Stanford



Jeehee Lee

Postdoctoral Scholar, Orthopedic Surgery

Bio

BIO

Dr. Lee is a dedicated researcher in the field of biomedical engineering, driven by a strong desire to help individuals suffering from illnesses. With a particular interest in disease treatment and regeneration, she embarked on her journey in this field. During her doctoral studies, Dr. Lee focused on developing functional biomaterials by leveraging chemical bonding at interfaces. Her expertise in this area led her to successfully create functional medical devices. Currently, as a postdoctoral researcher at Stanford University, Dr. Lee is actively involved in drug screening using a bone-mimicking 3D in vitro cancer model that utilizes biomaterials. Her research is centered around the utilization of biomaterials to develop innovative approaches for tuning the communication between cells and biomaterials. By advancing in the field of biomaterials, Dr. Lee aims to facilitate a better understanding of cell-biomaterial interactions, with the ultimate goal of improving healthcare outcomes. With her passion for cutting-edge research and her commitment to the development of biomaterials, Dr. Lee is dedicated to making significant contributions to the field and shaping the future of healthcare.

INSTITUTE AFFILIATIONS

- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Excellent Research Award, The Korean Society of Industrial and Engineering Chemistry (KSIEC) (2020)
- Dean's list, Ewha Womans University (2013)
- Scholarship, Ewha Womans University (2013-2014)

PROFESSIONAL EDUCATION

- Bachelor of Science, Ewha Womans University (2014)
- Doctor of Philosophy, Korean Advanced Institute of Science & Technology (2021)
- Ph.D., Korea Advanced Institute of Science and Technology , Medical Science and Engineering (2021)
- B.S., Ewha Womans University , Life Science (2014)

STANFORD ADVISORS

- Fan Yang, Postdoctoral Faculty Sponsor

LINKS

- Stem Cell and Biomaterials Engineering Laboratory: https://www.fanyanggroup.com/
- Scholar google: https://scholar.google.com/citations?user=_WDLPvEAAAAJ&hl=ko
- Personal Site: https://jeeheekaist.wixsite.com/jeeheelee

Research & Scholarship

RESEARCH INTERESTS

- Diversity and Identity
- Early Childhood
- Equity in Education
- Motivation
- Science Education

LAB AFFILIATIONS

- Fan Yang, Stem Cell and Biomaterials Engineering (9/1/2022)

Publications

PUBLICATIONS

- **Reversible tissue sticker inspired by chemistry in plant-pathogen relationship** *ACTA BIOMATERIALIA*
  Lee, J., Park, E., Lee, K., Shin, M., Lee, S., Moreno-Villaecija, M., Lee, H.
  2023; 155: 247-257
- **Diatom Silica/Polysaccharide Elastomeric Hydrogels: Adhesion and Interlocking Synergy** *ACS APPLIED MATERIALS & INTERFACES*
  Lee, J., Park, E., Fujisawa, A., Lee, H.
  2021; 13 (18): 21703-21713
- **Diatom Frustule Silica Exhibits Superhydrophilicity and Superhemophilicity** *ACS NANO*
  Lee, J., Lee, H. A., Shin, M., Juang, L., Kastrup, C. J., Go, G., Lee, H.
  2020; 14 (4): 4755-4766
- **rev-Gelatin: A Gelatin with Reverse Thermo-Responsive Behavior Inspired by Candy and Ice Cubes Phase Dynamics** *MACROMOLECULAR BIOSCIENCE*
  Lee, Y., Nam, Y., Kim, K., Jo, S., Park, C., Lee, J., Kim, E., Kim, H., Lee, H.
  2025: e00144
- **Impact of Scaffold Material Choice on Osteosarcoma Phenotype and Drug Responses in 3D.** *Acta biomaterialia*
  Monette, C. E., Lee, J., Peasah, A., Sayles, L., Tai, M., Sweet-Cordero, A., Yang, F.
  2025
- **Incorporating Bone-Derived ECM into Macroporous Microribbon Scaffolds Accelerates Bone Regeneration.** *Advanced healthcare materials*
  Villicana, C., Su, N., Yang, A., Tong, X., Lee, H. P., Ayushman, M., Lee, J., Tai, M., Kim, T., Yang, F.
  2025: e2402138
- **Synergistic effect of ROS-generating polydopamine on drug-induced bone tissue regeneration.** *Nanoscale*
  Han, H., Kang, B., Sharker, S. M., Kashem, T. B., Kim, Y., Lee, J., Park, M., Kim, E., Jung, Y., Lim, J., Ryu, S., Lee, K.
  2024
- **Aspirin synergizes with mineral particle-coated macroporous scaffolds for bone regeneration through immunomodulation.** *Theranostics*
  Su, N., Villicana, C., Zhang, C., Lee, J., Sinha, S., Yang, A., Yang, F.
  2023; 13 (13): 4512-4525
- **Distinguishing between DNA-Loaded Full and Empty Capsids of Adeno-Associated Virus with Atomic Force Microscopy Imaging** *LANGMUIR*
  Nam, Y., Ju, H. H., Lee, J., Lee, D., Kim, Y., Lee, S., Kim, H., Jang, J., Lee, H.
  2023: 6740-6747
- **Silk Fibroin/Tannin/ZnO Nanocomposite Hydrogel with Hemostatic Activities** *GELS*
  Yang, C., Lee, J., Lee, S., Lee, H., Chathuranga, K., Lee, J., Park, W.

