., Rahal-Arabi, S., Asnes, C., Ivanova, Y., **Hettiaratchi, M.H.**, Hind, L.E., Fogg, K.C. (2024). *Empowering High-Throughput High Content Analysis of Microphysiological models: Open-source Software for Automated Image Analysis of Microvessel Formation and Cell Invasion*. Cellular and Molecular Bioengineering. *In press.*

2. Dorogin, J., Benz, M.A., Moore, C., Benoit, D.S.W., **Hettiaratchi, M.H.**[#] (2024). *Recombinant and Synthetic Affibodies Function Comparably for Modulating Protein Release.* Cellular and Molecular Bioengineering. 17:305-312.

3. Galindo, A.N.,* Frey Rubio, D.A.,* **Hettiaratchi, M.H.**[#] (2024) *Biomaterial Strategies for Regulating the Neuroinflammatory Response.* Materials Advances. 5: 4025-4054.
    - Invited article for a special issue on Biomaterials for Innate Immunity

4. Fosnacht, K.G., Dorogin, J., Jefferis, P.M., **Hettiaratchi, M.H.**, Pluth, M.D. (2024) *An Expanded Palette of Fluorescent COS/H_2S-Release Donors for H_2S Delivery, Detection, and In Vivo Application.* Angewandte Chemie International Edition. e202402353.

5. Mozipo, E.A.,* Galindo, A.,* Khachatourian, J.D., Harris, C.G., Dorogin, J., Spaulding V.R., Ford, M., Singhal, M., Fogg, K.C., **Hettiaratchi, M.H.**[#] (2024) *Statistical Optimization of Hydrazone-Crosslinked Hyaluronic Acid Hydrogels for Protein Delivery.* Journal of Materials Chemistry B 12(10): 2523-2536.
    - Invited article for the 2023 Journal of Materials Chemistry B Emerging Investigator Special Issue

6. Dorogin, J., Hochstatter, H.B., Shepherd, S.O., Svendsen, J.E., Powers, A.C., Fear, K.M., Townsend, J.M., Prell, J.S., Hosseinzadeh, P., **Hettiaratchi, M.H.**[#] (2023) *Moderate-Affinity Affibodies Modulate the Delivery and Bioactivity of Bone Morphogenetic Protein-2.* Advanced Healthcare Materials 12(26): 2300793.
    - Invited article for the 2023 Advanced Healthcare Materials Rising Star Special Issue
    - Press release: "Promising Proteins" https://accelerate.uoregon.edu/new-approach-bone-healing
    - Cover art: https://onlinelibrary.wiley.com/doi/abs/10.1002/adhm.202370164

7. Gilbert, A.K., Newton, T.D., **Hettiaratchi, M.H.**,[#] Pluth, M.D.[#] *Reactive Sulfur and Selenium Species in the Regulation of Bone Homeostasis.* Free Radical Biology and Medicine 190: 148-157.

8. Teal, C.J.*, **Hettiaratchi, M.H.***, Ho, M.T., Ortin-Martinez, A., Ganesh, A., Pickering, A.J., Golinski, A.W., Hackel, B.J., Wallace, V., Shoichet, M.S. (2022) *Directed Evolution Enables Simultaneous Controlled Release of Multiple Protein Therapeutics from Biopolymer-Based Hydrogels.* Advanced Materials 34(34): 2202612.
    - Press release: "New Strategy for Delivery of Therapeutic Proteins Could Help Treat Degenerative Eye Diseases" https://news.engineering.utoronto.ca/new-strategy-for-delivery-of-therapeutic-proteins-could-help-treat-degenerative-eye-diseases/

9. Priddy, L.B., Krishan, L., **Hettiaratchi, M.H.**, Karthikeyakannan, S., Gupte, N., Guldberg, R.E. (2022) *Amniotic Membrane Attenuates Heterotopic Ossification Following High-Dose Bone Morphogenetic Protein-2 Treatment of Segmental Bone Defects.* Journal of Orthopedic Research 41(1): 130-140.

10. Dorogin, J., Townsend, J.M., **Hettiaratchi, M.H.**[#] (2021) *Biomaterials for Protein Delivery for Complex Tissue Healing Responses.* Biomaterials Science 9: 2339-2361.
    - Invited review for the 2021 Biomaterials Science Emerging Investigator Special Issue

11. Subbiah, R., Ruehle, M., Klosterhoff, B.S., Lin, A.S.P., **Hettiaratchi, M.H.**, Willett, N.J., Bertassoni, L.E., Garcia, A.J., Guldberg, R.E. (2021) *Triple Growth Factor Delivery Promotes Functional Bone Regeneration*

Following Composite Musculoskeletal Trauma. Acta Biomaterialia 127: 180-192.

12. **Hettiaratchi, M.H.***, O'Meara, M.J.*, O'Meara, T. R., Pickering, A.J., Letko-Khait, N., Shoichet, M.S. (2020) *Re-engineering Biocatalysts: Computational Redesign of Chondroitinase ABC Improves Efficacy and Stability.* Science Advances 6(34): eabc6378.
    - Press release: "Re-engineered Enzyme Could Help Reverse Damage from Spinal Cord Injury and Stroke" https://www.eurekalert.org/pub_releases/2020-08/uotf-rec082420.php
    - Around the O story: "Altered Enzyme Offers Hope for Spinal Cord Injury and Stroke" https://around.uoregon.edu/content/altered-enzyme-offers-hope-spinal-injury-and-stroke

13. Subbiah, R., Cheng, A., Ruehle, M.A., **Hettiaratchi, M.H.**, Bertassoni, L.E., Guldberg, R.E. (2020) *Effects of Controlled Dual Growth Factor Delivery on Bone Regeneration Following Composite Bone-Muscle Injury.* Acta Biomaterialia 114: 63-75.

14. Delplace, V.*, Pickering, A.J.*, **Hettiaratchi, M.H.**, Zhao, S., Kivijärvi, T., Shoichet, M.S. (2020) *Inverse Electron Demand Diels-Alder Methylcellulose Hydrogels Enable Co-Delivery of Chondroitinase ABC and Neural Progenitor Cells.* Biomacromolecules 21(6): 2421-2431.

15. **Hettiaratchi, M.H.**, Krishnan, L., Rouse, T., Chou, C., McDevitt, T.C., Guldberg, R.E. (2020) *Heparin-Mediated Delivery of BMP-2 Improves Spatial Localization of Bone Regeneration.* Science Advances 6(1): eaay1240.
    - Press release: "Oregon Scientist Shows Possible Path to Improved Bone Repair Procedures" https://www.eurekalert.org/pub_releases/2020-01/uoo-oss123019.php
    - Around the O story: "New Knight Campus Bioengineer Advances Bone Repair Research" https://around.uoregon.edu/content/new-knight-campus-bioengineer-advances-bone-repair-research

16. **Hettiaratchi, M.H.**, Shoichet, M.S. (2019) *Modulated Protein Delivery to Engineer Tissue Repair*. Tissue Engineering: Part A 23(13-14): 925-930.

17. **Hettiaratchi, M.H.**, O'Meara, M.J., Teal, C.J., Payne, S.L., Pickering, A.J., Shoichet, M.S. (2019) *Local Delivery of Stabilized Chondroitinase ABC Degrades Chondroitin Sulfate Proteoglycans in Stroke-Injured Rat Brains.* Journal of Controlled Release 297: 14-25.

18. Nori, S., Khazaei, M., Ahuja, C.S., Ahlfors, J.E., Yokota, K…, **Hettiaratchi, M.H.**, Fuehrmann, T., Shoichet, M.S., Fehlings, M.G. (2018) *Human Oligodendrogenic Neural Progenitor Cells Delivered with Chondroitinase ABC Facilitate Functional Repair of Chronic Spinal Cord Injury.* Stem Cell Reports 11(6): 1433-1448.

