

RE: Statement of Interest: Commitment to Advancing the BMES Cellular and Molecular Bioengineering (CMBE) SIG as a Council Member

I am writing to express my strong interest in serving on the CMBE Council and contributing to the continued growth and impact of the CMBE SIG. As an independent faculty member whose research integrates cellular and molecular mechanobiology with translational bioengineering, I am deeply committed to advancing the scientific mission of CMBE and supporting its interdisciplinary and inclusive community. I am honored to have been selected as a 2026 CMBE Rising Star, a recognition that reflects the strong alignment between my research program and the core scientific focus of the CMBE SIG. I view this distinction not only as an acknowledgment of past contributions, but also as a responsibility to give back to the community through leadership, mentorship, and sustained service. At this stage of my career, I am eager to pair this recognition with meaningful involvement in the CMBE Council.

Since joining the faculty as an Assistant Professor in 2020, I have led an independent research program bridging nuclear mechanobiology and regenerative bioengineering to develop next-generation therapeutic strategies for dense connective tissue repair, including the meniscus, cartilage, and tendon. My research integrates super-resolution STORM imaging, live-cell single-particle tracking of epigenetic regulators, single-cell genomics, and AI-enabled computational modeling to define how mechanical and biochemical cues are sensed, encoded, and translated within the nucleus. Our work centers on three interconnected efforts: (1) quantifying how chemo-mechanical environments regulate stem cell fate using advanced bioreactors and biomimetic materials; (2) defining how tissue development and degeneration reprogram nuclear architecture and epigenetic dynamics at the nanoscale; and (3) translating these mechanistic insights into predictive, multiphasic regenerative constructs. These efforts have resulted in over 68 peer-reviewed publications, including studies in *Nature Biomedical Engineering*, *Nature Materials*, *Science Advances*, *Bioactive Materials*, *Advanced Healthcare Materials*, and *Advanced Functional Materials*. In the five years, I have filed two U.S. patents, and secured multiple NIH awards as PI, including two R01s, a K01, an R21, and a P50 project as Co-Director, while leading industry-partnered translational programs with 4WEB Medical and Acuitive Technologies. Looking forward, I aim to contribute to the CMBE community by advancing AI-based nuclear mechanobiology as a next-generation framework, integrating single-molecule imaging, multi-omics, and predictive modeling, to help position CMBE as a leading community for next-generation, AI-enabled cellular and molecular bioengineering research.

Beyond my home institution, currently hold leadership roles in major professional organizations, including Vice President of the Korean Biomedical Engineering Society, R&D Director of the Korean-American Scientists and Engineers Association, Co-chair of the Orthopaedic Research Society (ORS) Asian Leadership Forum, and Research Chair of the ORS Meniscus Section, where I help set research priorities, support early-career researchers, and promote interdisciplinary collaboration. I have also organized international scientific programs, including the US-Korea Joint Workshop Series on Biomedical Engineering, and served as a scientific organizer for symposia at major international meetings such as the World Biomaterials Congress, the International Combined Orthopaedic Research Societies, and the international 4D-nucleosome symposium. In parallel, I contribute to institutional service by organizing the UPenn McKay Young Investigator Seminar Series and serving on the UPenn Bioengineering Graduate Admissions Committee and the McKay International Committee. I serve as the primary instructor for BE561 (Musculoskeletal Biology and Bioengineering) at Penn.

My engagement with the BMES-CMBE community has been sustained throughout my career, from trainee to faculty member. I have been an active BMES member since 2013, regularly reviewing abstracts, moderating scientific sessions, participating in conferences, and contributing to CMBE-related scientific programming. Through these experiences, CMBE has remained a central intellectual home that values rigor, innovation, and community. Serving on the CMBE Council would be a meaningful opportunity to further support its members across career stages and help shape the future direction of the SIG. I am enthusiastic about working collaboratively with fellow Council members to expand the impact of CMBE and advance cellular and molecular bioengineering as a driver of innovation in AI-based mechanobiology and regenerative medicine. Thank you very much for your consideration. I look forward to the opportunity to serve the CMBE community.

Sincerely,



Su Chin Heo, Ph.D.

