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## HYUNJOON KONG

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### I. EDUCATION

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1995-2001 **Ph.D. Macromolecular Sci. and Eng.** University of Michigan

1993-1995 **M.S. Industrial Chemistry Eng.** Hanyang Univ. Seoul Korea

1988-1992 **B.S. Industrial Chemistry Engineering (Honor Student)**

Hanyang University Seoul Korea

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### II. RESEARCH EXPERIENCE

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2013-Present **Associate Professor** Departments of Chemical and Biomolecular Engineering, Bioengineering, Pathobiology, Center for Biophysics Program, & Neuroscience Program, University of Illinois at Urbana-Champaign

2007-2013 **Assistant Professor** Departments of Chemical and Biomolecular Engineering, Bioengineering, Pathobiology, Center for Biophysics Program & Neuroscience Program, University of Illinois at Urbana-Champaign

2007-Present Core member, Institute for Genomic Biology (Regenerative Biology and Tissue Engineering)  
Affiliated member Micro Nano Research Laboratory, University of Illinois at Urbana-Champaign

2004-2006 **Research Associate** School of Eng. and Applied Sci. (Bioengineering) Harvard University

2001-2004 **Post-Doctoral Research Fellow** Dept. of Biological and Materials Sci. Univ. of Michigan

1997-2001 **Research Assistant** Dept. of Chemical Eng. & Civil & Environmental Eng. Univ. of Michigan

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### III. TEACHING EXPERIENCE

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2007-Present (Spring Semester) Thermodynamics for Chemical Engineers

2009-Present (Fall Semester) Biotransport

2007-2009 (Fall Semester) Principles of Chemical Engineering

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### IV. HONORS/AWARDS

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2013-2016 Centennial Scholar, LAS, UIUC

2012 Engineering Dean's Award for Excellence in Research

2012-2013 UIUC Center for Advanced Study Fellow

2011 Korean Institute for Chemical Engineers Presidential Young Investigator Award

2011 Teacher Ranked as Excellent, UIUC Center for Teaching Excellence

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2010	Teacher Ranked as Excellent, UIUC Center for Teaching Excellence
2009	NSF Career Award
2008	American Heart Association, Scientist Development Grant
1995-1997	Hanyang University Fellowship Award for students studying abroad
1992	Honor Prize from Hanyang University Seoul Korea
1990-1991	Samnam Foundation Fellowship Award
1988-1989	Hanyang University Fellowship Award

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## V. PATENTS

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1. Kong, H.J. & Li, V.C. Development of high performance self-compacting engineered cementitious composite (US Patent No. **6,809,131**).
2. Kim, Y.Y., Kong, H.J., & Li V.C. Development of high performance sprayable engineered cementitious composite (US Patent No. **7,241,338**).
3. Mooney, D.J., Ali, O., Eduardo, S., Kong, H.J., Hill, E.E., & Boontheekul, T. Scaffolds for cell transplantation (US Patent Application Number: **11/638,796**).
4. Jeong, J., Cha, C., Chan, V., Bashir, R., & Kong, H.J. Living microvascular stamp (US Patent Application Number: **61/650,073**).
5. Jeong, J., Schmidt, J., Riche, K., Zill, A., Zimmerman, S. & Kong, H.J. Hyperbranched polyaspartamide for stem cell delivery (filed for provision).

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## VI. PEER-REVIEWED PUBLICATIONS (h index:33)

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1. **Kong, H.J.**, Bike, S.G., & Li, V.C. Development of self-compacting engineered cementitious composite reinforced with hydrophobic poly(ethylene) fiber using electrosteric stabilization technique. *Cement and Concrete Composites* 25:301-309 (2003).
2. **Kong, H.J.**, Bike, S.G., & Li, V.C. Development of self-compacting engineered cementitious composite reinforced with hydrophilic poly(vinyl alcohol) fiber using electrosteric stabilization technique. *Cement and Concrete Composites* 25:333-341 (2003).
3. Kim, Y.Y., **Kong, H.J.**, & Li, V.C., Parallel control of micromechanics-based design and rheology-based design to develop a sprayable engineered cementitious composite. *ACI Materials Journal* 100:511-518 (2003).
4. **Kong, H.J.**, Bike, S.G., & Li, V.C. Electrosteric stabilization of concentrated cementitious suspensions imparted by a strong anionic polyelectrolyte and a non-ionic polymer. *Cement and Concrete Research* 36:842-850 (2006).
5. **Kong, H.J.**, Bike, S.G., & Li, V.C. Effects of a strong polyelectrolyte on the rheological properties of concentrated cementitious suspensions. *Cement and Concrete Research* 36:851-857 (2006).