19. **Hettiaratchi, M.H.***, Schudel, A.*, Rouse, T., Garcia, A.J., Thomas, S.N., Guldberg, R.E., McDevitt, T.C. (2018) *A Rapid Method for Determining Protein Diffusion Through Hydrogels for Regenerative Medicine Applications.* APL Bioengineering 2: 026110.

20. Rinker, T.E., Philbrick, B.B., **Hettiaratchi, M.H.**, Smalley, D., McDevitt, T.C., Temenoff, J.S. (2018) *Microparticle-Mediated Sequestration of Cell-Secreted Proteins to Modulate Chondrocytic Differentiation.* Acta Biomaterialia 68: 125-136.

21. **Hettiaratchi, M.H.**, Fuehrmann, T., Shoichet, M.S. (2017) *Recent Advances in Regenerative Medicine Approaches for Spinal Cord Injury.* Current Opinion in Biomedical Engineering 4: 40-49.

22. **Hettiaratchi, M.H.**, Rouse, T., Chou, C., Krishnan, L., Stevens, H.Y., Li, M.T.A., McDevitt, T.C., Guldberg, R.E. (2017) *Enhanced In Vivo Retention of Low Dose BMP-2 Via Heparin Microparticle Delivery Does Not Accelerate Bone Healing in a Critically Sized Femoral Defect.* Acta Biomaterialia 59: 23-31.

23. **Hettiaratchi, M.H.**, Chou, C., Servies, N., Smeekens, J.M., Cheng, A., Esancy, C., Wu, R., McDevitt, T.C., Guldberg, R.E., Krishnan, L. (2017) *Competitive Protein Binding Influences Heparin-Based Modulation of Spatial Growth Factor Delivery for Bone Regeneration.* Tissue Engineering: Part A 23(13-14): 683-695.

24. Zimmermann, J.A., **Hettiaratchi, M.H.**, McDevitt, T.C. (2017) *Enhanced Immunosuppression of T Cells by*

Sustained Presentation of Bioactive Interferon-γ Within Three-Dimensional Mesenchymal Stem Cell Constructs. Stem Cells Translational Medicine 6(1): 223-237.

- Press release: "How to Engineer a Stronger Immune System" https://gladstone.org/about-us/news/how-engineer-stronger-immune-system

25. **Hettiaratchi, M.H.**, Guldberg, R.E., McDevitt, T.C. (2016) *Biomaterial Strategies for Controlling Stem Cell Fate Via Morphogen Sequestration.* Journal of Materials Chemistry B 4(20): 3464-81.

26. **Hettiaratchi, M.H.**, Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (2014) *Heparin Microparticle Effects on Presentation and Bioactivity of Bone Morphogenetic Protein-2.* Biomaterials 35(25): 7228-38.
    - Press release: "Engineering a Better Way to Rebuild Bone Inside the Body" http://www.news.gatech.edu/2014/05/29/engineering-better-way-rebuild-bone-inside-body

NON-PEER-REVIEWED PUBLICATIONS

1. Hochstatter, H.B., Dorogin, J., Li, C., Henry, B., **Hettiaratchi, M.H.**[#] *Efficacy of the Epiphyte3 LEX-10 Bioreactor for Cell Growth and Protein Expression.* (White Paper). *https://www.epiphyte3.com/LEX*

PATENT APPLICATIONS AND DISCLOSURES

U.S. Provisional Patent Application No.: 63/692,980; UO Disclosure: UO-22-057; Filling Date: September 10, 2024. *Affibody-Based Dual Affinity Fusion Proteins and Uses Thereof.* **Hettiaratchi, M.H.**, Singhal, M.

U.S. Patent Application No.: US18/340,754; Publication Date: January 11, 2024. *Hydrogels Containing Affibodies and Uses Thereof.* **Hettiaratchi, M.H.**, Dorogin, J., Hochstatter, H., Spaulding, V.R., Galindo, A., Asnes, C., Martin, M.

U.S. Patent Application No.: US17/798,415; Publication Date: March 23, 2023. *Chondroitinase ABC Mutants and Methods of Manufacture and Uses Thereof.* Shoichet, M.S., **Hettiaratchi, M.H.**, O'Meara, M.J., O'Meara, T.R.

RESEARCH FUNDING

May 2024	**DMR-NIBIB Planning Workshop (PIs: Benoit, Hettiaratchi, Jasti, Pluth)** Leveraging Data-Driven Design and Synthetic Biology to Enable Next-Generation Active Biomaterials
Jan. 2023 – Dec. 2027	**NSF CAREER (PI: Hettiaratchi)** Engineered Affinity-Based Biomaterials for Harnessing the Stem Cell Secretome
Jan. 2023 – Jul. 2024	**MTF Biologics Junior Investigator Grant (PI: Hettiaratchi)** A Directed Evolution Approach to Enhance Bone Allograft Integration through Immunomodulation *Awarded J.R. Neff Research Award for best proposal in 2022*
Sept. 2022 – no end date	**Donald E. and Delia B. Baxter Foundation Award (PI: Hettiaratchi)** Understanding the Roles of Biochemical and Mechanical Signals in Central Nervous System Injury and Repair
Jul. 2022 – Jun. 2027	**NIGMS R35 MIRA (PI: Hettiaratchi)** Modulating Protein Activity in Tissue Repair using Engineered Affinity-based Biomaterials
Jul. 2022 – Jun. 2024	**Department of Defense Peer-Reviewed Medical Program Discovery Award (PI: Hettiaratchi)** Affinity-Controlled Co-Delivery of Immunomodulatory and Osteogenic Proteins to

	Enhance Bone Repair
Sept. 2021 – Aug. 2025	**NIGMS R01 (PI: Pluth, co-I: Hettiaratchi)** Hydrogen Sulfide and Carbonyl Sulfide Delivery for Biological Applications
Sept. 2021 – May 2024	**NIBIB R21 Trailblazer Award (PI: Hettiaratchi, co-I: Fogg)** A Directed Evolution Approach to Affinity-Controlled Protein Delivery
May 2021 – Feb. 2025	**Wu Tsai Human Performance Alliance – Moonshot (PI: Hettiaratchi)** Development of a Multifunctional Hydrogel Platform for Investigating and Enhancing Muscle Regeneration
Mar. 2021 – Mar. 2023	**Medical Research Foundation New Investigator Grant (PI: Hettiaratchi)** Affinity-based Biomaterials to Enhance Tissue Vascularization
Sept. 2020 – Mar. 2022	**Collins Medical Trust Grant (PI: Hettiaratchi)** Development of a Biomaterial Strategy to Control Bone Morphogenetic Protein-2 Delivery for Bone Repair
Jan. 2020 – Jun. 2021	**UO-OHSU Collaborative Seed Grant (co-PI: Hettiaratchi, Bertassoni, co-I: Guldberg)** Microengineering Vascularized and Innervated Bone-Like Scaffolds as an Alternative to Autologous Bone Grafts