Assistant Professor of Orthopaedic Surgery and Bioengineering, University of Pennsylvania

UNIVERSITY OF PENNSYLVANIA - PERELMAN SCHOOL OF MEDICINE
Curriculum Vitae

Date: 01/26/2026

Su Chin Heo, Ph.D.

Address: 375A Stemmler Hall
36th Street and Hamilton Walk
Philadelphia, PA 19104-6081 USA

Education:

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| 2006 | B.S. | Inje University (Biomedical Engineering) |
| 2008 | M.S. | Inje University (Biomedical Engineering) |
| 2015 | Ph.D. | University of Pennsylvania (Bioengineering) |

Postgraduate Training and Fellowship Appointments:

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| 2015-2016 | Post-doctoral Research Fellow, Departments of Bioengineering & Orthopaedic Surgery, University of Pennsylvania |
| 2016-2019 | Research Associate, Department of Orthopaedic Surgery, University of Pennsylvania |

Military Service:

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| 2000-2003 | Military Service in S. Korea. |
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Faculty Appointments:

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| 2020-present | Assistant Professor of Orthopaedic Surgery and Bioengineering, University of Pennsylvania |
| 2025-present | Adjunct Professor, Kyung Hee University |

Other Appointments:

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| 2005-2008 | Research Scientist, Department of future technology, Korea Institute of Materials Science (KIMS) |
| 2006-2008 | Graduate Research Assistant, Department of Biomedical Engineering, Inje University |
| 2008-2010 | Research Engineer, National Research Laboratory, Inje University |
| 2010-2012 | Research Engineer, Department of Orthopaedic Surgery, University of Pennsylvania |
| 2012-2015 | Graduate Research Assistant, Department of Bioengineering, University of Pennsylvania |
| 2015-2016 | Post Doc, Department of Orthopaedic Surgery, University of Pennsylvania |
| 2016-2020 | Research Associate, Department of Orthopaedic Surgery, University of Pennsylvania |

Awards, Honors and Membership in Honorary Societies:

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| 2004 | Undergraduate award for excellent attitude, INJE University |
| 2004 | Undergraduate Full Scholarship, INJE University |
| 2005 | Undergraduate Full Scholarship, INJE University |
| 2006 | Graduate Full Scholarship, INJE University |
| 2006 | Korea Baek-Yup Graduate fellowship, Korea Baek-Yup Foundation |

2007 Best Student Paper, The International ANSYS User's conference
2007 Graduate Full Scholarship, INJE University
2008 S&T Graduate fellowship, Korea Science and Engineering
Foundation
2011 1st place, poster award winner, 2011 Penn Center for
Musculoskeletal Disorders Symposium
2011 Paper selected on 'Rising Stars session', BMES Conference on
Cellular and Molecular Bioengineering
2011 Paper selected on 'Spotlight session', 58th Annual Meeting of the
Orthopaedic Research Society
2012 3rd place, award winner, The 2012 IRM/CECR Tissue Engineering
Symposium
2014 Best oral presentation award winner at the International Biomedical
Engineering Conference 2014
2014 Paper selected on 'Spotlight session', 61st Annual Meeting of the
Orthopaedic Research Society
2015 Best oral presentation award winner at the International Biomedical
Engineering Conference 2015
2016 Fellow travel award winner, BMES Conference on Cellular and
Molecular Bioengineering
2017 Paper selected on 'Spotlight session', 63rd Annual Meeting of the
Orthopaedic Research Society
2018 New Investigator Recognition Award Finalist, 64th Annual Meeting
of the Orthopaedic Research Society
2019 Scientific Workshop Organizer, 7th Korea-US Joint Biomedical
Engineering Workshop at the 2019 BMES Annual Meeting
2019 New Investigator Recognition Award Finalist, 65th Annual Meeting
of the Orthopaedic Research Society
2019 ORS 2019 Meniscus Section Award Winner, Orthopaedic Research
Society
2019 Scientific Workshop Organizer,
International Combined Orthopaedic Research Societies 2019
2020 NIH/NIAMS K01 Mentored Research Scientist Career Development
Award
2020 New Investigator Recognition Award Finalist, 65th Annual Meeting
of the Orthopaedic Research Society
2021 Biomedical UniStar Program Fellowship, Ulsan National Institute of
Science and Technology (Se-Hwan Lee, Primary Mentor)
2022 New Investigator Recognition Award Finalist, Orthopaedic
Research Society (Se-Hwan Lee, Primary Mentor)
2023 New Investigator Recognition Award Finalist, Orthopaedic
Research Society (Se-Hwan Lee, Primary Mentor)
2023 CEMB Trainee Pilot Grant/Award, The Center for Engineering
MechanoBiology (Ellen Zhang, Primary Mentor)
2023 ORS Tendon Section Elevator Pitch Competition Award,
Orthopaedic Research Society (Zizhao Li, Primary Mentor)
2023 Penn Health-Tech Accelerator Award, University of Pennsylvania
2024 BMES Young Innovator Award, Biomedical Engineering Society
2024 GAPSA Research Travel Grant Award, University of Pennsylvania
(Zizhao Li, Primary Mentor)