As a post-doctoral fellow at the University of Michigan

6. **Kong, H.J.**, Lee, K.Y., & Mooney, D.J. Decoupling effects of solids concentration on rheological properties of pre-gelled alginate solution and mechanical properties of post hydrogel by utilizing binary molecular weight distribution. *Polymer* 43:6239-6246 (2002).
7. **Kong, H.J.**, Lee, K.Y., & Mooney, D.J. Non-destructively probing the cross-linked structure of polymeric hydrogels. *Macromolecules* 36:7887-7890 (2003).
8. **Kong, H.J.** & Mooney, D.J. The effects of poly(ethyleneimine) molecular weight on reinforcement of alginate hydrogels. *Cell Transplantation* 12: 779-785 (2003).
9. **Kong, H.J.**, Wong, E., & Mooney, D.J. Independent control of rigidity and toughness of polymeric hydrogels. *Macromolecules* 36:4582-4588 (2003).
10. **Kong, H.J.**, Smith, M.K., & Mooney D.J. Processing of cell encapsulating hydrogels to enhance cell viability. *Biomaterials* 24:4023-4029 (2003).
11. Lee, K.Y., **Kong, H.J.**, Larson, R.G., & Mooney, D.J. Hydrogel formation via cell cross-linking. *Advanced Materials* 15:1828(2003). – *Editor's choice from Science (2003)*.
12. Alsberg, E., **Kong, H.J.**, Hirano, Y., Smith, M.K., Alberiruti, A., & Mooney, D.J. Regulating bone formation via controlled scaffold degradation. *Journal of Dental Research* 82:903-908 (2003).
13. **Kong, H.J.**, Alsberg, E., Darnell, K., Lee, K.Y., & Mooney, D.J. Controlling degradation of hydrogels via the size of cross-linked junctions. *Advanced Materials* 16:1917-1921(2004),
14. **Kong, H.J.**, Darnell, K., & Mooney, D.J. Controlling rigidity and degradation of alginate hydrogels via molecular weight distribution. *Biomacromolecules* 5:1720-1727 (2004).
15. Grimmer, J.F., Gunnlaugsson, C.B., Alsberg, E., Murphy, H.S., **Kong, H.J.**, Mooney, D.J., & Weatherly, R.A. Tracheal reconstruction using tissue-engineered cartilage. *Archives of Otolaryngology Neck Surgery* 130:1191-1196 (2004).

As a Research Scientist at Harvard University

16. **Kong, H.J.**, Liu, J., Riddle, K., Matsumoto, T., Leach, K., & Mooney D.J. Gene delivery regulated by substrate rigidity. *Nature Materials* 4:460-464 (2005) – *Highlighted by Nature 435:250 (2005)*.
17. **Kong, H.J.**, Polte, T., Alsberg, E., & Mooney D.J. FRET measurements of cell-traction forces and nano-scale clustering of adhesion ligands varied by substrate stiffness. *Proceedings of the National Academy Sciences (USA)* 102:4300-4305 (2005),
18. Boontheekul, T., **Kong, H.J.**, & Mooney, D.J. Controlling alginate gel degradation utilizing partial oxidation and bimodal molecular weight distribution. *Biomaterials* 26:2455-2465 (2005).
19. **Kong, H.J.**, Boontheekul, T., & Mooney, D.J. Quantifying the relation between adhesion ligand-receptor bond formation and cell phenotype. *Proceedings of the National Academy Sciences (USA)* 103:18534-18539 (2006).

