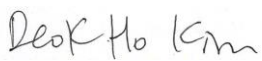


Curriculum Vitae of Deok-Ho Kim
Johns Hopkins University


Deok-Ho Kim, PhD

June 27, 2023

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

2022-present Professor, Department of Biomedical Engineering (Primary), Johns Hopkins University
2022-present Professor, Department of Medicine/Cardiology (Joint), Johns Hopkins University
2022-present Professor, Department of Neurology (Secondary), Johns Hopkins University School of Medicine
2022-present Professor, Dept. of Physical Medicine and Rehabilitation (Secondary), Johns Hopkins University
2022-present Professor, Dept. of Mechanical Engineering (Secondary), Johns Hopkins University

2022-present Director, Center for Microphysiological Systems, Johns Hopkins University
2020-present Associate Researcher, Institute for NanoBioTechnology, Johns Hopkins University
2020-present Member, Center for Cell Dynamics, Johns Hopkins University

Personal Data

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Education and Training

Undergraduate

1996 Exchange Student, Mechanical Engineering, University of Birmingham, Birmingham, UK
1998 B.S., Mechanical Engineering, Pohang University of Science and Technology (POSTECH), Korea;
graduated magna cum laude

Doctoral/Graduate

2000 M.S., Mechanical Engineering, Seoul National University, Seoul, Korea
2010 Ph.D., Biomedical Engineering, The Johns Hopkins University School of Medicine, Baltimore, MD
Primary Mentor: Andre Levchenko

Postdoctoral

2010 Postdoctoral Fellow, Dept. of Biomedical Engineering, The Johns Hopkins University, Baltimore, MD

Professional Experience

1997 Research Intern, Honeywell-Korea Inc., Research and Development Center, Chon-An, Korea
1998 – 2000 Graduate Researcher, Institute of Advanced Machinery and Design, Seoul National University, Korea
2000 – 2005 Research Scientist, Korea Institute of Science and Technology (KIST), Seoul, Korea
2003 – 2004 Visiting Scholar, Swiss Federal Institute of Technology at Zurich (ETHZ), Zurich, Switzerland
2005 – 2010 Graduate Research Assistant, The Johns Hopkins University School of Medicine, Baltimore, MD
2010 Postdoctoral Fellow, Dept. of Biomedical Engineering, The Johns Hopkins University, Baltimore, MD
2010 – 2011 Assistant Research Professor, Dept. of Biomedical Engineering, Johns Hopkins University, Baltimore, MD
2011 – 2017 Assistant Professor, Dept. of Bioengineering, University of Washington, Seattle, WA
2011 – 2019 Faculty member, Institute for Stem Cell and Regenerative Medicine, University of Washington
2011 – 2019 Faculty member, Center for Cardiovascular Biology, University of Washington
2013 – 2019 Affiliated faculty, Molecular Engineering and Sciences Institute, University of Washington
2013 – 2019 Faculty member, Fred Hutchinson / University of Washington Cancer Consortium
2017 – 2019 Associate Professor (with tenure), Bioengineering, University of Washington, Seattle, WA
2019 – 2022 Associate Professor, Dept. of Biomedical Engineering, Johns Hopkins University, Baltimore, MD

PUBLICATIONS:

Total citations = 15366; h-index = 63; i10-index = 157. Source: Google Scholar (6/21/2023)

* - co-first or co-senior authorship

Original Research [OR]

1. **Kim DH**, Kim B, Youn S, Kang HJ. Cellular force sensing for force feedback-based biological cell injection. *Transactions of the KSME, A*. 2003;27(12):2079-2084.
2. Park JY, **Kim DH**, Kim TS, Kim B, Lee KI. Design and performance evaluation of a 3-DOF mobile microrobot for micro manipulation. *Journal of Mechanical Science and Technology*. 2003;17(9):1268-1275.
3. **Kim DH**, Yang KJ, Hong KS, Hahn JO, Lee KI. Smooth shift control of automatic transmissions using a robust adaptive scheme with intelligent supervision. *International Journal of Vehicle Design*. 2003;32(3/4):250-272.
4. **Kim DH**, Kim B, Park JO. Implementation of a piezoresistive MEMS cantilever for nanoscale force measurements in micro/nano robotic applications. *Journal of Mechanical Science and Technology*. 2004;18(5):789-797.
5. **Kim DH**, Kim B, Kang HJ. Development of a piezoelectric polymer-based sensorized microgripper for micromanipulation and microassembly. *Microsystem Technologies*. 2004;10(4):275-280.
6. Haake A, Neild A, **Kim DH**, Ihm JE, Sun Y, Dual J, Ju BK. Manipulation of cells using an ultrasonic pressure field. *Ultrasound in Medicine and Biology*. 2005;31(6):1359-1363.
7. **Kim DH**, Sun Y, Yun S, Lee SH, Kim B. Investigating chorion softening of zebrafish embryos with a microrobotic force sensing system. *Journal of Biomechanics*. 2005;38(6):1359-1363.
8. Kim P, **Kim DH**, Kim B, Choi SK, Lee SH, Khademhosseini A, Langer R, Suh KY. Fabrication of nanostructures of polyethylene glycol for applications to protein adsorption and cell adhesion. *Nanotechnology*. 2005;16:2420-2426.
9. **Kim DH**, Lee MG, Kim B, Sun Y. A superelastic alloy microgripper with embedded electromagnetic actuators and piezoelectric force sensors: a numerical and experimental study. *Smart Materials and Structures*. 2005;14:1265-1272.
10. Kim B, **Kim DH**, Jung JH, Park JO. A biomimetic undulatory tadpole robot using ionic polymer-metal composite actuators. *Smart Materials and Structures*. 2005;14:1579-1585.
11. Park JY, Kim SM, **Kim DH**, Kim B, Kwon SJ, Park JO, Lee KI. Identification and control of a sensorized microgripper for micromanipulation. *IEEE/ASME Transactions on Mechatronics*. 2005;10(5):601-606.
12. **Kim DH**, Kim B, Ju BK, Park JO. State of the art in nano-biomanipulation technologies. *Journal of Control, Automation and Systems Engineering*. 2005;11(4):353-362.
13. Kim B, Kang HJ, **Kim DH**, Park JO. A flexible microassembly system based on hybrid manipulation scheme for manufacturing photonics components. *International Journal of Advanced Manufacturing Technology*. 2006;28:379-386.
14. Yoon ES, Singh RA, Kong HS, Kim B, **Kim DH**, Jeong HE, Suh KY. Tribological properties of bio-mimetic nano-patterned polymeric surfaces on silicon wafer. *Tribology Letters*. 2006;21:31-37. ([Surface Engineering Best paper Award from the Society of Tribologists and Lubrication Engineers](#))
15. **Kim DH**, Hong KS, Yi KS. Driving load estimation with the use of estimated turbine torque. *JSME International Journal Series C*. 2006;49:163-171.
16. **Kim DH**, Hwang CN, Sun Y, Kim B, Lee SH, Nelson B. Mechanical analysis of chorion softening in pre-hatching stages of zebrafish embryos. *IEEE Transactions on Nanobioscience*. 2006;5(2):89-94.
17. **Kim DH**, Kim P, Song IS, Cha JM, Lee SH, Kim B, Suh KY. Guided three-dimensional growth of functional cardiomyocytes on polyethylene glycol nanostructures. *Langmuir*. 2006;22(12):5419-5426.
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19. **Kim DH**, Park JY, Suh KY, Kim P, Choi SK, Ryu SC, Park SH, Lee SH, Kim B. Fabrication of patterned micromuscles with high activity for powering biohybrid microdevices. *Sensors and Actuators B: Chemical*. 2006;117:391-400.
20. Suh KY, Jeong HE, **Kim DH**, Singh AR, Yoon ES. Capillarity-assisted fabrication of nanostructures using less permeable mold for nanotribological applications. *Journal of Applied Physics*. 2006;100:034303.

21. **Kim DH**, Park JY, Kim MK, Hong KS. AFM-based identification of the dynamic properties of globular proteins: simulation study. *Journal of Mechanical Science and Technology*. 2008;22(11):2203-2212.
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23. *Kim DH, Wong PK, Park JY, Levchenko A, *Sun Y. Microengineered platforms for cell mechanobiology. *Annual Review of Biomedical Engineering*. 2009;11:203-233.
24. **Kim DH**, Han K, Gupta K, Kwon K, Suh KY, Levchenko A. Mechanosensitivity of fibroblast cell shape and movement to anisotropic substratum topography gradients. *Biomaterials*. 2009;30:5433-5444.
25. **Kim DH**, Seo CH, Han K, Kwon K, Levchenko A, Suh KY. Guided cell migration on microtextured substrates with variable local density and anisotropy. *Advanced Functional Materials*. 2009;19:1579-1586. **(Featured as a frontispiece)**
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30. **Kim DH**, Lee HJ, Lee YK, *Nam JM, *Levchenko A. Biomimetic nanopatterns as enabling tools for analysis and control of live cells. *Advanced Materials*. 2010;22:4551-4566.
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33. Kim JK, Hwang I, Britain DM, Chung TD, *Sun Y, ***Kim DH**. Microfluidic approaches for gene delivery and gene therapy. *Lab on a Chip*. 2011;11:3941-3948.
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48. Kim HN, Jiao A, Hwang N, Kim MS, Kang DH, **Kim DH**, Suh KY. Nanotopography-guided tissue engineering and regenerative medicine. *Advanced Drug Delivery Reviews*. 2013;65:536-558. **(Featured as a Front Cover)**
49. Tsui JH, Lee WH, Pun SH, ***Kim JK**, ***Kim DH**. Microfluidics-assisted in vitro drug screening and carrier production. *Advanced Drug Delivery Reviews*. 2013;65:1575-1588.
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56. Nemeth C, Janebodin K, Yuan AE, Dennis JE, ***Reyes M**, ***Kim DH**. Enhanced chondrogenic differentiation of dental pulp stem cells by nanopatterned PEG-GelMA-HA hydrogels. *Tissue Engineering Part A*. 2014;20:2817-2829.
57. Ahn EH, Kim YH, Gupta K, An SS, Lee SW, Kwak M, Suh KY, ***Kim DH**, ***Levchenko A**. Spatial control of adult stem cell fate using nanotopographic cues. *Biomaterials*. 2014;35:2401-2410. **(Faculty of 1000 Biology)**
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64. Gupta K, Afzal J, Suhail Y, Ahn EH, Goyal R, Hubbi M, Hussaini Q, Ellison DE, Goyal J, Nacev B, **Kim DH**, Lee J, Frankel S, Gray K, Bankoti R, Chien AJ, Levchenko A. Control of the interface between heterotypic cell populations reveals the mechanism of intercellular transfer of signaling proteins. *Integrative Biology*. 2015;7:364-372.
65. Jeon H*, Tsui JH*, Jang SI*, Lee JH, Mun K, Park S, *Boo YC, ***Kim DH**. Combined effects of substrate topography and stiffness on endothelial cytokines and chemokines secretion. *ACS Applied Materials and Interfaces*. 2015;7:4525-4532.
66. Hyun YS, Lee J, Kim HJ, Koo H, Smith AST, **Kim DH**, Choi BO, Chung KW. Charcot-Marie-Tooth disease type 4H resulting from compound heterozygous mutations in FGD4 from non-consanguineous Korean families. *Annals of Human Genetics*. 2015;79:460-469.
67. Macadangdang J, Guan X, Smith AST, Lucero R, Czerniecki S, Childers MK, Mack DL, ***Kim DH**. Nanopatterned human iPSC-based model of a dystrophin-null cardiomyopathic phenotype. *Cellular and Molecular Bioengineering*. 2015;8:320-332. **(BMES-CMBE Young Innovator Special Issue)**
68. Kshitiz, Afzal J, Kim SY, ***Kim DH**. A nanotopography approach for studying the structure-function relationships of cells and tissues. *Cell Adhesion and Migration*. 2015;9:300-307.
69. Nam KH, Smith AST, Lone S, Kwon S, ***Kim DH**. Biomimetic 3D tissue models for advanced high-throughput drug screening. *Journal of Laboratory Automation*. 2015;20:201-215.
70. Tatman PD, Gerull W, Sweeney-Easter S, Davis JJ, *Gee A, ***Kim DH**. Multiscale biofabrication of articular cartilage: bioinspired and biomimetic approaches. *Tissue Engineering, Part B*. 2015;21:543-559.
71. Park HJ, Hong YB, Choi YC, Lee J, Kim EJ, Lee JS, Mo WM, Ki SM, Kim HI, Kim HJ, Hyun YS, Hong HD, Nam KS, Jung SC, Kim SB, Kim SH, **Kim DH**, Oh KW, Kim S, Yoo J, Lee JE, Chung KW, Choi BO. ADSSL1 mutation relevant to autosomal recessive adolescent-onset distal myopathy. *Annals of Neurology*. 2016;79:231-243.
72. Yang HS, Lee B, Tsui JH, Macadangdang J, Jang SY, *Im SG, ***Kim DH**. Electroconductive nanopatterned substrates for enhanced myogenic differentiation and maturation. *Advanced Healthcare Materials*. 2016;5:137-145. **(Featured as a Front Cover)**
73. Kong WH, Sung DK, Kim H, Yang JA, Ieronimakis N, Kim KS, Lee J, **Kim DH**, Yun SH, Hahn SK. Self-adjuvanted hyaluronate-antigenic peptide conjugate for transdermal treatment of muscular dystrophy. *Biomaterials*. 2016;81:93-103.
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75. Mengsteab P, Uto K, Smith AST, Frankel S, Fisher E, Nawas Z, Macadangdang J, Ebara M, ***Kim DH**. Spatiotemporal control of cardiac anisotropy using dynamic nanotopographic cues. *Biomaterials*. 2016;86:1-10.
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77. Nam KH*, Kim P*, Wood DK, Kwon S, *Provenzano PP, ***Kim DH**. Multiscale cues drive collective cell migration. *Scientific Reports*. 2016;6:29749.
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79. Park J, **Kim DH**, Kim HN, Wang CJ, Kwak MK, Hur E, Suh KY, An SS, Levchenko A. Directed migration of cancer cells by the graded texture of the underlying matrix. *Nature Materials*. 2016;15:792-801, 2016.
80. Tatman PD, Muhonen EG, Wickers S, Gee AO, *Kim ES, ***Kim DH**. Self-assembling peptides for stem cell and tissue engineering. *Biomaterials Science*. 2016;4:543-554. **(Featured as an Inside Front Cover)**
81. Mandrycky C, Wang J, *Kim K, ***Kim DH**. 3D Bioprinting for engineering complex tissues. *Biotechnology Advances*. 2016;34:422-434.