PRESENTATIONS

INVITED PRESENTATIONS

1. **Hettiaratchi, M.H.** (Oct. 2024) *Precision Protein Delivery: Engineering Protein-Material Affinity Interactions for Tissue Repair.* BMES Annual Meeting. (Rita Schaffer Young Investigator Lecture)
2. **Hettiaratchi, M.H.** (Sept. 2024) *Recapitulating Angiogenesis Using Affinity-Controlled Protein Delivery.* Society for Biomaterials Northwest Regional Meeting.
3. **Hettiaratchi, M.H.** (Jun. 2024) *Using Rational Protein Design and Directed Evolution to Create Biomaterials to Recapitulate Angiogenesis.* American Chemical Society (ACS) Northwest Regional Meeting. (Keynote in Chemical Biology Session)
4. **Hettiaratchi, M.H.** (May 2024) *Directed Evolution Enables Sequential, Affinity-Controlled Delivery of Angiogenic Growth Factors for Vascular Network Formation.* World Biomaterials Congress. (Keynote in Innovative Cardiovascular Biomaterials Session)
5. **Hettiaratchi, M.H.** (Nov. 2023) *Design of Affinity-Based Biomaterials for Tissue Repair.* Willamette University.
6. **Hettiaratchi, M.H.** (Jun. 2023) *Affinity-based Biomaterials for Modulating Protein Delivery for Tissue Repair.* American Chemical Society (ACS) Northwest Regional Meeting. (Keynote in Chemical Biology Session)
7. **Hettiaratchi, M.H.** (Aug. 2022) *Design of Affinity-Based Biomaterials for Tissue Repair.* University of Guelph.
8. **Hettiaratchi, M.H.** (Feb. 2022) *Design of Affinity-Based Biomaterials for Tissue Repair.* Queen's University.
9. **Hettiaratchi, M.H.** (Feb. 2022) *Design of Affinity-Based Biomaterials for Tissue Repair.* Arizona State University.
10. **Hettiaratchi, M.H.** (Oct. 2021) *Affinity-based Biomaterial Delivery Vehicles for Musculoskeletal Tissue Repair.* Wu Tsai Human Performance Alliance.
11. **Hettiaratchi, M.H.** (Sept. 2021) *Design of Affinity-Controlled Protein Delivery for Tissue Repair.* Oregon State

University.

12. **Hettiaratchi, M.H.** (Sept. 2021) *Developing Biomaterials for Tissue Repair using Bio-transport Modeling.* Oregon State University Center for Quantitative Life Sciences Fall Conference.

13. **Hettiaratchi, M.H.** (Mar. 2021) *Affinity-Controlled Protein Delivery for Tissue Repair.* Discovery and Impact Symposium (Partnership between University of Oregon and Thermo Fisher Scientific).

14. **Hettiaratchi, M.H.** (Feb. 2021) *Leveraging Natural Protein-Material Affinity Interactions to Control Protein Delivery for Tissue Repair.* Tissue Engineering and Regenerative Medicine International Society – Americas (TERMIS-AM) Webinar Series.

15. **Hettiaratchi, M.H.** (Sept. 2020) *Affinity-Based Biomaterials for Targeted Protein Delivery.* North Carolina State University.

16. **Hettiaratchi, M.H.** (Jun. 2020) *Cell-Instructive Biomaterials for Protein Delivery.* University of Georgia.

17. **Hettiaratchi, M.H.** (Nov. 2019) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* University of Calgary.

18. **Hettiaratchi, M.H.** (Nov. 2019) *Affinity-Controlled Protein Delivery Enhances Spatial Localization of Bone Formation in Rat Femoral Bone Defects.* Oregon Bioengineering Symposium.

19. **Hettiaratchi, M.H.** (Sept. 2019) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* McMaster University.

20. **Hettiaratchi, M.H.** (Aug. 2019) *Affinity-Controlled Protein Delivery for Tissue Repair.* Oregon Health & Science University.

21. **Hettiaratchi, M.H.** (Feb. 2019) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* University of Michigan.

22. **Hettiaratchi, M.H.** (Feb. 2019) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* University of British Columbia.

23. **Hettiaratchi, M.H.** (Jan. 2019) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* University of Maryland, Baltimore County.

24. **Hettiaratchi, M.H.** (Dec. 2018) *Affinity-Based Delivery of Stabilized Chondroitinase ABC for Nervous System Repair.* Donnelly Centre Seminar Series, University of Toronto, Toronto, ON.

25. **Hettiaratchi, M.H.** (Nov. 2018) *Rational Design of Affinity-Controlled Protein Delivery for Tissue Repair.* University of Oregon.

26. **Hettiaratchi, M.H.** (Jun. 2017) *Bioinspired Drug Delivery Strategies for Treating Bone Defects and Spinal Cord Injuries.* Distinguished Young Scholars Seminar Series, University of Washington, Seattle, WA.

CONFERENCE PROCEEDINGS (PODIUM)

1. **Hettiaratchi, M.H.**, Svendsen, J.E., Asnes, C., Ford, M.R. (Sept. 2024) *Recapitulating Angiogenesis Using Affinity-Controlled Protein Delivery.* Society for Biomaterials Northwest Regional Meeting. Seattle, WA.

2. **Hettiaratchi, M.H.** (Jan. 2021) *Leveraging Natural Protein-Material Affinity Interactions to Control Protein Delivery for Bone Repair.* International Conference for Biomolecular Engineering. Virtual Conference.

3. **Hettiaratchi, M.H.**, O'Meara, M.J., Pakulska, M.M., Shoichet, M.S. (Oct. 2018) *Affinity-Based Delivery of Stabilized Chondroitinase ABC for Nervous System Repair.* Biomedical Engineering Society, Atlanta, GA.

4. **Hettiaratchi, M.H.**, Chou, C., Krishnan, L., Li, M.T.A., Temenoff, J.S., McDevitt, T.C., Guldberg, R.E. (May 2016) *Heparin Microparticles Loaded with Bone Morphogenetic Protein-2 (BMP-2) Induce Bone Regeneration in a Rat Femoral Defect Model.* World Biomaterials Congress, Montreal, QC, Canada.

5. **Hettiaratchi, M.H.**, Chou, C., Servies, N., Gupte, N., Temenoff, J.S., McDevitt, T.C., Guldberg, R.E., Krishnan, L. (Feb. 2016) *Controlled Heparin Microparticle Deposition on Polycaprolactone Nanofiber Meshes for Spatial Control of Bone Regeneration.* Orthopedic Research Society, Orlando, FL.

6. **Hettiaratchi, M.H.**, Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Feb. 2015) *Development of Heparin Microparticles for Enhanced Delivery of BMP-2.* Orthopedic Research Society, Las Vegas, NV.

7. **Hettiaratchi, M.H.**, Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Dec. 2014) *Heparin Microparticle Delivery of BMP-2 for Bone Regeneration.* TERMIS-AM, Washington, DC.

8. **Hettiaratchi, M.H.**, Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Oct. 2014) *Heparin Microparticle Delivery of BMP-2 for Bone Regeneration.* Southeast Biomaterials Day, Atlanta, GA.

9. **Hettiaratchi, M.H.**, Seto, S.P., Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Oct. 2013) *Controlled Presentation of Bioactive BMP-2 via Heparin Methacrylamide Microparticles.* TERMIS-AM, Atlanta, GA.

CONFERENCE PROCEEDINGS (POSTER)

1. **Hettiaratchi, M.H.**, Dorogin, J., Singhal, M., Benz, M.A., Svendsen, J.E., Asnes, C. (Jul. 2024) *Engineered Affinity-Controlled Protein Delivery for Bone Regeneration.* Signal Transduction by Engineered Extracellular Matrices Gordon Research Conference, Manchester, NH.

2. **Hettiaratchi, M.H.**, Svendsen, J.E., Asnes, C., Ford, M.R. (Jun. 2024) *Recapitulating Angiogenesis Using Affinity-Controlled Protein Delivery.* Bioinspired Materials Gordon Research Conference, Les Diablerets, Switzerland.

3. **Hettiaratchi, M.H.**, O'Meara, M.J., Pickering, A.J., Teal, C.J., Delplace, V., Payne, S., Shoichet, M.S. (Jul. 2019) *Affinity-Controlled Delivery of Thermo-stabilized Chondroitinase ABC Using Methylcellulose Hydrogels.* Biomaterials and Tissue Engineering Gordon Research Conference, Barcelona, Spain.