20. August, A.D., **Kong, H.J.**, & Mooney, D.J. Alginate hydrogels as Biomaterials. *Macromolecular Bioscience* 6:623-633 (2006).
21. Comisar, W., Hsiong, S., **Kong, H.J.**, Mooney, D.J., & Linderman, J.J. Multi-scale modeling to predict ligand presentation within RGD nanopatterned hydrogels. *Biomaterials* 27:2322-2329 (2006).
22. Riddle, K.W., **Kong, H.J.**, Leach, J.K., Fischbach, C., Cheung, C., Anseth, K.S., & Mooney, D.J. Modifying the proliferative state of target cells to control DNA expression and identifying cell types transfected *in vivo*. *Molecular Therapy* 15:361-368 (2007).
23. Boonthekul, T., Hill, E.E., **Kong, H.J.**, & Mooney, D.J. Regulating myoblast phenotype through controlled gel degradation and stiffness. *Tissue Engineering* 13:1432-1442 (2007).
24. Oest, M.E., Dupont, K.M., **Kong, H.J.**, Mooney, D.J., & Guldberg, R.E. Quantitative assessment of scaffold and growth factor-mediated repair of critically sized bone defects. *Journal of Orthopedic Research* 25:941-950 (2007).
25. Evangelista, M.B., Hsiong, S.X., Fernandes, R., Sampaio, P., **Kong, H.J.**, Barrias, C., Salema, R., Barbosa, M.A., Mooney, D.J., & Granja, P.L. Upregulation of bone cell differentiation through immobilization within a synthetic extracellular matrix. *Biomaterials* 28:3644-3655 (2007).
26. Matsumoto, T., Yung, Y.C., Fischbach, C., **Kong, H.J.**, Nakaoka, R., & Mooney, D.J. Mechanical strain regulates endothelial cell patterning *in vitro*. *Tissue Engineering* 13:207-217 (2007).
27. Lee, K.Y., **Kong, H.J.**, & Mooney, D.J. Quantifying interactions between cell receptors and adhesion ligand-modified polymers in solution. *Macromolecular Biosciences* 8:140-145 (2008).
28. **Kong, H.J.** & Mooney, D.J. Cellular microenvironments to regulate biomacromolecular therapies. *Nature Reviews Drug Discovery* 6:455-463 (2007).
29. **Kong, H.J.**, Kim, C.J., Huebsch, N.D., Weitz, D., & Mooney, D.J. Non-invasive probing of the spatial organization of polymer chains in hydrogels using Fluorescence Resonance Energy Transfer (FRET). *Journal of the American Chemical Society* 129:4518-4519 (2007).
30. **Kong, H.J.**, Hsiong, S., & Mooney, D.J. Nanoscale cell adhesion ligands presentation regulates non-viral gene delivery and expression. *Nano Letters* 7:161-166 (2007).
31. **Kong, H.J.**, Kim, E.S., Huang, Y.C., & Mooney, D.J. Design of biodegradable hydrogel for the local and sustained delivery of angiogenic plasmid DNA. *Pharmaceutical Research* 25:1230-1238 (2008).
32. Hsiong, S., Cooke, P.H., **Kong, H.J.**, Fishman, M.L., Ericsson, M., & Mooney, D.J. AFM imaging of RGD presenting synthetic extracellular matrix using gold nanoparticles. *Macromolecular Biosciences* 8:469-477 (2008).
33. Silva, E., Kim, E.S., **Kong, H.J.**, & Mooney, D.J. Deployment of progenitor cells. *Proceedings of the National Academy Sciences (USA)* 105:14347-14352 (2008).
34. Hsiong, S., Huebsch, N., Fischbach, C., **Kong, H.J.**, & Mooney, D.J. Integrin-adhesion ligand bond formation of preosteoblasts and stem cells in 3D RGD presenting matrices. *Biomacromolecules* 9:1843-1851 (2008).

35. Lee, K.Y., **Kong, H.J.**, & Mooney, D.J. Quantifying interactions between cell receptors and adhesion ligand-modified polymers in solution. *Macromolecular Biosciences* 8:140-145 (2008).
36. Boonthekul, T., **Kong, H.J.**, Hsiong, S.X., Huang, Y.C., Mahadevan, L., Vandenburg, H., & Mooney, D.J. Quantifying the relation between bond number and myoblast proliferation. *Faraday Discussions* 139:53-70 (2008).
37. Hsiong, S., Karampin, P., **Kong, H.J.**, Lee, K.Y., & Mooney, D.J. Differentiation stage alters matrix control of stem cells. *Journal of Biomedical Materials Research* 85:145-156 (2008).
38. Fischbach, C., **Kong, H.J.**, Hsiong, S., Evangelista, M., Yuen, W., & Mooney, D.J. Cancer cell angiogenic capability is regulated by 3-D culture and integrin engagement. *Proceedings of the National Academy Sciences (USA)* 106:399-404 (2009).
39. Orive, G., DeCastro, M., **Kong, H.J.**, Hernández, R.M., Ponce, S., Mooney, D.J., & Pedraz, J.L. Bioactive cell hydrogel microcapsules for cell-based drug delivery. *Journal of Controlled Release* 135:203-210 (2009).
40. Hahn, L., **Kong, H.J.**, & Mooney, D.J. Polycation structure mediates expression of lyophilized polycation-pDNA complexes. *Macromolecular Biosciences* 10:1210-1215 (2010).