82. Smith AST, Davis J, Lee GS, Mack DL, ***Kim DH**. Muscular dystrophy in a dish: engineered human skeletal muscle mimetics for disease modeling and drug discovery. *Drug Discovery Today*. 2016;97:153-161.
83. Stempien-Otero A, **Kim DH**, Davis J. Molecular networks underlying myofibroblast fate and fibrosis. *Journal of Molecular and Cellular Cardiology*. 2016;97:153-161.
84. Penland N*, Choi EP*, Perla M, Park J, ***Kim DH**. Facile fabrication of tissue-engineered constructs using nanopatterned cell sheets and magnetic levitation. *Nanotechnology*. 2017;28:075103. **(Press released)**
85. Ray A, Lee O, Win Z, Edwards RM, Alford PW, **Kim DH**, Provenzano PP. Anisotropic forces from spatially constrained focal adhesions mediate contact guidance directed cell migration. *Nature Communications*. 2017;8:14923.
86. Smith AST, Yoo H, Yi H, Ahn EH, Lee J, Shao G, Nagornyak E, Laflamme MA, Murry CE, ***Kim DH**. Micro- and nano-patterned conductive graphene-PEG hybrid scaffolds for cardiac tissue engineering. *Chemical Communications*. 2017;53:7412-7415. **(Emerging Investigator Special Issue)**
87. Park JS, Holmes WR, Lee SH, Kim HN, **Kim DH**, Kwak MK, Wang CJ, Edelstein-Keshet L, Levchenko A. Mechanochemical feedback underlies coexistence of qualitatively distinct cell polarity patterns within diverse cell populations. *Proceedings of the National Academy of Sciences USA*. 2017;114:E5750-E5759.
88. Kim JH, Ko SY, Lee JH, **Kim DH**, Yun JH. Evaluation of the periodontal regenerative properties of patterned human periodontal ligament stem cell sheets. *Journal of Periodontal and Implant Science*. 2017;47:402-415.
89. Tsui JH, Janebodin K, Ieronimakis N, Yama D, Yang HS, Chavanachai R, Hays AL, Lee HS, Reyes M, ***Kim DH**. Harnessing sphingosine-1-phosphate signaling and nanotopographical cues to regulate skeletal muscle maturation and vascularization. *ACS Nano*. 2017;11:11954-11968.
90. Uto K, Tsui JH, ***DeForest C**, ***Kim DH**. Dynamically tunable cell culture platforms for tissue engineering and mechanobiology. *Progress in Polymer Science*. 2017;65:53-82.
91. Long J, Kim H, Kim D, ***Lee JB**, ***Kim DH**. A biomaterial approach to cell reprogramming and differentiation. *Journal of Materials Chemistry B*. 2017;5:2375-2389. **(Featured as a Front Cover)**
92. Smith AST, Macadangdang J, Leung W, Laflamme MA, ***Kim DH**. Human iPSC-derived cardiomyocytes and tissue engineering strategies for disease modeling and drug screening. *Biotechnology Advances*. 2017;35:77-94.
93. Chaterji S, Ahn EH, ***Kim DH**. CRISPR genome engineering for human pluripotent stem cell research. *Theranostics*. 2017;7:4445-4469.
94. Le V, Lee JH, Chaterji S, Spencer A, Liu Y, Kim P, Yeh H, **Kim DH**, Baker AB. Syndecan-1 in mechanosensing of nanotopological cues in engineered materials. *Biomaterials*. 2018;155:13-24.
95. Uto K, Aoyagi T, **Kim DH**, Ebara M. Free-standing nanopatterned poly(e-caprolactone) thin films as a multifunctional scaffold. *IEEE Transactions on Nanotechnology*. 2018;17:389-392.
96. Jiao A, Moerk CT, Penland N, Perla M, Kim J, Smith AST, Murry CE, ***Kim DH**. Regulation of skeletal myotube formation and alignment by nanotopographically controlled cell-secreted extracellular matrix. *Journal of Biomedical Materials Research Part A*. 2018;106:1543-1551.
97. ***Kim DH**, Ewald AJ, Park JS, Kshitiz, Kwak MK, Gray RS, Su CY, Seo J, ***An SS**, ***Levchenko A**. Biomechanical interplay between anisotropic re-organization of cells and the surrounding matrix underlies transition to invasive cancer spread. *Scientific Reports*. 2018;8:14210.
98. Kim SJ, Tatman PD, Song DH, Gee AO, **Kim DH**, Kim SJ. Nanotopographic cues and stiffness control of tendon-derived stem cells from diverse conditions. *International Journal of Nanomedicine*. 2018;13:7217-7227.
99. Tsui JH, Yama DMP, Ostrovsky-Snyder NA, Larson JD, ***Murphy AR**, ***Kim DH**. Conductive silk-polypyrrole composite scaffolds with bioinspired nanotopographic cues for cardiac tissue engineering. *Journal of Materials Chemistry B*. 2018;6:7185-7196. **(Featured as a Front Cover in the 2018 Emerging Investigator Special Issue)**
100. Yang KC, Breitbart A, De Lange WJ, Hofsteen P, Futakuchi-Tsuchida A, Xu J, Schopf C, Razumova MV, Jiao A, Boucek R, Pabon L, Reinecke H, **Kim DH**, Ralphe JC, Regnier M, Murry CE. Novel adult-onset systolic cardiomyopathy due to MYH7 E848G mutation in patient-derived induced pluripotent stem cells. *Journal of the American College of Cardiology: Basic to Translational Science*. 2018;3:728-740.
101. Kim TJ, Lei L, Seong JH, Suh JS, Jang YK, Jung SH, Sun J, ***Kim DH**, ***Wang Y**. Matrix rigidity-dependent regulation of Ca²⁺ at plasma membrane microdomains by FAK visualized by fluorescence resonance energy transfer. *Advanced Science*. 2018;6(4):1801290.
102. Kim P, Chu N, ***Davis J**, ***Kim DH**. Mechanoregulation of myofibroblast fate and cardiac fibrosis. *Advanced*

103. Park J, **Kim DH**, Levchenko A. Topotaxis: a new mechanism of directed cell migration in topographic gradients of ECM. *Biophysical Journal*. 2018;114:1257-1263.
104. Tripathy N, ***Kim DH**. Metal oxide modified ZnO nanomaterials for biosensor applications. *Nano Convergence*. 2018;5:27.
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 47. Yoon ES, Singh AR, Kong HS, Kim B, **Kim DH**, Suh KY, Jeong HE. "Tribological properties of nano/micro-patterned PMMA surfaces on silicon wafer," *ASME World Tribology Congress*, Washington D.C. USA, Sep. 12-16, 2005.
 48. Park SH, Ryu SC, **Kim DH**, Kim B. "Contractile force measurements of cardiac myocytes using a micromanipulation system," *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Alberta, Canada, Aug. 2-6, 2005.
 49. Ryu SC, Park SH, **Kim DH**, Kim B. "Comparative quantification of contractile force of cardiac muscles using a micromechanical force sensing system," *International Conference on Control, Automation and System*, 2005. (**Best Presentation Award**)
 50. Kim P, **Kim DH**, Kim B, Choi S, Lee SH, Khademhosseini A, Langer R, Suh KY. "Fabrication of nanostructures

of PEG and its application”, *KSME Annual Spring Meetings*, 2005.

51. **Kim DH**, Suh KY, Kim P, Choi SK, Lee SH, Kim B. “Micropatterning of cardiomyocytes using adhesion-resistant polymeric microstructures,” *The 13th International Conference on Solid State Sensors, Actuators and Microsystems*, pp.1664-1667, Seoul, Korea, June 5-9, 2005.
52. **Kim DH**, Park JY, Suh KY, Kim P, Choi SK, Lee SH, Kim B. “Three-dimensionally patterned cardiomyocytes with high activity for powering bio-hybrid microdevices,” *the 3rd Annual International IEEE Conference on Microtechnologies in Medicine and Biology, Hawaii*, pp.233-236, USA, May 12-15, 2005.
53. Suh KY, Pang C, Jang KJ, Kim HN, Jiao A, Hwang NS, Kim MS, Kang DH, **Kim DH**. “Biomimetic approaches for engineered organ chips and skin electronics for *in vitro* diagnostics,” *Proceedings of the SPIE: Nanosystems in Engineering and Medicine*, Vol. 8548, article ID: 854831, pp. 9, 2012.
54. Jang J, Ko J, Cho DW, Jun M, **Kim DH**. “Elastin-sprayed tubular scaffolds with microstructures and nanotextures for vascular tissue engineering,” *Proceedings of the ASME 2013 Summer Bioengineering Conference*, Sunriver, Oregon, USA, June 26-29, 2013.
55. Mengsteab PY, Uto K, Smith AST, Frankel S, Fisher E, Nawas Z, Ding H, Ebara M, **Kim DH**. “Dynamically tunable nanotopographical surfaces for guided cardiomyocyte monolayer contraction,” *The 9th International Conference on Miniaturized Systems for Chemistry and Life Science (microTAS)*, Gyeongju, Korea, Oct. 25-29, 2015.
56. Penland N, Perla M, Jiao A, **Kim DH**. “Towards high-throughput 3D tissue fabrication using cell sheet engineering and magnetic levitation,” *The 9th International Conference on Miniaturized Systems for Chemistry and Life Science (microTAS)*, Gyeongju, Korea, Oct. 25-29, 2015.
57. Kim P, Choi YS, Lee DW, **Kim DH**. “An integrated microgroove-micropost platform for biomechanical characterization of cardiomyocytes,” *The 9th International Conference on Miniaturized Systems for Chemistry and Life Science (microTAS)*, Gyeongju, Korea, Oct. 25-29, 2015.

Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles [GL]

1. **Kim DH**. Expert Review: Nanoparticle Assembly Technology, in KOSEN21 published by Korean Institute of Science and Technology Information (“The Global Network of Korean Scientists and Engineers”), July, 2003.
2. **Kim DH**. Expert Review: Survey of Nanorobotic Manipulation Technology, in KOSEN21 published by Korean Institute of Science and Technology Information (“The Global Network of Korean Scientists and Engineers”), March, 2003.

Editorials [ED]

1. **Kim DH**, Sun Y. Micro- and nanoengineered tools as emerging platforms for cell mechanobiology. *IET Micro and Nano Letters*. 2011;6:289.
2. Shapira A, **Kim DH**, Dvir T. Advanced micro and nanofabrication technologies in tissue engineering. *Biofabrication*. 2014;6:020301.
3. Huh D, **Kim DH**. Microengineered cell- and tissue-based assays for drug screening and toxicology applications. *Journal of Laboratory Automation*. 2015;20:79-81.
4. **Kim DH**, Khademhosseini A, Lee LP. A tribute to Professor Kahp-Yang Suh. *Advanced Healthcare Materials*. 2016;5:8-9.
5. Chen W, **Kim DH**. Bio-interfaces for immune-engineering. *Advanced Healthcare Materials*. 2019;8:1900098.
6. Miklas J, Salick M, **Kim DH**. High-throughput contractility assay for human stem cell-derived cardiomyocytes: one beat closer to tracking heart muscle dynamics. *Circulation Research*. 2019;124(8):1146-1148.
7. Hur SC, **Kim DH**. Engineering innovations for fundamental biology and translational medicine. *SLAS Technol*. 2019 Oct;24(5):455-456.

Research Letters/White Papers/Brief Reports [RL]

1. Lee KI, Shim YB, Park JY, **Kim DH**, Kim CS, Hur YK. Real-time control simulation of position tracking control system of hydraulic cylinder using servo valve. *ICASE Magazine*. 1999;5(1):35-40.
2. **Kim DH**, Shin BK, Yi KS, Lee KI. Observer-based estimation of driving resistance load for vehicle longitudinal motion control. Research Reports of the Institute of Advanced Machinery and Design, Seoul National University. 1999;7(4):101-109.
3. Shin BK, **Kim DH**, Hahn JO, Lee KI. Adaptive learning control of shift transient for automotive power trains.

Research Reports of the Institute of Advanced Machinery and Design, Seoul National University. 2000;8(2):142-152.

4. **Kim DH**, Kim K, Kim TS, Park JO. State-of-the art review of microactuators and its applications to microrobot developments. *ICASE Magazine*. 2001;7(1):42-51.
5. **Kim DH**. State-of-the art review and technological roadmap: micro/nano-robotic systems. Chapter.7, 2001:241-276, funded by Ministry of Commerce, Industry, and Energy, Korea.
6. Kim K, **Kim DH**. New paradigm of the next generation robot technology: micro-nanorobot technology. *Monthly Mechanical Engineering*. 2002 October;15-24.
7. **Kim DH**. Recent trends and perspective of microsystem technology in MHS 2001. Journal of the KSME. 2002;41(1):104-108.
8. **Kim DH**. Meeting Report: IEEE/ASME AIM2003, in KOSEN21 published by Korean Institute of Science and Technology Information ("The Global Network of Korean Scientists and Engineers"), December, 2003.
9. Kim K, **Kim DH**. State-of the art review of micro-nano manipulation. *ICASE Magazine*. 2003;9(2):40-44.
10. Kim K, **Kim DH**. Micro-nano robot technology. *Invited Paper; Mechanical Automation Technology*, pp.8-20, February, 2003.
11. **Kim DH**. New recent trends and perspective of microfactories in IWMP 2002. Journal of the KSME. 2003;43(1):104-107.
12. **Kim DH**. Meeting Report: IEEE MEMS2004, in KOSEN21 published by Korean Institute of Science and Technology Information ("The Global Network of Korean Scientists and Engineers"), March, 2004.
13. **Kim DH**. Meeting Report: IEEE/RSJ IROS2003, in KOSEN21 published by Korean Institute of Science and Technology Information ("The Global Network of Korean Scientists and Engineers"), February, 2004.
14. **Kim DH**. Essay: Institute for Robotics and Intelligent Systems (IRIS), Swiss Federal Institute of Technology at Zurich. Journal of the KSME. 2005;45(7):22-23.
15. Kim DE, **Kim DH**. Cardiac tissue engineering: advances and challenges. *BioWave*. 2007;9:21. (*invited*)
16. **Kim DH**. Meeting Report: Keystone Symposium on Nanotechnology in Biomedicine. *BioWave*. 2007;9:10.
17. Jeong JH, Kim CH, **Kim DH**. Surgical Engineering. *BioWave*. 2007;9:6.

FUNDING

EXTRAMURAL Funding

Research Extramural Funding – Current

| | |
|---------------------|--|
| 11/15/16 - 10/31/23 | Tissue engineered human neuromuscular junctions for modeling axonal neuropathy R01 NS094388 NIH/NINDS \$1,093,750 Role: PI, 12.5% |
| 2/1/17 - 1/31/23 | A nanopatterned MEA-based functional phenotyping assay for drug-induced cardiotoxicity screening R01 HL94388 NIH/NHLBI \$1,250,000 Role: PI, 15% |
| 9/6/18 - 8/31/23 | Mutagenesis and migration in glioblastoma cells R21 CA220111 NIH/NCI \$248,173 PI: Ahn E Role: Co-I, 4.2% |
| 9/24/18 - 6/30/23 | A human iPSC-based 3D microphysiological system for modeling cardiac dysfunction in microgravity |

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| | UH3 TR003519 NIH/NCATS \$2,543,859 Role: PI, 8% |
| 5/15/19 - 4/30/23 | Disease modeling and phenotypic drug screening for dystrophic cardiomyopathy R01 HL146436 NIH/NHLBI \$1,698,070 Role: PI, 15% |
| 3/1/20 - 12/31/22 | Exosome-mediated targeted delivery for peripheral neuropathy H19C0642 Ministry of Health and Welfare, South Korea \$384,840 PI: Park JO Role: Subaward PI, 8.3% |
| 6/5/20 - 5/31/23 | Bioengineering mature human pluripotent stem cell-derived cardiomyocytes for predictive drug-induced toxicity testing R44 HL149566 NIH/NHLBI \$1,725,000 PI: Geisse N Role: Subaward PI, 3.3% |
| 9/1/20 - 7/31/25 | Engineering clinical trials on a chip for dystrophin-deficient muscular dystrophy UH3 TR003271 NIH/NCATS/NIAMS \$2,500,000 MPI: Kim DH, Kass D Role: contact PI, 15% |
| 10/1/20 - 9/30/23 | Using human stem cell-derived vascular, neural and cardiac 3D tissues to determine countermeasures for radiation 20-20TSRAD-2-0007 NASA \$3,300,000 PI: Gerecht S Role: Co-I, 5% |
| 2/1/21 - 1/31/25 | Modeling of human HSV infection: development of immune-competent 3D skin-on-chip with vascular perfusion R01 AI143773 NIH/NIAID \$1,901,504 PI: Zhu J Role: Subaward PI, 5% |
| 3/1/21 - 2/28/23 | Biofabricated 3-D skin model for antiviral drug discovery against human HSV infection U18 TR003208 NIH/NCATS \$800,000 PI: Zhu J Role: Subaward PI, 2% |
| 8/1/21 - 7/31/25 | Transcriptomic entropy to quantify maturation of PSC-derived cardiomyocytes |

R01 HL156947
NIH/NHLBI
\$1,779,356
MPI: Kwon C, Kim DH
Role: MPI, 5%

4/1/22 - 3/31/25 Prolonged electrophysiological effects of the cardiac innate immune response to RNA virus
AHA 965158
American Heart Association
\$999,788
PI: O'Rourke, B
Role: Co-I, 5%

7/1/22 - 6/30/26 Microphysiological model of human cardiac sympathetic innervation
R01 HL157594
NIH/NHLBI
\$2,077,337
MPI: Kim DH, Kwon C
Role: contact PI, 15%

Research Extramural Funding – Pending

12/1/22 - 11/30/24 High-throughput nanoIEA-based assay for screening immune cell-vascular interactions
R21 AI168886
NIH/NIAID
\$275,000
MPI: Lee E, Kim DH
Role: MPI, 4%

7/1/23 - 6/30/28 High-throughput neurovascular-unit-on-a-chip with OASIS for modeling Parkinson's disease
R01NS133965
NIH/NINDS
\$2,493,055
MPI: Kim DH, Lee G
Role: contact PI, 15%

7/1/23 - 6/30/28 Modulating fibroblast function and the ECM to abrogate epithelial plasticity in COPD
R01HL170040
NIH/NHLBI
\$2,473,758
MPI: Sidhaye V, Kim DH
Role: MPI, 10%

7/1/23 - 6/30/28 Engineered biomimetic collective cancer invasion models for screening chemotherapeutic agents
R01CA279948
NIH/NCI
\$1,250,000
MPI: Ahn E, Kim DH
Role: MPI, 10%