4. **Hettiaratchi, M.H.** O'Meara, M.J., Pickering, A.J., Teal, C.J., Payne, S., Shoichet, M.S. (May 2018) *Affinity-Based Delivery of Thermo-stabilized Chondroitinase ABC for Tissue Repair after Spinal Cord Injuries.* Canadian Biomaterials Society, Victoria, BC, Canada.

5. **Hettiaratchi, M.H.**, Chou, C., Servies, N., Gupte, N., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Sept. 2015) *Functionalized Electrospun Membrane for Spatial Control of Bone Regeneration.* TERMIS World Congress, Boston, MA.

6. **Hettiaratchi, M.H.**, Chou, C., Krishnan, L., Li, M.T.A., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Sept. 2015) *BMP-2-Loaded Heparin Microparticles Facilitate Functional Bone Formation in Large Bone Defects.* TERMIS World Congress, Boston, MA.

7. **Hettiaratchi, M.H.**, Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Oct. 2014) *Heparin Microparticle Delivery of BMP-2 for Bone Regeneration.* Southeast Biomaterials Day, Atlanta, GA.

8. **Hettiaratchi, M.H.**, Miller, T., Seto, S.P, Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Mar. 2014) *Heparin Microparticles Enhance Bioactivity of Osteogenic Growth Factors.* Regenerative Medicine Workshop at Hilton Head, Hilton Head, SC.

9. **Hettiaratchi, M.H.**, Seto, S.P., Miller, T., Temenoff, J.S., Guldberg, R.E., McDevitt, T.C. (Mar. 2013) *Heparin Methacrylamide Microparticles to Sequester and Release Bioactive Growth Factors.* Regenerative Medicine

Workshop at Hilton Head, Hilton Head, SC.

TRAINEE SUPERVISION

GRADUATE STUDENT SUPERVISION

2024 – **Andy Huang**
Graduate Student, Bioengineering

2024 **Danielle Spence**
Knight Campus Graduate Internship Program, Polymers Track

2023 – **Malvika Singhal**
Graduate Student, Biochemistry

2023 – **Madeline Martin**
Graduate Student, Bioengineering

2023 – **David Frey Rubio**
Graduate Student, Bioengineering
Promising Scholar Award
NSF Graduate Research Fellow (2024–2027)

2022 – **Alycia Galindo**
Graduate Student, Bioengineering
TERMIS-AM Travel Award (2024)

2022 – **Justin Svendsen**
Graduate Student, Biochemistry
NIH F31 Ruth L. Kirschstein Predoctoral National Research Service Award (NRSA)
NSF Research Traineeship – Molecular Probes and Sensors for Complex Environments (2023-2024)
Oregon Innovation Challenge Winner (2023)
Knight Campus Research Collaboration Award (2023)

2021 – **Yan Carlos Pacheco**
Co-advised with Nick Willett
Graduate Student, Bioengineering
NSF Graduate Research Fellow (2021–2024)
Hispanic Scholarship Fund (HSF) Scholar (2023)
TERMIS-AM Travel Award (2023)

2020 – **Jonathan Dorogin**
Graduate Student, Bioengineering
Oregon Innovation Challenge Winner (2024)
CAS Future Leaders Top 100 (~10% of applicants) (2024)
Natural Science and Engineering Council (NSERC) of Canada Post-graduate Scholarship (2022–2025)
TERMIS-AM Travel Award (2022)

2019 – 2022 **Annie Gilbert**
Co-advised with Michael Pluth
Graduate Student, Chemistry
NSF Graduate Research Fellow (2019 – 2022)

POSTDOCTORAL FELLOW SUPERVISION

2024 – **Dr. Ruchi Sharma**

2020 **Dr. Jakob Townsend**

UNDERGRADUATE STUDENT SUPERVISION

2024 – **Alyssa Chi (Expected Graduation: 2026)**
Biochemistry
Wu Tsai Human Performance Alliance Undergraduate Fellow

2024 – **Caroline Foskett (Expected Graduation: 2026)**
Human Physiology
UO Summer Program for Undergraduate Research

2024 – **Alayna Huque (Expected Graduation: 2026)**
Computer Science and Data Science
Knight Campus Undergraduate Scholar

2023 – **Armaan Hajarizadeh (Expected Graduation: 2028)**
Computer Science and Data Science

2023 – **Juan Garcia (Expected Graduation: 2024)**
Biochemistry
Wu Tsai Human Performance Alliance Undergraduate Fellow
McNair Scholar

2023 – **Payton Jefferis (Expected Graduation: 2025)**
Human Physiology
Knight Campus Undergraduate Scholar
VPRI Fellowship

2022 – **Jenna Khachatourian (Expected Graduation: 2024)**
Human Physiology, Senior Thesis
Knight Campus Undergraduate Scholar

2022 – 2024 **Morrhyssey Benz (Graduated: 2024)**
Human Physiology, Senior Thesis
UO Summer Program for Undergraduate Research
Knight Campus Undergraduate Scholar
Departmental Honors
Biochemistry Achievement Award

2022 – **Madeleine Ford (Expected Graduation: 2025)**
Human Physiology
VPRI Fellowship
Knight Campus Undergraduate Scholar
UO Summer Program for Undergraduate Research

2021 – 2022 **Simon Oh (Graduated: 2022)**
Biology, Senior Thesis
Departmental Honors

2021 – 2023 **Esther Mozipo (Graduated: 2023)**
Chemistry, Senior Thesis
Knight Campus Undergraduate Scholar
Chemical Biology Achievement Award
Departmental Honors

2020 – 2022 **Ireland Johnson (Graduated: 2022)**
Biology, Senior Thesis

	Peter O'Day Fellowship Knight Campus Undergraduate Scholar
2020 – 2022	**Henry Hochstatter (Graduated: 2022)** Human Physiology, Senior Thesis Scientific Frontiers Thesis Award UROP Mini-Grant Recipient UO Summer Program for Undergraduate Research
2020 – 2021	**Hossein Rajabzadeh (Graduated: 2021)** Biochemistry, Senior Thesis UROP Mini-Grant Recipient
2020 – 2021	**Branden Henry (Graduated: 2020)** Human Physiology
2018 – 2019	**Andrew Pickering (Graduated: 2019), University of Toronto** Chemical Engineering, Senior Thesis NSERC Undergraduate Research Award, Podium Presentation Award at Undergraduate Engineering Research Day, Poster Presentation at Canadian Society for Chemical Engineering
2013 – 2015	**Catherine Chou (Graduated: 2017), Georgia Tech** Biomedical Engineering Petit Undergraduate Research Scholar, President's Undergraduate Research Award, Poster Presentation at TERMIS World Congress
2014 – 2015	**Nicholas Servies (Graduated: 2015), Georgia Tech** Mechanical Engineering
2014 – 2015	**Nikhil Gupte (Graduated: 2015), Georgia Tech** Biomedical Engineering President's Undergraduate Research Award
2013	**Camden Esancy (Graduated: 2015), Agnes Scott College** Biochemistry and Biology Petit Undergraduate Research Scholar
2013	**Patrizia Grob (Graduated: 2017), Georgia Tech** Biomedical Engineering

STUDENT PRESENTATIONS

INTERNAL PRESENTATIONS (*Undergraduate Researcher)

1. Khachatourian, J.D.,* Galindo, A.N., **Hettiaratchi, M.H.** (May 2024) *Tunable Hyaluronic Acid Melt Electrowritten Scaffolds for Enhanced Muscle Regeneration.* Wu Tsai Human Performance Alliance at Oregon Symposium. (Talk)
    - 3rd Place Oral Presentation Award

2. Jefferis, P.,* Dorogin, J., **Hettiaratchi, M.H.** (May 2024) *Investigating Properties of Affibody-Conjugated Hydrogels for Controlled Osteogenic Protein Delivery.* University of Oregon Undergraduate Research Symposium.