As a faculty at the University of Illinois

41. Schmidt, J.J., Rowley, J., & **Kong, H.J.** Hydrogels used for cell-based drug delivery. *Journal of Biomedical Materials Research A* 87:1113-1122 (2008).
42. Chu, C., Schmidt, J.J., Carne, K., Zhang, Z., **Kong, H.J.**, & Hofmann, M-C. Three-Dimensional synthetic niche components to control germ cell proliferation. *Tissue Engineering A* 15:255-262 (2009).
43. Sung, J., Barone, P., **Kong, H.J.**, & Strano, M. Sequential delivery of dexamethasone and VEGF to control local tissue response for carbon nanotube fluorescence based micro-capillary implantable sensors. *Biomaterials* 30:622-631 (2009).
44. Chu, C., DeVolder, R., Scaffar, B., & **Kong, H.J.** Quantitatively analyzing the cross-linked structure of microgels using fluorescent probes. *Polymer* 50:5288-5292 (2009).
45. Cha, C., Kohman, R., & **Kong, H.J.** Biodegradable polymer cross-linker: Independent control of stiffness, toughness and degradation rate of hydrogel. *Advanced Functional Materials* 19:3056-3062 (2009).
46. Jeong, J.H., Schmidt, J., Cha, C., & **Kong, H.J.** Tuning responsiveness and structural integrity of the pH responsive hydrogel using poly(ethylene glycol) cross-linker. *Soft Matter* 6:3920-3938 (2010).
47. Chan, V., Zorlutuna, P., Jeong, J., **Kong, H.J.**, & Bashir, R. Three-Dimensional photopatterning of hydrogels using stereolithography for long-term cell encapsulation. *Lab on a Chip* 10:2062-2070 (2010).
48. DeVolder, R. & **Kong, H.J.** Three dimensionally flocculated proangiogenic microgels for neovascularization. *Biomaterials* 31:6494-6501 (2010).
49. Kohman, R., Cha, C., Zimmerman, S.C., & **Kong, H.J.** Tuning hydrogel properties and function using substituent effects. *Soft Matter (Communication)* 6:2150-2152 (2010).

50. Cha, C., Kim, S., Cao, L., & **Kong, H.J.** Decoupled control of stiffness and permeability of cell-encapsulated poly(ethylene glycol) hydrogel. *Biomaterials* 31:4864-4871 (2010).
51. Kim, D., Monaco, E., Maki, A., Sobriera de Lima, A., **Kong, H.J.**, & Wheeler, M.B. Morphologic and transcriptomic comparison of adipose- and bone-marrow-derived porcine stem cells cultured in alginate hydrogels. *Cell & Tissue Research* 341:359-370 (2010).
52. Zill, A., Rutz, A.L., Kohman, R.E., Alkilany, A.M., Murphy, C.J., **Kong, H.J.**, & Zimmerman, S.C. Clickable polyglycerol hyperbranched polymers and their application to gold nanoparticles and acid-labile nanocarriers. *Chemical Communication* 47:1279-1281 (2011).
53. Liang, Y., Jensen, T.W., Roy, E.J., Cha, C., DeVolder, R.J., Kohman, R.E., Zhang, B.Z., Textor, K.B., Rund, L.A., Schook, L.B., Tong, Y.W., & **Kong, H.J.** Tuning the non-equilibrium state of a drug-encapsulated poly(ethylene glycol) hydrogel for stem and progenitor cell mobilization. *Biomaterials* 32:2004-2012 (2011).
54. Cha, C., Kim, E., Kim, I., & **Kong, H.J.** Integrative design of a poly(ethylene glycol)-poly(propylene glycol)-alginate hydrogel to control three dimensional biomineralization. *Biomaterials* 32:2695-2703 (2011).
55. DeVolder, R., Bae, H., Lee, J., & **Kong, H.J.** Directed blood vessel growth using angiogenic microfiber/microparticle composite patch. *Advanced Materials* 23:3139-3143 (2011).
56. Schmidt, J., Jeong, J.H., & **Kong, H.J.** Interplay of cell adhesion cues and curvature of a cell adherent alginate microgel for multipotent stem cell culture, *Tissue Engineering A* 17:2687-2694 (2011).
57. Cha, C., Jeong, J.H., Shim, J., & **Kong, H.J.** Tuning the dependency between stiffness and permeability of cell-encapsulating hydrogel with hydrophilic pendant chains. *Acta Biomaterialia* 7:3719-3728 (2011).
58. Liang, Y., Jeong, J., DeVolder, R., Cha, C., Wang, F., Tong, Y., & **Kong, H.J.** A cell-instructive hydrogel to regulate malignancy of 3D tumor spheroids with matrix rigidity. *Biomaterials* 32:9308-9315 (2011).
59. Zorulutuna, P., Jeong, J., **Kong, H.J.**, & Bashir, R. Stereolithography-based hydrogel microenvironments for examining cellular interactions. *Advanced Functional Materials* 21:3642-3651 (2011).
60. Zhao, Y., Graf, B., Chaney, E., Mahmassani, Z., Antoniadou, E., DeVolder, R., **Kong, H.J.**, Boppart, M., & Boppart, S. Integrated multimodal optical microscopy for structural and functional imaging of engineered and natural skin, *Journal of Biophotonics* 5:437-448 (2012),
61. An, E., Jeong, C.B., Cha, C., Kim, D.H., Lee, H., **Kong, H.J.**, Kim, J., & Kim, J.W. Fabrication of microgel-in-liposome particles with improved water retention. *Langmuir* 28:4095-4101 (2012).
62. Chan, V., Jeong, J., **Kong, H.J.**, & Bashir, R. Multi-Material bio-fabrication of hydrogel cantilevers and actuators with stereolithography. *Lab on a Chip* 12:88-98 (2012).
63. Cha, C., Kim, S.R., Jin, Y.S., & **Kong, H. J.** Tuning structural durability of yeast-encapsulating alginate gel beads with interpenetrating networks for sustained bioethanol production, *Biotechnology & Bioengineering* 109:63-73 (2012). - featured by an editor.