Research Extramural Funding – Previous

5/1/11 – 6/31/13 A nanoengineered human cardiac tissue engineering patch for myocardial regeneration
Perkins Coie Award for Discovery
\$20,000
Role: PI

7/1/12 – 6/31/13 Engineered human heart tissue-based drug screening platform

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| | <p>Coulter Translational Research Award \$100,000 Role: PI</p> |
| 1/1/13 - 2/31/16 | <p>A nanoengineered human iPSC-derived cardiac patch for heart repair 13SDG14560076 American Heart Association, National Scientist Development Grant \$277,200 Role: PI</p> |
| 2/1/13 – 1/31/16 | <p>Functional restoration of dystrophic muscle using bioengineered cell patches MDA 255907 Muscular Dystrophy Association \$351,000 Role: PI</p> |
| 7/1/13 – 6/31/16 | <p>Role of extracellular matrix nanotopographic cues in cell polarization and directed migration Young Investigator Award Korean-American Scientists and Engineers Association \$10,000 Role: PI</p> |
| 9/1/13 – 12/31/15 | <p>Nano-mechanical matrix guidance cues and Rho signaling promotes cancer cell migration P30 CA015704 NIH/NCI \$95,822 PI: Corey L Role: Subaward PI</p> |
| 9/1/13 – 8/31/16 | <p>MRI: Acquisition of a nanotopography capability at the University of Washington microfabrication facility Major Research Instrumentation Grant 1337840 National Science Foundation \$1,030,000 PI: Böhringer K Role: Co-PI</p> |
| 10/1/13 – 3/31/14 | <p>A graphene-based bioreactor for maturation of human pluripotent stem cell-derived cardiomyocytes Ministry of Trade, Industry and Energy (MOTIE), South Korea \$30,000 Role: Co-PI</p> |
| 11/1/13 – 10/31/17 | <p>Human heart tissue-based drug toxicity screening system International Collaborative Research Grant Ministry of Trade, Industry and Energy (MOTIE), South Korea \$4,000,000 PI: Lee D Role: Subaward PI</p> |
| 1/1/14 – 12/31/14 | <p>Integrated multielectrode-array nanodevice for cardiotoxicity screening Proof of Concept Grant Washington State Life Science Discovery Fund \$250,000 Role: PI</p> |
| 4/1/14 – 3/31/16 | <p>Nanopatterned 3D vascularized functional muscle patch</p> |

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| | R21 AR064395 NIH/NIAMS \$242,000 Role: PI |
| 8/1/14 – 7/31/17 | Regulation of cell migration and Src signaling by phosphotyrosine-dependent protein turnover R01 GM109463 NIH/NIGMS \$1,050,000 PI: Cooper J Role: Co-I |
| 7/1/15 – 6/31/17 | Nano-engineered hybrid scaffolds for cartilage tissue regeneration OREF New Investigator Grant \$50,000 PI: Gee A Role: Co-I |
| 9/1/16 – 8/31/19 | MRI: Acquisition of a nanoscribe 3D laser lithography system Major Research Instrumentation Grant 1624513 National Science Foundation \$436,543 PI: Boechler N Role: Co-PI |
| 9/30/16 – 1/31/19 | Injectable myocardial matrix-graphene composite hydrogels for functional cardiac tissue engineering R21 EB020132 NIH/NIBIB \$275,000 Role: PI |
| 1/1/17– 12/31/18 | Acquisition of a Lumos, 48 well MEA optogenetic stimulator Seattle Foundation \$16,000 Role: PI |
| 7/1/17 – 7/1/18 | Engineering heart tissue microenvironment Gree Foundation \$50,000 Role: Co-PI |
| 7/15/17 - 4/30/20 | Syndecan-1 in mechanosensing of engineered microenvironments R21 EB023551 NIH/NIBIB \$297,585 PI: Baker A Role: Co-I, 3% |
| 9/21/17- 6/20/18 | A nanopatterned interdigitated electrode array device for anti-migratory cancer drug screening R43 CA221659 NIH/NCI \$225,000 PI: Geisse N Role: Subaward PI |
| 7/1/18 - 6/30/20 | Visualization and bioengineering of cardiomyocyte epigenetics AHA 18IPA34110210 |

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| | American Heart Association \$180,000 PI: Zhang Y Role: Co-I, 4.2% |
| 7/1/18 - 12/31/21 | Development of anti-migratory breast cancer drug screening system P0004638 Ministry of Trade, Industry and Energy (MOTIE), South Korea \$300,000 PI: Lee YJ Role: Subaward PI, 10% |
| 7/1/18 - 6/30/22 | Dynamics of collective cell migration on curved surfaces HFSP RGP0038 Human Frontier Science Program \$300,000 PI: Lim CT Role: Co-PI, 4.2% |
| 1/1/21 - 12/31/21 | Protein Kinase G activators: CHIPing away at cardiac amyloidosis Pfizer \$75,000 PI: Ranek M Role: Co-PI, 2% |
| 1/1/21 - 12/31/21 | JHU Cardiovascular stem cell and disease modeling program Magic That Matters Foundation \$100,000 PI: Kwon C Role: Co-PI |

INTRAMURAL Funding

Research Intramural Funding – Previous

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|-------------------|--|
| 1/1/13 – 12/31/13 | Software development for arrhythmia detection in engineered human heart tissues UW Center for Commercialization, Commercialization Gap Fund \$50,000 Role: PI |
| 3/1/13 – 2/28/14 | Role of nanotopography on tendon cell structure and function UW Orthopedics Faculty Research Grant \$15,000 PI: Gee A Role: Co-I |
| 11/1/13 – 6/30/15 | Fabrication of a next generation integrated MEA-nanodevice for drug-induced cardiotoxicity screening Microfabrication Commercialization Grant Washington Research Foundation \$31,500 Role: Co-I |
| 8/1/14 – 1/31/16 | Investigation of topically delivered sphingosine 1-phosphate as a potential therapeutic for Duchenne muscular dystrophy UW Royalty Research Fund \$40,000 Role: PI |

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| 6/1/16–5/31/17 | Preclinical electrophysiological screening for enhancing cardiac cell therapy UW ITHS \$50,000 Role: PI |
| 7/1/16 – 6/31/17 | NanoMEA: a predictive cardiotoxicity screening assay UW CoMotion Innovation Fund \$50,000 Role: PI |
| 7/1/17 – 6/30/18 | Visualization of DNA and histone epigenetic regulations in cardiomyocyte differentiation, maturation, and regeneration at single cell resolution UW ISCRM Innovation Pilot Award \$50,000 PI: Zhang Y Role: Co-I |

CLINICAL ACTIVITIES

N/A

EDUCATIONAL ACTIVITIES

Educational Focus:

I focus on offering individually tailored programs that highlight multi-disciplinary research and training for graduate students and postdoctoral scientists in their pursuit of academic career in science and engineering. Through an integrated and advanced curriculum, students and postdoctoral scientists in my training program will gain the principles behind quantitative, cutting-edge engineering approaches and apply these approaches to address important biomedical questions in their research. At Hopkins, I have been establishing Microphysiological Systems as a new focus area and track in Biomedical Engineering. I developed and taught a new course on the Microphysiological Systems for graduate students and upper level undergraduates.

Teaching

Classroom instruction

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| Fall 2007 | Teaching Assistant, JHU BME 580.111, Freshman Modeling and Design, 13 undergraduate students |
| Spring 2008 | Teaching Assistant, JHU BME 580.223, Biological Models and Simulations, 112 undergraduate students |
| Fall 2012 | Instructor, UW BIOEN 498/599, <i>Tissue Engineering</i> , 11 undergraduate students and 7 graduate students |
| Fall 2013 | Instructor, UW BIOEN 498/599, <i>Tissue Engineering</i> , 11 undergraduate students and 10 graduate students |
| Spring 2014 | Instructor, UW BIOEN 498/599, <i>Engineering Cell Biology</i> , 16 undergraduate students and 1 graduate student |
| Fall 2014 | Instructor, UW BIOEN 486/586, <i>Tissue Engineering</i> , 17 undergraduate students and 7 graduate students |
| Winter 2015 | Instructor, UW BIOEN 509, <i>Bioengineering Department Seminar</i> , 24 graduate students |
| Spring 2015 | Instructor, UW BIOEN 498/599, <i>Engineering Cell Biology</i> , 7 undergraduate students and 2 graduate students |
| Spring 2015 | Instructor, UW BIOEN 498/599, <i>Bioengineering Department Seminar</i> , 24 graduate students |
| Fall 2015 | Instructor, UW BIOEN 486/586, <i>Tissue Engineering</i> , 7 undergraduate students and 8 graduate students |
| Spring 2016 | Instructor, UW BIOEN 498/599, <i>Engineering Cell Biology</i> , 22 undergraduate students and 2 graduate students |
| Fall 2016 | Instructor, UW BIOEN 498/599, <i>Engineering Cell Biology</i> , 6 undergraduate students and 7 graduate students |
| Winter 2017 | Instructor, UW BIOEN 486/586, <i>Tissue Engineering</i> , 9 undergraduate students and 12 graduate students |
| Fall 2017 | Instructor, UW BIOEN 498/599, <i>Engineering Cell Biology</i> , 4 undergraduate students and 6 graduate students |
| Winter 2018 | Instructor, UW BIOEN 486/586, <i>Tissue Engineering</i> , 8 undergraduate students and 10 graduate students |
| Fall 2018 | Instructor, UW BIOEN 481/581, <i>Engineering Cell Biology</i> , 15 undergraduate students and 4 graduate students |
| Fall 2019 | Basecamp Advisor, JHU EN 580.151. <i>Structural Biology of Cells</i> , 9 undergraduate students |
| Spring 2020 | Instructor, JHU EN 580.511. <i>Biomedical Engineering Undergraduate Research</i> , 3 undergraduate students |

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| Summer 2020 | Instructor, JHU EN 580.510. <i>Biomedical Engineering Undergraduate Research</i> , 2 undergraduate students |
| Fall 2020 | Basecamp Advisor, JHU EN 580.111. <i>Biomedical Engineering and Design</i> , 5 undergraduate students |
| Spring 2021 | Instructor, JHU EN 580.510. <i>Biomedical Engineering Undergraduate Research</i> , 3 undergraduate students |
| Spring 2022 | Instructor, JHU EN 580.637. <i>Microphysiological Systems</i> , 16 undergraduate students and 16 graduate students |

Clinical instruction None

CME instruction None

Workshops / seminars

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|---------------|--|
| 2011-2018 | Guest lecturer for UW BIOEN 299: Introduction to Bioengineering (1 lecture, 1 hour in-class instruction) |
| Spring 2011 | Guest lecturer for UW BIOEN 511: Biomaterials Seminars, 15 graduate/undergraduate students (1 lecture, 1 hour in-class instruction) |
| Spring 2013 | Guest lecturer for UW NME 221/321/421: Nanoscience and Molecular Engineering (1 lecture, 1 hour in-class instruction) |
| Spring 2013 | Guest lecturer for UW ME598, Biomechanics Seminars (1 lecture, 1 hour in-class instruction) |
| 2014 | Guest lecturer for UW ChemE 498/599; BioE 424/524; EE 424/524; CSE 487/587: Advanced Synthetic Biology for Applications (1 lecture, 1 hour in-class instruction) |
| October, 2015 | Instructor for special workshop on “Lab-on-a-chip technologies for stem cell biology and bioengineering,” 19 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (micro TAS), Gyeongju, Korea |
| Winter 2015 | Guest lecturer for UW BIOEN 490/590: Engineering Materials for Biomedical Applications (1 lecture, 1 hour in-class instruction) |
| Spring 2016 | Guest lecturer for UW PATH 515, Molecular Basis of Cardiovascular Disease (1 lecture, 1.5 hour in-class instruction) |
| 10/4/2020 | Instructor for special workshop on “Organ on Chip and Microfluidic-based Tissue Engineering,” 24 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS 2020) Virtual. |

Mentoring

Pre-doctoral Advisees / Mentees

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|--------------|--|
| 2011-2016 | Alex Jiao, PhD, currently Vice President of Research & Development. Awarded NIH F31 Predoctoral Fellowship (2015) and AHA Predoctoral Fellowship (2014) |
| 2011-2013 | Daniel Carson, MS, currently Urology Resident, University of Washington Medical Center. |
| 2012-2017 | Jesse Macadangdang, PhD, currently research scientist, Curi Bio. Awarded NIH T32 Fellowship (2013) |
| 2012-2014 | Sam Frankel, MS, currently Emergency Medicine Resident, University of Pittsburgh. |
| 2012-2019 | Jonathan Tsui, PhD, currently research scientist, Taneya Therapeutics. Awarded HHMI-UW Molecular Medicine Fellowship (2015), AHA Predoctoral Fellowship (2016), and UW Husky 100 Award (2018). |
| 2012-2018 | Peter Kim, PhD, currently research scientist, Seattle Children’s Research Institute. Awarded AHA Predoctoral Fellowship (2015). |
| 2013-2014 | Jinah Jang, PhD, currently associate professor, POSTECH. |
| 2013-2015 | Daniel Liu, MS, currently research scientist, University of Washington. |
| 2014-2016 | Winnie Leung, MS, currently research engineer, NanoString Technologies, Inc. |
| 2015-2017 | Zeid Nawas, MS, currently research scientist, Baylor College of Medicine |
| 2015-2020 | Nisa Penland, PhD, currently research scientist, Sana Biotechnology. Awarded NIH F31 Predoctoral Fellowship (2019) |
| 2016-2018 | Calysta Yan, MS, currently scientific data engineer, Allen Institute for Cell Science |
| 2017-2019 | Changho Chun, MS, currently PhD student, University of Washington. |
| 2018-2019 | Yu Jung Shin, currently PhD student, University of Washington. |
| 2018-2019 | Gokce Altin, MS, currently PhD student, University of Washington. Awarded Predoctoral Fellowship from the Scientific and Technological Research Council of Turkey (2018) |
| 2020-2021 | Wenzhao Wang, MS, currently PhD student in Westlake University, China. |
| 2020-2021 | Zihui Ou, MS, currently Research Scientist in Emory University. |
| 2016-2022 | Chia-Yi Su, MD/PhD, currently postdoctoral fellow in Lab. |
| 2020-2022 | Shunyao Lei, MS student, currently PhD student, Johns Hopkins University |
| 2021-2022 | Hyunmyung Doo, PhD student, currently a research assistant professor in Korea University |
| 2020-present | Devin Mair, PhD student, currently in Lab. |

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| 2020-present | Joseph Criscione, PhD student, currently in Lab. |
| 2021-present | Byunggik Kim, PhD student, currently in Lab. |
| 2021-present | Zhipeng Dong, PhD student, currently in Lab. |
| 2022-present | Anuj Lagowala, PhD student, currently in Lab. |
| 2022-present | Zhanping Ren, PhD student, currently in Lab. |

Post-doctoral Advisees / Mentees

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|--------------|---|
| 2011-2013 | Heeseok Yang, PhD, currently associate professor, Dankook University, Korea |
| 2011-2012 | Hyunjung Lee, PhD, currently associate professor, Chung-Ang University School of Medicine |
| 2011-2014 | Kshitiz Gupta, PhD, currently assistant professor, University of Connecticut |
| 2012-2013 | Kihwan Nam, PhD, currently senior research scientist, Korea Basic Science Institute |
| 2012-2014 | Youngsoo Choi, PhD, currently research professor, Chonnam National University, Korea |
| 2013-2014 | Eung-Sam Kim, PhD, currently associate professor, Chonnam National University, Korea |
| 2013-2014 | Kajohnkiart Janebodin, PhD, currently assistant professor, Mahidol University, Thailand |
| 2014-2015 | Nicholas Ieronimakis, PhD, currently research scientist, Madigan Army Medical Center, WA |
| 2014-2019 | Alec Smith, PhD, currently research assistant professor, University of Washington. Awarded Jaconette L. Tietze Young Scientist Award (2017) and UW ITHS KL2 Career Development Award (2017) |
| 2015-2017 | Koichiro Uto, PhD, currently senior research scientist, National Institute for Materials Science, Japan. Awarded JSPS postdoctoral fellowship (2015) |
| 2015-2017 | Eunpyo Choi, PhD, currently associate professor, Chonnam National University, Korea |
| 2017-2019 | Jesse Macadangdang, PhD, currently research scientist, Curi Bio, Inc. |
| 2017-2018 | Nirmalya Tripathy, PhD, currently postdoctoral fellow, University of Southern California |
| 2019-2020 | Jonathan Tsui, PhD, currently research scientist, Tenaya Therapeutics |
| 2021-2022 | Amir Monemian, PhD, currently a lead scientist, Cellens Inc. |
| 2017-2022 | Jongseob Choi, PhD, currently Associate Professor in Kongju National University, Korea |
| 2021-2022 | Iman Hassani, PhD, currently Assistant Professor in Tuskegee University |
| 2020-present | Allister Suarez, PhD, currently postdoctoral fellow in Lab |
| 2020-present | Brian Lin, PhD, currently postdoctoral fellow in Lab (co-mentored by David Kass) |
| 2021-present | Minjae Do, PhD, currently postdoctoral fellow in Lab |
| 2022-present | Tatsuya Matsubara, PhD, currently postdoctoral fellow in Lab |
| 2022-present | Chia-Yi Su, PhD, currently postdoctoral fellow in Lab |

