

**Curriculum Vitae of Deok-Ho Kim**  
Johns Hopkins University

*Deok-Ho Kim*

June 27, 2023

Deok-Ho Kim, PhD

**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.
18. Park S, Ryu S, Ryu S, **Kim DH**, Kim B. Contractile force measurements of cardiac myocytes using a micro-manipulation system. *Journal of Mechanical Science and Technology*. 2006;20(5):668-674.
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.
22. Kim J, Junkin M, Kim DH, Kwon SL, Shin YS, Wong PK, Gale BK. Applications, techniques, and microfluidic interfacing for nanoscale biosensing. *Microfluidics and Nanofluidics*. 2009;7:149-167.
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)**
26. Park JY\*, **Kim DH\***, Kim G, Kim YH, Choi EP, Levchenko A. Simple haptotactic gradient generation within a triangular microfluidic channel. *Lab on a Chip*. 2010;10:2130-2138.
27. **Kim DH**, Lipke E, Kim P, Cheong R, Thompson S, Delannoy M, Suh KY, Tung L, Levchenko A. Nanoscale cues regulate the structure and function of macroscopic cardiac tissue constructs. *Proceedings of the National Academy of Sciences USA*. 2010;107:565-570. **(Press released)**
28. You MH, Kwak MK, **Kim DH**, Kim K, Levchenko A, Kim DY, Suh KY. Synergistically enhanced osteogenic differentiation of human mesenchymal stem cells by culture on nanostructured surfaces with induction media. *Biomacromolecules*. 2010;11:1856-1862.
29. Gupta K\*, **Kim DH\***, Ellison D, Smith C, Kundu A, Suh KY, Tuan J, Levchenko A. Lab-on-a-chip devices as an emerging platform for stem cell biology. *Lab on a Chip*. 2010;10:2019-2031. **(Selected as one of the top ten accessed Lab on a Chip articles in August)**
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.
31. Hur E\*, Yang IH\*, **Kim DH\***, Byun J, Xu WL, Jilafu S, Cheong R, Levchenko A, Thakor N, Zhou F. Engineering neuronal growth cone to promote axon regeneration over inhibitory molecules. *Proceedings of the National Academy of Sciences USA*. 2011;108:5057-5062.
32. Gupta K, **Kim DH**, Beebe D, Levchenko A. Micro- and nanoengineering for stem cell biology: the promise with a caution. *Trends in Biotechnology*. 2011;29:399-408. **(Selected as Top 25 Hottest Articles)**
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.
34. Park JS, Kim HN, **Kim DH**, Levchenko A, Suh KY. Quantitative analysis of the combined effect of substrate rigidity and topographic guidance on cell morphology. *IEEE Transactions on Nanobioscience*. 2012;11:28-36.
35. Garzon-Muvdi T, Aprhys C, Smith C, **Kim DH**, Kone L, Farber SH, An SS, Levchenko A, Quinones-Hinojosa A. Regulation of brain tumor dispersal by NKCC1 through a novel role in focal adhesion regulation. *PLoS Biology*. 2012;10:e1001320.
36. Kshitiz K, Hubbi ME, Ahn EH, Downey J, **Kim DH**, Rey S, Afzal J, Kundo A, Semenza GL, Abraham RM, Levchenko A. Matrix rigidity controls endothelial differentiation and morphogenesis of cardiac precursors. *Science Signaling*. 2012;5:ra41. **(Featured as a Front Cover; Highlighted in Science)**
37. **Kim DH\***, Gupta K\*, Smith R, Kim P, Kim HN, Ahn EH, Suh KY, Marban E, Levchenko A. Nanopatterned cardiac cell patches promote stem cell niche formation and myocardial regeneration. *Integrative Biology*. 2012;4:1019-1033. **(Featured as a Front Cover)**
38. Kim J\*, **Kim DH\***, Lim KT, Seonwoo H, Park SH, Kim YR, Choung YH, Choung PH, Chung JH. Charged nanomatrices as efficient platforms for modulating cell adhesion and shape. *Tissue Engineering Part C*. 2012;18: 913-923. **(Featured as a Front Cover)**
39. \***Kim DH**, Provenzano PP, Smith CL, \*Levchenko A. Matrix nanotopography as a regulator of cell function. *Journal of Cell Biology*. 2012;197(3):351-360.
40. Kim HN, Kang DH, Kim MS, Jiao A, **Kim DH**, Suh KY. Patterning methods for polymers in cell and tissue engineering. *Annals of Biomedical Engineering*. 2012;40(6):1339-1355. **(Springer Award for Most Downloaded and Most Cited Review Article)**
41. Gupta K, J.S. Park, Kim P, Helen W, Engler AJ, Levchenko A, \***Kim DH**. Control of stem cell fate and function by engineering physical microenvironments. *Integrative Biology*. 2012;4:1008-1018.