64. Jeong, J., Cha, C., Chan, V., Zorulutuna, P., Bashir, R., & **Kong, H.J.** Living microvascular stamp for patterning of functional neovessels; Orchestrated control of matrix property and geometry. *Advanced Materials* 24: 58-63 (2012). – Cover article, highlighted by *C&EN & Chemical Engineering Progress*.
65. Cha, C., Jeong, J., Tang, X., Zill, A., Zimmerman, S.C., Prakash, Y., Saif, T., & **Kong, H.J.** Top-down synthesis of polyaspartamide linker. *Bioconjugate Chemistry* 22:2377-2383 (2012).
66. Jeong, J., Cha, C., Kaczamarowki, A., Oh, S., & **Kong, H.J.** Polyaspartamide micelle-to-vesicle transition driven by metallic nanoparticles. *Soft Matter* 8:2237-2242 (2012).
67. Chu, C. & **Kong, H.J.** Interplay of cell adhesion matrix stiffness and cell type for non-viral gene delivery. *Acta Biomaterialia* 8:2612-2619 (2012).
68. DeVolder, R., & **Kong, H.J.** Hydrogels for in vivo-like three dimensional cellular studies. *WIREs Systems Biology and Medicine* 4:351-365 (2012).
69. Millet, L., Corbin, E., Park, K., King, W.P., **Kong, H.J.** & Bashir, R. The characterization of mass and swelling of hydrogel microstructures using MEMS resonant mass sensor arrays. *Small* 8:2555-2562 (2012).
70. Chan, V., Collens, M.B., Jeong, J.H., **Kong, H.J.** & Bashir, R. Directed cell growth and alignment on protein-patterned 3D hydrogels with stereolithography. *Virtual and Physical Prototyping* 7:219-228 (2012).
71. Chan, V., Park, K., Collens, M.B., **Kong, H.J.**, Saif, T., & Bashir, R. Development of miniaturized walking biological machines. *Scientific Reports* 2:857 (2012).
72. Lai, M., Jeong, J., DeVolder, R., Brockman, C., Schroeder, C.M., & **Kong, H.J.** Ellipsoidal polyaspartamide polymersomes with enhanced cell-targeting ability. *Advanced Functional Materials* 22:3239-3246 (2012).
73. DeVolder, R., Kim, E.S., Kim, I.W. & **Kong, H.J.** Modulating the rigidity and mineralization of collagen gels using poly(lactic-co-glycolic acid) microparticles. *Tissue Engineering A* 18:1642-1651(2012).
74. DeVolder, R., Zill, A., Jeong, H.Y., & **Kong, H.J.** Microfabrication of proangiogenic cell-laden alginate-g-pyrrole hydrogels. *Biomaterials* 33: 7718-7726 (2012).
75. Cho, E. C., **Kong, H.J.**, Oh, T., Cho, K., Protein adhesion regulated by nanoscale surface conformation, *Soft Matter* 8: 11801-11808 (2012).
76. Jeong, J.H., Liang, Y., Jang, M., Cha, C., Chu, C., Lee, H., Jung, W.G., Kim, J.W., Boppart, S.A., & **Kong, H.J.** Stiffness-modulated water retention and neovascularization of dermal fibroblast-encapsulating collagen gel. *Tissue Engineering* 19:1275-1284 (2013).
77. Schmidt, J., Jeong, J.H., Chan, V., Cha, C., Baek, K., Lai, M-H, Bashir, R., **Kong, H.J.** Tailoring the Dependency between Rigidity and Water Uptake of a Microfabricated Hydrogel with the Conformational Rigidity of a Polymer Cross-linker. *Biomacromolecules* 14:1361-1369 (2013).
78. Jeong, J.H., Schmidt J.J., Kohman, R.E., Zill, A.T., DeVolder, R.J., Smith, C.E., Lai, M.H., Shkumatov, A., Jensen, T.W., Schook, L.G., Zimmerman, S.C., & **Kong H.J.** Leukocyte-Mimicking Stem Cell Delivery via in Situ Coating of Cells with a Bioactive Hyperbranched