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| 2025 | K4DN Best Paper Award, The 4D Nucleome (4DN) Network (Tyler Blanch, Primary Mentor) |
| 2025 | ORS Annual Meeting Tendon Section Translational Award, Orthopaedic Research Society (Zizhao Li, Primary Mentor) |
| 2025 | UPenn PAACH Community Building Award, University of Pennsylvania (Zizhao Li, Primary Mentor) |
| 2025 | KBMES Rising Star Award, Biomedical Engineering Society (Se-Hwan Lee, Primary Mentor) |
| 2025 | ASBMR Young Investigator Travel Award, American Society for Bone and Mineral Research (Ellen Zhang, Primary Mentor) |
| 2026 | BMES-CMBE Rising Star Award, Biomedical Engineering Society |

Memberships in Professional and Scientific Societies and Other Professional Activities:

National:

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| 2011-Present | Orthopaedic Research Society |
| 2013-Present | Biomedical Engineering Society |

Editorial Positions:

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| 2011-Present | Journal Reviewer, Tissue engineering |
| 2011-Present | Journal Reviewer, Journal of Biomedical Materials Research: Part A |
| 2012-Present | Journal Reviewer, Annals of Biomedical Engineering |
| 2015-Present | Journal Reviewer, Gene |
| 2015-Present | Journal Reviewer, Acta Biomaterialia |
| 2015-Present | Journal Reviewer, Biomaterials |
| 2016-Present | Journal Reviewer, Scientific Reports |
| 2019-Present | Journal Reviewer, Journal of Precision Engineering and Manufacturing |
| 2019-Present | Journal Reviewer, Journal of Clinical Medicine |
| 2019-Present | Journal Reviewer, Journal of Periodontal Research |
| 2020-Present | Journal Reviewer, PNAS |
| 2022-Present | Guest Editor, Frontiers in Bioengineering and Biotechnology |
| 2022-Present | Editorial Board Member, Mechanobiology in Medicine |
| 2022-Present | Journal Reviewer, Nature Communications |
| 2023-Present | Journal Reviewer, Science Advances. |
| 2024-Present | Journal Reviewer, Advanced Science |
| 2024-Present | Journal Reviewer, Advanced Materials |
| 2025-Present | Editorial Board Member, Mechanobiology |
| 2025-Present | Journal Reviewer, Advanced Functional Materials |

Academic and Institutional Committees:

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| 2020-Present | Ph.D. Qualifying Exam Committee: Bioengineering |
| 2020-Present | Ph.D. Desertation Exam Committee: Bioengineering |
| 2022-Present | UPenn BE PhD Admissions Committee |

Major Academic and Clinical Teaching Responsibilities:

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| 2006 | Teaching assistant, Engineering Mathematics |
| 2006 | Teaching assistant, Solid mechanics |
| 2007 | Teaching assistant, Tissue Engineering |
| 2007 | Teaching assistant, Biomaterials |
| 2020-2021 | Mentoring, Zizhao Li, Graduate student, UPenn Biotechnology Program |