42. Suhail Y, Kshitiz K, Lee J, Walker M, **Kim DH**, Brennan MD, Bader J, Levchenko A. Modeling intercellular transfer of biomolecules through tunneling nanotubes. *Bulletin of Mathematical Biology*. 2013;75:1400-1416.
43. Kim JH, Choi KS, Kim Y, Lim KT, Seonwoo H, Park Y, **Kim DH**, Choung PH, Cho CS, Kim SY, Choung YH, Chung JH. Bioactive effects of graphene oxide cell culture substratum on structure and function of human adipose-derived stem cells. *Journal of Biomedical Materials Research: Part A*. 2013;101:3520-3530. **(Featured as a Front Cover)**
44. Lee B, Jiao A, Yu SJ, You JB, **\*Kim DH**, **\*Im SK**. Initiated chemical vapor deposition of thermoresponsive poly(N-vinylcaprolactam) thin films for cell sheet engineering. *Acta Biomaterialia*. 2013;9:7691-7698.
45. Hubbi ME, Kshitiz, Gilkes DM, Rey S, Wong CC, Luo W, **Kim DH**, Dang CV, Levchenko A, Semenza G. A non-transcriptional role for HIF-1 $\alpha$  as a direct inhibitor of DNA replication. *Science Signaling*. 2013;6:ra10. **(Featured as a Front Cover)**
46. Park SH\*, Kim MS\*, Lee D, Choi YW, **\*Kim DH**, **\*Suh KY**. Hybrid microfabrication of nanofiber-based sheets and rods for tissue engineering applications. *Journal of Laboratory Automation*. 2013;18:494-503.
47. Kim JH, Kim HN, Lim KT, Kim Y, Hoon S, Park SH, Lim HJ, **Kim DH**, Choung PH, Choung YH, Suh KY, Chung JH. Designing nanotopographical density of extracellular matrix for controlled morphology and function of human mesenchymal stem cells. *Scientific Reports*. 2013;3:3552. **(Press released)**
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.
50. Kim ES\*, Ahn EH\*, Chung EH, **\*Kim DH**. Recent advances in nanobiotechnology and high-throughput molecular techniques for systems biomedicine. *Molecules and Cells*. 2013;36:477-484.
51. Macadangdang J, Jiao A, Carson D, Lee HJ, Fugate JA, Pabon LM, Regnier M, Murry CM, **\*Kim DH**. Capillary force lithography for cardiac tissue engineering. *Journal of Visualized Experiments*. 2014:e50039.
52. Kim JE, Lee SM, Kim SH, Tatman P, Gee AO, **Kim DH**, Jung YM, Kim SJ. Effect of self-assembled peptide-mesenchymal stem cell complex on the progression of osteoarthritis in a rat model. *International Journal of Nanomedicine*. 2014;9:141-157.
53. Kim P, Yuan A, Nam K, Jiao A, **\*Kim DH**. Fabrication of poly(ethylene glycol):gelatin methacrylate composite nanostructures with tunable stiffness and degradation for vascular tissue engineering. *Biofabrication*. 2014;6:024112.
54. Jiao A, Trosper N, Yang HS, Tsui JH, Frankel S, Murry CE, **\*Kim DH**. A thermoresponsive nanofabricated substratum for the engineering of three-dimensional tissues with layer-by-layer architectural control. *ACS Nano*. 2014;8:4430-4439. **(Featured as "The 2015 JALA Ten")**
55. Chaterji S, Kim P, Choe SH, Tsui JH, **\*Baker AB**, **\*Kim DH**. Synergistic effects of matrix nanotopography and stiffness on vascular smooth muscle cell function. *Tissue Engineering Part A*. 2014;20:2115-2126.
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)**
58. Yang HS\*, Ieronimakis N\*, Tsui JH, Kim HN, Suh KY, **\*Reyes M**, **\*Kim DH**. Nanopatterned muscle cell patches for enhanced myogenesis and dystrophin expression in a mouse model of muscular dystrophy. *Biomaterials*. 2014;35:1478-1486.
59. Pati F, Jang J, Ha DH, Kim SW, Rhie JW, Shim JH, **Kim DH**, Cho DW. Printing three dimensional tissue analogues with decellularized extracellular matrix bioink. *Nature Communications*. 2014;5:3935. **(Press released)**
60. Kim ES, Ahn EH, **\*Dvir T**, **\*Kim DH**. Emerging nanotechnology approaches in tissue engineering and regenerative medicine. *International Journal of Nanomedicine*. 2014;9:1-5.
61. Kshitiz, Afzal J, **Kim DH**, Levchenko A. Mechanotransduction via p190RhoGAP regulates a switch between cardiomyogenic and endothelial lineages in adult cardiac progenitors. *Stem Cells*. 2014;32:1999-2007.
62. Mengsteab P, Kwon JY, Han TR, Kwon TK, **Kim DH**, Kim SJ. Factors associated with the improvement of vocal fold movement: an analysis of LEMG and laryngeal CT parameters. *Journal of Electromyography and Kinesiology*. 2015;25(1):1-7.