Polyglycerol. *Journal of the American Chemical Society* 135:8763-8765 (2013). – Highlighted by *C&EN News & SciBX*, chosen as a spotlight by *JACS*

79. Cha, C., Antoniadou, E., Lee, M., Jeong, J.H., Ahmed, W.W., Saif, T.A., Boppart, S.A. & **Kong H. J.** Tailoring hydrogel adhesion to Polydimethylsiloxane substrates using polysaccharide glue. *Angewandte Chemie International Edition*, 52:6949-6952(2013). – Chosen as Hot Paper
80. Janardhana, R., Yang, B., Vohra, P., Roy, B., Withers, S., Bhattacharya, S., Mandrekar, J., **Kong, H.J.**, Leof, E.B., Mukopadyyay, D., & Misra, S., Simvastatin reduces venous stenosis formation in a murine hemodialysis vascular access model. *Kidney International* 84:338-352 (2013).
81. Damhorst, G.L., Smith, C.E., Salm, E.M., Sobieraj, M.M., Mi, H., **Kong, H.J.** & Bashir R. A liposome-based ion release impedance sensor for biological detection. *Biomedical Devices* 15:895-905 (2013).
82. Baek, G.H., Jeong, J., Shkumatov, A., Bashir, R. & **Kong, H.J.** In situ self-folding assembly of multi-walled hydrogel tube for uniaxial, sustained molecular release. *Advanced Materials* 39:5568-5573 (2013).
83. DeVolder, R., Antoniadou, E. & **Kong, H.J.** Enzymatically cross-linked injectable alginate-g-pyrrole hydrogels for neovascularization. *Journal of Controlled Release* 172:30-37(2013).
84. Yonet, N., M. Rich, Lee, M.K., Lai, M-H, & **Kong, H.J.** Spatiotemporal Control of Erosion and Molecular Release from Micropatterned Poly(ethylene glycol)-based Hydrogel. *Biomaterials* 34: 8416-8423(2013)
85. Clay, N., Baek, K., Shkumatov, A., Lai, M-H., Cartney, S., Max, R., & **Kong, H.J.** Flow-Mediated Stem Cell Labeling with Superparamagnetic Iron Oxide Nanoparticle Clusters. *ACS Applied Materials & Interfaces* 5: 10266-10273 (2013).
86. C. Smith, A. Shkumatov, S. Withers, J. Glockner, S. Misra, E. Roy, C-H, Wong, S. Zimmerman, & **Kong, H.J.** A Polymeric Fastener can Easily Functionalize Liposome Surfaces with Gadolinium for Enhanced Magnetic Resonance Imaging *ACS Nano* 26:9599-9610 (2013).
87. Liang, Y., **Kong, H.J.** & Tong, Y.W. Generation of cell-instructive collagen gels through thermodynamic control. *ACS Macro Letters* 2: 1077 (2013).
88. **Kong, H.J.** & Wong, J. Materials for biological modulation, sensing, and imaging. *MRS Bulletin*, 39: 12-14 (2014).

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## VI. Book (Edited)

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1. Stem cells and revascularization therapies. Edited by Kong, H.J., Putnam, A.J. & Schook L.B. CRC Press (2012).
2. Materials for biological modulation, sensing, and imaging. *MRS Bulletin*. Jan. 2014 Edited by Kong, H.J. & Wong. J.

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## VII. Book Chapters

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1. Rich, M. & Kong, H.J. Biomaterials for cell-based therapeutic angiogenesis in *Mechanical & Chemical Signaling in Angiogenesis*. Springer (2012).