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| 2020-2021 | Mentoring, Shreya Mondal, Graduate student, UPenn Biotechnology Program |
| 2020-2022 | Mentoring, Yujia Zhang, Graduate student, UPenn Biotechnology Program |
| 2020-Present | Mentoring, Se-Hwan Lee, Postdoctoral Researcher, Biomedical Postdoctoral Programs |
| 2020-2022 | Lecturer, BE561: Musculoskeletal Biology and Bioengineering |
| 2020-Present | Sponsor, BIOT599: Independent study |
| 2021-2023 | Mentoring, Lucy Hederick, Undergraduate, Northwestern University |
| 2021 | Mentoring, YongKyeong Lee, Graduate student, Sejong University |
| 2021-2023 | Mentoring, Yize Zhang, Graduate student, UPenn Bioengineering |
| 2021-2022 | Mentoring, Sohaib Hashmi, MD/PhD student, UPenn |
| 2021-Present | Lecturer, CAMB7030: The ECM, Adhesion Receptor Signaling, and Translational Biomechanics |
| 2022-Present | Mentoring, Yujia (Ellen) Zhang, PhD student, UPenn Bioengineering (PhD Defense date: 3/19/2026) |
| 2022-Present | Mentoring, Zizhao Li, PhD student, UPenn Bioengineering (PhD Defense date: 2/18/2026) |
| 2022 | Mentoring, Rachel Achong, Undergraduate Student, University of New Hampshire |
| 2022-Present | Mentoring, Tyler Blanch, PhD student, UPenn Bioengineering |
| 2023-Present | Mentoring, Remi Greenberg, Undergraduate student, UPenn Bioengineering |
| 2023-Present | Mentoring, Catherine, PhD student, UPenn Bioengineering |
| 2023-Present | Mentoring, Yuna, PhD student, UPenn Bioengineering |
| 2023-Present | Mentoring, Lin Xu, Graduate Student, UPenn Bioengineering |
| 2023-Present | Mentoring, Ellie Macmullan, Undergraduate, UPenn Bioengineering |
| 2023-Present | Mentoring, Jayden Shin, Undergraduate, UPenn Bioengineering |
| 2023-Present | <u>Primary Instructor: BE561: Musculoskeletal Biology and Bioengineering.</u> (Enrollment: 39 students) |
| 2024-Present | Mentoring, Felicia Pinto, PhD student, UPenn Bioengineering |
| 2024-Present | Mentoring, Jaeun Jung, PhD student, UPenn Bioengineering |

Lectures by Invitation (Last 5 years):

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| Oct, 2021 | Nuclear Mechanobiology for Musculoskeletal Repair, Sungkyunkwan University, Virtual |
| Dec, 2021 | Nuclear Mechanobiology for Musculoskeletal Repair, Korea Institute of Machinery & Materials, Virtual |
| Apr, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, OIN Workshop, Tampa, USA |
| Apr, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, University of Memphis, Virtual |
| Jun, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, University of Michigan, Ann Arbor |
| Jun, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, Korea Institute of Science and Technology, Seoul, Korea |
| Jul, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, Korea Advanced Institute of Science & Technology, Dajeon, Korea |
| Oct, 2022 | Nuclear Mechanobiology for Musculoskeletal Repair, TERMIS-AP, Jeju, Korea |
| Jul, 2023 | Nuclear Mechanobiology for Musculoskeletal Repair, Pukyong National |