63. Mikheev AM, Mikheeva SA, Trister AD, Tokita MJ, Emerson SN, Parada CA, Born DE, Carnemolla B, [Frankel S](#), **Kim DH**, Oxford RG, Kosai Y, Tozer-Fink KR, Manning TC, Silber JR, Rostomily RC. Periostin is a novel therapeutic target that predicts and regulates glioma malignancy. *Neuro-Oncology*. 2015;17:372-382.
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.
74. Pioner JM, Racca AW, Klaiman J, Yang KC, Guan X, Pabon L, Muskheli V, Zaunbrecher R, [Macadangdang J](#), Yeong MY, Mack DL, Childers MK, **Kim DH**, Tesi C, Poggesi C, Murry CE, Regnier M. Isolation and mechanical measurements of myofibrils from human induced pluripotent stem cell derived cardiomyocytes. *Stem Cell Reports*. 2016;6:885-896.
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.
76. [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. *ACS Applied Materials and Interfaces*. 2016;8:21923-21932.
77. [Nam KH](#)\*, [Kim P](#)\*, Wood DK, Kwon S, \*Provenzano PP, \***Kim DH**. Multiscale cues drive collective cell migration. *Scientific Reports*. 2016;6:29749.
78. Smith CL, Kilic O, Schiapparelli P, **Kim DH**, Sedora-Roman N, Guerrero-Cazares H, Gupta S, O'Donnell T, Chaichana K, Rodriguez F, Abbadi S, Quiñones-Hinojosa A, Levchenko A. Migration phenotype of brain cancer cells predicts patient outcomes. *Cell Reports*. 2016;15:2616-2624. **(Press released)**
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, Chavanachat 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, Kshitziz, 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-Snider 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 Ca<sup>2+</sup> 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*

