

Kam W. Leong, Ph.D.
Samuel Y. Sheng Professor

Department of Biomedical Engineering
Department of Systems Biology
Columbia University, Mail Code 8904
1210 Amsterdam Avenue, New York, NY 10027

Email: kam.leong@columbia.edu

A. Field of Specialization

Biomedical Engineering; Biomaterials

B. Education

1975 – 1977 University of California, Santa Barbara, CA
B.S. in Chemical Engineering

1977 – 1982 University of Pennsylvania, Philadelphia, PA
Ph.D. in Chemical Engineering (Degree conferred 1987)

1982 – 1986 Massachusetts Institute of Technology, Cambridge, MA
Research Associate in Whitaker College of Health Sciences and Technology and
Department of Applied Biological Science

PhD Dissertation: Synthesis of Graphite Oxide Intercalation Compounds
PhD Advisor: William C Forsman

C. Academic Position

2014 – Present Professor, Department of Biomedical Engineering, School of Engineering
Columbia University Professor, Department of Systems Biology, School of Medicine

2006 – 2014 Professor, Department of Biomedical Engineering, School of Engineering
Duke University *Joint appointment in Department of Mechanical Engineering and Materials Science, and in
Department of Surgery, School of Medicine*

2006 – 2009 Director of Bioengineering Initiative on Nanomedicine/Nanotherapeutics

2006 – 2009 Principal Investigator, Stem Cell Bioengineering Laboratory
Duke-National University of Singapore Graduate Medical School, Singapore

1998 – 2006 Professor, Department of Biomedical Engineering, School of Medicine
Johns Hopkins University *Joint appointment in Department of Orthopedic Surgery, School of Medicine*
Program Director and Technical Advisor to Institute of Materials Research and
Engineering (IMRE), Singapore, 1998 – 2004
Principal Investigator, Division of Johns Hopkins in Singapore, 1999 - 2006

1991 – 1998 Associate Professor, Department of Biomedical Engineering, School of Medicine
Johns Hopkins University *Joint appointment in Department of Materials Science and Engineering*
Director of Master Program in Biomedical Engineering, 1990 - 2005

1986 – 1991 Assistant Professor, Department of Biomedical Engineering, School of Medicine
Johns Hopkins University *Joint appointment in Department of Materials Science and Engineering*

Professional Activity

NIH Review Panels

- NIDA and NIH-SBIR Ad Hoc Research Contract Review Committees, 1986, 1990-92, 1995, 1996, 1997

- NIH Ad Hoc Study Sections, NIGMS, NIBIB, 1995, 2004-2017
- NIH Gene and Drug Delivery Study Section, NIBIB, 2004-2005, 2007-2011
- NSF Review Panels
 - NSF Biomaterials and Bioengineering review panels, 1993-1999, 2002
 - NSF-Engineering Research Center Site Visit panels, 1995, 1999
 - NSF proposal mail reviewer, 2007, 2012-13, 2015
- Other Review Panels
 - American Cancer Society Institutional Research Grant Committee, 1988
 - Review Panel of National Health Research Institute, Taiwan, 1999 - present
 - Nanoscience and Nanotechnology Research Grant Committee, Singapore, 2002
 - Reviewer for Research Grants Council of Hong Kong, 2004-2006
 - Review Panel of Chinese Academy of Sciences, Beijing, China, 2012
 - Review Panel for MOE, Singapore, 2013-present
- Advisory Panels
 - Advisory Panel of Nanoscience and Nanotechnology Initiative, Singapore, 2002
 - Advisory Panel of Div. of Bioengineering at National University of Singapore, 2003
 - Advisory Panel of Tissue Engineering Program at National University of Singapore, 2005, 2007, 2011
 - Advisory Panel of Department of Chemistry, Wuhan University, China, 1998, 2002-6
 - International Advisory Panel for Chongqing University, China, 2012-2013
 - International Advisory Panel for Beijing University of Aeronautics and Astronautics, China, 2014-2017
 - International Advisory Panel for Ningbo University, China, 2016
- Symposium Organizer
 - Chairman of Symposium on Polymeric Controlled Release
 - *ACS National Meeting, Dallas, April, 1989*
 - Co-chairman on Session of Materials for Drug Delivery
 - *AICHE Summer Meeting, Philadelphia, August, 1989*
 - Chairman of Symposium on Polymeric Controlled Release
 - *ACS National Meeting, Dallas, April, 1989*
 - Co-chairman of Symposium on Polymer-Cell Interactions
 - *AICHE Annual Meeting, Miami, November, 1992*
 - Co-chairman of Symposium on Polymers in Medicine and Pharmacy
 - *MRS Annual Meeting, San Francisco, 1995*
 - Chairman of Tissue Engineering and Stem Cell Technology
 - *New York Academy of Sciences, New York, 2002*
 - Co-chairman of Workshop on Stem Cell Tissue Engineering
 - *Biomedical Engineering Society Meeting, Baltimore, 2005*
 - Co-chairman on Session of Gene Therapy for Tissue Engineering
 - *Biomedical Engineering Society Meeting, Baltimore, 2005*
 - Program co-Chairman
 - *Controlled Release Society Annual Meeting, New York 2008*
 - Organizer for Session on Derivation of Transdifferentiated Cells
 - *Society for Biomaterials Annual Meeting, New Orleans, October, 2012*
 - Organizer for Biomaterials Session
 - *Materials Today Asia, Hong Kong, December, 2014*
- Service Within University (JHU)
 - Graduate Committee of Whiting School of Engineering, 1999 - 2005
 - Chairman of ad hoc committees on faculty promotion, School of Engineering, 2002, 2004, 2005
- (Duke)
 - Steering Committee for Hopkins Institute of Bionanotechnology, 2004 – 2006
 - Faculty ad hoc promotion committees, 2006-present
 - Faculty Search Committees, 2006-present

(Columbia)	<ul style="list-style-type: none"> • Dean Search Committee, 2007-2008 • Provost Lectureship Committee, 2007-2008 • Graduate Committee of BME, 2013-14 • Faculty Search Committees, 2014-present • Faculty ad hoc promotion committees, 2014-present
Other Activities	<ul style="list-style-type: none"> • Member of NSF Delegation of US-South Korea Collaboration in Biomedical Engineering, Seoul, South Korea, 1997 • Participant of Interagency Working Group on Nanoscience, Engineering, and Technology, Sponsored by National Science and Technology Council, 1999 • Member of NSF Delegation of US-Japan Joint Symposium on Nanomedicine, Yokohama, Japan, 2002 • Presenter at NCI Workshop on Building the Interface of Nanotechnology and Cancer Imaging Research, 2004 • Member of NSF Delegation for US-Mauritius Collaboration in Biomaterials, Workshop: Perspectives and Opportunities, Mauritius, 2009 • Honorary Professor, Sun Yat-Sen University, China, 2013 - present • Foreign Distinguished Scholar of BK21 PLUS Program, Dankook University, S Korea, 2013-18 • Member of NSF-sponsored Study to assess global activity on advanced biomanufacturing; co-Leader of panel on visit to Germany, Italy, Portugal, and Britain, 2014
Journal Reviewer	<p><i>Nature; Science, Nature Medicine; Nature Materials; Nature Biotechnology; Nature Nanotechnology; Nature Communications; Nature Methods; J. Polym. Sci.; Biomaterials; Pharm. Research; J. Controlled Release; Polymer; J. AICHE; J. Pharm. Sci.; J. Biomat. Sci.; Biotech. Bioeng.; Chem. Eng. Sci.; Macromolecules; Biomacromolecules; Advanced Materials; J. Biomed. Mat. Res.; ASAIO; JACS; Mol Ther; J. Gene Medicine; Gene Therapy; Int. J. Nanomedicine; JACS; Advanced Healthcare Materials; ACS Nano; Nano Letters; NanoToday</i></p>
Editorial Member	<p>• <i>Molecular Therapy</i> • <i>Acta Biomaterialia</i> • <i>J Biomat. Sci., Poly Ed.</i> • <i>J Controlled Release</i> • <i>Int. J Nanomedicine</i> • <i>Nanomedicine</i> • <i>Biomacromolecules</i> • <i>NanoToday</i></p>
<u>Editor-in-Chief</u>	<p><i>Biomaterials</i></p>