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| | University, KOR |
| Jul, 2023 | Nuclear Mechanobiology for Musculoskeletal Repair, Kyeong Hee University, KOR |
| Jul, 2023 | Nuclear Mechanobiology for Musculoskeletal Repair, Sejong University, KOR |
| Jul, 2023 | Nuclear Mechanobiology for Musculoskeletal Repair, Kyoto University, Japan |
| Feb, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, Johns Hopkins University, USA |
| Mar, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, Colorado State University, USA |
| Mar, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, University of Tennessee, USA |
| May, 2024 | Tunable ECM systems for Musculoskeletal Repairs, 12th World Biomaterials Congress, KOR (a Keynote Speaker) |
| Jun, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, Fudan University, CHN |
| Jun, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, East China University of Science and Technology, CHN |
| Jun, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, Shanghai Jiaotong University, CHN |
| Oct, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, UCSD, USA |
| Dec, 2024 | Nuclear Mechanobiology for Musculoskeletal Repair, The Ohio State University, USA |
| Jan, 2025 | Tunable Extracellular Matrix-Based Hydrogel System for MSK Repairs, 2025 BMES-CMBE Conference, USA |
| Jun, 2025 | Programmable ECM Platforms for Musculoskeletal Regeneration, Global Conference on Innovation Materials, KOR (a Keynote Speaker) |
| Jun, 2025 | Advanced Mechano-Epigenetic Strategies for Musculoskeletal Regeneration, KOR |
| Oct, 2025 | Mechano-Epigenetic Regulation for Enhanced Musculoskeletal Tissue Regeneration, The Aegean Stem Cell Conference, Greece |
| Oct, 2025 | Precision Regenerative Engineering in Orthopaedics: Mechanobiology, Epigenetics, and AI-Driven Approaches, Columbia University, USA |
| Jan, 2026 | Machine Learning-Guided Single-Epigenetic Dynamics Predict Nanoscale Chromatin Remodeling, 2026 BMES-CMBE Conference, Puerto Rico |
| Jan, 2026 | When the Nucleus Meets Orthopaedics for Precision Regeneration, Brown University, USA |
| Feb, 2026 | Precision Regenerative Engineering in Orthopaedics: Mechanobiology, Epigenetics, and AI-Driven Approaches, Johns Hopkins University, USA |
| Mar, 2026 | From Nucleus to Tissue: Precision Regeneration in Orthopaedics, Emory University, USA |
| Mar, 2026 | Machine Learning-Guided Mechano-Epigenetic Control of Musculoskeletal Repair, Stanford University, USA |
| Apr, 2026 | Mechano-Epigenetic Programming for Musculoskeletal Tissue Regeneration, University of Rochester, USA |
| Sep, 2026 | AI-Guided Mechano-Epigenetic Programming for Musculoskeletal Tissue Repair, Cornell University, USA |

Organizing Roles in Scientific Meetings:

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| Jun, 2019 | Scientific Workshop Organizer, International Combined Orthopaedic Research Societies 2019 Canada |
| 2019 | Scientific Workshop Organizer, 7th Korea-US Joint Biomedical Engineering Workshop at the 2019 BMES Annual Meeting Philadelphia |
| 2021 | Organizer, Nuclear Mechanobiology Meeting Philadelphia |
| Feb, 2022 | Modulator, 67th Annual Meeting of the Orthopaedic Research Society Tempa |
| Mar, 2022 | Scientific Workshop Organizer, 1st SNU-UPENN Join International Musculoskeletal Research Virtual |
| 2022 | Organizer, McKay Young Investigator Seminar series. Philadelphia |
| 2023 | Organizer, McKay Young Investigator Seminar series. Philadelphia |
| 2024 | McKay International Committee Philadelphia |
| 2024 | Research Chair, Orthopaedic Research Society Meniscus Section Leadership Committee (ORS) USA |
| 2024 | US-Korea Joint Webinar Series on Biomedical Engineering Virtual |
| 2024 | Scientific Symposium Organizer, 12th World Biomaterials Congress Korea |
| 2024 | Modulator, 69th Annual Meeting of the Orthopaedic Research Society Long Beach |
| 2024 | Organizer, McKay Young Investigator Seminar series. Philadelphia |
| 2025 | Co-Chair, the Orthopaedic Research Society Asian Leadership Forum Phoenix |
| 2025 | Vice President, the US-Korean Biomedical Engineering Society USA |
| 2025 | R&D Director, Korean-American Scientists and Engineers Association (KSEA) USA |
| 2025 | Research Chair, Orthopaedic Research Society Meniscus Section Leadership Committee (ORS) USA |
| 2025 | Organizer, US-Korea Joint Webinar Series on Biomedical Engineering Virtual |
| 2026 | Modulator, Annual Meeting of the Orthopaedic Research Society Charlotte |
| 2026 | Workshop Chair, Annual Meeting of the Orthopaedic Research Society Charlotte |

Bibliography:Research Publications, peer reviewed (print or other media):