3. Garcia, J.,* Pacheco, Y.C., Hochstatter, H.B.,* **Hettiaratchi, M.H.** (May 2024) *Hydrogel-based System for the Sequestration of Granulocyte Macrophage Colony Stimulating Factor from Mesenchymal Stromal Cells.* University of Oregon Undergraduate Research Symposium.

4. Khachatourian, J.D.,* Galindo, A.N., **Hettiaratchi, M.H.** (May 2024) *Development of Hyaluronic Acid-Alginate*

Hydrogels for Neural Tissue Repair. University of Oregon Undergraduate Research Symposium.

5. Jefferis, P.,* Dorogin, J., **Hettiaratchi, M.H.** (October 2023) *Co-delivery of Discrete Fluorescently Labeled Immunoregulatory and Osteogenic Proteins for Promotion of Localized Bone Repair.* Knight Campus Seminar Series. (Talk)

6. Benz, M.A.,* Dorogin, J., **Hettiaratchi, M.H.** (October 2023) *Affinity-mediated Release of Cytokines for Immunomodulation.* Knight Campus Seminar Series. (Talk)

7. Svendsen, J., Hochstatter, H.B.,* Oh, S.C.,* Asnes, C., **Hettiaratchi, M.H.** (September 2022) *Characterization of Affinity-based Affibody Delivery Systems for Spatiotemporally Regulated Release of Angiogenic Proteins.* Institute of Molecular Biology Annual Retreat. (Poster)

8. Ford, R.*, Spaulding, V.R., **Hettiaratchi, M.H.** (August 2022) *Cytocompatibility of Hyaluronic Acid Hydrogels and Polymers for Future Use in Protein Delivery.* University of Oregon SPUR Undergraduate Research Symposium. (Talk)

9. Benz, M.,* Dorogin, J., **Hettiaratchi, M.H.** (August 2022) *Affinity-based Molecules for Immunomodulatory Regulation.* University of Oregon SPUR Undergraduate Research Symposium. (Talk)

10. Dorogin, J., Spaulding, V.R., Fear, K.M.,* Hochstatter, H.,* Hosseinzadeh, P., **Hettiaratchi, M.H.** (April 2022) *Moderate Affinity Affibodies Control the Release and Bioactivity of BMP-2.* Wu Tsai Human Performance Alliance at Oregon Symposium. (Talk)
    - 3rd Place Oral Presentation Award

11. Hochstatter, H.B.,* Dorogin, J., O'Hara-Smith, J.R., **Hettiaratchi, M.H.** (August 2021) *Discovery of Affibody Molecules for Controlled Protein Delivery.* University of Oregon SPUR Undergraduate Research Symposium. (Poster and Oral)

12. Johnson, I.,* Guerrero, A., Spaulding, V.R., **Hettiaratchi, M.H.** (May 2021) *Design and Cytocompatibility of Hyaluronic Acid Hydrogels for Bone Regeneration.* University of Oregon Undergraduate Research Symposium. (Poster and Oral)

13. Rajabzadeh, H.,* Townsend, J., Brown, M., Gilbert, A., **Hettiaratchi, M.H.** (May 2021) *Development of Biocompatible Hyaluronic Acid Hydrogels for Nerve Nano-Clip Fabrication.* University of Oregon Undergraduate Research Symposium. (Poster)

CONFERENCE PRESENTATIONS (*Undergraduate Researcher)

1. **Hettiaratchi, M.H.**, Svendsen, J., Asnes, C., Ford, M.,* Hochstatter, H.B.* (2024) *Directed Evolution Enables Sequential, Affinity-Controlled Delivery of Angiogenic Growth Factors for Vascular Network Formation.* BMES Annual Meeting. (Talk)

2. Dorogin, J., Hall, P.C., Benz, M.A.,* Jefferis, P.M.,* Moore, C.J., Benoit, D.S.W., Dalton, P.D., **Hettiaratchi, M.H.** (2024) *Shelf-Stable Lattice-Reinforced Affibody-Conjugated Hydrogels for Tunable Protein Delivery In Vivo.* BMES Annual Meeting. (Poster)

3. Singhal, M., Dorogin, J., Benz, M.A.,* **Hettiaratchi, M.H.** (2024) *An Engineered Collagen-Binding Fusion Protein to Improve Localized Delivery of Bone Morphogenetic Protein-2 for Bone Regeneration.* Society for Biomaterials – Northwest Regional Meeting. (Poster and Talk)

4. Jefferis, P., Dorogin, J., Hajar, A., **Hettiaratchi, M.H.** (2024) *Improving Bio-inductive Properties of Affinity-Conjugated Hydrogels to Control Osteogenic Protein Delivery for Promoting Localized Bone Repair.* Society for Biomaterials – Northwest Regional Meeting. (Poster and Talk)

5. Chi, A.*, Galindo, A.N., Liashenko, I., O'Neill, K.L., Guaderrama, S., Khachatourian, J.D., Dalton, P.D.,

Hettiaratchi, M.H. (2024) *Hyaluronic Acid-Coated Melt-Electrowritten Scaffolds Promote Alignment and Differentiation of Skeletal Myoblasts.* Society for Biomaterials – Northwest Regional Meeting. (Poster and Talk)

6. Svendsen, J.E., Ford, M.,* Oh, S.C.,* Hosseinzadeh, P., **Hettiaratchi, M.H.** (June 2024) *Rational Protein Design Identifies PDGF- and VEGF-specific Protein Binders for Tunable Affinity-Controlled Protein Delivery.* Tissue Engineering Regenerative Medicine International Society (TERMIS) World Congress. (Talk)
    - Nominated for TERMIS Student & Young Investigator Section Excellence in Research Award
7. Svendsen, J.E., Asnes, C., Ford, M.,* Lester, S., Hochstatter, H.B.,* Guldberg, R.E., **Hettiaratchi, M.H.** (June 2024) *Development of Biomaterials for Sequential, Affinity-Controlled Delivery of Angiogenic Growth Factors.* TERMIS World Congress. (Poster)
8. Galindo, A.N., Liashenko, I., O'Neill, K.L., Dalton, P.D., **Hettiaratchi, M.H.** (January 2024) *Aligned Hyaluronic Acid-Coated Polycaprolactone Melt Electrowritten Scaffolds for Muscle Repair.* TERMIS World Congress. (Poster)
9. Svendsen, J.E., Ford, M.,* Oh, S.C.,* Hochstatter, H.B.,*, **Hettiaratchi, M.H.** (November 2023) *Characterization of Affinity-based Protein Delivery Systems for Amplifying Angiogenesis.* Oregon Bioengineering Symposium. (Poster)
10. Dorogin, J., Benz, M.A.*, Martin, M., Jefferis, P., **Hettiaratchi, M.H.** (November 2023) *Dual-affibody Hydrogels Individually Tune Release Kinetics of Immunomodulatory and Osteogenic Proteins.* Oregon Bioengineering Symposium. (Poster)
11. Galindo, A.N., Spaulding, V.R., Mozipo, E.A.,* O'Neill, K.L., Liashenko, I., Fogg, K.C., Dalton, P.D., **Hettiaratchi, M.H.** (November 2023) *Optimization of a Hyaluronic Acid Hydrogel to Enhance Anisotropic Myoblast Alignment and Muscle Regeneration.* Oregon Bioengineering Symposium. (Poster)
12. Martin, M., Benz, M.A.,* **Hettiaratchi, M.H.** (November 2023) *Computational Design of Affibody Specific to Interleukin-4 with Varying Affinities.* Oregon Bioengineering Symposium. (Poster)
13. Pacheco, Y.C., Galindo, A.N., Garcia, J.L.,* Willett, N.J., **Hettiaratchi, M.H.** (November 2023) *Hyaluronic Acid Hydrogels Aid in BMP-2 Mediated Bone Formation Subcutaneously.* Oregon Bioengineering Symposium. (Talk)
    - Nominated for Research Excellence Award
14. Singhal, M., Dorogin, J., Benz, M.A.,* **Hettiaratchi, M.H.** (November 2023) *An Engineered Collagen-Binding Fusion Protein to Improve Localized Delivery of BMP-2 for Bone Regeneration.* Oregon Bioengineering Symposium. (Poster)
15. Benz, M.A.,* Dorogin, J., **Hettiaratchi, M.H.** (November 2023) *Affinity-mediated Release of Interleukin-4 for Immunomodulation.* Oregon Bioengineering Symposium. (Poster)
    - Winner of Best Undergraduate Poster
16. Khachatourian, J.,* Galindo, A.N., **Hettiaratchi, M.H.** (November 2023) *Hyaluronic Acid-Alginate Hydrogels for the Treatment of Spinal Cord Injury.* Oregon Bioengineering Symposium. (Poster)
17. Jefferis, P.,* Dorogin, J., **Hettiaratchi, M.H.** (November 2023) *Co-delivery of Discrete Fluorescently Labeled Proteins for Promotion of Localized Bone Repair.* Oregon Bioengineering Symposium. (Poster)
18. Svendsen, J.E., Hochstatter, H.B.,* Oh, S.C.,* Fear, K.*, Asnes, C.A., Fear, K.M., Hosseinzadeh, P., **Hettiaratchi, M.H.** (October 2023) *Applying Directed Evolution and Rational Design to Generate Affinity-Based Delivery Systems for Angiogenic Growth Factors.* Biomedical Engineering Society (BMES) Annual Meeting. (Poster)