Honor

2018	Elected Academician of Academia Sinica
2017	Lifetime Achievement Award of Chinese American Society of Nanotechnology and Nanomedicine
2017	Honorary Professorship of Zhejiang University
2017	Honorary Professorship of Beijing University of Chemical Technology
2017	Honorary Professorship of 301 PLA Hospital
2016	Chinese Academy of Sciences President's Fellowship for Distinguished Scientists
2014	Samuel Y Sheng Professorship, Columbia University
2014	International Journal of Nanomedicine Distinguished Scientist Award
2014	Honorary Professorship of Sichuan University
2014	Honorary Professorship of Southeast University
2013	Honorary Professorship of Sun Yat-sen University
2013	Clemson Award for Applied Research, Society for Biomaterials
2013	Elected Member of the USA National Academy of Engineering

2013	Elected Member of the USA National Academy of Inventors
2006-2013	Distinguished Visiting Professor of National University of Singapore
2010	Stansell Family Distinguished Research Award
2007	James B. Duke Professorship
2007	J Controlled Release Jorge Heller Best Manuscript Award Student Award (Hunter Chen) for Excellence in Research, American Society for Gene Therapy
2006	Best Manuscript Award of Acta Biomaterialia
1998	Fellow of American Institute for Medical and Biological Engineering
1996-8, 2001-2	Capsugel Award on Innovative Aspects of Controlled Release Research, Controlled Release Society
1997	Controlled Release Society - Cygnus Recognition Award
1996	Controlled Release Society - 3M Pharmaceuticals Recognition Award
1995	The Chinese-American Chemical Society Award for Recognition of Pioneering Contributions in Polymer Chemistry and Biomedical Engineering
1994	Young Investigator Research Achievement Award of Controlled Release Society
1993	Controlled Release Society - Proctor & Gamble Recognition Award

D. Teaching Experience

Courses taught at Johns Hopkins University

- Biological Transport
- Pharmacoengineering
- Biomedical Polymers
- Biosensing
- Cell and Tissue Engineering I
- Cell and Tissue Engineering II
- Advances Biomaterials

Courses taught at Duke University

- Biomedical Polymers
- Topics in Nanomedicine
- Introduction to Bionanotechnology

Courses taught at Columbia University

- Biomaterials
- Topics in Nanomedicine
- Drug and Gene Delivery

Training

No. of PhD students graduated: ~50

No. of postdoctoral fellows trained: ~60

E. Publication

	Google Scholar	All	Since 2013	Date
Citations		~41,800	~19,800	May, 2018
<i>h</i> -index		107	70	i10 index = 361

*Corresponding Author

2018

- Lin PY, Chiu YL, Huang JH, Chuang EY, Mi FL, Lin KJ, Juang JH, Sung HW, and Leong KW. <https://doi.org/10.1002/advs.201701079> Nonviral Oral Gene Delivery for Chronic Protein Replacement Therapy. *Advanced Science*.
- Lao YH, Li MQ, Gao MA, Ho TC, Jiang W, and Leong KW. <https://doi.org/10.1002/advs.201700540> HPV oncogene manipulation using non-virally delivered CRISPR/Cas9 or Natronobacterium gregoryi Argonaute. *Advanced Science*.
- Chen ZZ, Tang M, Huang D, Jiang W, Li M, Ji H, Park JS, Xu B, Atchison L, Truskey G, and Leong KW. (In Press) Real-time observation of leukocyte-endothelium interactions in tissue-engineered blood vessel. *Lab-on-Chip*.
- Zeng Y, Wong ST, Teo SK, Leong KW, Chiam KH, and Yim EKF. (2018) Human mesenchymal stem cell basal membrane bending on gratings is dependent on both grating width and curvature. *Sci Rep*, 8(1): 6444.
- Xue Q, Liu XB, Lao YH, Wu LP, Wang D, Zuo ZQ, Chen JY, Hou J, Bei YY, Wu XF, Leong KW, Xiang H, and Han J. (2018) Anti-infective biomaterials with surface-decorated tachyplesin I. *Biomaterials*.
- Wang HX, Song Z, Lao YH, Xu X, Gong J, Cheng D, Chakraborty S, Park JS, Li M, Huang D, Yin L, Cheng J, and Leong KW. (2018) Nonviral gene editing via CRISPR/Cas9 delivery by membrane-disruptive and endosomolytic helical polypeptide. *Proc Natl Acad Sci U S A*, 115(19): 4903-4908.
- Suryaprakash S, Li MQ, Lao YH, Wang HX, and Leong KW. (2018) Graphene oxide cellular patches for mesenchymal stem cell-based cancer therapy. *Carbon*, 129: 863-868.
- Shao D, Li M, Wang Z, Zheng X, Lao YH, Chang Z, Zhang F, Lu M, Yue J, Hu H, Yan H, Chen L, Dong WF, and Leong KW. (2018) Bioinspired Diselenide-Bridged Mesoporous Silica Nanoparticles for Dual-Responsive Protein Delivery. *Adv Mater*: e1801198.
- Qiao D, Liu L, Chen Y, Xue C, Gao Q, Mao HQ, Leong KW, and Chen Y. (2018) Potency of a Scalable Nanoparticulate Subunit Vaccine. *Nano Lett*, 18(5): 3007-3016.
- Pinese C, Lin J, Milbreta U, Li M, Wang Y, Leong KW, and Chew SY. (2018) Sustained delivery of siRNA/mesoporous silica nanoparticle complexes from nanofiber scaffolds for long-term gene silencing. *Acta Biomater*.
- Meng H, Leong W, Leong KW, Chen C, and Zhao Y. (2018) Walking the line: The fate of nanomaterials at biological barriers. *Biomaterials*, 174: 41-53.
- Kim HS, Son YJ, Mao W, Leong KW, and Yoo HS. (2018) Atom Transfer Radical Polymerization of Multishelled Cationic Corona for the Systemic Delivery of siRNA. *Nano Lett*, 18(1): 314-325.
- He Z, Liu Z, Tian H, Hu Y, Liu L, Leong KW, Mao HQ, and Chen Y. (2018) Scalable production of core-shell nanoparticles by flash nanocomplexation to enhance mucosal transport for oral delivery of insulin. *Nanoscale*, 10(7): 3307-3319.

2017

- Chan HF, Ma S, Tian J, and Leong KW. (2017) High-throughput screening of microchip-synthesized genes in programmable double-emulsion droplets. *Nanoscale*, 9(10): 3485-3495.
- Charoensook SN, Williams DJ, Chakraborty S, Leong KW, and Vunjak-Novakovic G. (2017) Bioreactor model of neuromuscular junction with electrical stimulation for pharmacological potency testing. *Integr Biol (Camb)*, 9(12): 956-967.
- Christoforou N, Chakraborty S, Kirkton RD, Adler AF, Addis RC, and Leong KW. (2017) Core Transcription Factors, MicroRNAs, and Small Molecules Drive Transdifferentiation of Human Fibroblasts Towards The Cardiac Cell Lineage. *Sci Rep*, 7: 40285.
- He Z, Santos JL, Tian H, Huang H, Hu Y, Liu L, Leong KW, Chen Y, and Mao HQ. (2017) Scalable fabrication of size-controlled chitosan nanoparticles for oral delivery of insulin. *Biomaterials*, 130: 28-41.
- Ji H, Kim HS, Kim HW, and Leong KW. (2017) Application of induced pluripotent stem cells to model smooth muscle cell function in vascular diseases. *Curr Opin Biomed Eng*, 1: 38-44.
- Kim HS, Son YJ, Mao W, Leong KW, and Yoo HS. (2018) Atom Transfer Radical Polymerization of