1. SJ Heo, SE Kim, YT Hyun, DH Kim, JH Kim, YJ Lee, YJ Kim, JW Shin, YM Hwang, JW Shin: Fabrication of Porous Scaffolds for Bone Tissue Engineering Using a 3-D Robotic System: Comparison with Conventional Scaffolds Fabricated by Particulate. Molecular & Cellular Biomechanics 3(4): 179-180, Jan 2006.
2. JW Shin, HJ Shin, SJ Heo, JH Kim, YM Hwang, DH Kim, JW Shin: Dual Electrospinning to Manufacture Hybrid Nanofibrous Scaffold using Polyurethane and PEO. Journal of Biomedical Engineering Research 27(5): 224-228, May 2006.
3. SA Park, IA Kim, CR Kim, JW Shin, SJ Heo, YM Hwang, DH Kim, JW Shin: Effects of Mechanical Stimuli on the Cell Proliferation and Collagen Production on the Micropatterned Substrate. Effects of Mechanical Stimuli on the Cell Proliferation and Collagen Production on the Micropatterned Substrate 12(2): 119-125, May 2006.
4. YT Hyun, SE Kim, SJ Heo, JW Shin, HM Lee, SY Yoon: Fabrication and Assessment of Hydroxyapatite/Poly epsilon-caprolactone Composite. Journal of Korean Institute of Metals and Materials 44(6): 381-385, Jul 2006.
5. SJ Heo, SE Kim, J Wei, JH Kim, DH Kim, HS Yun, JW Shin, YM Hwang, JW Shin: Effects of HA Particle Sizes on Proliferation of Osteoblasts in Novel 3-dimensional HA/PCL Scaffolds. Biomaterials Research 11(2): 70-74, May 2007.
6. SJ Heo, SA Park, HJ Shin, YJ Lee, TR Yoon, HY Seo, KC Ahn, SE Kim, JW Shin: Evaluation of Bonding Stress for the Newly Suggested Bone Cement: Comparison with Currently Used PMMA through Animal Studies. Key Engineering Materials 342: 373-376, Jul 2007.
7. SJ Heo, SE Kim, YT Hyun, DH Kim, HM Lee, YM Hwang, SA Park, JW Shin: In Vitro Evaluation of Poly ϵ -Caprolactone/Hydroxyapatite Composite as Scaffolds for Bone Tissue Engineering with Human Bone Marrow Stromal Cells. Key Engineering Materials 342: 77-80, Jul 2007.
8. HS Yun, SE Kim, YT Hyun, SJ Heo, JW Shin: Three-Dimensional Mesoporous-Giantporous Inorganic/Organic Composite Scaffolds for Tissue Engineering. Chemistry of Materials 19(26): 6363-6366, Dec 2007 Notes: Cover article.
9. JW Shin, DH Kim, SJ Heo, SH Kim, YJ Kim, JW Shin: Effects of the Mechanical Stretch on Aligned Multi-Layered Nanofibrous Scaffolds Seeded with Smooth Muscle Cells. Journal of Biomedical Engineering Research 29(1): 52-58, Jan 2008.
10. YJ Kim, S Park, YJ Lee, JW Shin, DH Kim, SJ Heo, KD Park, JW Shin: Effects of Intermittent Hydrostatic Pressure on Cell Adhesive Forces and Other Related Parameters under Various Resting Periods. Journal of Biomedical Materials Research: Part B 87(2): 353-60, May 2008.
11. J Wei, SJ Heo, DH Kim, SE Kim, YT Hyun, JW Shin: Comparison of Physical, Chemical and Cellular Responses to Nano- and Micro-sized Calcium Silicate/Poly(ϵ -caprolactone) Bioactive Composites. Journal of the Royal Society Interface 5(23): 617-630, Jun 2008.