Thesis committees

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| 2012 | Cameron Rementer, PhD, qualifying exam committee member |
| 2012 | Ted Chen, PhD, qualifying exam committee member |
| 2012 | Kaytlyn Beres, PhD, qualifying exam committee member |
| 2013 | Daniel Carson, MS, "Engineering combinatorial microenvironments for structural and functional maturation of human stem cell-derived cardiomyocytes," advisor |
| 2013 | Inoue Shinnosuke, PhD, "Study of electrokinetic response for drug susceptibility of mycobacterium tuberculosis complex cells," dissertation committee member |
| 2013 | Reena Mahadevan, MS, "Biophysical characterization of hydrogel-core, lipid-shell nanoparticles (nanolipogels) for HIV chemoprophylaxis," dissertation committee member |
| 2014 | Sam Frankel, MS, "Correlation-based contraction tracking of cardiomyocyte monolayers," advisor |
| 2014 | Jonathan Cheng, PhD, "Microfluidic platforms for focal stimulation of muscle cells and large-scale studies of synaptogenesis," dissertation committee member |
| 2014 | Chi-Ting Chang, PhD, "Towards personalized cancer therapy: microfluidic approaches for drug screening," dissertation committee member |
| 2014 | Jia-Ling Ruan, PhD, "Maturation of human pluripotent stem cell-derived engineered cardiac tissues," dissertation committee member |
| 2014 | Cameron Ball, PhD, "Electrospun fibers for the prevention of human immunodeficiency virus," dissertation committee member |
| 2014 | Blake Bluestein, PhD, qualifying exam committee member |
| 2014 | Jia Jun Chia, qualifying exam committee member |
| 2014 | Erik Liu, qualifying exam committee member |
| 2015 | Daniel Liu, MS, "A nanopatterned cantilever device for assaying contractile properties of stem cell-derived cardiomyocytes," advisor |
| 2015 | Dominic Filice, PhD, "Optical mapping of human embryonic stem cell-derived cardiomyocyte graft |

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| | electrical activity in injured hearts,” dissertation committee member |
| 2015 | Shijie Cao, PhD, qualifying exam committee member |
| 2016 | Winnie Leung, MS, “Effects of nanotopography on structural maturation and differentiation of human induced pluripotent stem cell-derived cardiomyocytes,” advisor |
| 2016 | Nick Chavkin, PhD, “Elevated phosphate-induced cell signaling through phosphate transporter PiT-1 in vascular smooth muscle cells,” dissertation committee member |
| 2016 | Chris Arakawa, PhD, qualifying exam committee member |
| 2016 | Zak Wescoe, PhD, qualifying exam committee member |
| 2016 | Christian Mandrycky, PhD, qualifying exam committee member |
| 2016 | Alex Jiao, PhD, “Engineering of functional, striated muscle tissues with controllable 3D architectures using a novel, thermoresponsive, nanofabricated substratum,” advisor |
| 2017 | Jesse Macadangdang, PhD, “Combinatorial maturation strategy for disease modeling and phenotypic drug screening of Duchenne muscular dystrophy cardiomyopathy,” advisor |
| 2017 | Zeid Nawas, MS, “Bioprinting 3-dimensional skeletal muscle tissue models using decellularized extracellular matrix,” advisor |
| 2018 | Peter Kim, PhD, “Engineering post-infarct extracellular matrix remodeling in vitro for understanding cardiac fibroblast fate and function,” advisor |
| 2018 | Calysta Yan, MS, “Tissue-engineered arterial tunica media with multi-layered, circumferentially aligned smooth muscle architecture,” advisor |
| 2019 | Jonathan Tsui, PhD, “Multiscale tunable hybrid biomaterials for engineering human iPSC-based cardiac microphysiological systems,” advisor |
| 2020 | Nisa Williams, PhD, “Engineering 3D human cardiac ventricular models with controllable architecture,” advisor |
| 2021 | Sean Murphy, PhD, “Maturation of the heart: The role of PGC1 in cardiomyocyte maturation at the single cell level,” dissertation committee member |
| 2022 | Huilei Wang, PhD, “Characterizing the role of lysyl oxidase like-2 in vascular stiffening,” dissertation committee member |
| 2020-2022 | Kam Sang Kwok, dissertation committee member |
| 2020-2022 | Oscar Reyes Gaido, dissertation committee member |
| 2021-2022 | Makeda Stephenson, dissertation committee member |
| 2021-2022 | Pengfei Zhang, dissertation committee member |

RESEARCH ACTIVITIES

Research Focus:

Through the use of multi-scale biofabrication tools in combination with human stem cell and tissue engineering technologies, my laboratory research focuses on the development of human microphysiological systems for mechanobiology, disease modeling, drug screening, and cell-based therapies. The ultimate goal of my research is to better understand complex cellular behavior in response to microenvironmental cues in normal, aging and disease states, to gain new mechanistic insights into the control of cell-tissue structure and function, and to develop multi-scale regenerative technologies for improving human health.

Research Program Building / Leadership

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| 2011-present | Director, Multiscale Biofabrication and Tissue Engineering Program |
| | Laboratory Efforts – developing the biomimetic microenvironments for stem cell and tissue engineering |
| 2018-present | Director, “Heart Chip in Space” Research Team, sponsored by NIH-CASIS |
| 2021-present | Director, Hopkins Center for Microphysiological Systems |

Research Demonstration Activities

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| 2012-2018 | Lab exhibit at annual UW Engineering Discovery Days for K-12 outreach, Seattle, WA |
| 2012-2018 | Lab exhibit at Paws-on Science: Husky Weekend for STEM K-12 outreach |
| 2013-2015 | Lab exhibit for UW NME 221: Nanoscience and Molecular Engineering Option Program Network |
| | 2019 Lab exhibit for National Assembly of South Korea Delegation, Seattle, WA |

Inventions, Patents, Copyrights

| | |
|---------|--|
| 3/22/02 | Kim KH, Kim DH . Multi-degrees-of freedom dexterous telerebotic system for microassembly. Korea |
|---------|--|

Patent #0483790, issued 4/8/2005

6/12/02 Kim KH, **Kim DH**, Song EH, Kang HJ. Method and device for assembling MEMS components. Korea Patent #1004733480000, issued 2/16/2005

8/15/02 Kim KH, **Kim DH**, Lee SJ, Park GT. Apparatus and method for assembling MEMS components using image of multiple magnification. Korea Patent # 1004660950000, issued 1/4/2005

9/17/02 Kim KH, **Kim DH**. Multi-degrees-of freedom dexterous telerobotic system for microassembly. United States Patent Application #10/245,067

10/16/02 Kim B, **Kim DH**, Kim KH, Shim JH, Kim SM, Lee SH. Microrobot gripping apparatus. Korea Patent #1005051450000, issued 7/22/2005

11/12/02 Kim B, Park JY, **Kim DH**, Park JO. Autonomous bio-manipulation factory apparatus for manipulating single cells,” Korea Patent #0475098, issued 2/24/2005.

3/25/03 Kim B, Park JY, **Kim DH**, Park JO. Automatic bio-manipulation factory system for manipulating a single cell. United States Patent #7011970, issued 3/14/2006.

6/4/03 Kim B, Kim YH, **Kim DH**, Park JO. Smart pipette system and method for manipulating individual bio cells. Korea Patent # 1004660940000, issued 1/4/2005.

3/22/04 Kim B, Kim YH, **Kim DH**, Park JO. Smart pipette for cell manipulation and manipulation method for using the smart pipette. United States Patent #7501096, issued 3/10/09

12/17/04 Ju BK, **Kim DH**, Park JY, Kim B, Sun Y. Cell separation system using ultrasound field and traveling wave dielectrophoresis. Korea Patent #100594408, issued 6/21/06.

12/7/11 **Kim DH**, Jiao A. A device for organized, aligned, and patterned cell culture using polymeric nano-patterned surfaces. United States Provisional Patent #61/567,911

4/4/12 **Kim DH**, Laflamme MA, Murry CE, Jiao A. A device with controlled nanotopography and stiffness for promoting the maturation of stem cell-derived cardiac tissues. United States Provisional Patent #61/620301

03/15/13 **Kim DH**, Laflamme MA, Yoo H. Device and methods for differentiation of stem cells using electroconductively coated substrates. United States Provisional Patent #61/793,573

03/15/13 **Kim DH**, Laflamme MA, Murry CE, Gupta K, Yoo H, Jiao A. Systems and method for engineering muscle tissue. European Patent #EP2833930A4, issued 5/30/2018 ([Licensed to NanoSurface Biomedical Inc.](#))

03/15/13 **Kim DH**, Laflamme MA, Murry CE, Gupta K, Yoo H, Jiao A. Systems and method for engineering muscle tissue. United States Patent #9,994,812 B2, issued 6/12/2018 ([Licensed to NanoSurface Biomedical Inc.](#))

03/15/13 **Kim DH**, Laflamme MA, Murry CE, Gupta K, Yoo H, Jiao A. Systems and method for engineering muscle tissue. International PCT/US2013/032237 ([Licensed to NanoSurface Biomedical Inc.](#))

9/23/13 Lutz B, **Kim DH**, Lu R, Mun K. Capillary-driven microfluidic diagnostics with nanofabricated surface. United States Provisional Patent #61/881,352

9/25/13 **Kim DH**, Reyes M, Tsui JH. Functionalized nanopatterned scaffolds for tissue engineering and regenerative medicine. United States Provisional Patent #61/882,534

10/10/13 **Kim DH**, Tsui JH. Microfabricated skin adhesive patch with microneedles for transdermal drug delivery. United States Provisional Patent #61/889,475

3/15/14 **Kim DH**, Laflamme M, Chae JS, Gupta K. Device and methods comprising microelectrode arrays for electroconductive cells. United States PCT/US2014/028530

3/10/15 Smith C, Levchenko A, **Kim DH**, Quinones-Hinojosa A. A novel, high-throughput, nanotopographic platform for screening cell migratory behavior. United States PCT/US2015/019692

4/10/15 **Kim DH**, Tsui JH. Tunable and electroconductive decellularized extracellular matrix bioinks. United States Provisional Patent 62/145,753

3/9/16 **Kim DH**, Fisher E, Jiao A. 3D organized tissue fabricated using thermoresponsive nanofabricated substrates and application thereof for surgical therapies in humans. United States Provisional Patent 62/130,423

3/9/16 **Kim DH**, Kim P. Micro- and nanopatterned substrates for cell migration and uses thereof. United States Patent US16/21557 ([Licensed to NanoSurface Biomedical Inc.](#))

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|----------|---|
| 3/9/16 | Kim DH , Kim P. Micro- and nanopatterned substrates for cell migration and uses thereof. International PCT/US20 16/02 1557 (Licensed to NanoSurface Biomedical Inc.) |
| 4/6/18 | Kim DH , Smith AST, Gray K, Choi EP. Device, system and methods for electrophysiological interrogation of cells and tissues. United States Patent 62/482,547 (Licensed to NanoSurface Biomedical Inc.) |
| 4/6/18 | Kim DH , Smith AST, Choi EP, Gray K. Device, system and methods for electrophysiological interrogation of cells and tissues. International PCT/US2018/026534 (Licensed to NanoSurface Biomedical Inc.) |
| 8/16/18 | Kim DH , Macadangdang J, Smith AST, Ruohola-Baker H, Miklas JW. Compositions and methods for enhancing maturation states of healthy and diseased cardiomyocytes. United States Patent 62/546,438 (Licensed to NanoSurface Biomedical Inc.) |
| 8/16/18 | Kim DH , Macadangdang J, Smith AST, Ruohola-Baker H, Miklas JW. Compositions and methods for enhancing maturation states of healthy and diseased cardiomyocytes. PCT/IB2018/056169 (Licensed to NanoSurface Biomedical Inc.) |
| 9/19/18 | Kim DH , Choi BO, Smith AST. Bioengineered human neuromuscular junctions for high-throughput functional screening in peripheral neuropathic diseases. United States Provisional Patent 62/733,362 |
| 12/12/18 | Kim DH , Smith AST. Human iPSC-based ALS model for compound validation and drug screening. United States Provisional Patent 62/778,813 |
| 7/2/19 | Kim DH , Gray K, Choi J. Topographically guided cell migration devices and methods. International PCT/US19/40417 (Licensed to NanoSurface Biomedical Inc.) |
| 10/15/19 | Kim DH , Chun C, Jiao A, Lee C. Scalable 3D biofabrication system using thermos-responsive polymer substrate for highly organized, multilayered tissue generation. United States Provisional Patent 62/915,312 |
| 10/15/19 | Kim DH , Tsui J. Functional maturation of human iPSC-based cardiac microphysiological systems with tunable electroconductive decellularized extracellular matrices. United States Provisional Patent 62/915,502 |
| 2/18/20 | Kim DH , Jiao A, Williams N. Device and methods for engineering 3D complex tissues. United States Provisional Patent 62/978,235 |
| 9/30/20 | Kim DH , Tsui J. Electroconductive decellularized matrix compositions for preparation of engineered tissues and related methods. United States Patent 17/039,153 (Licensed to Curi Bio, Inc) |
| 2/13/21 | Kim DH , Jiao A, Williams N. Device and methods for engineering 3D complex tissues. International PCT/US21/18067 |
| 11/2/21 | Kim DH , Do MJ. Microbubble-extracellular vesicle complexes. United States Patent 17/517,621 |
| 2/10/22 | Kim DH , Gwangjun Go. Magnetic actuation system for tissue engineering. United States Provisional Patent 63/308,908 |
| 4/15/22 | Kim DH , Chun C, Smith AST, Do MJ. Extracellular vesicle-based agents and methods for the treatment of neuropathic disorders. PCT/17/769,705 |
| 6/6/22 | Kim DH , Su CY, Williams M, Burchett A. Biomimetic systems and disease analysis methods. PTC/US2022/032404 |
| 7/25/22 | Kim DH , Monemianesfahani A, Akarapipad P. Systems for simultaneous contractile force and calcium transient measurement of engineered tissue. United States Provisional Patent 63/392,013 |

Technology Transfer Activities

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| 2015 | Scientific Founder, Curi Bio, Inc, a company that integrate human iPSC-derived cells, tissue-specific biosystems, and AI-enabled data analytics to accelerate the discovery of new therapeutics |
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ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

| | |
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| 2010-2018 | Member, Graduate Admissions Committee, Department of Bioengineering, University of Washington |
| 2013-2019 | Faculty senate, University of Washington |
| 2015 | Member, Search Committee for Director of Imaging Core in the UW Institute for Stem Cell and Regenerative Medicine |
| 2019-present | Member, Department of Medicine & Whiting School of Engineering Research Retreat Planning Committee, Johns |

Editorial Activities

Editorial Board appointments

| | |
|--------------|---|
| 2013-2015 | Member, Editorial Board, IET Nanobiotechnology |
| 2013-2018 | Member, Editorial Board, SLAS Technology |
| 2018-2021 | Editor, Materials Science and Engineering C: Materials for Biological Applications |
| 2013-present | Associate Editor, Journal of Biomedical Nanotechnology |
| 2013-present | Member, Editorial Board, Journal of Micro-Bio Robotics |
| 2013-present | Member, Editorial Board, Journal of Tissue Engineering |
| 2013-present | Member, Editorial Board, International Journal of Nanomedicine |
| 2014-present | Associate Editor, Biomedical Microdevices |
| 2014-present | Associate Editor, IEEE Transactions on NanoBioscience |
| 2014-present | Member, Editorial Board, Nature Scientific Reports |
| 2014-present | Member, Editorial Board, Theranostics |
| 2017-2023 | Associate Editor, IEEE Transactions on Nanotechnology |
| 2017-present | Member, International Advisory Board, Advanced Biology |
| 2019-present | Member, Editorial Board, Biomaterials Research |
| 2021-present | Member, Editorial Board, Biomaterials and Biosystems |
| 2021-present | Member, Editorial Board, Journal of Biological Engineering |
| 2021-present | Member, Associate Editor, Frontiers in Pharmacology (section: Translational Pharmacology) |
| 2021-present | Member, Associate Editor, Frontiers in Drug Discovery (section: Cardiovascular and Hematologic Drugs) |
| 2022-present | Member, Editorial Board, Aging Cell |