- Multishelled Cationic Corona for the Systemic Delivery of siRNA. *Nano Lett*, 18(1): 314-325.
- Kim JW, Mahapatra C, Hong JY, Kim MS, Leong KW, Kim HW, and Hyun JK. (2017) Functional Recovery of Contused Spinal Cord in Rat with the Injection of Optimal-Dosed Cerium Oxide Nanoparticles. *Adv Sci (Weinh)*, 4(10): 1700034.
- Lee J, Jackman JG, Kwun J, Manook M, Moreno A, Elster EA, Kirk AD, Leong KW, and Sullenger BA. (2017) Nucleic acid scavenging microfiber mesh inhibits trauma-induced inflammation and thrombosis. *Biomaterials*, 120: 94-102.
- Li M, Jiang W, Chen Z, Suryaprakash S, Lv S, Tang Z, Chen X, and Leong KW. (2017) A versatile platform for surface modification of microfluidic droplets. *Lab Chip*, 17(4): 635-639.
- Pelaz B, et al., (2017) Diverse Applications of Nanomedicine. *ACS Nano*, 11(3): 2313-2381.
- Peng B, Lai XY, Chen L, Lin XM, Sun CX, Liu LX, Qi SH, Chen YM, and Leong KW. (2017) Scarless Wound Closure by a Mussel-Inspired Poly(amidoamine) Tissue Adhesive with Tunable Degradability. *ACS Omega*, 2(9): 6053-6062.
- Singh RK, Patel KD, Leong KW, and Kim HW. (2017) Progress in Nanotheranostics Based on Mesoporous Silica Nanomaterial Platforms. *ACS Appl Mater Interfaces*, 9(12): 10309-10337.
- Wang HX, Li M, Lee CM, Chakraborty S, Kim HW, Bao G, and Leong KW. (2017) CRISPR/Cas9-Based Genome Editing for Disease Modeling and Therapy: Challenges and Opportunities for Nonviral Delivery. *Chem Rev*, 117(15): 9874-9906.
- Yang Y, Wang K, Gu X, and Leong KW. (2017) Biophysical Regulation of Cell Behavior-Cross Talk between Substrate Stiffness and Nanotopography. *Engineering (Beijing)*, 3(1): 36-54.
- Yim EKF, and Leong KW. (2017) Significance of Synthetic Nanostructures in Dictating Cellular Response. *Nanomedicine in Cancer*: 129-158.
- Zhang J, Li J, Shi Z, Yang Y, Xie X, Lee SM, Wang Y, Leong KW, and Chen M. (2017) pH-sensitive polymeric nanoparticles for co-delivery of doxorubicin and curcumin to treat cancer via enhanced pro-apoptotic and anti-angiogenic activities. *Acta Biomater*, 58: 349-364.
- Zhang J, Zheng Y, Xie X, Wang L, Su Z, Wang Y, Leong KW, and Chen M. (2017) Cleavable Multifunctional Targeting Mixed Micelles with Sequential pH-Triggered TAT Peptide Activation for Improved Antihepatocellular Carcinoma Efficacy. *Mol Pharm*, 14(11): 3644-3659.

2016

- Zhao X, Yang K, Zhao R, Ji T, Wang X, Yang X, Zhang Y, Cheng K, Liu S, Hao J, Ren H, Leong KW, and Nie G*. (2016) Inducing enhanced immunogenic cell death with nanocarrier-based drug delivery systems for pancreatic cancer therapy. *Biomaterials*, 102:187-97.
- Wang S, Xu Y, Chan HF, Kim HW, Wang Y, Leong KW*, and Chen M*. (2016) Nanoparticle-mediated inhibition of survivin to overcome drug resistance in cancer therapy. *J Control Release*, 240:454-464.
- Wang HX, Zuo ZQ, Du JZ, Wang YC, Sun R, Cao ZT, Ye XD, Wang JL, Leong KW*, and Wang J*. (2016) Surface charge critically affects tumor penetration and therapeutic efficacy of cancer nanomedicines. *Nano Today*, 11:133-144.
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- Kim TH, Kim SH, Leong KW, and Jung Y. (2016) Nanografted Substrata and Triculture of Human Pericytes, Fibroblasts, and Endothelial Cells for Studying the Effects on Angiogenesis. *Tissue Eng Part A*, 22:698-

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- Ji H, Atchison L, Chen Z, Chakraborty S, Jung Y, Truskey GA, Christoforou N*, and Leong KW*. (2016) Transdifferentiation of human endothelial progenitors into smooth muscle cells. *Biomaterials*, 85:180-94.
- Jackman JG, Juwarker H, Poveromo LP, Levinson H, Leong KW*, and Sullenger BA*. (2016) Polycationic Nanofibers for Nucleic Acid Scavenging. *Biomacromolecules*,
- Huang S, Lee AJ, Tsoi R, Wu F, Zhang Y, Leong KW, and You L*. (2016) Coupling spatial segregation with synthetic circuits to control bacterial survival. *Mol Syst Biol*, 12:859.
- Gallego-Perez D, Otero JJ, Czeisler C, Ma J, Ortiz C, Gygli P, Catacutan FP, Gokozan HN, Cowgill A, Sherwood T, Ghatak S, Malkoc V, Zhao X, Liao WC, Gnyawali S, Wang X, Adler AF, Leong KW, Wulff B, Wilgus TA, Askwith C, Khanna S, Rink C, Sen CK, and Lee LJ. (2016) Deterministic transfection drives efficient nonviral reprogramming and uncovers reprogramming barriers. *Nanomedicine*, 12:399-409.
- Chan HF, Zhang Y, and Leong KW*. (2016) Efficient One-Step Production of Microencapsulated Hepatocyte Spheroids with Enhanced Functions. *Small*, 12:2720-30.
- Chan HF, Ma S, and Leong KW*. (2016) Can microfluidics address biomanufacturing challenges in drug/gene/cell therapies? *Regen Biomater*, 3:87-98.
- Black JB, Adler AF, Wang HG, D'Ippolito AM, Hutchinson HA, Reddy TE, Pitt GS, Leong KW, and Gersbach CA*. (2016) Targeted Epigenetic Remodeling of Endogenous Loci by CRISPR/Cas9-Based Transcriptional Activators Directly Converts Fibroblasts to Neuronal Cells. *Cell Stem Cell*, 19:406-14.

2015

- Jung Y, Ji H, Chen Z, Fai Chan H, Atchison L, Klitzman B, Truskey G, and Leong KW*. (2015) Scaffold-free, Human Mesenchymal Stem Cell-Based Tissue Engineered Blood Vessels. *Sci Rep* 5:15116.
- Wang X, Su J, Sherman A, Rogers GL, Liao G, Hoffman BE, Leong KW, Terhorst C, Daniell H, & Herzog RW (2015) Plant-based oral tolerance to hemophilia therapy employs a complex immune regulatory response including LAP+CD4+ T cells. *Blood* 125(15):2418-2427.
- Huang S, Srimani JK, Lee AJ, Zhang Y, Lopatkin AJ, Leong KW, and You L* (2015) Dynamic control and quantification of bacterial population dynamics in droplets. *Biomaterials* 61:239-45.
- Peng B, Chen Y, & Leong KW* (2015) MicroRNA delivery for regenerative medicine. *Advanced drug delivery reviews*. 88:108-22.
- Park JS, Suryaprakash S, Lao YH, & Leong KW* (2015) Engineering mesenchymal stem cells for regenerative medicine and drug delivery. *Methods*. 84:3-16.
- Lorden ER, Miller KJ, Bashirov L, Ibrahim MM, Hammett E, Jung Y, Medina MA, Rastegarpour A, Selim MA, Leong KW*, & Levinson H* (2015) Mitigation of hypertrophic scar contraction via an elastomeric biodegradable scaffold. *Biomaterials* 43:61-70.
- Lorden ER, Levinson HM, & Leong KW* (2015) Integration of drug, protein, and gene delivery systems with regenerative medicine. *Drug delivery and translational research* 5(2):168-186.
- Leong KW* (2015) Editorial. *Biomaterials* 36:5.
- Lao YH, Phua KK, & Leong KW* (2015) Aptamer nanomedicine for cancer therapeutics: barriers and potential for translation. *ACS nano* 9(3):2235-2254.
- Juul S, Oblisca JM, Liu C, Liu YL, Chen YA, Imphean DM, Knudsen BR, Ho YP, Leong KW*, & Yeh HC* (2015) NanoCluster Beacons as reporter probes in rolling circle enhanced enzyme activity detection. *Nanoscale* 7(18):8332-8337.
- Huang S, Srimani JK, Lee AJ, Zhang Y, Lopatkin AJ, Leong KW, & You L* (2015) Dynamic control and quantification of bacterial population dynamics in droplets. *Biomaterials* 61:239-245.
- Hong S, Sycks D, Chan HF, Lin S, Lopez GP, Guilak F, Leong KW, & Zhao X* (2015) 3D Printing of Highly Stretchable and Tough Hydrogels into Complex, Cellularized Structures. *Advanced materials*. 27: 4035-4040.
- Diekman BO, Thakore PI, O'Connor SK, Willard VP, Brunger JM, Christoforou N, Leong KW, Gersbach CA, & Guilak F* (2015) Knockdown of the cell cycle inhibitor p21 enhances cartilage formation by induced pluripotent stem cells. *Tissue engineering. Part A* 21(7-8):1261-1274.