19. Dorogin, J., Benz, M.A.*, Martin, M., **Hettiaratchi, M.H.** (October 2023) *Dual Affibody-Conjugated Hydrogels Tune the Co-Delivery and Activity of Immunomodulatory and Osteogenic Proteins.* BMES Annual Meeting. (Poster and Talk)

20. Galindo, A.N., Spaulding, V.R., Mozipo, E.A.,* O'Neill, K.L., Liashenko, I., Fogg, K.C., Dalton, P.D., **Hettiaratchi, M.H.** (October 2023) *Development of a Multifunctional Hydrogel Platform for Investigating and Enhancing Muscle Regeneration.* BMES Annual Meeting. (Talk)

21. Khachatourian, J.,* Galindo, A.N., **Hettiaratchi, M.H.** (November 2023) *Hyaluronic Acid-Alginate Hydrogels for the Treatment of Spinal Cord Injury.* BMES Annual Meeting. (Poster)

22. Martin, M., Benz, M.A.,* **Hettiaratchi, M.H.** (October 2023) *Computational Design of Specific Protein Binders with Varying Affinities for Interleukin-4.* BMES Annual Meeting. (Poster)

23. Pacheco, Y.C., Dorogin, J., Svendsen, J.E., Garcia, J., Willett, N.J., **Hettiaratchi, M.H.** (October 2023) *Affibody-Conjugated Polyethylene Glycol Hydrogels Tailor Release of Human Mesenchymal Stromal Cell Secretome.* BMES Annual Meeting. (Poster)

24. Benz, M.A.,* Dorogin, J., **Hettiaratchi, M.H.** (October 2023) *Immunomodulation of tissue repair through affinity-based binding partners.* BMES Annual Meeting. (Poster)

25. Ford, M.A.,* Svendsen, J.E., **Hettiaratchi, M.H.** (October 2023) *Characterization of VEGF Specific Affibodies for Use in Complex Wound Healing.* BMES Annual Meeting. (Poster)

26. Garcia, J.L.,* Pacheco, Y.C., **Hettiaratchi, M.H.** (October 2023) *Protein Delivery through Affibody Conjugated Polyethylene Glycol Hydrogels.* BMES Annual Meeting. (Poster)

27. Svendsen, J.E., Oh, S.C.,* Fear, K.*, Hosseinzadeh, P., **Hettiaratchi, M.H.** (April 2023) *Rational Design of an Affinity-Controlled Biomaterial for Angiogenic Protein Delivery.* Society for Biomaterials. (Talk)

28. Dorogin, J., Hochstatter, H.B.,* Fear, K.,* Hosseinzadeh, P., **Hettiaratchi, M.H.** (April 2023) *Moderate-Affinity Affibodies for Affinity-Controlled Delivery of Bone Morphogenetic Protein-2 (BMP-2).* Society for Biomaterials. (Talk)

29. Galindo, A.N., Spaulding, V.R., Mozipo, E.A.,* O'Neill, K.L., Liashenko, I., Asnes, C., Ford, M., Dalton, P.D., **Hettiaratchi, M.H.** (April 2023) *Development of a Multifunctional Hydrogel Platform for Investigating and Enhancing Muscle Regeneration.* Society for Biomaterials. (Poster)

30. Benz, M.A.,* Dorogin, J., Martin, M.J., **Hettiaratchi, M.H.** (April 2023) *Affinity-based Molecules for Immunomodulatory Regulation.* Society for Biomaterials. (Poster)

31. Dorogin, J., Benz, M.A.,* Fear, K.M.,* Martin, M.J., Hosseinzadeh, P., **Hettiaratchi, M.H.** (April 2023) *Moderate-Affinity Affibodies for Tunable Co-Delivery of Immunomodulatory and Osteogenic Proteins.* TERMIS-AM. (Poster)

32. Pacheco, Y.C., Dorogin, J., Svendsen, J.E., Willett, N.J., **Hettiaratchi, M.H.** (April 2023) *Affibody Functionalized PEG Hydrogels Mimic Mesenchymal Stromal Cell Paracrine Signaling Profiles.* TERMIS-AM. (Poster)

33. Mozipo, E.A.,* Spaulding, V.R., **Hettiaratchi, M.H.** (November 2022) *Tuning the Mechanical and Physical Properties of Hyaluronic Acid Hydrogels for Bone Repair.* Annual Biomedical Research Conference for Minority Students (ABRCMS). (Poster)

34. Benz, M.A.,* Dorogin, J., **Hettiaratchi, M.H.** (October 2022) *Affinity-based Molecules for Immunomodulatory Regulation.* Oregon Bioengineering Symposium. (Poster)

35. Mozipo, E.A.,* Spaulding, V.R., **Hettiaratchi, M.H.** (October 2022) *The Impact of Hyaluronic Acid Molecular*

Weight on Hydrogel Properties for Bone Regeneration. Oregon Bioengineering Symposium. (Poster)

36. Spaulding, V.R., Dorogin, J., Mozipo, E.A., Ford, R., O'Neill, K., **Hettiaratchi, M.H.** (October 2022) *Engineering Programmable Hydrogels for BMP-2 Protein Delivery to Traumatic Bone Defects.* Oregon Bioengineering Symposium. (Poster)

37. Ford, R.,* Spaulding, V.R., Mozipo, E.A. **Hettiaratchi, M.H.** (October 2022) *Cytocompatibility of Hydrogel Acid Hydrogels and Polymers for Protein Delivery.* Oregon Bioengineering Symposium. (Poster)

38. Dorogin, J., Fear, K.M.,* Townsend, J.M., Hosseinzadeh, P. **Hettiaratchi, M.H.** (October 2022) *Moderate-Affinity Affibodies Control the Release and Bioactivity of BMP-2.* Oregon Bioengineering Symposium. (Poster)