Guest Editor for journal special issues

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| 2011 | IET Micro and Nano Letters: special issue on Micro/Nanoengineered Platforms for Mechanobiology Studies |
| 2014 | International Journal of Nanomedicine: special issue on Nanoengineering for Tissue Engineering and Regenerative Medicine |
| 2014 | Biofabrication: special issue on Micro/Nanofabrication for Tissue Engineering |
| 2015 | Journal of Laboratory Automation: special issue on Microengineered Cell- and Tissue-Based Assays for Drug Screening and Toxicology Applications |
| 2016 | Advanced Healthcare Materials: special issue on Micro- and Nanoengineering of Biomaterials for Healthcare Applications |
| 2016 | IEEE Transactions on NanoBioscience: special issue on Nano/Molecular Medicine and Engineering |
| 2017 | Theranostics: special issue on Stem Cell Theranostics |
| 2018 | IEEE Transactions on Nanotechnology: special issue on Micro/Nanosystems Mechanobiology |
| 2019 | ACS Biomaterials Science and Engineering: special issue on Biomaterials for Cell Mechanobiology |
| 2019 | SLAS Technology: special issue on Nanomedicine |
| 2019 | Advanced Healthcare Materials: special issue on Bio-interfaces for Immuno-engineering |
| 2021 | Frontiers in Pharmacology: special issue on Accelerated Translation using Microphysiological Organoid and Microfluidic Chip Models |
| 2021 | Organs-on-a-Chip: special issue on Human Microphysiological Systems for Disease Modeling and Drug Screening |
| 2021 | Frontiers in Cardiovascular Medicine: special issue on Stem Cell Therapy in Myocardial Infarction |

Journal peer review activities

Reviewer for Scientific Journals (~ 15-30 articles per year)

- | | |
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| ○ ACS Applied Materials and Interfaces | ○ Journal of Biomedical Nanotechnology |
| ○ ACS Biomaterials Science and Engineering | ○ Journal of Colloid and Interface Science |
| ○ ACS Nano | ○ Journal of Micro-Bio Robotics |
| ○ Acta Biomaterialia | ○ J. of Micromechanics & Microengineering |
| ○ Advanced Functional Materials | ○ Journal of Laboratory Automation |
| ○ Advanced Healthcare Materials | ○ Journal of Tissue Engineering |
| ○ Advanced Materials | ○ J. of Tissue Eng. & Regenerative Medicine |
| ○ Angewandte Chemie | ○ Journal of Visualized Experiments |

- Biofabrication
- Biomacromolecules
- Biomaterials
- Biomaterials Science
- Biomedical Microdevices
- Biophysical Journal
- Biophysical Letters
- Biotechnology and Bioengineering
- Cellular and Molecular Bioengineering
- Chemistry of Materials
- IEEE Trans. Autom. Sci. Eng.
- IEEE Trans. Biomedical Engineering
- IEEE Transactions on Robotics
- IET Nanobiotechnology
- Integrative Biology
- International Journal of Nanomedicine
- Journal of Biomechanical Engineering
- Journal of Biomechanics
- Journal of Biomedical Materials Research
- Lab on a Chip
- Langmuir
- Macromolecular Bioscience
- Micro and Nano Letters
- Nanotechnology
- Nature
- Nature Communications
- Nature Nanotechnology
- PLoS One
- PNAS
- Progress in Polymer Science
- Scientific Reports
- Science Signaling
- Small
- Smart Materials and Structures
- Stem Cells
- Stem Cell Reports
- Theranostics
- Tissue Engineering

Other peer review activities

- 2000 Abstract Reviewer, International Symposium on Robotics (ISR), 2000
- 2001-2010 Abstract Reviewer, IEEE/RSJ International Conference on Intelligent Robots and Systems
- 2001-2005 Abstract Reviewer, ASME/IMECE Conference on Dynamic Systems, Measurement and Control
- 2012 Abstract Reviewer, Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference
- 2012-2013 Abstract Reviewer, ASME Summer Bioengineering Conference (SBC)
- 2014 Abstract Reviewer, Society for Biomaterials (SFB)
- 2013 Abstract Reviewer, World Congress of Biomechanics (WCB)
- 2014 IEEE Engineering in Medicine and Biology Conference (EMBC)
- 2015 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C)
- 2016-2017 Abstract Reviewer, Cellular and Molecular Bioengineering (CMBE) Annual Meeting
- 2012-2016 Abstract Reviewer, IEEE International Conference on Nano/Molecular Medicine and Engineering
- 2017 Abstract Reviewer, IEEE Nanotechnology Materials and Devices Conference (NMDC)
- 2013-present Abstract Reviewer, Biomedical Engineering Society (BMES) Annual Meeting

Advisory Committees, Review Groups/Study Sections

- 2010 Ad hoc reviewer, European Research Council (ERC) Grant 3rd Call
- 2011 Ad hoc reviewer, New Eurasia Foundation (FNE) electronic review of the program grant
- 2011 Ad hoc reviewer, NIH Interdisciplinary Molecular Sciences and Training (IMST) Study Section
- 2012 Member, National Science Foundation (NSF), Biomedical Engineering Program review panel
- 2012 Ad hoc reviewer, NIH Interdisciplinary Molecular Sciences and Training (IMST) Study Section
- 2013 Ad hoc reviewer, Human Frontier Science Program (HFSP)
- 2013 Ad hoc reviewer, Singapore National Research Foundation Grant application
- 2014 Member, National Science Foundation (NSF), Biomedical Engineering Program review panel
- 2014 Member, American Heart Association (AHA), “Bioengineering and Biotechnology” Review Panel
- 2014 Ad hoc reviewer, Wellcome Trust and Royal Society research grant program
- 2015 Member, DOD, special review panel for FY14 Peer Reviewed Medical Research Program (PRMRP)
- 2015 Ad hoc reviewer, Human Frontier Science Program (HFSP)
- 2016 Ad hoc reviewer, Austrian Research Promotion Agency (FFG)
- 2017 Member, NIH/NCATS, special review panel “Microphysiological Systems for Disease Modeling and Efficacy Testing (UG3/UH3)”
- 2018 Ad hoc reviewer, NIH, Bioengineering of Neuroscience, Vision and Low Vision Technologies (BNVT) Study Section
- 2018 Member, NIH, special review panel “Microphysical Systems (MPS) for Modeling Diabetes (UG3/UH3)”

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| 2018 | Member, DOD, special review panel for FY18 Peer Reviewed Medical Research Program (PRMRP) |
| 2019 | Member, NIH, special review panel “Cardiovascular Sciences” |
| 2019 | Member, NIH, special review panel “The Helping to End Addiction Long-term (HEAL) Initiative (UG3/UH3)” |
| 2021 | Member, NIH, special review panel P41 National Centers for Biomedical Imaging and Bioengineering |

Professional Societies

| | |
|--------------|--|
| 2003-present | Institute of Electrical and Electronics Engineers (IEEE) |
| 2003-2012 | Member |
| 2013-present | Senior Member |
| 2013-present | Member, IEEE EMBS BioMEMS Technical Committee |
| 2013-present | Member, IEEE Nanobiotechnology Technical Committee |
| 2016-2018 | EMBS Representative to the IEEE Nanotechnology Council |
| 2005- 2010 | Baltimore Life Scientists Association (BLSA) |
| 2005-2010 | Member |
| 2009 | Science Director |
| 2006-present | Member, American Academy of Nanomedicine (AANM) |
| 2006-present | Korean-American Scientists and Engineers Association (KSEA) |
| 2006-present | Member |
| 2016-2018 | Seattle Chapter Secretary |
| 2013-2019 | Executive Committee, Korean-American Biomedical Engineering Society |
| 2019-present | Vice President, Korean-American Biomedical Engineering Society |
| 2007-2010 | Member, Society of Physical Regulation in Biology and Medicine (SPRBM) |
| 2009-present | Member, American Society for Cell Biology (ASCB) |
| 2009-present | Member, American Society of Mechanical Engineers (ASME), Bioengineering Division |
| 2010-present | Member, American Association for the Advancement of Science (AAAS) |
| 2010-present | American Heart Association (AHA) |
| 2014-present | Member, Council on Basic Cardiovascular Sciences |
| 2010-present | Member, Biomedical Engineering Society (BMES) |
| 2014-present | Member, BMES International Affairs Committee |
| 2011-present | Member, International Society for Stem Cell Research (ISSCR) |
| 2012-present | Fellow, Society for Laboratory Automation and Screening (SLAS) |
| 2021-present | Fellow, American Heart Association (AHA) |
| 2022-present | Fellow, Royal Society of Chemistry (RSC) |

Conference Organizer

JHMI/Regional

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| 2009 | Program Committee Member, Annual Baltimore Life Scientists Association Conference, Baltimore, MD |
| 9/13 | Program Committee Chair, Korean-American Scientists and Engineers Association Northwest Regional Conference, Seattle, WA |

National

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| 2/12 | Theme Co-Organizer, The first USACM Thematic Conference on Multiscale Methods and Validation in Medicine and Biology: Biomechanics and Mechanobiology, San Francisco, CA |
| 10/19 | Track chair for Nano- and Microtechnologies, Biomedical Engineering Society (BMES) Annual Meeting, Philadelphia, PA |
| 9/20 | General Co-Chair, The first KSEA Science and Technology Entrepreneurship Partners’ Upscale Program (STEP-UP), Baltimore, MD |

International

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| 11/12 | Program Committee Member, IEEE International Conference on Nano/Molecular Medicine and Engineering, Bangkok, Thailand |
| 11/13 | Program Committee Member, IEEE International Conference on Nano/Molecular Medicine and Engineering, Phuket Island, Thailand |
| 8/14 | Organizer and Chair for Theme 3: Bioinstrumentation, Biosensors, and Bio-Micro/Nano Technologies, 36 th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL |

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| 8/14 | Organizer and Chair for <i>Workshop on Regenerative Nanomedicine</i> , 36 th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL |
| 9/14 | Program Committee Member, International Conference on Biofabrication, Pohang, Korea |
| 11/15 | Program Co-Chair, IEEE International Conference on Nano/Molecular Medicine and Engineering, Hawaii |
| 7/16 | Program Committee Member, 1st International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS), Paris, France |
| 10/16 | Program Committee and Awards Committee Member, IEEE International Conference on Nano/Molecular Medicine and Engineering, Macau, China |
| 12/17 | Program Committee Member and Invited Session Program Co-Chair, 12 th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Los Angeles, CA |
| 10/18 | Program Committee Member and Track Co-Chair, 13 th IEEE Nanotechnology Materials and Devices Conference (NMDC), Portland, OR |
| 11/18 | Organizing Co-Chair, IEEE International Conference on Nano/Molecular Medicine and Engineering, Hawaii |
| 8/19 | General Co-Chair, Innovation and Entrepreneurship Symposium, US-Korea Conference 2019, Chicago |
| 12/20 | Program Committee Chair, Innovation and Entrepreneurship Symposium, US-Korea Conference 2020 Virtual |
| 12/20 | Program Committee Chair, Entrepreneurs in Biotech and Healthcare Session, Innovation and Entrepreneurship Symposium, US-Korea Conference 2021 |
| 6/22 | Program Committee, MPS World Summit 2022, New Orleans, USA |

Session Chair

National

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| 6/13 | Session chair, “Engineered Cellular Environments” at the ASME 2013 Summer Bioengineering Conference, Sunriver, OR |
| 2/14 | Session chair, “Cell-Matrix Structure and Interactions” at the ASME 2014 3 rd Global Congress on Nanoengineering for Medicine and Biology, San Francisco, CA |

International

| | |
|-------|---|
| 9/01 | Session co-chair, “Microfabrication and Property” session at the 2001 IEEE Symposium on Micromechatronics and Human Science (IEEE MHS2001), Nagoya, Japan |
| 10/11 | Session chair, “Biology/micro-TAS, Biomimetics, Self-assembly, Chemistry” session at the 10 th International Conference on Nanoimprint and Nanoprint Technology, JeJu, Korea |
| 11/11 | Session chair, “Reprogramming and Stem Cell Therapy” session at the 5 th International Conference on Cell Therapy, Seoul, Korea |
| 11/12 | Session organizer and chair, “Bioinspired micro/nanoengineering”, IEEE International Conference on Nano/Molecular Medicine and Engineering, Bangkok, Thailand |
| 3/14 | Session chair, International Symposium on Smart Biomaterials, Tsukuba, Japan |
| 7/14 | Session organizer and chair, “Engineered Cellular Microenvironment” at the World Congress of Biomechanics, Boston, MA |
| 8/14 | Session organizer and chair, “Biomechanics, Mechanobiology and Disease” at the US-Korea Conference, San Francisco, CA |
| 9/14 | Session chair, “Student and Young Investigator Section (SYIS)” at the Tissue Engineering and Regenerative Medicine (TERMIS) Conference, Daegu, Korea |
| 11/15 | Session organizer and chair, “Micro/Nanotechnologies for Mechanobiology and Regenerative Medicine” at IEEE International Conference on Nano/Molecular Medicine and Engineering, Hawaii |
| 10/15 | Session chair, “Biomaterials” at The 19 th International Conference on Miniaturized Systems for Chemistry and Life Sciences (micro TAS), Gyeongju, Korea |
| 12/17 | Session organizer and chair, “Micro/Nanosystems Mechanobiology”, at the 12 th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Los Angeles, CA |
| 1/20 | Session organizer and chair, “Application of Organ-on-chips and Micro-Physiological Systems”, at the SLAS2020 International Conference and Exhibition, San Diego, CA |
| 12/20 | Session organizer and chair, “Entrepreneurs in Biotech and Healthcare”, US-Korea Conference 2020 Virtual |
| 6/22 | Session organizer and chair, “Biofabrication and Bioprinting”, MPS World Summit 2022 |

Consultantships

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|--------------|---|
| 2015-present | Scientific Advisory Board – Curi Bio (formerly NanoSurface Biomedical Inc.) |
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| 2019-present | Scientific Advisory Board – Vita Therapeutics |
| 2021-2022 | Scientific Advisory Board – Turing Bio |
| 2021-present | Scientific Advisory Board – Accunose |
| 2022-present | Scientific Advisory Board – Celogics |
| 2022-present | Scientific Advisory Board – HaplnScience Inc. |
| 2022-present | Scientific Advisory Board – Advanced Technology Inc. |

RECOGNITION

Awards, Honors

| | |
|-----------|---|
| 1994 | Salutatorian, Seoul High School, Seoul, Korea |
| 1994 | Gold Tablet Award for Excellent Academic Achievement, Seoul High School Alumni Association |
| 1994-1998 | Dean's list for all semesters, POSTECH, Korea |
| 1996 | Honor Scholarship for top academic records, POSTECH, Korea |
| 1996 | Hogil-Kim Memorial Fellow Exchange Student, University of Birmingham, UK |
| 1998 | Graduated <i>Magna Cum Laude</i> , POSTECH, Korea |
| 1998 | Silver Prize in Design Contest of Plant Controller using CEMTOOL, KOSEF Engineering Research Center for Advanced Control and Instrumentation, Korea |
| 1999 | Best Student Poster Paper Award, Korean Society of Precision Engineers (KSPE) |
| 1999 | Best Student Paper Award, Korean Society of Mechanical Engineers (KSME) |
| 2003 | KOSEF Oversea Research Fellowship, Korea Science and Engineering Foundation (KOSEF) |
| 2004 | Scientist of the Year Award, Korea Institute of Science and Technology (Future Technology Research Division) |
| 2005 | KIST Scientist of the Month Award, March 2005, Korea Institute of Science and Technology |
| 2005 | Best Presentation Award, International Conference on Control, Automation, and Systems |
| 2006 | Scholarship Award, Seoul High School Alumni Association in the Greater Washington Region |
| 2006 | Korea-U.S. Science Cooperation Center (KUSCO) Scholarship, KUSCO |
| 2007 | The Surface Engineering Best Paper Award, the Society of Tribologists and Lubrication Engineers |
| 2008 | Best Presentation Award, Korean-American Scientists and Engineers Association (KSEA)'s Young Generation Technical and Leadership Conference |
| 2008 | Outstanding Scientist Award, Baltimore Life Scientists Association |
| 2008-2010 | Predoctoral Fellowship Award, American Heart Association |
| 2009 | KASBP-Daewoong Fellowship Award, Korean-American Society in Biotech and Pharmaceuticals |
| 2009 | Best Poster Presentation Award, Baltimore Life Scientists Association |
| 2009 | Samsung HumanTech Thesis Award – Silver Prize (\$5,000 award), Samsung |
| 2010 | Harold M. Weintraub Award in the Biological Sciences, Fred Hutchinson Cancer Research Center |
| 2011 | Finalist in National Collegiate Invention Competition (\$5,000 award), National Inventors Hall of Fame and US Patent and Trademark Office, USA (www.invent.org/collegiate) |
| 2011 | Perkins Coie Award for Discovery |
| 2012 | Elected Senior Member, IEEE |
| 2013 | National Scientist Development Grant Award, American Heart Association |
| 2013 | Outstanding Student Paper Award, BMES Cellular and Molecular Bioengineering Conference (Alex Jiao) |
| 2013 | Outstanding Paper Award, ASME Global Congress on Nano Engineering for Medicine and Biology |
| 2013 | BMES-CMBE 'Rising Star' Award, 2013, Biomedical Engineering Society (BMES) |
| 2013 | Young Investigator Award, Korean-American Scientists and Engineers Association |
| 2013 | Springer Award for Most Downloaded and Most Cited Review Article, Annals of Biomedical Engineering |
| 2015 | The JALA 10, A Top-10 Breakthrough in Innovation |
| 2015 | Cellular/Molecular Bioengineering Young Innovator Award, Biomedical Engineering Society |
| 2016 | Innovator Showcase Award, UW Innovator of the Year |
| 2016 | Nominee for Junior Faculty Award, College of Engineering, University of Washington, USA. |
| 2017 | Emerging Investigator, Chemical Communications (RSC Journal, IF: 6.567) |
| 2018 | Emerging Investigator, Journal of Materials Chemistry B (RSC Journal, IF: 4.776) |
| 2018 | Human Frontier Science Program Award |
| 2018 | IEEE NANOMED Innovator Award |
| 2021 | Mid-Career Award, International Society of Biofabrication (ISBF) |
| 2022 | Pioneering Investigator, Chemical Communications |