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- Xing Q, Vogt C, Leong KW, & Zhao F* (2014) Highly aligned nanofibrous natural extracellular matrix scaffold derived from fibroblast cell sheets. *Adv Funct Mater* 24:1-9.
- Williford JM, Wu J, Ren Y, Archang MM, Leong KW*, & Mao HQ* (2014) Recent advances in nanoparticle-mediated siRNA delivery. *Annual review of biomedical engineering* 16:347-370.
- Willard VP, Diekman BO, Sanchez-Adams J, Christoforou N, Leong KW, & Guilak F* (2014) Use of cartilage derived from murine induced pluripotent stem cells for osteoarthritis drug screening. *Arthritis & rheumatology* 66(11):3062-3072.
- Phua KK, Staats HF, Leong KW*, & Nair SK* (2014) Intranasal mRNA nanoparticle vaccination induces prophylactic and therapeutic anti-tumor immunity. *Scientific reports* 4:5128.
- Phua KK, Nair SK, & Leong KW* (2014) Messenger RNA (mRNA) nanoparticle tumour vaccination. *Nanoscale* 6(14):7715-7729.
- Phua KK, Boczkowski D, Dannull J, Pruitt S, Leong KW, & Nair SK* (2014) Whole blood cells loaded with messenger RNA as an anti-tumor vaccine. *Advanced healthcare materials* 3(6):837-842.
- Lu M, Yang S, Ho YP, Grigsby CL, Leong KW*, & Huang TJ* (2014) Shape-Controlled Synthesis of Hybrid Nanomaterials via Three-Dimensional Hydrodynamic Focusing. *ACS nano* 8(10):10026-10034.
- Lu M, Ho YP, Grigsby CL, Nawaz AA, Leong KW*, & Huang TJ* (2014) Three-dimensional hydrodynamic focusing method for polyplex synthesis. *ACS nano* 8(1):332-339.
- Kulangara K, Yang J, Chellappan M, Yang Y, & Leong KW* (2014) Nanotopography alters nuclear protein expression, proliferation and differentiation of human mesenchymal stem/stromal cells. *PloS one* 9(12):e114698.
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- Ibrahim MM, Bond J, Bergeron A, Miller KJ, Ehanire T, Quiles C, Lorden ER, Medina MA, Fisher M, Klitzman B, Selim MA, Leong KW, & Levinson H* (2014) A Novel Immune Competent Murine Hypertrophic Scar Contracture Model: A Tool to Elucidate Disease Mechanism and Develop New Therapies. *Wound repair and regeneration* 22:755-764. (2014)
- Hong S, Jung Y, Yen R, Chan HF, Leong KW, Truskey GA, & Zhao X* (2014) Magnetoactive sponges for dynamic control of microfluidic flow patterns in microphysiological systems. *Lab on a chip* 14(3):514-521.
- Diekman BO, Thakore PI, O'Connor SK, Willard VP, Brunger JM, Christoforou N, Leong KW, Gersbach CA, & Guilak F* (2014) Knockdown of the Cell Cycle Inhibitor p21 Enhances Cartilage Formation by Induced Pluripotent Stem Cells. *Tissue engineering. Part A*.
- Chiu YL, Chan HF, Phua KK, Zhang Y, Juul S, Knudsen BR, Ho YP, & Leong KW* (2014) Synthesis of fluorosurfactants for emulsion-based biological applications. *ACS nano* 8(4):3913-3920.
- Chakraborty S, Ji H, Kabadi AM, Gersbach CA, Christoforou N, & Leong KW* (2014) A CRISPR/Cas9-Based System for Reprogramming Cell Lineage Specification. *Stem cell reports* 3(6):940-947.
- Chakraborty S, Ji H, Chen J, Gersbach CA, & Leong KW* (2014) Vector modifications to eliminate transposase expression following piggyBac-mediated transgenesis. *Scientific reports* 4:7403.
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- Batinic-Haberle I*, Tovmasyan A, Roberts ER, Vujaskovic Z, Leong KW, & Spasojevic I (2014) SOD therapeutics: latest insights into their structure-activity relationships and impact on the cellular redox-based signaling pathways. *Antioxidants & redox signaling* 20(15):2372-2415.

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- Zhang Y, Chan HF, & Leong KW* (2013) Advanced materials and processing for drug delivery: the past and the

- future. *Adv Drug Deliv Rev* 65(1):104-120.
- Son YJ, Kim H, Leong KW, & Yoo HS* (2013) Multifunctional nanorods serving as nanobridges to modulate T cell-mediated immunity. *ACS nano* 7(11):9771-9779.
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- “Chemical and mechanical considerations of biodegradable polymers for orthopedic applications,” International Soc. Fracture Repair Workshop, Hong Kong, 1993
- “Design of synthetic bone graft: BMP-containing biodegradable polymeric foam,” International Conf. on Bone Morphogenetic Proteins, Baltimore, MD, 1994
- “Biomedical applications of polymeric biomaterials (5 lectures),” Institute of Polymer Chemistry, Nankai University, China, 1994
- “Polymeric controlled drug delivery,” Guangzhou College of Pharmaceutics, China, 1994
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- “Tissue engineering approach to intervertebral disc regeneration,” Workshop on Spinal Injury, Baltimore, 2000

- “New tissue engineering scaffolding design and cell encapsulation technology,” Becton Dickinson Corporate Research Center, Durham, NC, 2000
- “Design of biodegradable polymeric biomaterials for gene delivery and tissue engineering,” Department of Biomedical Engineering, Duke University, 2000
- “Design of biomaterials, and drug and gene delivery related to tissue engineering,” Workshop of Musculoskeletal Tissue Engineering, Hong Kong, 2000
- “Oral gene therapy of food allergy,” NIH, 2000
- “Biomaterials research in IMRE,” Johnson and Johnson Corporate Biomaterials Center, Somerville, NJ, 2000
- “Polymeric biomaterials for drug delivery and tissue engineering,” DuPont Research Center, Wilmington, 2000
- “Polymeric Controlled Gene Delivery,” International Meeting of BME, Singapore, 2000
- “Non-viral Gene Delivery,” MRS Meeting, Boston, 2000
- “Polymeric Controlled Gene Delivery,” University of Washington, Department of Bioengineering, 2001
- “Biodegradable Polymeric Drug Carriers,” Alza Corp., Palo Alto, 2001
- “Non-viral Genetic Immunization: Efficacy and Mechanism,” Merck, West Point, 2001
- “Potential of Poly(phosphoester)s in Tissue Engineering Applications,” Guilford Pharmaceuticals, Baltimore, 2001
- “Biomaterials for Gene Delivery,” Society for Biomaterials Meeting, St. Paul, 2001
- “Oral DNA Vaccines,” CRS Workshop, San Diego, 2001
- “Advances in Liver Tissue Engineering,” ICMAT, Singapore 2001
- “New Biodegradable Poly(phosphoester)s for Gene Delivery,” ACS National Meeting, Chicago, 2001
- “Polymeric controlled gene delivery,” Golden Gate Polymer Forum, San Francisco, 2001
- “Oral gene delivery,” Virsol Scientific Meeting, Paris, 2001
- “Polymeric controlled gene delivery,” 6th Symposium of Controlled Drug Delivery, Hawaii, 2001
- “Nanoparticles in Biomedical Applications. Symposium on Nanoscience and Nanotechnology,” Singapore, February, 2002
- “Polymeric Controlled Gene Delivery. Department of Biomedical Engineering,” Northwestern University, March, 2002
- “Polymeric Gene Carriers. Institute of Biomaterials and Biomedical Engineering,” University of Toronto, Toronto, March, 2002
- “Tissue Engineering Scaffold,” Department of Chemical Engineering, McMaster University, Hamilton, March, 2002
- “Oral gene delivery,” National Hemophilia Foundation Annual Meeting, Philadelphia. April 2002.
- “Polymer-DNA nanoparticles,” The 29th International Symposium on Controlled Release of Bioactive Materials, Seoul, Korea. July 2002.
- “Biomaterials and Tissue Engineering,” University of Virginia, June 2002.
- “Drug and gene delivery in tissue engineering,” Challenges in Regenerative Medicine (ChaRM), Toronto, June 2002.
- “Nanoparticle technology,” US-Taiwan Nanotechnology Summit, Caltech, September 2002.
- “Polyphosphoesters for drug delivery & tissue engineering,” Workshop on Polymeric Biomaterials: Design & Applications, Wuhan, China. October 2002.
- “Biodegradable and biofunctional scaffolds for tissue engineering,” Plenary Speaker of 11th Annual Scientific Meeting on Tissue Engineering, Kyungpook National University, Daegu, South Korea, December 2002
- “Biofunctional scaffolds,” Symposium on Gels, Genes, Grafts, and Giants, Maui, Hawaii, December 2002
- “Interface of Biomaterials and tissue engineering,” First World Congress of Chinese Biomedical Engineers, Taipei, December 2002
- “Polymeric controlled oral gene delivery,” Winter Symposium on Controlled Release of Bioactive Agents, Utah,