- Biosystems. 2018;2:1700172.
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.
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  45. Kim P, **Kim DH**, Kim B, Choi SK, Lee SH, Khademhosseini A, Langer R, Suh KY. "Fabrication of nanostructures of poly(ethylene glycol) and its application to protein adsorption and cell adhesion," *The 9th International Conference on Miniaturized Systems for Chemistry and Life Science (microTAS)*, Boston, USA, Oct. 9-13, 2005.
  46. **Kim DH**, Kim P, Suh KY, Choi SK, Lee SH, Kim B. "Modulation of adhesion and growth of cardiac myocytes by surface nanotopography," *Proceedings of 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, Sept 1-4, 2005.
  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 IWFMF 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<br>R01 NS094388<br>NIH/NINDS<br>\$1,093,750<br>Role: PI, 12.5%                |
| 2/1/17 - 1/31/23    | A nanopatterned MEA-based functional phenotyping assay for drug-induced cardiotoxicity screening<br>R01 HL94388<br>NIH/NHLBI<br>\$1,250,000<br>Role: PI, 15% |
| 9/6/18 - 8/31/23    | Mutagenesis and migration in glioblastoma cells<br>R21 CA220111<br>NIH/NCI<br>\$248,173<br>PI: Ahn E<br>Role: Co-I, 4.2%                                     |
| 9/24/18 - 6/30/23   | A human iPSC-based 3D microphysiological system for modeling cardiac dysfunction in microgravity   |

	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

	<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>

	<p>R21 AR064395  NIH/NIAMS  \$242,000  Role: PI</p>
8/1/14 – 7/31/17	<p>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</p>
7/1/15 – 6/31/17	<p>Nano-engineered hybrid scaffolds for cartilage tissue regeneration  OREF New Investigator Grant  \$50,000  PI: Gee A  Role: Co-I</p>
9/1/16 – 8/31/19	<p>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</p>
9/30/16 – 1/31/19	<p>Injectable myocardial matrix-graphene composite hydrogels for functional cardiac tissue engineering  R21 EB020132  NIH/NIBIB  \$275,000  Role: PI</p>
1/1/17– 12/31/18	<p>Acquisition of a Lumos, 48 well MEA optogenetic stimulator  Seattle Foundation  \$16,000  Role: PI</p>
7/1/17 – 7/1/18	<p>Engineering heart tissue microenvironment  Gree Foundation  \$50,000  Role: Co-PI</p>
7/15/17 - 4/30/20	<p>Syndecan-1 in mechanosensing of engineered microenvironments  R21 EB023551  NIH/NIBIB  \$297,585  PI: Baker A  Role: Co-I, 3%</p>
9/21/17- 6/20/18	<p>A nanopatterned interdigitated electrode array device for anti-migratory cancer drug screening  R43 CA221659  NIH/NCI  \$225,000  PI: Geisse N  Role: Subaward PI</p>
7/1/18 - 6/30/20	<p>Visualization and bioengineering of cardiomyocyte epigenetics  AHA 18IPA34110210</p>

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

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

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*

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

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

*Clinical instruction* None

*CME instruction* None

*Workshops / seminars*

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)  
 Spring 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<sup>th</sup> 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<sup>th</sup> International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS 2020) Virtual.

**Mentoring**

*Pre-doctoral Advisees / Mentees*

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.

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*

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

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

	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

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

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, <b>Kim DH</b> . Multi-degrees-of freedom dexterous telerobotic system for microassembly. Korea
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- 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.](#))