12. HS Yun, SE Kim, YT Hyun, SJ Heo, JW Shin: Hierarchically Mesoporous-Macroporous Bioactive Glass Scaffolds for Bone Tissue Regeneration. Journal of Biomedical Materials Research: Part B 87(2): 374-80, Nov 2008.
13. JW Shin, YJ Lee, SJ Heo, SA Park, SH Kim, YJ Kim, DW Kim, JW Shin: Manufacture of the Multi-layered Nanofibrous Structures Composed of Polyurethane and Poly(ethylene oxide) for the Potential Scaffolds of Blood vessels. Journal of Biomaterials Science: Polymer Edition 20(5-6): 754-771, Apr 2009.
14. SJ Heo, SE Kim, J Wei, YT Hyun, HS Yun, DH Kim, JW Shin, JW Shin: Fabrication and Characterization of Novel nano- and micro-HA/PCL Composite Scaffolds Using a Modified Rapid Prototyping Process. Journal of Biomedical Materials Research: Part A 89(1): 108-116, Apr 2009.
15. J Wei, X Wu, C Liu, J Jia, SJ Heo, SE Kim, YT Hyun, JW Shin: Fabrication of Bioactive Scaffold of Poly(ϵ -Caprolactone) and Nanofiber Wollastonite Composite. Journal of the American Ceramic Society 92(5): 1017-1023, May 2009.
16. SJ Heo, SE Kim, J Wei, DH Kim, YT Hyun, HS Yun, HK Kim, TR Yoon, SA Park, JW Shin, JW Shin: In- vitro and animal study of novel nano-HA/PCL Composite Scaffolds Fabricated by Layer Manufacturing Process. Tissue engineering: Part A 15(5): 977-89, May 2009.
17. DH Kim, SJ Heo, JW Shin, SH Park, JW Shin: Effects of Mechanical Stimulation on Chondrogenesis of Mesenchymal Stem Cells via 3D Co-culturing System. Tissue Engineering and Regenerative Medicine 6(4): 739-745, June 2009.
18. DH Kim, SH Kim, SJ Heo, JW Shin, SW Lee, SA Park, JW Shin: Enhanced Differentiation of Mesenchymal Stem cells into NP-like cells via 3D Co-culturing with Mechanical Stimulation. Journal of Bioscience and Bioengineering 108(1): 63-7, Jul 2009.
19. J Wei, SJ Heo, DH Kim, SE Kim, YT Hyun, JW Shin: Preparation and Characterization of Bioactive Calcium Silicate and PCL Nanocomposite for Bone tissue regeneration. Journal of Biomedical Materials Research: Part A 90(3): 702-12, Sept 2009.
20. SW Lee, SJ Heo, JY Jang, JY Jeong, SH Kim, SA Park, ES Jeon, JW Shin: Novel Perfusion Culture with 3-Dimensional Shape-controlled Scaffolds for Bone Tissue Engineering. Tissue Engineering and Regenerative Medicine 7(1): 9-15, Mar 2010.
21. DH Kim, SJ Heo, JW Shin, CW Mun, KM Park, KS Jee: Preparation of Thermosensitive Gelatin-Pluronic® Copolymer for Cartilage Tissue Engineering. Macromolecular Research 18(4), Apr 2010.
22. SJ Heo, NL Nerurkar, BM Baker, JW Shin, DM. Elliott, RL Mauck: Fiber Stretch and Reorientation Modulates Mesenchymal Stem Cell Morphology and Fibrous Gene Expression on Oriented Nanofibrous Microenvironments. Annals of Biomedical Engineering 39(11): 2780-90, Nov 2011.
23. DH Kim, SJ Heo, SH Kim, JW Shin, SH Park, JW Shin: Shear Stress Magnitude is Critical in

Regulating the Differentiation of Mesenchymal Stem Cells even with Endothelial Growth Medium. Biotechnology Letters 33(12): 2351-59, Dec 2011.