March, 2003

- “Oral gene delivery,” IBC Symposium on Protein Formulation and Delivery, Boston, March, 2003
- “Oral non-viral gene delivery,” Department of Pediatrics, University of Pennsylvania, June, 2003
- “Nanoparticles for gene therapy,” US-Japan Symposium on Nanomedicine, Yokohama, Japan, October, 2003
- “Polymeric controlled nonviral gene therapy,” NIH, November, 2003
- “Biofunctional fibrous scaffolds,” Institute of Bioengineering and Nanotechnology, Singapore, December, 2003
- “Liver tissue engineering,” A*STAR Symposium, Singapore, December, 2003
- “Towards engineering of trachea tissue,” 1st International Conference on Epithelial Tissue Engineering, Singapore, December, 2003
- “Biomaterials approach to optimize hepatocyte culture,” 2nd International Conference on Materials Advanced Technology, December, Singapore, 2003
- “Nanorods for non-viral gene delivery,” 2nd International Conference on Materials Advanced Technology, December, Singapore, 2003
- “Delivery aspects of DNA vaccination,” Keystone Conference on Vaccines, January, Keystone, Colorado, 2004
- “Nanoparticles in biomedical applications,” NIH Workshop on Interface of Nanotechnology and Cancer Imaging, January, Bethesda, Maryland, 2004
- “Polymeric controlled gene delivery,” Department of Chemical Engineering, Ohio State University, February, Columbus, Ohio, 2004
- “Interface of controlled drug delivery and tissue engineering,” Annual Meeting of Society for Biomaterials, Sidney, May, 2004
- “Biofunctional fibrous scaffolds for tissue engineering,” Wurzburg Conference on Tissue Engineering, Julius-Maximilians-University Würzburg, Germany, June, 2004
- “Interface of controlled drug delivery and regenerative medicine,” National Science Council Symposium on Bioengineering, Taipei, Taiwan, June, 2004
- “Interface of controlled drug delivery and regenerative medicine,” National Tsing Hua University, Hsin Chu, Taiwan, June, 2004
- “Biofunctional fibrous scaffolds,” 9th Symposium on Biochemical Engineering, Tai Chung, Taiwan, June, 2004
- “Controlled drug delivery applied to regenerative medicine,” 10th SCBA Symposium, Beijing, China, July, 2004
- “Design of fibrous scaffolds for regenerative medicine,” International Conference of Bioengineering and Nanotechnology, Singapore, September, 2004
- “Interface of controlled drug delivery and regenerative medicine,” Department of Biomedical Engineering, Purdue University, West Lafayette, Indiana, October, 2004
- “Drug and gene delivery applied to regenerative medicine,” Department of Bioengineering, University of Illinois, Urbana-Champaign, Illinois, November, 2004
- “Delivery of biologics from fibrous scaffold,” School of Pharmacy, University of North Carolina, Chapel Hill, North Carolina, November, 2004
- “Nanoparticle technology applied to nonviral gene delivery,” NSF Center for Affordable Nanoengineering of Polymer Bioengineering, Ohio State University, February, 2005
- “Cellular response to fibrous scaffolds with micro/nanoscale features,” Department of Chemical and Materials Engineering, University of California, Irvine, March 2005
- “Bionanotechnology: Therapeutic applications,” GRC Keynote Lecture, U of Maryland, Baltimore and Baltimore County Campus, Baltimore, April, 2005
- “Cellular response to biofunctional fibrous scaffolds,” Department of Biomedical Engineering, Duke University, April 2005
- “Influence of nanostructures on cellular response,” AAPS Symposium on Nanomedicine, San Francisco, June 2005
- “Controlled release micro/nano-ordered structures for tissue engineering,” Proceedings of International Conference on Controlled Release of Bioactive Agents, Miami, June 2005

- “Influence of nanotopography on cellular behavior,” 3rd International Conference on Materials Applied Technology, Singapore, July, 2005
- “Synthetic and natural biopolymers applied to tissue engineering scaffolding design,” Symposium on New Trends in Biomaterials—Tissue Engineering, National University of Singapore, Singapore, July 2005
- “Interface of controlled drug delivery and tissue engineering,” Department of Biomedical Engineering, University of Minnesota, October, 2005
- “Significance of nanostructures in dictating cellular behavior,” Department of Biomedical Engineering, Iowa State University, November, 2005
- “Design of biofunctional fibrous scaffold for tissue engineering,” NUS-Tissue Engineering Workshop, Singapore, December, 2005
- “Influence of nanotopographical cues in stem cell differentiation,” Plenary Lecture, 12th International Conference of Biomedical Engineering, Singapore, December, 2005
- “Significance of nanostructures in dictating cellular behavior,” Pacific Polymer Conference IX, Maui, Hawaii, December, 2005
- “Nanotherapeutics: application of nanotechnology to gene and cell therapy,” Center for Bioinspired Materials and Material Systems, Duke University, January, 2006
- “Nanotechnology applied to gene and cell therapy,” National Heart, Lung, and Blood Institute of NIH, Bethesda, April, 2006
- “Biofunctionality derived from continuous nanostructures,” 1st Chapel Hill Drug Conference, Chapel Hill, June 2006
- “Applications of nanomedicine,” Becton Dickinson Technology, Durham, July, 2006
- “Nanotherapeutics: application of nanotechnology to gene and cell therapy,” Key Laboratory of Biomedical Polymers, Wuhan University, China, August, 2006
- “Nanotherapeutics: application of nanotechnology to gene and cell therapy,” Polymer Chemistry Institute, Nankai University, China, August, 2006
- “Application of nanotechnology to medicine,” Peking Union Medical College Hospital, Beijing, China, August, 2006
- “Nanotherapeutics: application of nanotechnology to gene and cell therapy,” Department of Biomedical Engineering, Peking University, Beijing, China, August, 2006
- “Nanotherapeutics: application of nanotechnology to drug, gene and cell therapy,” Cancer Center Oncology Symposium, Duke University, October, 2006
- “Nanotechnology applied to gene and cell therapy,” Pulmonary Research Conference, Duke University, October, 2006
- “Nanotherapeutics: application of nanotechnology to gene and cell therapy,” School of Pharmaceutical Sciences, University of Wisconsin, Madison, November, 2006
- “Biofunctionality derived from continuous nanostructures,” 1st Cancer Nanotechnology Symposium, University of North Carolina, Chapel Hill, November, 2006
- “Biofunctionality derived from polymeric continuous nanostructures,” NANOBIO Tokyo-2006, Tokyo, Japan, December, 2006
- “Delivering biochemical and topographical cues by polymeric continuous nanostructures,” Department of Biotechnology, University of Malaya, February, 2007
- “Response of stem cells to continuous nanostructures,” NIH-Specialized Cooperative Centers in Reproduction and Infertility Research, Portland, Oregon, May, 2007
- “Novel design of biofunctional contact lens,” Bausch & Lomb Corporation, Rochester, New York, May 2007
- “Nanotherapeutics: Application to gene and cell therapy,” Samyang Corporation, Seoul, South Korea, June, 2007
- “Response of stem cells to nanostructures,” ACS-Polymers in Medicine and Biology, Sonoma, California, June, 2007
- “Nanotherapeutics: Application of nanotechnology to gene and cell therapy,” Global Enterprise for Micro-Mechanics and Molecular Medicine—Cancer Conference, Singapore, June, 2007