2022 Engineer of the Year Award, Korean-American Scientists and Engineers Association and the Korean Federation of Science and Technology Societies

Invited Talks

7/24/02 Speaker, Korea Machine Tool Manufactures' Association, "Robotic manipulation at the micro/nanoscale," special workshop on "Paradigm shift in next generation robotic technology in industry: micro-nano robot," Seoul, Korea

11/28/03 Speaker, Swiss Federal Institute of Technology – Zurich (ETH Zurich), Institute of Robotics and Intelligent Systems, "Micromechatronics for microassembly and biomanipulation," Zurich, Switzerland

2/24/04 Speaker, Swiss Federal Institute of Technology (EPFL), Institut de Production et Robotique, "Microrobotic devices and MEMS-based cell chips for biomedical applications," Lausanne, Switzerland

4/15/04 Speaker, UMR CNRS, Laboratoire d'Automatique de Besançon (LAB), "Biomicrorobotics and BioMEMS for cell bioengineering: from single cell manipulation to cell separation," Besançon, France

11/15/08 Speaker, Baltimore Life Scientists Association, "Nano-engineering the cell-matrix interface: implications for tissue engineering and cell-based regenerative therapies," Baltimore, MD

12/5/08 Speaker, Seoul National University, Interdisciplinary Graduate Program of Bioengineering and Micro Thermal System Research Center, "Sensing by touch: contact-mediated signaling and function of living cells on chips," Seoul, Korea

12/8/08 Speaker, KAIST, Department of Mechanical Engineering, "Regulation of cell function by local force and geometry sensing: implications for tissue engineering and biology," Daejeon, Korea

12/9/08 Speaker, Korea Institute of Science and Technology, Nano-Bio Research Center, "Sensing by touch in tumors, hearts, and stem cells: contact-mediated signaling and function of living cells on chips," Seoul, Korea

12/10/08 Speaker, POSTECH, Department of Mechanical Engineering, "Regulation of cell function by local force and geometry sensing: implications for integrative biology and regenerative medicine," Pohang, Korea

12/11/08 Speaker, Korea University, Department of Biomedical Engineering, "Regulation of cell function by local force and geometry sensing: implications for biology and regenerative medicine," Seoul, Korea

12/11/08 Speaker, Ewha Womans University, Department of Chemistry and Nanoscience, "Regulation of cell function by local force and geometry sensing: implications for biology and regenerative medicine," Seoul, Korea

1/23/09 Speaker, Johns Hopkins University, "Analysis and engineering of cell function with nanoscale cues," BME Student Seminar Series, Baltimore, MD

2/3/09 Speaker, Seoul National University, College of Veterinary Medicine, Adult Stem Cell Research Center, "Multi-scale mechanobiology for cell and tissue engineering using nano/micropatterned biomaterials," Seoul, Korea

2/6/09 Speaker, Korea Institute of Machine and Materials, "Multi-scale mechanobiology for cell and tissue engineering using nano/micropatterned biomaterials," Daejeon, Korea

2/23/10 Speaker, Baltimore Life Scientists Association, "Mechanochemical regulation of multicellular form and function with nanoscale cues: implications for cancer metastasis, wound repair, and tissue engineering," Baltimore, MD

3/30/10 Speaker, Johns Hopkins University, Department of Biomedical Engineering, "Mechanochemical regulation of cellular and multicellular form and function with nanoscale cues: implications for wound repair, cancer metastasis, and tissue engineering," Baltimore, MD

4/19/10 Speaker, State University of New York at Buffalo, Department of Biomedical Engineering, "Mechanochemical regulation of cellular and multicellular form and function with nanoscale cues: implications for wound healing, cancer metastasis, and tissue engineering," Buffalo, NY

4/22/10 Speaker, University of Illinois at Urbana-Champaign, Department of Mechanical Science and Engineering, "Mechanochemical regulation of cellular and multicellular form and function with nanoscale cues: implications for wound healing, cancer metastasis, and tissue engineering," Champaign, IL

4/26/10 Speaker, University of California at Riverside, Department of Bioengineering, "Nanotopographically-defined biomaterials for controlling cell function and tissue regeneration," Riverside, CA

4/29/10 Speaker, KAIST, Department of Bio and Brain Engineering, "Regulation of cellular and multicellular form and function with nanoscale cues: implications for wound healing, cancer metastasis, and tissue engineering," Daejeon, Korea

5/7/10 Speaker, Weintraub Award Symposium, "Mechanochemical regulation of cellular and multicellular form and function using nanoengineered extracellular matrices: implications for wound repair, cancer metastasis, and tissue engineering," Seattle, WA ([Weintraub Award Talk](#))

5/13/10 Speaker, Stanford University, Department of Mechanical Engineering, "Mechanical control of cellular function and tissue regeneration," Stanford, CA

5/20/10 Speaker, University of Washington, Department of Bioengineering, "Regulation of cellular and multicellular form and function with nanoscale cues: implications for wound healing, cancer metastasis, and tissue engineering," Seattle, WA

11/6/10 Speaker, National Institute of Health (NIH), "Nanoscale matrix cues regulates the structure and function of macroscopic cardiac tissue constructs," Annual Bioscience and Engineering Symposium (ABES), *Natcher Auditorium*, Bethesda, MD

11/24/10 Speaker, Korea Institute of Science and Technology, Division of Biomedical Science, "Engineering cellular function and tissue regeneration with local matrix cues: implications for wound healing, cancer invasion, and stem cell therapy," Seoul, Korea

11/25/10 Speaker, Yonsei University, Department of Biotechnology, "Control of cellular and multicellular function with nanoscale matrix cues: implications for wound healing, cancer invasion, and tissue engineering," Seoul, Korea

11/29/10 Speaker, Samsung Medical Center, "Engineering cellular function and tissue regeneration with local matrix cues: implications for wound healing, cancer invasion, and stem cell therapy," Seoul, Korea

11/30/10 Speaker, KAIST, Department of Material Science and Engineering, "Controlling cellular function and tissue regeneration with nanoscale material cues," Daejeon, Korea

12/1/10 Speaker, Sogang University, Department of Mechanical Engineering, "Controlling cellular function and tissue regeneration with nanoscale matrix cues," Seoul, Korea

12/2/10 Speaker, Kyung Hee University, College of Pharmacy, "Regulation of cellular and multicellular form and function with nanoscale cues: implications for wound healing, cancer metastasis, and tissue engineering," Seoul, Korea

12/3/10 Speaker, Gwangju Institute of Science and Technology, School of Material Science and Engineering, "Nanoscale material cues regulate the structure and function of stem cells and macroscopic cardiac tissue construct," Gwangju, Korea

12/6/10 Speaker, Kyungwon University, College of Bionano Technology, "Regulation of cell function and tissue regeneration with matrix cues: implications for wound healing, cancer invasion, and tissue engineering," Sunnam, Korea

12/7/10 Speaker, Hanyang University, Department of BioNano Engineering, "Analysis and control of cellular function and tissue regeneration with nanoscale matrix cues," An-San, Korea

12/8/10 Speaker, Hanyang University, Department of Bioengineering, "Engineering cellular function and tissue regeneration with local matrix cues: implications for wound healing, cancer invasion, and stem cell therapy," Seoul, Korea

12/9/10 Speaker, Chung Ang University, Department of Chemical Engineering and Materials Science, "Analysis and control of cell function and tissue regeneration with nanoscale cues," Seoul, Korea

5/5/11 Speaker, University of Washington, Department of Bioengineering, "Biomimetic nanopatterns as enabling tools for analysis and control of cell function and tissue regeneration," Seattle, WA

5/10/11 Speaker, University of Washington, Department of Pathology, Cardiovascular Breakfast Club Seminar series, "Regulation of cardiac tissue structure and function by nano-architected matrix control," Seattle, WA

5/26/11 Speaker, University of Washington, Biomaterial Seminar Series, "Nanotopographically-defined biomaterials for analysis and control of cell function and tissue regeneration," Seattle, WA

10/20/11 Speaker, 10th International Conference on Nanoimprint and Nanoprint Technology, "Biomimetic nanopatterns as enabling tools for analysis and control of cell function and tissue regeneration," Jeju, Korea

11/1/11 Speaker, 5th International Conference on Cell Therapy, "Controlling cardiac function on the nano-scale: a biomimetic approach and intervention," Seoul, Korea

11/4/11 Speaker, Kyungbook National University, Department of Biochemistry and Cell Biology, "Biomimetic nanopatterns as enabling tools for analysis and control of cell function and muscle regeneration," Daegu, Korea

11/4/11 Speaker, Ewha Womans University, Department of Chemistry and Nanoscience, "Biomimetic nanopatterns as enabling tools for analysis and control of cell function and tissue regeneration," Seoul, Korea

11/22/11 Speaker, University of Washington, Department of Mechanical Engineering, "Mechanobiological regulation of cell function and tissue regeneration with nanoengineered matrix cues," Seattle, WA

8/23/12 Speaker, Northwest Korean-American Scientist Association Symposium, "Nanotechnological strategies

for engineering cells and tissue regeneration,” Seattle, WA

11/5/12 Speaker, 6th IEEE International Conference on Nano/Molecular Medicine and Engineering, “Matrix nanotopography as a regulator of cell function and tissue regeneration,” Bangkok, Thailand

11/17/12 Speaker, Seattle Korean-American Biomedical Science Symposium, “Nanoengineering cell biology and therapy,” Seattle, WA

1/2/13 Speaker, “Nanoengineered cardiac stem cell patches for myocardial regeneration,” The 3rd BMES Cellular and Molecular Bioengineering (CMBE) Annual Conference, Waimea, Hawaii

2/25/13 Speaker, Benaroya Research Institute, “Microenvironmental regulation of muscle regeneration by biophysical stimulation, Seattle, WA

3/26/13 Speaker, Samsung Medical Center, “Microenvironmental regulation of cell and tissue function by biophysical and material cues,” Seoul, Korea

3/27/13 Speaker, Seoul National University, School of Chemistry, “Biomimetic approaches for engineering cell function and tissue regeneration,” Seoul, Korea

3/28/13 Speaker, Kyunghee University, School of Dentistry, “Biomimetic approaches for engineering stem cells and tissues,” Seoul, Korea

3/29/13 Speaker, International Myocardial Ischemia Symposium, “Microenvironmental regulation of cardiac function by biophysical and material cues,” Seoul, Korea

4/11/13 Speaker, University of Washington, Nanoscience and Molecular Engineering Program Seminar, “Micro/nanotechnology for regenerative medicine,” Seattle, WA

6/4/13 Speaker, Department of Mechanical Engineering, Biomechanics Seminar Series, “Engineering biomimetic materials to direct cell function and tissue regeneration,” Seattle, WA

7/8/13 Speaker, International Nano and Micro Systems (NAMIS) Workshop, “BioMEMS Research Activities at University of Washington,” Seattle, WA

9/19/13 Speaker, University of Arizona, Department of Mechanical and Aerospace Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Tucson, AZ

11/12/13 Speaker, University of Victoria, Department of Mechanical “Micro- and nanoscale engineering of cell and tissue function,” Victoria, BC, Canada

3/3/14 Speaker, Ulsan National Institute of Science and Technology, School of Mechanical and Nuclear Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Ulsan, Korea

3/4/14 Speaker, Korea University, Department of Biomedical Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

3/4/14 Speaker, Korea Institute of Science and Technology, Center for Biomedical Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

3/5/14 Speaker, Hanyang University, Institute of Nano Science and Technology, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

3/5/14 Speaker, Hanyang University, Department of Bioengineering, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

3/6/14 Speaker, Chonnam National University, School of Mechanical Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Gwangju, Korea

3/7/14 Speaker, Gwangju Institute of Science and Technology, School of Material Science and Engineering, “Micro- and nanoscale engineering of cell and tissue function,” Gwangju, Korea

3/7/14 Speaker, Chonnam National University, School of Medicine, “Controlling cardiac function on the nano-scale: a biomimetic approach and intervention,” Gwangju, Korea

3/24/14 Speaker, International Symposium on Smart Biomaterials, “Nanoengineered biomaterials for controlling cell function and tissue regeneration,” Tsukuba, Japan

3/26/14 Speaker, University of Tokyo, “Micro- and nanoscale engineering of cell and tissue function,” Tokyo, Japan

3/27/14 Speaker, Samsung Medical Center, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

3/27/14 Speaker, Kyungbook National University, Department of Biochemistry and Cell Biology, “Micro- and nanoscale engineering of cell and tissue function,” Daegu, Korea

3/28/14 Speaker, Asan Medical Center, “Micro- and nanoscale engineering of cell and tissue function,” Seoul, Korea

5/30/14 Speaker, Tek One: Korean-American Technology Entrepreneurship Conference, “Predictive in-vitro human cardiotoxicity screening,” Los Angeles, CA

6/6/14 Speaker, University of California, Riverside, Department of Mechanical Engineering, “Micro- and nanotechnologies in engineering stem cells and tissues,” Riverside, CA

7/6/14 Speaker, 7th World Congress of Biomechanics, “Multiscale fabrication of matrix proteins and topographical structures for guided cell migration by combining capillary force lithography and plasma lithography,” Boston, MA

7/8/14 Speaker, Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, “Nano-engineering of 3D complex tissues with controlled architecture and function,” Waltham, MA

8/7/14 Speaker, US-Korea Conference on Science, Technology and Entrepreneurship, “Microenvironmental regulation of stem cell function and tissue regeneration,” San Francisco, CA

8/8/14 Speaker, US-Korea Conference on Science, Technology and Entrepreneurship, “Biomimetic platforms for cell-matrix mechanobiology: applications to tumor biology and tissue engineering,” San Francisco, CA

8/14/14 Speaker, Simon Fraser University, “Micro- and nanotechnologies in engineering stem cells and tissues,” Burnaby, BC, Canada

8/25/14 Speaker, University of Illinois at Chicago, College of Pharmacy, Department of Biopharmaceutical Sciences, “Micro- and nanoscale engineering of stem cell and tissue function,” Chicago, IL

8/26/14 Speaker, 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (Workshop on “Regenerative Nanomedicine”), “Nanotopography-guided tissue engineering and regenerative medicine,” Chicago, IL

8/29/14 Speaker, Gachon University, Department of Bionano Technology, “Micro- and nanoscale engineering of stem cell and tissue function,” Sungnam, Korea

8/29/14 Speaker, Hanyang University, Department of BioNano Engineering, “Micro- and nanoscale engineering of stem cell and tissue function,” An-San, Korea

9/1/14 Speaker, Sungkyunkwan University, Department of Mechanical Engineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Suwon, Korea

9/1/14 Speaker, Seoul National University, Graduate School of Convergence Science and Technology, “Micro- and nanoscale engineering of stem cell and tissue function,” Suwon, Korea

9/2/14 Speaker, POSTECH, Department of Mechanical Engineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Pohang, Korea