3/9/16	<b>Kim DH</b> , Kim P. Micro- and nanopatterned substrates for cell migration and uses thereof. International PCT/US20 16/02 1557 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
4/6/18	<b>Kim DH</b> , Smith AST, Gray K, Choi EP. Device, system and methods for electrophysiological interrogation of cells and tissues. United States Patent 62/482,547 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
4/6/18	<b>Kim DH</b> , Smith AST, Choi EP, Gray K. Device, system and methods for electrophysiological interrogation of cells and tissues. International PCT/US2018/026534 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
8/16/18	<b>Kim DH</b> , 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 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
8/16/18	<b>Kim DH</b> , Macadangdang J, Smith AST, Ruohola-Baker H, Miklas JW. Compositions and methods for enhancing maturation states of healthy and diseased cardiomyocytes. PCT/IB2018/056169 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
9/19/18	<b>Kim DH</b> , 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	<b>Kim DH</b> , Smith AST. Human iPSC-based ALS model for compound validation and drug screening. United States Provisional Patent 62/778,813
7/2/19	<b>Kim DH</b> , Gray K, Choi J. Topographically guided cell migration devices and methods. International PCT/US19/40417 ( <a href="#">Licensed to NanoSurface Biomedical Inc.</a> )
10/15/19	<b>Kim DH</b> , 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	<b>Kim DH</b> , 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	<b>Kim DH</b> , Jiao A, Williams N. Device and methods for engineering 3D complex tissues. United States Provisional Patent 62/978,235
9/30/20	<b>Kim DH</b> , Tsui J. Electroconductive decellularized matrix compositions for preparation of engineered tissues and related methods. United States Patent 17/039,153 ( <a href="#">Licensed to Curi Bio, Inc</a> )
2/13/21	<b>Kim DH</b> , Jiao A, Williams N. Device and methods for engineering 3D complex tissues. International PCT/US21/18067
11/2/21	<b>Kim DH</b> , Do MJ. Microbubble-extracellular vesicle complexes. United States Patent 17/517,621
2/10/22	<b>Kim DH</b> , Gwangjun Go. Magnetic actuation system for tissue engineering. United States Provisional Patent 63/308,908
4/15/22	<b>Kim DH</b> , 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	<b>Kim DH</b> , Su CY, Williams M, Burchett A. Biomimetic systems and disease analysis methods. PTC/US2022/032404
7/25/22	<b>Kim DH</b> , 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

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

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*

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)*

- |  |   |
|--|---|
| ○ 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 3<sup>rd</sup> 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)”

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*

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*

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*

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 <sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL

- 8/14 Organizer and Chair for *Workshop on Regenerative Nanomedicine*, 36<sup>th</sup> 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<sup>th</sup> Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Los Angeles, CA
- 10/18 Program Committee Member and Track Co-Chair, 13<sup>th</sup> 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*

- 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<sup>rd</sup> 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<sup>th</sup> International Conference on Nanoimprint and Nanoprint Technology, JeJu, Korea
- 11/11 Session chair, “Reprogramming and Stem Cell Therapy” session at the 5<sup>th</sup> 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<sup>th</sup> 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<sup>th</sup> 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

- 2015-present Scientific Advisory Board – Curi Bio (formerly NanoSurface Biomedical Inc.)

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 ( <a href="http://www.invent.org/collegiate">www.invent.org/collegiate</a> )
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 Manufacturers' 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), "Biomicrobotics 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," Sunghnam, 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, 10<sup>th</sup> 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, 5<sup>th</sup> 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, 6<sup>th</sup> 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 nanoscale: 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, 7<sup>th</sup> 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, 36<sup>th</sup> 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

- 3/18/15 tissue engineering for regenerative medicine and drug screening,” Daejeon, Korea  
 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, 10<sup>th</sup> 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, 12<sup>th</sup> 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, 12<sup>th</sup> 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, 16<sup>th</sup> 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, 14<sup>th</sup> 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, 6<sup>th</sup> 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, 2<sup>nd</sup> 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, 4<sup>th</sup> 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

8/4/20	for disease modeling and phenotypic drug screening,” Gaithersburg, MD 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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  12. Hur EM, **Kim DH**, Xu WL, Levchenko A, Zhou F. "Regulation of axonal regeneration by manipulation of growth cone cytoskeleton," *the Society for Neuroscience's 38th Annual Meeting*, Nov 16, 2008.
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  14. **Kim DH**, Seo CH, Han K, Kwon K, Levchenko A, Suh KY. "Guided cell migration on microtextured substrates with variable local density and anisotropy," *Gordon Research Conference on Gradient Sensing and Directed Cell Migration*, Galveston, Texas, March 29-April 3, 2009.
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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," *6<sup>th</sup> 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 8<sup>th</sup> 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 20<sup>th</sup> 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 11<sup>th</sup> 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 3<sup>rd</sup> 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 3<sup>rd</sup> Global Congress*, San Francisco, CA, February 2-5, 2014.

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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.
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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.
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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.
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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.