2. Liang, Y., DeVolder, R.J. & Kong, H.J. Treating cardiovascular diseases by enhancing endogenous stem cell mobilization in Stem cells and revascularization therapies. (Edited by Kong, H.J., Putnam, A.J. & Schook L.B.) CRC Press (2012).
3. DeVolder, R. & Kong, H. J. Quantifying integrin-ligand engagement and cell phenotype in 3D scaffolds in Comprehensive Biomaterials Edited by by Ducheyne, Healy, Hutmacher, Grainger & Kirkpatrick (ISBN: 978-0-08-055302-3). Elsevier (2011).
4. DeVolder, R. & Kong, H.J. Biomaterials for Studies in Cellular Mechanotransduction in Mechanobiology of cell-cell and cell-matrix interactions. Springer (2011).
5. Chu, C. Schmidt, J.J. Carnes, K., Zhang, Z, Kong, H.J. Hofmann M-C Three-Dimensional Synthetic Niche Components to Control Germ Cell Proliferation (Chapter 39). Advances in Tissue Engineering, Volume 2: Stem Cells (2010).
6. Kong, H. J. & Mooney, D.J, Polysaccharide hydrogels in tissue engineering. Polysaccharides 2nd Ed. Edited by Dmiutri S, Marcel & Dekker Chapter 36 (2005).

#### **IX. Research Grants**

1. UIUC research board. Material for neural differentiation of stem cells. \$28,000 [2014-2015] Role: PI.
2. UIUC IGB Proof of Concept Award. Microvascular stamp assembly. \$75,000 [2012-2013] Role: PI.
3. NIH-NHLBI Modular assembly of nanocell for vascular repair \$1,980,000 [Sep. 2011 –Aug. 2016] Role: PI
4. NIH-NHLBI Nano-sized Cell Guidance System for Ischemic Tissue Repair \$400,000 [Aug. 2009 –Jul. 2012] Role: PI
5. NSF-Career Integrating biology and biomaterial to regulate cell function in a 3D matrix \$500,000 [Sep. 2009 –Aug. 2014] Role: PI
6. US Army Research Laboratory. “Spatial control of nanosized catalytic particles in a fuel cell” \$200,000 [Aug. 2009-Jul. 2011] Role: PI
7. American Heart Association (Scientist Development Grant, 0830468Z) “Synthetic Extracellular Matrix to Engineer Revascularization” \$214,500 [Jan. 2008-Dec. 2010]. Role: PI
8. U.S. Army Medical Research Acquisition Activity, “Micro and Nano-mediated 3D Cardiac Tissue Engineering” \$ 2,546,000 [Aug. 2008-Aug. 2011] Role: Co-PI
9. Amore Pacific Inc. “Artificial Skin” \$110,000 [Jun. 2009-May. 2011] Role: PI
10. NSF Science Technology Center, Cellular machinery \$250,000,000 [Aug. 2010-July 2015] Role: Co-I
11. NSF-CBET Engineering skin tissues \$400,000 [Sep. 2010 –Aug. 2013] Role: co-PI

#### **X. Presentations (Invited)**

1. Soft Nanobiomaterials for vascular imaging, repair, and regeneration. A\*STAR. Singapore February 2014.
2. Soft Nanobiomaterials for vascular imaging, repair, and regeneration. Mayo Clinic. January 2014.
3. Soft Nanobiomaterials for vascular imaging, repair, and regeneration. POSTECH. December 2013.

4. Matrix-mediated therapeutic and pathological angiogenesis. Department of Chemical and Petroleum Engineering. University of Kansas. February 2013.
5. Matrix-mediated therapeutic and pathological angiogenesis. School of Nano-bio and Chemical Engineering. UNIST. South Korea. March 2013.
6. Matrix-mediated therapeutic and pathological angiogenesis. Ajou University. South Korea. March 2013.
7. Matrix-mediated therapeutic and pathological angiogenesis. Department of Biomedical Engineering. Hanyang University. South Korea. March 2013.
8. Tissue engineering with controllable functional properties. ASME 2013 Global Congress on NanoEngineering for Medicine and Biology (NEMB2013), Boston, February 2013.
9. Instructive biomaterials for regeneration of patterned blood vessels and 3D tumor tissue, Lonza Inc., Walkersville, June 2012.
10. Living microvascular stamp for patterned neovascularization, American College of Wound and Tissue Repair, Chicago, July 2012.
11. Regeneration of patterned microvasculature, Department of Mechanical Science & Engineering (Bio-interest group), University of Illinois at Urbana-Champaign, March 2012.
12. Regeneration of patterned microvasculature, Department of Pharmaceutical Sciences, Purdue University, February 2012.
13. Biomaterials to direct neovessel growth, 14<sup>th</sup> Asia Pacific Confederation Chemical Engineering Conference, Singapore, February 2012.
14. Biomaterials for regeneration of blood vessels and 3D tumor tissue, Korean Institute of Science & Technology, February 2012.
15. Instructive biomaterials for regeneration of patterned blood vessels and 3D tumor tissue, US Army Corps of Engineers, Champaign, March 2012.
16. Instructive biomaterials for regeneration of patterned blood vessels and 3D tumor tissue, Center for Wound Healing and Tissue Regeneration, University of Illinois at Chicago, April 2012. Kong, H.J. Biomaterials for revascularization TERMIS-AP, Singapore, August. 2011 (Keynote speaker).
17. Kong, H.J. Decoupled control of stiffness and permeability of cell-encapsulating hydrogel. Sidney, TERMIS-AP, Sep. 2010 (Keynote speaker).
18. Kong, H.J. Hydrogels and Neovascularization. Bioengineering Program, Choongang University, May 2010 (Invited).
19. Kong, H.J. Hydrogels and Neovascularization. Bioengineering Program, Kangwon National University, May 2010 (Invited).
20. Kong, H.J. Biomaterials and Regenerative Therapy. Bioengineering Program, Seoul National University, May 2009 (Invited).
21. Kong, H.J. Matrix-Mediated Non-Viral Gene Delivery CHINA-JAPAN-KOREA FORESIGHT SYMPOSIUM ON GENE THERAPY AND BIOMATERIALS, Seoul, Korea, May, 2009 (Invited).