39. Svendsen, J., Hochstatter, H.B.,* Oh, S.C.,* Asnes, C., **Hettiaratchi, M.H.** (October 2022) *Characterization of Affinity-based Affibody Delivery Systems for Spatiotemporally Regulated Release of Angiogenic Proteins.* Oregon Bioengineering Symposium. (Poster)

40. Pacheco, Y.C., Dorogin, J., Svendsen, J.E., Hochstatter, H.B.,* Willett, N.J., **Hettiaratchi, M.H.** (October 2022) *Polyethylene Glycol Hydrogels Sequester Cytokines Produced by Human Mesenchymal Stromal Cells following IL-1β Stimulation.* Oregon Bioengineering Symposium. (Poster)

41. Dorogin, J., Spaulding, V.R., Fear, K.M.,* Hochstatter, H.B.,* Hosseinzadeh, P., **Hettiaratchi, M.H.** (July 2022) *Moderate-affinity Affibodies Control the Release and Bioactivity of BMP-2.* TERMIS-AM. (Poster)

42. Hochstatter, H.B.,* O'Hara-Smith, J.R., Asnes, C.L., Dorogin, J., Oh, S.*, **Hettiaratchi, M.H.** (July 2022) *Affinity-based Biomaterials for Angiogenic Protein Delivery.* TERMIS-AM. (Poster)

43. Spaulding, V.R., Johnson, I.D.,* **Hettiaratchi, M.H.** (April 2022) *Engineering Hyaluronic Acid Hydrogels with Design of Experiments for Controlled Protein Delivery.* Society for Biomaterials. (Poster)

44. Johnson, I.D.,* Spaulding, V.R., Guerrero, A., **Hettiaratchi, M.H.** (April 2022) *Design and Cytocompatibility of Hyaluronic Acid Hydrogels for Bone Regeneration.* Society for Biomaterials. (Poster)

45. Hochstatter, H.B.,* Dorogin, J., O'Hara-Smith, J.R., **Hettiaratchi, M.H.** (November 2021) *Discovery of Affinity Binding Partners for Controlled GM-CSF Delivery.* Oregon Bioengineering Symposium. (Poster)
    - Winner of Best Undergraduate Poster

46. Dorogin, J., Townsend, J.M., Fear, K.M.,* Hochstatter, H.B.,* **Hettiaratchi, M.H.** (November 2021) *Affibody Selection and Characterization for Controlled Release of Bone Morphogenetic Protein-2.* Oregon Bioengineering Symposium. (Poster)

47. Spaulding, V.R., Johnson, I.D.,* **Hettiaratchi, M.H.** (November 2021) *Engineering Hyaluronic Acid Hydrogels with Design of Experiments for Controlled Protein Delivery.* Oregon Bioengineering Symposium. (Poster)

48. Johnson, I.D.,* Spaulding, V.R., **Hettiaratchi, M.H.** (November 2021) *Design and Cytocompatibility of Hyaluronic Acid Hydrogels for Bone Regeneration.* Oregon Bioengineering Symposium. (Talk)
    - Second Place – Oral Presentations

49. O'Hara-Smith, J.R., Fear, K.M.,* Spaulding, V.R., Johnson, I.D.,* Hosseinzadeh, P. **Hettiaratchi, M.H.** (November 2021) *Developing Affinity-based Angiogenic Biomaterials.* Oregon Bioengineering Symposium. (Poster and Talk)
    - First Place – Oral Presentations

50. Gilbert, A.K., Johnson, I.D.,* **Hettiaratchi, M.H.**, Pluth, M.D. (November 2021) *Development of H_2S Release Biomaterials for Bone Healing.* Oregon Bioengineering Symposium. (Poster)

51. Hochstatter, H.B.,* Dorogin, J., O'Hara-Smith, J.R., **Hettiaratchi, M.H.** (November 2021) *Discovery of Affinity Binding Partners for Controlled Protein Delivery.* Annual Biomedical Research Conference for Minority Students (ABRCMS). (Poster)

52. Johnson, I.,* Spaulding, V., **Hettiaratchi, M.H.** (October 2021) *Design and Biocompatibility of Hyaluronic Acid Hydrogels for Bone Regeneration.* BMES Annual Meeting. (Talk)

SERVICE

SELECTED UNIVERSITY SERVICE

Nov. 2023 –	**University of Oregon BMES Chapter Faculty Advisor**
Sept. 2023 –	**Undergraduate Research Opportunity Program Faculty Advisory Committee**
2021 –	**Trainer** Molecular Biology and Biophysics Training Program (T32)
Jul. 2020 –	**Community of Minorities in STEM (CMiS) Faculty Co-Advisor**
Dec. 2020 – Jan. 2021	**Goldwater Scholar Nomination Committee**

SERVICE TO THE DISCIPLINE

Ad Hoc Grant Reviewer
NIH Member Conflicts Panel: Biomaterials, Drug Delivery, and Instrumentation (July 10, 2024)
NIH Biomaterials and Biointerfaces (BMBI) Study Section (February 27-28, 2024)
NIH Special Emphasis Panel (SEP) for REDI Entrepreneurial Small Business Transition Awards (March 9, 2022)
NIH Musculoskeletal Tissue Engineering (MTE) Study Section (October 12-13, 2021)

Review Editor
Editorial Board for Frontiers in Materials and Frontiers in Bioengineering and Biotechnology

Ad Hoc Reviewer
Science Advances, Annals of Biomedical Engineering, ACS Biomaterials Science & Engineering, Connective Tissue Research, Biomaterials, Advanced Functional Materials, Biotechnology & Bioengineering, Biomolecules, Materials, Advanced Healthcare Materials, Acta Biomaterialia, Tissue Engineering Part A, Enzymes and Microbial Technology, Frontiers in Biotechnology and Bioengineering, Colloids and Surfaces B: Biointerfaces

Abstract Reviewer
TERMIS World Congress (2024)
Society for Biomaterials (2022, 2023)
Orthopedic Research Society (2022, 2023)
Society for the Advancement of Chicanos/Hispanics (SACNAS) Annual Meeting (2021)
Biomedical Engineering Society (BMES) Annual Meeting (2021, 2023, 2024)

Conference Session Chair/Organizer
Discussion Leader (Orthopedic and Athletic Health), Women's Health Networking Session – BMES Annual Meeting (2024)
Session Chair, Multiscale Computational Modeling and Simulation – BMES Annual Meeting (2024)
Strategic Planning Leader (Computational Methods), NSF ElevateHER (Engineering Innovations for Women's Health Discovery) Workshop, hosted by Texas A&M University (2024)
Virtual Workshop Organizer, Society for Biomaterials and Materials Research Society Joint Workshop on AI in Biomaterials Design (2024)
Science Driver Lead and co-PI, Next Generation Biomaterials Planning Workshop – National Science Foundation's (NSF) Division of Materials Research (DMR) and National Institute of Biomedical Imaging and Bioengineering (NIBIB), hosted by the University of Oregon (2024)

Session Organizer, Computational Approaches for Tissue Engineering – TERMIS World Congress (2024)
Session Chair, Biomaterials for Immunomodulation and Tissue Regeneration – TERMIS World Congress (2024)
Member of Programming Committee, Northwest Regional Conference – Society for Biomaterials (2024)
Session Moderator, Biomaterials for Cartilage Regeneration – Orthopedic Research Society (2024)
Track Chair, Orthopedic and Rehabilitation Engineering – BMES Annual Meeting (2023)
Session Chair, Computational and Machine Learning Approaches for Design of Biomaterials – Society for Biomaterials Annual Meeting (2023)
Session Chair, Biomaterials Track (Virtual) – BMES Annual Meeting (2021)