- “Application of quantum-dot FRET to investigate nonviral gene transfer,” Keynote Speaker, International Conference of Materials Advanced Technology, Singapore, July, 2007
- “Delivering biochemical and topographical cues by polymeric continuous nanostructures,” Keynote Speaker, 3rd International Conference on Bioengineering and Nanotechnology, Singapore, July, 2007
- “Nonviral oral gene delivery for hemophilia therapy,” Durham VA Medical Center, Durham, August, 2007
- “Biofunctionality derived from polymeric continuous nanostructures for tissue engineering,” Materials Today Asia Conference, Beijing, China, September, 2007
- “Nanotherapeutics,” Institute of Life Sciences, University of Science and Technology, Hefei, China, September, 2007
- “Nanotherapeutics: Application of nanotechnology to gene and cell therapy,” Department of Biomedical Engineering, Tsinghua University, Beijing, September, 2007
- “Nanotherapeutics: Application of nanotechnology to gene and cell therapy,” William Monk Distinguished Lectureship, University of Hong Kong, Hong Kong, September, 2007
- “Biofunctional polymeric continuous nanostructures,” Hong Kong University of Science and Technology, Hong Kong, September, 2007
- “Nonviral gene transfer mediated by DNA nanoparticles,” Keynote Speaker, 57th Canadian Chemical Engineering Conference, Edmonton, Alberta, October, 2007
- “Biofunctional polymeric continuous nanostructures,” School of Pharmaceutical Sciences, Wayne State University, October, 2007
- “Delivering biochemical and topographical cues from continuous nanostructures,” Department of Bioengineering, University of California, Berkeley, October, 2007
- “Delivering biochemical and topographical cues from continuous nanostructures,” DB Robinson Distinguished Speaker, University of Alberta, November, 2007
- “Nonviral gene transfer mediated by DNA nanoparticles,” Nanotechnology in Biology and Medicine Conference, Charlotte, North Carolina, November, 2007
- “Mechanism of nonviral oral gene delivery,” National Institute of Biomedical Imaging and Bioengineering, Bethesda, November, 2007
- “Stem cell response to polymeric continuous nanostructures,” Plenary Speaker, First International Conference on Biomolecular Cellular Engineering, Singapore, December, 2007
- “Stem cell response to polymeric nanostructures,” Department of Biological Engineering, M.I.T. Boston, February, 2008
- “Nano and ultrafine particles: Adverse effects on health”, Annual Meeting of American Academy of Allergy Asthma and Immunology, Philadelphia, March, 2008
- “Chitosan for oral delivery of nucleic acids”, Annual Meeting of American Academy of Allergy Asthma and Immunology, Philadelphia, March, 2008
- “Nonviral oral gene delivery”, 10th European Society of Controlled Drug Delivery Symposium, Amsterdam, April, 2008
- “Optimizing gene delivery with quantum dot-FRET technology”, Center for Nanotechnology Science and Technology, University of Illinois, Urbana Champaign, April 2008
- “Identifying nonviral gene transfer barriers by quantum dot-FRET technology”, Institute of Bioengineering and Nanotechnology, Singapore, May 2008
- “Optimizing gene delivery with quantum dot-FRET technology”, Keynote speaker, 3rd International Symposium of Biomedical Engineering and Bionanotechnology, Changsha, China, June 2008
- “Nanotherapeutics”, Vertex Pharmaceuticals, Boston, June 2008
- “Response of stem cells to polymeric continuous nanostructures”, Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrix, Portland, Maine, July 2008
- “Nanostructured biomaterials applied to regenerative medicine”, Center for Integration of Medicine and

Innovative Technology, Boston, October 2008

- “Cell-based intervertebral disc therapy with scaffold mediation”, University of Zurich, Zurich, Switzerland, November 2008
- “Biomaterials-assisted therapy of intervertebral disc degeneration”, AOSpine International, Zurich, Switzerland, November, 2008
- “Optimizing gene delivery with quantum dot-FRET technology”, Second International Research Network Symposium, Seoul, S. Korea, December, 2008
- “Nanostructured biomaterials”, Keynote speaker, A*STAR Workshop on Biomaterials, Singapore, December, 2008
- “Nanostructured biomaterials: Relevance to regenerative medicine and tissue biocompatibility”, Keynote speaker, Biomaterials Asia, Hong Kong, April, 2009
- “Stem cell tissue engineering”, Department of Medicine, University of Hong Kong, April, 2009
- “Nonviral gene carrier design aided by QD-FRET”, Center for Biologically Bioinspired Materials and Material Systems, Beaufort, NC, May, 2009
- “Nanostructured biomaterials: Relevance to regenerative medicine and tissue biocompatibility”, Wake Forest Institute of Regenerative Medicine, Winston-Salem, NC, May, 2009
- “Tissue-engineered intervertebral disc—is this possible?” Global Spine Congress, San Francisco, June, 2009
- “Nanostructured biomaterials: Relevance to regenerative medicine and tissue biocompatibility”, Gordon Research Conference, Holderness, NH, July, 2009
- “Relevance of microfluidic platforms to nanomedicine”, Nano Today 1st International Conference, Singapore, August, 2009
- “Nanostructured biomaterials: Relevance to regenerative medicine and tissue biocompatibility”, School of Pharmacy, University of Tennessee, Memphis, TN, Sept, 2009
- “Convergence of microfluidics and nanophotonics for gene delivery”, Ohio State University, Columbus, OH, Oct, 2009
- “Cancer therapy: challenges of delivery”, NSF-Mauritius Workshop on Biomaterials: Perspectives and Opportunities, Mauritius, Dec, 2009
- “Gene therapy: barriers of nonviral delivery”, NSF-Mauritius Workshop on Biomaterials: Perspectives and Opportunities, Mauritius, Dec, 2009
- "Microfluidic platforms related to nanomedicine", Keynote Speaker, 8th iNano Meeting, University of Aarhus, Denmark, Feb, 2010
- "Response of stem cells to nanotopographical cues and vascular tissue engineering," Keynote Speaker, NanoBio Collaborative Conference, University of South Florida, Tempa, FL, Mar, 2010
- "Microfluidic platforms related to nanomedicine", Keynote Speaker, Symposium on the Convergence of Nanotechnology and Life Sciences, SUNY at Albany, Albany, NY, Mar, 2010
- "Microfluidic platforms related to nanomedicine", Keynote Speaker, FNANO Symposium, Snowbird, UT, April, 2010
- “Optimization of oral nonviral gene delivery”, Department of Pharmacology, School of Medicine, University of Pennsylvania, PA, April, 2010
- “Optimization of oral nonviral gene delivery”, Institute of Life Sciences, University of Science and Technology of China, Hefei, China, June, 2010
- “Optimization of oral nonviral gene delivery”, Key Laboratory of Biomedical Polymers of Ministry of Education, Department of Chemistry, Wuhan University, Wuhan, China, June, 2010
- “Response of stem cells to nanotopography: tissue-engineered blood vessels”, Key Laboratory of Biomedical Polymers of Ministry of Education, Department of Chemistry, Wuhan University, Wuhan, China, June, 2010
- “Optimization of oral nonviral gene delivery”, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China, June, 2010
- “Biological treatment of intervertebral disc degeneration: controlled delivery technologies”, AOSpine World Congress, Montreal, Canada, July, 2010