9/2/14 Speaker, Ulsan National Institute of Science and Technology, Department of Biomedical Engineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Ulsan, Korea

9/3/14 Speaker, Yonsei University, School of Integrated Technology, “Micro- and nanoscale engineering of stem cell and tissue function,” Incheon, Korea

9/3/14 Speaker, Inha University, School of Medicine, “Micro- and nanoscale engineering of stem cell and tissue function,” Incheon, Korea

9/4/14 Speaker, Korea University, Department of Mechanical Engineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Seoul, Korea

9/12/14 Speaker, University of Utah, Department of Bioengineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Salt Lake City, UT

9/26/14 Keynote Speaker, Tissue Engineering and Regenerative Medicine International Society (TERMIS-AP), “Nano-engineering of 3D complex tissues with controlled architecture and function,” Daegu, Korea

9/29/14 Speaker, Catholic University of Korea, Department of Bioengineering, “Micro- and nanoscale engineering of stem cell and tissue function,” Buchon, Korea

11/19/14 Speaker, International Symposium on Smart Biomaterials, “Nanoengineered biomaterials for tissue engineering and regenerative medicine,” Gwangju, Korea

11/20/14 Speaker, Western Washington University, Department of Chemistry, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Bellingham, WA

11/22/14 Speaker, Korean-American Scientists and Engineers Association Pre-Health Workshop, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Seattle, WA

12/1/14 Speaker, Georgia Tech and Emory University, Coulter Department of Biomedical Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Atlanta, GA

1/23/15 Speaker, University of California at Berkeley, Nanoscale Science and Engineering Institute, “Multi-scale biofabrication strategies for cell biology and tissue engineering,” Berkeley, CA

3/13/15 Speaker, Seoul National University, School of Material Science and Engineering, “Micro- and nanoengineered biomaterials for tissue engineering and regenerative medicine,” Seoul, Korea

3/16/15 Speaker, Inje University, Department of Nano Engineering, “Multi-scale biomimetic human tissues on chips for life sciences and biotechnology,” Gimhae, Korea

3/17/15 Speaker, Korea Research Institute of Bioscience and Biotechnology, Bio-Therapeutics Research Institute, “Multi-scale biomimetic human tissues on chips for disease modeling and drug screening,” Ochang, Korea

3/17/15 Speaker, KAIST, Graduate School of Medical Science and Engineering, “Multi-scale biomimetic human

tissue engineering for regenerative medicine and drug screening,” Daejeon, Korea

3/18/15 Speaker, Yonsei University, School of Mechanical Engineering, “Multi-scale biomimetic human tissues on chips for life sciences and biotechnology,” Seoul, Korea

3/19/15 Speaker, Gwangju Institute of Science and Technology, Department of Medical System Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Gwangju, Korea

3/23/15 Speaker, Texas A&M University, Department of Biomedical Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” College Station, TX

3/26/15 Speaker, University of Texas at Austin, Department of Biomedical Engineering, “Multi-scale regenerative bioengineering,” Austin, TX

5/5/15 Speaker, University of Washington, Cardiovascular Breakfast Club Seminar Series, “Multi-scale biofabrication strategies for cardiac cell and tissue engineering,” Seattle, WA

7/3/15 Speaker, NANO KOREA 2015 Symposium, “Biologically inspired hybrid nanostructures for tissue engineering and biology,” Seoul, Korea

7/6/15 Speaker, Korea University, Department of Chemical and Biological Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Seoul, Korea

7/6/15 Speaker, University of Seoul, Department of Chemical Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Seoul, Korea

7/7/15 Speaker, Korea Institute for Advanced Study, School of Computational Sciences, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Seoul, Korea

9/9/15 Speaker, Worcester Polytechnic Institute, Department of Biomedical Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Worcester, MA

9/11/15 Speaker, Tissue Engineering and Regenerative Medicine International Society (TERMIS) World Congress, “A microphysiological heart-on-chip using biomimetic myocardial matrices,” Boston, MA

12/2/15 Speaker, Seoul National University, Department of Chemical and Biological Engineering, “Bio-inspired multiscale interfacial materials for engineering biology and translational medicine,” Seoul, Korea

3/4/16 Speaker, International Myocardial Ischemia Symposium, “Nanotopography-guided cardiac biology and tissue engineering,” Seoul, Korea

3/12/16 Speaker, The Society for Cardiovascular Pathology Annual Meeting, “Nanotopography-guided cardiomyocyte maturation and tissue engineering,” Seattle, WA

7/25/16 Speaker, University of Seoul, Department of Chemical Engineering, “Bio-inspired multiscale interfacial materials for engineering biology and translational medicine,” Seoul, Korea

8/1/16 Speaker, Sogang University, Department of Mechanical Engineering, “Multi-scale biomanufacturing strategies for tissue engineering and regenerative medicine,” Seoul, Korea

8/2/16 Speaker, Samsung Medical Center, Department of Neurology, “Engineering human tissues for regenerative medicine, disease modeling, and drug screening,” Seoul, Korea

11/1/16 Keynote Speaker, 10th IEEE International Conference on Nano/Molecular Medicine and Engineering, “Nanotopography-guided tissue engineering and regenerative medicine,” Macau, China

3/20/17 Purdue University, Department of Biomedical Engineering, “Multi-scale biomimetic human cardiac tissue engineering for regenerative medicine, disease modeling, and drug screening,” West Lafayette, IN

4/10/17 Speaker, 12th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems, “Matrix nanotopography as a regulator of cancer cell migration,” Los Angeles, CA

6/1/17 Speaker, University of California at Los Angeles, Department of Bioengineering, “Multi-scale biomimetic human cardiac tissue engineering for regenerative medicine, disease modeling, and drug screening,” Los Angeles, CA

7/12/17 Speaker, 12th International Symposium on Frontiers in Biomedical Polymers (FBPS’17), “Multi-scale biomimetic human cardiac tissue engineering for disease modeling and drug screening,” Seoul, Korea

7/13/17 Speaker, NANO KOREA 2017 Symposium, “Nanoengineered biomaterials for tissue engineering and regenerative medicine,” Seoul, Korea

8/11/17 Speaker, US-Korea Conference on Science, Technology and Entrepreneurship, “Multi-scale biomimetic human cardiac tissue engineering for disease modeling and drug discovery,” Washington DC

11/9/17 Speaker, 16th International Conference on Nanoimprint and Nanoprint Technology, “Bioinspired nanostructured interface materials for tissue engineering and biology,” CECO, Gyeongnam, Korea

11/27/17 Speaker, University of Michigan at Ann Arbor, Department of Biomedical Engineering, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Ann Arbor, MI

12/19/17 Speaker, Yonsei University, Department of Biomedical Engineering, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Seoul, Korea

12/19/17 Speaker, Chonbuk National University, Department of Polymer Science and Engineering, “Comprehensive in vitro proarrhythmia assay initiative: a new safety paradigm to de-risk drug candidates,” Jeonju, Korea

12/20/17 Speaker, Seoul National University School of Medicine, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” Seoul, Korea

2/20/18 Speaker, UW Institute for Stem Cell and Regenerative Medicine, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Seattle, WA

4/2/18 Speaker, New York University, Department of Mechanical and Aerospace Engineering, “Multi-scale biofabrication strategies for cancer biology, stem cell and tissue engineering,” New York, NY

4/19/18 Speaker, University of Maryland, Department of Bioengineering, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” College Park, MD

7/6/18 Keynote Speaker, 3rd Asian University Symposium for Biomedical Engineering “Human iPSC-derived tissue models for disease modeling and precision medicine,” Seoul, Korea

7/12/18 Speaker, NANO KOREA 2018 Symposium, “Bioinspired multiscale interfacial materials for tissue engineering and mechanobiology,” Seoul, Korea

7/18/18 Speaker, Johns Hopkins University, Department of Biomedical Engineering, “Human iPSC-based microphysiological systems for disease modeling, drug development, and precision medicine,” Baltimore, MD

7/31/18 Speaker, 14th Frontier Scientists Workshop organized by the Korean Academy of Science and Technology, “Human iPSC-based microphysiological systems for disease modeling and drug development,” New York, NY

9/3/18 Speaker, Kyoto University, Department of Microengineering, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Kyoto, Japan

10/19/18 Speaker, BMES Annual Meeting (Advanced Biomanufacturing Workshop) “Human iPSC-based cardiac microphysiological systems for disease modeling and drug screening,” Atlanta, GA

12/5/18 Keynote Speaker, 12th IEEE International Conference on Nano/Molecular Medicine and Engineering, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Waikiki Beach, Hawaii (**IEEE NANOMED New Innovator Award Talk**)

12/18/18 Speaker, Osong Biomedical Innovation Foundation, New Drug Development Center, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Osong, Korea

12/19/18 Speaker, Kyungbook National University, School of Mechanical Engineering, “Multi-scale biofabrication strategies for engineering biology and translational medicine,” Daegu, Korea

12/20/18 KAIX Distinguished Lecturer, KAIST, Department of Chemistry, “Human iPSC-based microphysiological systems for disease modeling and biotherapeutic development,” Daejeon, Korea

12/21/18 Speaker, Chung-Ang University, Research Institute for Biomedical and Pharmaceutical Sciences, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Seoul, Korea

5/17/19 Speaker, Seoul National University, School of Biological Sciences, “Human iPSC-based microphysiological systems for disease modeling, drug screening and space biology,” Seoul, Korea

9/2/19 Speaker, Institut Jacques Monod, “Cell-matrix mechanobiology for collective cell migration,” Paris, France

9/5/19 Speaker, 6th International Symposium of Stem Cell and Regenerative Medicine Institute, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Seoul, Korea

10/31/19 Speaker, 2nd Organoid Society Annual Meeting, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Seoul, Korea

11/1/19 Speaker, Dongkuk University, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Seoul, Korea

11/1/19 Speaker, Kyunghee University, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Seoul, Korea

11/13/19 Speaker, Tokyo Institute of Technology, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Seoul, Korea

11/14/19 Speaker, 4th International Symposium on Biomedical Engineering, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Shizuoka, Japan

11/22/19 Speaker, McLean Hospital, “Human iPSC-based microphysiological systems for disease modeling and phenotypic drug screening,” Boston, MA

12/11/19 Speaker, American Society of Cell Biology, “Matrix nanotopography as a regulator of cell function,” Washington, DC

1/27/20 Speaker, SLAS2020 International Conference & Exhibition, “Disease modeling and phenotypic drug screening for dystrophic cardiomyopathy,” San Diego, CA

7/21/20 Speaker, AstraZeneca Cell Culture Fermentation Sciences, “Human iPSC-based microphysiological systems

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| | for disease modeling and phenotypic drug screening,” Gaithersburg, MD |
| 8/4/20 | Speaker, The International Space Station (ISS) US National Lab, In-Space Use of Organoid and Microphysiological Systems Workshop, “A Human iPSC-based 3D microphysiological system for modeling cardiac dysfunction in microgravity,” Virtual meeting |
| 8/20/20 | Speaker, Pusan National University, “Human iPSC-based microphysiological systems for disease modeling, drug screening, and space biology,” Virtual meeting |
| 9/22/20 | Speaker, Korean Society for Biochemistry and Molecular Biology (KSBMB) International Conference, “Disease modeling and phenotypic drug screening for dystrophic cardiomyopathy,” Virtual meeting |
| 10/2020 | Speaker, The International Space Station (ISS) US National Lab, Biomanufacturing in Space Thought Leadership Symposium, “A Human iPSC-based 3D microphysiological system for modeling cardiac dysfunction in microgravity,” Virtual meeting |
| 1/22/2021 | Speaker, National Center for Advancing Translational Sciences (NCATS), “A Human iPSC-based 3D microphysiological system for disease modeling and drug development,” Virtual meeting |
| 2/24/2021 | Speaker, Johns Hopkins University, Bioastronautics@Hopkins: Virtual Symposium on Human Spaceflight, “A Human iPSC-based 3D microphysiological system for modeling cardiac dysfunction in microgravity,” |
| 3/3/2021 | Speaker, George Washington University, Department of Biomedical Engineering, “Human iPSC-based 3D microphysiological systems for disease modeling, drug screening, and space biology,” Virtual meeting |
| 7/7/2022 | Speaker, NANO KOREA 2022, “Human microphysiological systems for disease modeling and drug screening,” KINTEX, Korea |
| 7/11/2022 | Speaker, Pusan National University, School of Medicine, “Multiscale biofabrication strategies for tissue engineering and disease modeling applications,” Busan, Korea |
| 7/12/2022 | Speaker, Hallym University, School of Medicine, “Multiscale biofabrication strategies for tissue engineering and disease modeling applications,” Dongtan, Korea |
| 7/26/2022 | Plenary Speaker, International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS), “Microrobotics and biosensor integration for advanced microphysiological systems,” Toronto, Canada |
| 7/27/2022 | Speaker, Global K-BioX Seminar Series, “Human microphysiological systems for disease modeling and drug development,” Virtual meeting |
| 8/31/2022 | Speaker, Samsung Bioepis, “Human iPSC-based microphysiological systems for disease modeling and drug screening,” Songdo, Korea |
| 10/6/2022 | Keynote Speaker, Tissue Engineering and Regenerative Medicine International Society (TERMIS-AP), “Multi-Scale Biofabrication Approaches for Human Cardiac Tissue Engineering and Heart-on-a-Chip Applications,” Jeju, Korea |
| 10/7/2022 | Speaker, R&D Center, Yuhan Pharmaceutical, “Human microphysiological systems for disease modeling and drug development,” Yongin, Korea |
| 10/10/2022 | Speaker, Pukyung University, Department of Biomedical Engineering, “Human microphysiological systems for disease modeling and drug development,” Pusan, Korea |
| 10/13/2022 | Speaker, Institute for Basic Science, Seoul National University, “Human microphysiological systems for disease modeling and drug development,” Seoul, Korea |
| 10/14/2022 | Plenary Speaker, Gyeongbuk Bio Life Expo 2022, “Human microphysiological systems for disease modeling and drug development,” Seoul, Korea |
| 12/2/2022 | Plenary Speaker, Bio Fusion Seminar Series, Sungkyunkwan University, “High-throughput human microphysiological systems for disease modeling and phenotypic drug development,” Seoul, Korea |

OTHER PROFESSIONAL ACCOMPLISHMENTS

1. **Kim DH**, Wang J, Kwon KW, Suh KY, Levchenko A. “A microfluidic platform integrated with a nano- and micropatterned extracellular matrices for analysis of cell locomotion,” *Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices*, July 2-7, 2006.
2. **Kim DH**, Kim P, Song IS, Cha JM, Lee SH, Kim B, Suh KY. “Guided three-dimensional growth of cardiomyocytes on nanostructured PEG scaffolds,” *Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices*, July 2-7, 2006.
3. **Kim DH**, Kim P, Song IS, Cha JM, Lee SH, Kim B, Suh KY. “Guided three-dimensional growth of cardiomyocytes on nanostructured PEG scaffolds,” *Celebrating 30 Years of Robert Langer’s Science*, Boston, USA, July 14-16, 2006.
4. **Kim DH**, Kwon KW, Kim YH, Li Y, Wang J, Suh KY, Levchenko A. “Nanoengineering focal adhesions regulates cell shape and locomotion,” *Keystone Symposium on Nanotechnology in Biomedicine*, Tahoe City, USA, February 11-16, 2007.
5. **Kim DH**, Kwon KW, Kim YH, Li Y, Suh KY, Levchenko A. “Nanoengineering focal adhesions regulates cell shape and locomotion,” *Annual Johns Hopkins School of Medicine Graduate Student Association Poster Session*, Baltimore, USA, April

6, 2007.

6. **Kim DH**, Lipke E, Kim P, Delannoy M, Suh KY, Tung L, Levchenko A. "Fabrication and functional characterization of nanoengineered cardiac tissues," *Keystone Symposium on Tissue Engineering and Developmental Biology*, Snowbird, Utah, USA, April 12-17, 2007.
7. **Kim DH**, Kim YH, Kwon KW, Li Y, Wang J, Suh KY, Levchenko A. "Nanoengineering focal adhesions regulates cell shape and locomotion," Institute for Nano-Bio Technology Symposium, Baltimore, Maryland, April 27, 2007.
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23. Gauthier-Bell K, Britain DM, Jiao A, **Kim DH**. "Novel nanotopographically defined spatially organized co-culture system for cardiac tissue engineering," *UW Summer STEM Undergraduate Research Poster Session*, Seattle, WA, August 17, 2011.
24. Kim JH, Choi KS, Kim YR, Kim Y, Lim KT, Woo HS, Park Y, **Kim DH**, Choung PH, Cho CS, Kim SY, Choung YH, Chung JH. "Regulating stem cell behaviors using graphene-based platforms," *Annual Meeting of Korean Tissue Engineering and Regenerative Medicine*, Seoul, Korea; May 25-26, 2012. **(Best Paper Award)**
25. Park JS, **Kim DH**, Kim HN, Suh KY, Levchenko A. "Directional migration of melanoma cells on graded post density arrays," *6th International Conference on Bioengineering and Nanotechnology*, Berkeley, CA; June 24-27, 2012. **(2nd Place Winner Award)**
26. Kim J, Kim HN, Kim YJ, Lim KT, Seonwoo H, **Kim DH**, Choung PH, Choung YH, Suh KY, Chung JH.