Presentation Judge
Society for Biomaterials Postdoctoral Recognition Award Competition (2023)
Oregon Bioengineering Symposium Posters (2022, 2023)
Toronto Bioengineering Conference Posters (2017, 2018)

Committee Member
BMES Council of Diversity (2023 –)

Thesis Committee External Examiner
Dr. Ruchi Sharma, Advisor: Professor Stephanie Willerth, University of Victoria (2022)

PROFESSIONAL MEMBERSHIPS

2011 – 2016	Engineer-in-Training, **Association of Professional Engineers & Geoscientists of Alberta**
2011 – 2016	Member, **Association of Professional Engineers & Geoscientists of Alberta**
2018 –	Member, **Biomedical Engineering Society**
2018 –	Member, **Canadian Biomaterials Society**
2013 – 2015	Member, **Tissue Engineering Regenerative Medicine International Society**
2020 – 2020 –	Member, **Society for Biological Engineering**
2015 – 2017, 2021 – 2022 –	Member, **Orthopedic Research Society**
	Member, **Society for Biomaterials (Tissue Engineering Special Interest Group)**

OUTREACH

ACTIVITIES

Mar. 2024	**K-12 Bioengineering Outreach Workshop** Co-organized a workshop on designing K-12 bioengineering outreach activities with Dr. Bryan Rebar as part of the educational objectives of my NSF CAREER award.
Sept. 2023	**Mentor for Faculty Candidate through Society for Biomaterials** Provided feedback on candidate's chalk talk presentation.
Oct. 2022, Jun. 2024	**Knight Campus Tours for Oregon Chapters of the Philanthropic Educational Organization (PEO)** Organized tours of the Knight Campus for PEO members with the Knight Campus Development Office.
Apr. 2021 – Dec. 2021	**Mentor for King's College London iGEM Team** Advised KCL iGEM team on project to stabilized chondroitinase ABC for spinal

	cord injury repair based on the methods published in my *Science Advances* paper. This team won a gold medal and prize for Best Presentation in the Undergraduate Division of the iGEM 2021 competition.
Aug. 2021 – Dec. 2021 Jul. 2020 – Dec. 2020	**Mentor for Cientifico Latino Graduate Student Mentorship Initiative** Advised underrepresented minority students on applying to graduate school.
May 2016 –	**Member, Philanthropic Educational Organization (PEO)** Raise money to fund scholarships for women pursuing higher education
Sept. 2010 –	**Mentor for Cybermentor Program** Encourage girls in Grades 6-12 to pursue careers in STEM through an online messaging platform.
Jun. 2020 –	**Member of BME Women Faculty UNITE Group** Identify tangible actions to increase diversity, equity, and inclusion in STEM
Sept. 2017 – Oct. 2019	**Scholar Award Committee, Philanthropic Educational Organization (PEO) – Chapter R Ontario** Nominated promising women in graduate studies in STEM for PEO Scholar Awards and guide them through the application process
Aug. 2011 – Dec. 2015	**Project Leader and Volunteer, BBUGS Education and Outreach Committee** Delivered lectures/demos and provided hands-on science mentorship to students from BEST Academy and Coretta Scott King High School in Atlanta.
Jul. 2013 – Jul. 2015	**Chair, Bioengineering & Bioscience Unified Graduate Students (BBUGS)** Managed an annual budget of ~$5000 and 7 sub-committees that organized over 50 social, outreach, and professional development events for 200 students annually.
Sept. 2010 – Apr. 2011 Sept. 2008 – Apr. 2009	**Engineering Representative, Women in Science and Engineering (WISE) Club** Organized events to promote diversity in Schulich School of Engineering.

PRESENTATIONS

1. **Hettiaratchi, M.H.** (Jul. 2023) IntroDUCKtion Seminar, University of Oregon
2. **Hettiaratchi, M.H.** (Jun. 2022) Summer Program in Undergraduate Research (SPUR) Research & Career Pathways Seminar, University of Oregon
3. **Hettiaratchi, M.H.** (Nov. 2021) Career Seminar for Health Sciences Academic Residential Community, University of Oregon
4. **Hettiaratchi, M.H.** (Jul. 2021) High School Student Summer Program Career Seminar, Tufts University
5. **Hettiaratchi, M.H.** (Jun. 2021) Summer Program in Undergraduate Research (SPUR) Research & Career Pathways Seminar, University of Oregon
6. **Hettiaratchi, M.H.** (Apr. 2021) Philanthropic Educational Organization (PEO) Ontario/Quebec Provincial Convention
7. **Hettiaratchi, M.H.** (Feb. 2021) Biomedical Engineering Students' Association (BESA) Fireside Chat: Professional Development Event, University of Toronto
8. **Hettiaratchi, M.H.** (Aug. 2020) Presentation for Inside the Knight Campus Event, University of Oregon
9. **Hettiaratchi, M.H.** (Jun. 2018) The Foundation for Student Science and Technology Research in Science Exhibition, University of Toronto

10. **Hettiaratchi, M.H.** (May 2016) Philanthropic Educational Organization (PEO) Georgia State Convention

TEACHING

NEW COURSE DEVELOPMENT

1. **BIOE 410/510 Biomaterials** (Winter Annually, 4 credits) This course will introduce design principles for biomaterials, including considerations for protein and cell delivery, cell-instructive biomaterials, drug delivery systems, material-tissue interactions (host immune response), and material characterization. This course will mainly focus on polymeric biomaterials. A special emphasis will be placed on chemical modifications to tune material degradation, cross-linking, protein release, cell-material interactions, and stimuli-responsiveness. Current literature in the field will be discussed. Students will complete a final project to design a biomaterial for a specific application (tissue repair, immune-modulation, etc.) and write a grant proposal to develop a biomaterial that addresses a potential path to commercialization and clinical use. **Started as graduate course (BIOE 610) in Winter 2021, switched to graduate/undergraduate course (BIOE 410/510) in Winter 2022**
2. **BIOE 610 Ethical Considerations in Research and Innovation** (Fall Annually, 1 credit) This course prepares students to navigate the wide-range of ethical issues and situations they may encounter during their academic training and throughout their professional career. Topics include: communicating scientific findings, research misconduct, emerging technologies, ethical dilemmas, conflict of interest, human and animal subjects, responding to pressure, and mentor-mentee relationships. Discussions and case studies will be led by Knight Campus faculty. This course satisfies the NIH Responsible Conduct of Research training requirement.
3. **BIOE 251 Fundamentals of Bioengineering Part I** (Fall Annually, 4 credits; lecture + lab) This is the first course in a three-course series that introduces students to foundational principles in bioengineering. In this course, students will learn to develop process flow diagrams and apply mass and energy balances to analyze a variety of biological systems, including physiological processes in the human body, bioprocessing and pharmaceutical plants, and chemical engineering processes. Introductory biomechanics of tissues and biomaterials will also be covered. Students will apply their knowledge in a series of problem-solving studios focused on conservation principles and laboratory experiments to characterize the mechanics of various biomaterials. Finally, students will work in teams to develop outreach activities to teach basic energy and mass conservation principles to K-12 students.

COURSES TAUGHT AT UNIVERSITY OF OREGON

Semester	Course Number	Course Title
Winter 2024	BIOE 410/510	Biomaterials
Fall 2023	BIOE 251	Fundamentals of Bioengineering I
Fall 2022	BIOE 251	Fundamentals of Bioengineering I
Fall 2022	BIOE 610	Ethical Considerations in Research and Innovation
Winter 2022	BIOE 410/510	Biomaterials
Fall 2021	BIOE 251	Fundamentals of Bioengineering I
Fall 2021	BIOE 610	Ethical Considerations in Research and Innovation
Winter 2021	BIOE 610	Biomaterials
Fall 2020	BIOE 610	Ethical Considerations in Research and Innovation