- “Nanostructured biomaterials: relevance to regenerative medicine and tissue biocompatibility”, Keynote Lecture, American Society of Nanomedicine, Bethesda, NIH, Oct 2010
- “Nanostructured biomaterials”, Keynote Lecture, Johnson and Johnson Nanotechnology Symposium, New Brunswick, Oct 2010
- “Nanostructured biomaterials: relevance to regenerative medicine and tissue biocompatibility”, Keynote Lecture, Society of Biomaterials, Biomaterials Day at Johns Hopkins University, Baltimore, MD, Oct 2010
- “Optimizing Gene Delivery with QD-FRET and Microfluidics-mediated Self-assembly”, Distinguished Lecture Series, NSF Center for High-Rate Nanomanufacturing, Northeastern University, Boston, Nov, 2010
- “Cellular response to topographical cues”, Keynote Lecture, Molecular Nanotechnology Symposium, Nara, Japan, Dec 2010
- “Microfluidics-assisted synthesis of DNA nanocomplexes”, Symposium on Recent Advances of Drug Delivery, Salt Lake City, Utah, Feb 2011
- “Optimization of nonviral gene delivery by QD-FRET technology”, Center for Nanotechnology, University of Washington, Mar 2011
- “Relevance of topographical cues to regenerative medicine”, Department of Bioengineering, University of Washington, Mar 2011
- “Nanotherapeutics: applications of discreet and continuous nanostructures,” Distinguished Karcher Lecture Series, Department of Chemistry and Biochemistry, University of Oklahoma, Mar 2011
- “Self-assembly of polyplexes in picoliter volume,” 15th International Symposium on Recent Advances in Drug Delivery Systems, Salt Lake City, Utah, Mar 2011
- “Microfluidics-mediated synthesis of polyplexes and their applications,” School of Pharmacy, UNC Chapel Hill, Apr 2011
- “Stem cell response to nanostructured biomaterials,” Gordon Research Conference on Environmental Nanotechnology, Waterville, NH, Jun 2011
- “Cellular response to topographical cues: Relevance to regenerative medicine and nonviral transfection,” National University of Ireland, Galway, Ireland, Jun 2011
- “Microfluidics-mediated synthesis of DNA/RNA polyplexes,” Controlled Release Society Annual Meeting, Washington DC, Aug 2011
- “Cellular response to continuous nanostructures”, Keynote Lecture, 5th WACBE Symposium, Tainan, Taiwan, Aug 2011
- “Addressing barriers of nonviral gene delivery by QD-FRET and microfluidic technologies,” National Kaohsiung University, Kaohsiung, Taiwan, Aug 2011
- “Cellular response to topographical cues”, ACS Symposium on Polymer in Medicine, Santa Rosa, CA, Sept 2011
- “Cellular Response to Nanotopographical Cues: Relevance to Regenerative Medicine and Nonviral Gene Transfer”, Russian 2nd Nanomaterials Conference, Moscow, Sept 2011
- “Role of cell-topography effects in nonviral gene delivery”, 10th NHLBI Symposium on Gene Therapy, Sonoma, CA, Nov 2011
- “Nanotherapeutics for genetic medicine”, Distinguished Lectures in Life Sciences Series, Pennsylvania State University, College Station, PA, Nov 2011
- “Microfluidics-mediated synthesis of DNA and RNA polyplexes”, Keynote Lecture, 2nd Nano Today Conference, Hawaii, Dec 2011
- “Nanotherapeutics: applications of discreet and continuous nanostructures,” University of Missouri, Kansas City, School of Pharmacy, Kansas City, Jan 2012
- “Nanotherapeutics for genetic medicine”, Tianjin Medical University, Tianjin, China, March 2012
- “Cellular Response to Nanotopographical Cues: Relevance to Regenerative Medicine and Nonviral Gene Transfer”, Department of Biomedical Engineering, Cornell University, April 2012
- “Nanostructured biomaterials for gene and cell therapy”, Department of Chemical and Biomedical Engineering, Arizona State University, April 2012

- “Implications and applications of cell-topography interactions”, Biointerface Gordon Research Conference, Les Diablerets, Switzerland, May 2012
- “Response of stem cells to topography cues”, Keynote Lecture, 9th World Congress for Biomaterials, Chengdu, China, June 2012
- “Nanotherapeutics: Applications of discrete and continuous nanostructures for gene and cell therapy”, Plenary Lecture, International Union of Materials Research Societies, Singapore, July 2012
- “Mechanistic understanding of cell-topography interactions”, Engineered Extracellular Matrix Gordon Research Conference, Biddeford, Maine, July 2012
- “Microfluidics-mediated synthesis of DNA/RNA polyplexes”, NanoBio Seattle, Seattle, Washington, July 2012
- “Nanotherapeutics for genetic medicine”, College of Medicine, National Taiwan University, Taipei, Taiwan, August 2012
- “Implications and applications of cell-topography interactions”, New Jersey Symposium of Biomaterials, Rutgers University, October 2012
- “Implications and applications of cell-topography interactions”, Clemson Award Lecture, Annual Meeting of Society for Biomaterials, New Orleans, Louisiana, October 2012
- “Microfluidics-mediated synthesis Nanocomplexes”, International Society for the Study of Xenobiotics, Dalls, Texas, October 2012
- “Influence of cell-topography interactions on stem cell tissue engineering”, Department of Molecular Pharmaceutics, UNC-Chapel Hill, October 2012
- “Implications and applications of cell-topography interactions”, Department of Chemical Engineering, Texas Tech University, November 2012
- “Stem cell response to topographical cues”, Korea Regenerative Medicine Symposium, Cheongnam, S Korea, December, 2012
- “Implications and applications of cell-topography interactions”, NIPAM-80 Conference, Maui, HI, December 2012
- “Mechanisms and applications of cell-topography interactions for tissue engineering”, 1st IBN International Symposium on Nanosystems for Biomedical Applications, Jan 10, 2013
- “Nanotherapeutics applied to gene and cell therapy”, Department of Bioengineering, Stanford University, Mar 11, 2013
- “Nanotherapeutics: Optimizing delivery of genetic medicine by engineering strategies”, Department of Mechanical and Aerospace Engineering, George Washington University, Mar 14, 2013
- “Role of Biomaterials in direct cellular reprogramming”, Society for Biomaterials Annual Meeting, Boston, Apr 12, 2013
- “Nonviral direct cellular reprogramming”, Plenary Lecture, Korean Society of Tissue Engineering Annual Meeting, Seoul, S Korea, May, 2013
- “Role of Biomaterials in direct cellular reprogramming”, World Class University Program, Department of Bionanotechnology, Dankook University, S Korea, June 2013
- “Role of Biomaterials in direct cellular reprogramming”, Plenary Lecture, Biomedical Engineering Conference, Third Military Medical University, Chongqing, China, July 2013
- “Nanotherapeutics for gene and cell therapy”, School of Chemistry and Chemical Engineering, Sun Yat-Shen University, China, July 2013
- “Engineering strategies to optimize nonviral gene delivery”, Plenary Lecture, 6th WACBE Conference, Beijing, China, August 2013
- “Nanotherapeutics for gene and cell therapy”, Plenary Lecture, Helmholtz Graduate School of Macromolecular Biosciences, Berlin, Germany, September 2013
- “Role of biomaterials in direct cell reprogramming”, Plenary Lecture, 12th International Conference "Polymers for Advanced Technologies", Berlin, Germany, September 2013
- “Application of quantum dots to theranostics of nanomedicine”, Duke Nanomaterials Symposium, Durham, NC, October, 2013

- “Optimizing gene and cell therapy with engineering strategies”, Institute for Bioengineering and Bioscience, Georgia Tech, Atlanta, GA, November, 2013
- “Cell-topography interactions, nonviral gene delivery, and direct cellular reprogramming”, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, February, 2014
- “Optimizing delivery of genetic medicine by engineering strategies”, National Jewish Health Center, Denver, CO, February, 2014
- “Cell-topography interactions and neuronal differentiation”, Keynote Lecture, Annual Meeting of American Society for Nanomedicine, Washington, D.C., March 2014
- “Cell-topography interactions, nonviral gene delivery, and direct cellular reprogramming”, Department of Biomedical Engineering, Columbia University, New York, NY, February, 2014
- “mRNA tumor vaccination and mRNA-polyplex nanomanufacturing”, Acuitas Therapeutics, Vancouver, BC, March 2014
- “Direct cell reprogramming by exogenous and endogenous approaches: Transcription factor overexpression and genome editing”, Dankook University, S Korea, April 2014
- “Optimizing delivery of genetic medicine by engineering strategies”, Lecture for International Journal of Nanomedicine Distinguished Scientist Award, Annual Meeting of Society for Biomaterials, Denver, CO, April, 2014
- “Direct cell reprogramming by exogenous and endogenous approaches: Transcription factor overexpression and genome editing”, Plenary Lecture, International Conference in Biomedical Engineering, Beijing University of Aerospace Aeronautics, Beijing, China, May 2014
- “Bioinspired biomaterials for drug, gene, and cell therapy”, Keynote Lecture, The Hangzhou Future Sci-Tech City Meeting, Hangzhou, China, May 2014
- “Cell-topography Interactions and Direct Cellular Reprogramming”, World Congress of Biomechanics, Boston, July 2014
- “Bioengineering of direct cell reprogramming”, Keynote Lecture, 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL, August, 2014
- “Bioengineering of direct cellular reprogramming”, 2nd Symposium on Frontiers of Bioengineering, Urbana-Champaign, IL, September 2014
- “Advancing Direct Cellular Reprogramming with Biomaterials and Bioengineering Approaches”, Plenary Lecture, 3rd Symposium on Innovative Polymers for Controlled Delivery, Suzhou, China, September 2014
- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, Tissue Engineering and Regenerative Medicine International Society-Asia Pacific Meeting, Daegu, S Korea, September 2014
- “Targeting Lymphnode with Particulate Adjuvant”, Keynote Lecture 1st International Symposium on Immunobiomaterials, Tianjin University, Tianjin, China, October 2014
- “Oral Nanotherapeutics: Promise and Challenge”, Department of Medicine, University of North Carolina, Chapel-Hill, NC, October 2014
- “Bioengineering of Direct Cellular Reprogramming”, Institute of Cell Engineering, Johns Hopkins School of Medicine, Baltimore, October, 2014
- “Bioengineering of Direct Cellular Reprogramming”, Keynote Lecture, Materials Today Asia Conference, Hong Kong, December, 2014
- “Bioengineering of Direct Cellular Reprogramming”, Distinguished Lectureship, Nantong University, China, Nantong, December, 2014
- “How to Publish in *Biomaterials* Without Any Data”, 1st International Conference in Translational Nanomedicine, Guangzhou, 2015
- “Bioengineering of Direct Cellular Reprogramming”, Department of Medicine, Medical University of South Carolina, Charleston, SC, January, 2015
- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, University of Wisconsin, Madison WI, April, 2015
- “Publishing in *Biomaterials*: Editor’s Perspective”, Keynote Lecture, 5th Asian Biomaterials Congress, Taipei, May 2015

- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, Savio L-Y Distinguished Scientist Award, 7th WACBE Conference, Singapore, July 2015
- “Endogenous and Exogenous Approaches for Direct Cell Reprogramming”, Dankook University, Cheonan, S Korea, July 2015
- “Delivery Aspects of Direct Cell Reprogramming”, Keynote Lecture, 1st International Conference on Biotherapeutics Delivery, Seoul, S Korea, September 2015
- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, ChinaNano 2015, Beijing, China, September 2015
- “Bioengineering of Direct Cellular Reprogramming”, Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China, September 2015
- “Bioengineering of Direct Cellular Reprogramming”, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, China, September 2015
- “Direct Cellular Reprogramming and Tissue-on-a-Chip”, State Key Laboratory of Bioelectronics, Southeast University, Nanjing, China, September 2015
- “Direct Cellular Reprogramming and Tissue-on-a-Chip”, Institute of Biomaterials and Biomedical Engineering, University of Toronto, Canada, November 2015
- “Addressing Biomanufacturing Challenges with Microfluidics”, Keynote Lecture, China-USA Forum on Grand Challenges for Biomaterials, Chengdu, China, November 2015
- “Biomaterials for Direct Cellular Reprogramming”, Plenary Lecture, Chinese Biomaterials Congress, Haikou, China, November 2015
- “Direct Cellular Reprogramming and Tissue-on-a-Chip”, Plenary Lecture, 4th NanoToday Conference, Dubai, UAE, December 2015
- “Bioengineering of Direct Cellular Reprogramming”, Two Gene Distinguished Lecture, Department of Chemical and Biological Engineering, Northwestern University, Evanston, February 2016
- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, ASME-NanoEngineering in Medicine and Biology, Houston, February 2016
- “Bioengineering of Direct Cellular Reprogramming”, Department of Chemistry and Chemical Biology, Rutgers University, New Brunswick, April 2016
- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, University of California, Riverside, April, 2016
- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, Korean Society for Tissue Engineering and Regenerative Medicine, Seoul, June, 2016
- “Application of Stem Cell Engineering for Precision Medicine”, Plenary Lecture, Chinese American Society of Nanotechnology and Nanomedicine, Beijing, July, 2016
- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, Tsinghua University, July, 2016
- “Direct Cellular Reprogramming and Tissue-on-a-chip”, Institute of Bioceramics, Chinese Academy of Sciences, Shanghai, China, July 2016
- “Direct Cellular Reprogramming”, Institute of Chemistry, Chinese Academy of Sciences, Shanghai, China, July 2016
- “Bioengineering of Direct Cellular Reprogramming”, Department of Chemistry, Peking University, July, 2016
- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, Shanghai Jiaotong University, July, 2016
- “Direct Cellular Reprogramming and Tissue-on-a-chip”, University of Chinese Academy of Sciences, Beijing, China, July 2016
- “Bioengineering of Direct Cellular Reprogramming”, Plenary Lecture, Tissue Engineering and Regenerative Medicine – Asian Pacific (TERMIS-AP), Taiwan, August, 2016
- “Application of Stem Cell Engineering for Drug Development”, Keynote Lecture, Chinese Academy of Engineering Pharmacology Conference, Shanghai, September, 2016

- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, Case Western Reserve University, November, 2016
- “Implication and Application of Direct Cellular Reprogramming”, Benjamin Zweifach Memorial Lectureship, Department of Biomedical Engineering, City College of New York, November, 2016
- “Bioengineering Strategies to Advance Biomanufacturing of Cell and Tissue Therapeutics”, Keynote Lecture, New Jersey Biomaterials Symposium, New Brunswick, November 2016
- “Direct Cellular Reprogramming and Tissue-on-a-chip”, Institute of Basic Medical Sciences, Zhejiang University, Hangzhou, China, January 2017
- “Bioengineering of Direct Cellular Reprogramming”, Keynote Lecture, Engineering Frontiers in Translational Medicine Symposium, Dartmouth College, Hanover, February, 2017
- “Bioengineering of Direct Cellular Reprogramming”, Distinguished Biomaterials Lectureship, Boston University, Boston, February, 2017
- “Implication and Application of Direct Cellular Reprogramming”, Keynote Lecture, Tissue Engineering Symposium, National University of Singapore, April, 2017
- “Application of Direct Cellular Reprogramming”, Keynote Lecture, International Symposium on Biomaterials and Tissue Engineering, Clemson University, April, 2017
- “Bioengineering of Direct Cellular Reprogramming”, Keynote Lecture, School of Dental Medicine Research Day, University of Pennsylvania, Philadelphia, April, 2017
- “Direct Cellular Reprogramming and Tissue-on-a-chip”, National Key Laboratory of Bioelectronics, Southeast University, Nanjing, China, July, 2017
- “Bioengineering of Direct Cellular Reprogramming”, Department of Biomedical Engineering, Nanjing University, Nanjing, China, July, 2017
- “Bioengineering of Direct Cellular Reprogramming”, Department of Chemistry, Nanjing University, Nanjing, China, July, 2017
- “Bioengineering of Direct Cellular Reprogramming”, Department of Polymer Science, East China University of Science and Technology, Shanghai, China, July, 2017
- “No gene delivery, no tumor growth”, Plenary Lecture, 2nd International Conference on Nanotechnology and Nanomedicine, Suzhou, China, August, 2017
- “Polycations as Molecular Scavengers”, Chinese Academy of Sciences - Suzhou Institute of Nano-Tech and Nano-Bionics, Suzhou, China, August, 2017
- “Biomaterials strategies to control inflammation”, Plenary Lecture, 2017 Tissue Engineering and Regenerative Medicine International Society-Asia Pacific Meeting (TERMIS-AP), Nantong, China, 2017
- “Polycations as Molecular Scavengers to combat sterile inflammation”, Department of Chemical Engineering, Columbia University, October, 2017
- “New Directions of Biomaterials for Inflammation Control”, Keynote Lecture, Xiang Shang Conference, Beijing, October, 2017
- “Biomaterials Strategy to Modulate Inflammation”, Plenary Lecture, T3CN Symposium, University of Pennsylvania, December, 2017
- “Biomaterials Strategy to Modulate Inflammation”, CAS Institute of Applied Chemistry, Changchun, China, January, 2018
- “Regenerative medicine applications in human tissue-on-chip”, CAS Dalian Institute of Chemical Physics, Dalian, China, January, 2018
- “Biomaterials Strategy to Modulate Inflammation”, School of Pharmacology and Pharmacy, Jilin University, China, January, 2018
- “Biomaterials Strategy to Modulate Inflammation”, School of Biomedical Engineering, Huazhong University of Science and Technology, Wuhan, China, January, 2018
- “Direct cell reprogramming and human tissue-on-chip”, Center for Regenerative Medicine, Tongji Hospital, Huazhong University of Science and Technology, Wuhan, China, January, 2018

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