- “Bioinspired nanotopography-induced human mesenchymal stem cell behaviors on precisely defined nanogroove platforms,” *the 8th Annual Meeting of Korean Society for Stem Cell Research*, Incheon, Korea, August 30-31, 2012.
27. Reit R, Britain D, Nam K, Bhattacharjee N, Folch A, **Kim DH**. “A microfluidic gradient generating device integrated with nanopatterned matrices for studying guided cell migration” *the Biomedical Engineering Society Annual Meeting*, Atlanta, GA, October 24-27, 2012.
 28. Kim J, Kim HN, Lim KT, Kim YJ, Seonwoo H, **Kim DH**, Choung YH, Suh KY, Chung JH. “Nanotopography-guided stem cell engineering: regulating structure and function of human mesenchymal stem cells on precisely defined nanogroove patterns.” *the 20th annual meeting of the Korean Society for Biomaterials*, Seoul, Korea, November 15-16, 2012. (**Young Scientist Award**)
 29. Jiao A, Trosper NE, Carson D, Lee J, Murry CE, **Kim DH**. “Fabrication of human stem cell-derived, scaffold-free, anisotropic cardiac sheets,” *BMES-CMBE Annual Conference*, Waimea, HI, January 2-5, 2013. (**Student Paper Award**)
 30. Jiao A, Trosper NE, Kim B, Lee J, Im SG, **Kim DH**. “Nanoscale control over scaffold-free, anisotropic muscle tissue,” *ASME-NEMB 2013 Global Congress*, Boston, MA, February 4-6, 2013. (**Outstanding Paper Award**)
 31. Kostecki G, Joshi-Mukherjee R, Macadangdang J, Trosper N, Yue D, **Kim DH**, Tung L. “Enhanced action potential phase 2 produced in novel anisotropic model of adult guinea pig cardiomyocyte monolayer using nanopatterned substrates,” *Gordon Research Conference on Cardiac Arrhythmia Mechanisms*, Ventura, CA, February 17-22, 2013.
 32. Yang H, Ieronimakis N, Tsui JH, Lih D, Reyes M, **Kim DH**. “Nanopatterned muscle cell patches for enhanced myogenesis and muscular regeneration,” Poster presented at 11th Annual Workshop of the Nano and Micro Systems Research Network, Seattle, WA, July 8-10, 2013.
 33. Kim Y, **Kim DH**, Ahn EH. “Proteomic analysis of glioblastoma stem cells within controlled microenvironments.” US-Korea Conference 2013, East Rutherford, New Jersey, August 10, 2013.
 34. Yama D, Tsui JH, Janebodin K, Ieronimakis N, Reyes M, **Kim DH**. “Sphingosine 1-phosphate-functionalized nanopatterned substrates for vascularized skeletal muscle tissue engineering” *UW Summer STEM Undergraduate Research Poster Session*, Seattle, WA, August 17, 2013.
 35. Trosper N, Jiao A, **Kim DH**. “Nanoengineered PNIPAAm platform combined with microstencil-assisted cell patterning towards cell sheet origami,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 36. Macadangdang JR, Lee HJ, Pabon LM, Fugate JA, Murry CE, **Kim DH**. “Enhanced structural maturation of human pluripotent stem cell-derived cardiomyocytes induced by nanogrooved culture substrata,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 37. Nam KH, Kim P, Kwon S, **Kim DH**. “Cellular micropatterns on nanogrooved PDMS substrates for single-cell based guided migration studies,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 38. Nemeth C, Janebodin K, Yuan AE, Reyes M, **Kim DH**. “Nanopatterned hyaluronan hydrogels enhance chondrogenic differentiation of dental pulp stem cells,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 39. Jang J, Ulyanova T, Gupta K, Lucero R, Nam K, Cho DW, Papayannopoulou T, **Kim DH**. “Anchoring on an erythroblastic island,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 40. Tsui JH, Yang H, Ieronimakis N, Reyes M, **Kim DH**. “Sphingosine 1-phosphate functionalized nanopatterned scaffolds for engineering vascularized skeletal muscle tissue,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 41. Jiao A, Trosper N, Murry CE, **Kim DH**. “In vitro fabrication of scaffold-free skeletal muscle tissue with defined 3D structure using a thermoresponsive, nanotopographically-defined platform,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 42. Kim P, Nam KH, Bhattacharjee N, Folch A, Kwon S, **Kim DH**. “Guided cell migration by topographical guidance and biomolecular gradients within an open access microfluidic chamber array,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 43. Chaterji S, Lee HJ, Kim P, Gupta K, Lee J, Baker AB, **Kim DH**. “The combined effects of matrix stiffness and nanotopography on the regulation of vascular smooth muscle cell function,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 44. Joshi-Mukherjee R, Macadangdang J, Kostecki G, Trosper N, Yue D, **Kim DH**, Tung L. “Enhanced action potential phase 2 produced in novel anisotropic model of adult guinea pig cardiomyocyte monolayer using nanopatterned substrata,” *the Biomedical Engineering Society Annual Meeting*, Seattle, WA, September 25-28, 2013.
 45. Ray A, Lee O, **Kim DH**, Provenzano P. “Nanotopographic cues induce polarity and directional migration of carcinoma cells,” *ASME-NEMB 2014 3rd Global Congress*, San Francisco, CA, February 2-5, 2014.
 46. Ray A, Lee O, **Kim DH**, Provenzano P. “Quantitative analysis of cell morphology and migration on nanopatterned substrates,” *ASME-NEMB 2014 3rd Global Congress*, San Francisco, CA, February 2-5, 2014.

47. Kim P, Mun K, Kim J, Provenzano P, **Kim DH**. "Role of PI3K signaling in contact guidance mediated rapid cell migration," *UW Annual Stem Cell Symposium*, Seattle, WA, March 21, 2014.
48. Tsui JH, Jang J, Neal N, Cho DW, **Kim DH**. "Reduced graphene oxide incorporated myocardial matrix as a functional scaffold for cardiac tissue engineering," *Society for Biomaterials 2014*, Denver, CO, April 13-16, 2014.
49. Carson D, Hnilova M, Nemeth C, Tsui JH, Yang X, Murry CE, Tamerler C, **Kim DH**. "RGD peptide-functionalized nanopatterned substrates for enhanced maturation of human pluripotent stem cell-derived cardiomyocytes," *International Society for Stem Cell Research 12th Annual Meeting*, Vancouver, Canada, June 18-21, 2014.
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51. Janebodin K, Bae MS, Parent S, Ieronimakis N, Monis G, Hays A, **Kim DH**, Reyes M. "Fibroblast growth factor-7 and hyaluronic acid synergistically enhance salivary gland differentiation," *International Society for Stem Cell Research 12th Annual Meeting*, Vancouver, Canada, June 18-21, 2014.
52. Yang D, Futakuchi-Tsuchida A, Xu J, Jiao A, Boucek R, **Kim DH**, Regnier M, Pabon L, Reinecke H, Murry CM. "Patient-specific induced pluripotent stem cells as a model for familial cardiomyopathy," *International Society for Stem Cell Research 12th Annual Meeting*, Vancouver, Canada, June 18-21, 2014.
53. Tsui JH, Jang J, Neal N, Cho DW, Laflamme MA, **Kim DH**. "Injectable myocardial matrix-graphene composite hydrogels for functional cardiac tissue engineering," *International Society for Stem Cell Research 12th Annual Meeting*, Vancouver, Canada, June 18-21, 2014.
54. Kshitiz, Schwerdt H, Choi YS, Gray K, Kim P, Laflamme MA, Chae J, **Kim DH**. "An integrated multi-electrode array nanodevice for drug-induced cardiotoxicity screening" *International Society for Stem Cell Research 12th Annual Meeting*, Vancouver, Canada, June 18-21, 2014.
55. Nam KH, Kim P, Provenzano PP, Kwon S, **Kim DH**. "Multiscale fabrication of matrix proteins and topographical structures for guided cell migration by combining capillary force lithography and plasma lithography," *7th World Congress of Biomechanics*, Boston, MA, July 6-11, 2014.
56. Yang HS, Ieronimakis N, Tsui JH, Kim HN, Suh KY, Reyes M, **Kim DH**. "Engineering muscle cell niche environments for enhanced myogenesis and dystrophin expression in a mouse model of muscular dystrophy," *US-Korea Conference*, San Francisco, CA, August 6-9, 2014.
57. Kim JS, Macadangdang J, Jiao A, Guan X, Czerniecki SM, Mack D, Childers MK, **Kim DH**. "Traction force microscopy of cardiomyocytes differentiated from Duchenne muscular dystrophy patient-derived induced pluripotent stem cells," *US-Korea Conference*, San Francisco, CA, August 6-9, 2014.
58. Yi T, Tsui JH, Rutz B, Kim J, **Kim DH**. "DOPA-mediated lipid immobilization method for rapid testing platform for tuberculosis treatment," *US-Korea Conference*, San Francisco, CA, August 6-9, 2014.
59. Macadangdang J, Carson D, Smith AST, Leung W, Lucero R, Ding H, Laflamme MA, Murry CE, **Kim DH**. "Nanotopographically-controlled model of human myocardium with structural and functional maturation," *Keystone Symposium on Heart Diseases and Regeneration: Insights from Development*, Copper Mountain, CO, USA, March 1-6, 2015.
60. Tatman P, Gerull W, Davis J, Sweeney-Easter S, Gee AO, **Kim DH**. "Hybrid 3-dimensional nanofiber scaffold for articular cartilage engineering," *Orthopaedic Research Society 2015 Annual Meeting*, Las Vegas, NV, March 28-31, 2015.
61. Fisher E, Rinnofner J, Koller M, Tsui J, Smith AST, Neumann T, **Kim DH**. "A microphysiological heart-on-a-chip using electroconductive myocardial matrices," *4th TERMIS World Congress*, Boston, MA, September 8-11, 2015.
62. Tsui JH, Janebodin K, Ieronimakis N, Yama D, Yang HS, Reyes M, **Kim DH**. "Combining sphingosine 1-phosphate and nanotopographical signaling to enhance skeletal muscle maturation and vascularization," *4th TERMIS World Congress*, Boston, MA, September 8-11, 2015.
63. Smith AST, **Kim DH**. "An integrated multielectrode array nanodevice for drug-induced cardiotoxicity screening and drug discovery," *9th IEEE International Conference on Nano/Molecular Medicine & Engineering (NANOMED)*, Waikiki Beach, Hawaii, November 15-18, 2015.
64. Miklas JW, Wang Y, Fischer K, Macadangdang J, Leonard A, Madan A, Sniadecki N, **Kim DH**, Ruohola-Baker H. "The role of microRNA in regulating stem cell-derived cardiomyocyte maturation," *International Society for Stem Cell Research 14th Annual Meeting*, San Francisco, USA, June 22-25, 2016.
65. Mengsteab P, Uto K, Smith AST, Frankel S, Fisher E, Nawas Z, Macadangdang J, Ebara M, **Kim DH**. "Spatiotemporal control of cardiac anisotropy using dynamic nanotopographic cues," *the Biomedical Engineering Society Annual Meeting*, Minneapolis, MN, October 5-8, 2016.
66. Carson D, Hnilova M, Yang X, Nemeth C, Smith AST, Tsui JH, Jiao A, Regnier M, Murry CE, Tamerler C, **Kim DH**. "Nanotopography-induced structural anisotropy and sarcomere development in human induced pluripotent stem cell-derived cardiomyocytes," *the Biomedical Engineering Society Annual Meeting*, Minneapolis, MN, October 5-8, 2016.
67. Smith AST, Yoo H, Yi H, Ahn EH, Lee J, Shao G, Nagornyak E, Laflamme MA, Murry CE, **Kim DH**. "Nanopatterned conductive PEG/graphene hybrid scaffolds for cardiac tissue engineering," *the Biomedical Engineering*

Society Annual Meeting, Phoenix, AZ, October 11-14, 2017.

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69. Su CY, Ahn EH, Miller C, **Kim DH**. “Aligned nanotopography of tumor stroma induces cluster-based cancer dissemination and drug resistance by epithelial-mesenchymal transition,” Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, Andover, NH United States, July 22-27, 2018.
70. Smith AST, Tsui JH, Moerk C, Choi I, Lim H, Lee G, **Kim DH**. “Engineering human iPSC-derived 3D skeletal muscle constructs for repair of volumetric muscle loss,” *Tissue Engineering and Regenerative Medicine (TERMIS) World Congress*, Kyoto, Japan, September 4-7, 2018.
71. Penland N, Smith AST, Macadangdang J, Jiao A, Murry CM, **Kim DH**. “Engineering multiscale models of the myocardium for investigating structure-function relationships in the human left ventricle,” *Tissue Engineering and Regenerative Medicine (TERMIS) World Congress*, Kyoto, Japan, September 4-7, 2018.
72. Mair DB, Williams MAC, Tung L, Boheler K, **Kim DH**. “Engineered human heart tissues for studying the effects of galactic cosmic radiation on cardiac function,” NASA Human Research Program Investigator’s Workshop, Virtual, February 1-4, 2021.
73. Tsui JH, Mair DB, Higashi T, Williams MAC, Koenig P, Ahn EA, Lee PHU, Countryman S, Sniadecki NJ, **Kim DH**. “A Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity,” NIH Tissue Chip Consortium, Virtual, March 30-31, 2021.
74. Lin B, Wu A, Shin J, Choi IY, Mair DB, Tung L, Lee G, Kass D, **Kim DH**. “Engineering Clinical Trials on a Chip for Dystrophin-Deficient Muscular Dystrophy,” *NIH Tissue Chip Consortium*, Virtual, March 30-31, 2021.
75. Mair DB, Tsui J, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity,” *International Space Station Research and Development Conference*, Virtual, August 3-5, 2021.
76. Mair DB, Tsui JH, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity,” Wernher von Braun Memorial Symposium, Huntsville, Alabama, October 12-14, 2021.
77. Mair DB, Tsui JH, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity,” American Society for Gravitational and Space Research, Baltimore, MD, November 3-6, 2021.
78. Ren Z, Doo HM, Mair DB, Lee PHU, **Kim DH**. “Tissue-engineered skeletal muscle-on-a-chip for studying microgravity-induced atrophy and drug countermeasures,” American Society for Gravitational and Space Research, Baltimore, MD, November 3-6, 2021.
79. Mair DB, Tsui J, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity,” MPS World Summit Satellite Meeting, Virtual, December 9, 2021.
80. Mair DB, Stoddart L, Tsui J, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microgravity-Induced Mitochondrial Dysfunction in Human iPSC-Based 3D Cardiac Microphysiological System,” NIH Tissue Chip Consortium, Virtual, February 10-11, 2022.
81. Go G, Esfahani AM, Criscione J, Mair DB, Kim Y, Park SH, Stoddart L, Ren Z, Akarapipad P, Tung L, Lee G, Herron T, Kass D, **Kim DH**. “Engineering Clinical Trials on a Chip for Dystrophin-Deficient Muscular Dystrophy,” NIH Tissue Chip Consortium, Virtual, May 30-31, 2022.
82. Mair DB, Stoddart L, Tsui J, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microgravity-Induced Mitochondrial Dysfunction in Human iPSC-Based 3D Cardiac Microphysiological System,” Microphysiological Systems World Summit, New Orleans, LA, May 30- June 3, 2022.
83. Ren Z, Go G, Esfahani AM, Mair DB, Lee PHU, **Kim DH**. “High-content contractile analysis of microphysiological 3D skeletal muscle model using a magnet-based noninvasive real-time platform,” MPS World Summit, New Orleans, LA, May 30-June 3, 2022.
84. Mair DB, Stoddart L, Tsui J, Higashi T, Koenig P, Smith A, Moerk T, Lee PHU, Ahn EH, Countryman S, Sniadecki N, **Kim DH**. “A Human iPSC-based 3D Microgravity-Induced Mitochondrial Dysfunction in Human iPSC-Based 3D Cardiac Microphysiological System,” *Tissue Engineering and Regenerative Medicine-AM*, Toronto, CA, July 10-13, 2022.