2022; 8 (10)

- **ZnO nanoparticle-embedded modified silk fibroin-tannin multifunctional hydrogel** *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*
  Yang, C., Lee, J., Lee, H., Park, W.
  2022; 210: 1-10
- **Antagonistically Functionalized Diatom Biosilica for Bio-Triboelectric Generators** *SMALL*
  Rajabi-Abhari, A., Lee, J., Tabassian, R., Kim, J., Lee, H., Oh, I.
  2022; 18 (20): e2107638
- **Preparation of External Stimulus-Free Gelatin-Catechol Hydrogels with Injectability and Tunable Temperature Responsiveness** *ACS APPLIED MATERIALS & INTERFACES*
  Wu, J., Shin, H., Lee, J., Kim, S., Lee, H.
  2022; 14 (1): 236-244
- **Stretchable and self-healable catechol-chitosan-diatom hydrogel for triboelectric generator and self-powered tremor sensor targeting at Parkinson disease** *NANO ENERGY*
  Kim, J., Lee, J., Lee, H., Oh, I.
  2021; 82
- **Mussel-inspired poly(gamma-gl utamic acid)/nanosilicate composite hydrogels with enhanced mechanical properties, tissue adhesive properties, and skin tissue regeneration** *ACTA BIOMATERIALIA*
  Kim, M., Lee, J., Lee, J., Lee, H., Park, W.
  2021; 123: 254-262
- **Diatom Bio-Silica and Cellulose Nanofibril for Bio-Triboelectric Nanogenerators and Self-Powered Breath Monitoring Masks** *ACS APPLIED MATERIALS & INTERFACES*
  Rajabi-Abhari, A., Kim, J., Lee, J., Tabassian, R., Mahato, M., Youn, H., Lee, H., Oh, I.
  2021; 13 (1): 219-232
- **Localization of Phenolic Compounds at an Air-Solid Interface in Plant Seed Mucilage: A Strategy to Maximize Its Biological Function?** *ACS APPLIED MATERIALS & INTERFACES*
  Lee, K., Kreitschitz, A., Lee, J., Gorb, S. N., Lee, H.
  2020; 12 (38): 42531-42536
- **Skin-attachable and biofriendly chitosan-diatom triboelectric nanogenerator** *NANO ENERGY*
  Kim, J., Lee, J., Go, T., Rajabi-Abhari, A., Mahato, M., Park, J., Lee, H., Oh, I.
  2020; 75
- **A Phenol-Amine Superglue Inspired by Insect Sclerotization Process** *ADVANCED MATERIALS*
  Wang, Y., Jeon, E., Lee, J., Hwang, H., Cho, S., Lee, H.
  2020; 32 (43): e2002118
- **Enzymatically Cross-Linked Poly(gamma-glutamic acid) Hydrogel with Enhanced Tissue Adhesive Property** *ACS BIOMATERIALS SCIENCE & ENGINEERING*
  Kim, M., Lee, J., Lee, J., Lee, H., Park, W.
  2020; 6 (5): 3103-3113
- **Toxicity-Attenuated Glycol Chitosan Adhesive Inspired by Mussel Adhesion Mechanisms** *ADVANCED HEALTHCARE MATERIALS*
  Park, E., Lee, J., Huh, K., Lee, S., Lee, H.
  2019; 8 (14): e1900275
- **Phenolic condensation and facilitation of fluorescent carbon dot formation: a mechanism study** *NANOSCALE*
  Lee, K., Park, E., Lee, H. A., Sugnaux, C., Shin, M., Jeong, C., Lee, J., Messersmith, P. B., Park, S., Lee, H.
  2017; 9 (43): 16596-16601