24. WM Han, SJ Heo, TP Driscoll, RL Mauck, DM Elliott: Macro- to Microscale Strain Transfer in Fibrous Tissues is Heterogeneous and Tissue-Specific. Biophysical Journal 105(3): 807-17, Aug 2013.
25. WM Han, SJ Heo, TP Driscoll, RL Mauck, DM Elliott: Impact of Cellular Microenvironment and Mechanical Perturbation on Calcium Signaling in Meniscus Fibrochondrocytes. European Cells and Materials 8(27): 321-31, Jun 2014.
26. TP Driscoll, BD Cosgrove, SJ Heo, ZH Shurden, RL. Mauck: Cytoskeletal Strain Transfer Regulates YAP Signaling with Dynamic Tensile Loading. Biophysical Journal 108(12): 2783-93, Jun 2015.
27. SJ Heo, SD Thorpe, TP Driscoll, RL Duncan, DA Lee, RL. Mauck: Biophysical Regulation of Chromatin Architecture Instills a Mechanical Memory in Mesenchymal Stem Cells. Scientific Reports 23(5): 16895, Nov 2015.
28. DH Kim, SJ Heo, YG Kang, JW Shin, SH Park, JW Shin: Shear Stress and Circumferential Stretch by Pulsatile Flow Direct Vascular Endothelial Lineage Commitment of Mesenchymal Stem Cells in Engineer. Journal of Materials Science: Materials in Medicine 27(3): 60, Mar 2016.
29. WM Han*, SJ Heo*, TP Driscoll, JF Delucca, CM McLeod, LJ Smith, RL Duncan, RL Mauck#, DM Elliott#: Microstructural Heterogeneity Directs Micromechanics and Mechanobiology in Native and Engineered Fibrocartilage. Nature Materials 15(4): 477-484, Apr 2016 Notes: *: Equal contributions as first author, #: corresponding authors.
30. SJ Heo, WM Han, SE Szczesny, BD Cosgrove, DW Elliott, DA Lee, RL Duncan, RL Mauck: Mechanically Induced Chromatin Condensation Requires Cellular Contractility in Mesenchymal Stem Cell. Biophysical Journal 111: 1-11, Aug 2016.
31. SJ Heo, TP Driscoll, SD Thorpe, NL Nerurkar, BM Baker, MT Yang, CC Chen, DA Lee, RL. Mauck: Differentiation Alters Stem Cell Nuclear Architecture, Mechanics, and Mechano-Sensitivity. eLife 5(e18207): 1-21, Nov 2016.
32. SE Spencer, TP Driscoll, HY Tseng, PC Liu, SJ Heo, RL Mauck, PG Chao: Crimped Nanofibrous Biomaterials Mimic Microstructure and Mechanics of Native Tissue and Alter Strain Transfer to Cells. ACS Biomaterials Science & Engineering 3(11): 2869-2879, Nov 2017.
33. SJ Heo, SE Spencer, DH Kim, KS Saleh, RL Mauck: Expansion of Mesenchymal Stem Cells on Electrospun Scaffolds Maintains Stemness, Mechano-Responsivity, and Differentiation Potential. Journal of Orthopaedic Research 36(2): 808-815, Feb 2018.
34. Su-Jin Heo, Brian D Cosgrove, Eric N Dai, Robert L Mauck: Mechano-adaptation of the stem cell nucleus. Nucleus. Taylor & Francis, 9(1): 9-19, Dec 2018.

35. Alexandra Stanley, Su-Jin Heo, Robert L Mauck, Foteini Mourkioti, Eileen M Shore: Elevated BMP and mechanical signaling through YAP1/RhoA Poises FOP Mesenchymal Progenitors for Osteogenesis. Journal of Bone and Mineral Research 34(10): 1894-1909, October 2019.
36. Kwang Hoon Song, Su-Jin Heo, Ana P Peredo, Matthew D Davidson, Robert L Mauck, Jason A Burdick: Influence of Fiber Stiffness on Meniscal Cell Migration into Dense Fibrous Networks. Advanced Healthcare Materials 9(8): e1901228, April 2020.
37. Su-Jin Heo, Kwang Hoon Song, Shreyasi Thakur, Liane M. Miller, Xuan Cao, AnaP. Peredo, Breanna N. Seiber, Feini Qu, Tristan P. Driscoll, Vivek B. Shenoy, Melike Lakadamyali, Jason A. Burdick, Robert L. Mauck: Nuclear Softening Expedites Interstitial Cell Migration in Fibrous Networks and Dense Connective Tissues. Science Advances 6: eaax5083, Jun 2020.
38. Daphney R Chery, Biao Han, Qing Li, Ying Zhou, Su-Jin Heo, Bryan Kwok, Prashant Chandrasekaran, Chao Wang, Ling Qin, X Lucas Lu, Dehan Kong, Motomi Enomoto-Iwamoto, Robert L Mauck, Lin Han: Early Changes in Cartilage Pericellular Matrix Micromechanobiology Portend the Onset of Post-Traumatic Osteoarthritis. Acta Biomaterialia 111: 267-278, Jul 2020.
39. Daphney R Chery, Biao Han, Ying Zhou, Chao Wang, Sheila M Adams, Prashant Chandrasekaran, Bryan Kwok, Su-Jin Heo, Motomi Enomoto-Iwamoto, X Lucas Lu, Dehan Kong, Renato V Iozzo, David E Birk, Robert L Mauck, Lin Han: Decorin regulates cartilage pericellular matrix micromechanobiology. Matrix Biology 96, February 2021.
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