22. Kong, H.J. Biomaterials and Regenerative Therapy. College of Medicine, Iwha Womens University, May 2009 (Invited).
23. Kong, H.J. Biomaterials and Regenerative Therapy. College of Medicine, Choongnam National University, May 2009 (Invited).
24. Kong, H.J. Biomaterials and Regenerative Therapy. Chemical Engineering, Choongang University, May 2009 (Invited).
25. Kong, H.J. Synthetic Extracellular Matrix in Tissue Engineering, R & D Systems (2008) (Invited).
26. Kong, H.J. Design of Polysaccharide Hydrogel in Tissue Engineering, US Army Research Lab (2008) (Invited)
27. Kong, H.J Synthetic Extracellular Matrix to regulate efficiency of non-viral gene delivery, EPFL, Swiss (2008) (Invited)
28. Kong, H.J. Synthetic extracellular matrix to regulate cell phenotype. Drexel University (2008) (Invited)
29. Kong, H. J. Synthetic extracellular matrix to regulate cell phenotype and gene delivery. Orthopedic Meeting, Hawaii October (2007) (Invited)
30. Kong, H. J. Synthetic extracellular matrix to regulate cell phenotype and gene deliver. Cornell University, September 13. 2007 (Invited).
31. Kong, H. J. Synthetic extracellular matrix to regulate cell phenotype and gene delivery. Rush Medical University, June 8. 2007 (Invited).
32. Kong, H.J. Engineering Cellular Microenvironment for Drug Delivery, American Vacuum Society Meeting, University of Michigan, May, 9. 2007 (Invited).
33. Kong, H.J. Analysis of cross-talk between cells and ECM, Biophysics Seminar, Department of Physics, University of Illinois at Urbana-Champaign. Mar. 2007 (Invited).
34. Kong, H. J. FRET analysis of cell-material interactions. The First Annual Charelston Bioprinting, Biopatterning, and Bioassembly Symposium, Medical University of South Carolina, Jul. 2006 (Invited).
35. Kong, H.J. Mooney, D. J. Engineering cell niches to regulate non-viral gene delivery. Poster Presentation at Gordon Conference (Signal Transduction by Engineered Extracellular Matrices), Jul. 2006.
36. Kong, H.J. Functionalized hydrogels. American Association of Anatomists Annual Meeting at Experimental Biology San Francisco Apr. 2006 (Invited)
37. Shiong, S. H., Kong, H.J. Mooney, D. J. AICHE Annual Meeting at San Francisco Nov. 2006.
38. Shiong, S. H., Kong, H.J. Mooney, D. J. MRS National fall meeting at Boston Nov. 2006
39. Kong, H.J. Shiong, S. H., Mooney, D. J. Engineering cellular microenvironments to regulate nonviral
40. gene delivery. AICHE Annual Meeting at San Francisco Nov. 2006.
41. Kong, H.J. Cross-Talk between Cells and Functionalized hydrogels. University of Florida Jan. 2006 (Invited)
42. Kong, H.J. Functionalized hydrogels to regulate cellular phenotype. Purdue University Dec. 2005 (Invited).
43. Kong, H.J., & Mooney, D.J. Non-viral gene delivery regulated with substrate stiffness. Oral presentation at MRS Meeting Boston Dec. 2005.

44. Kong, H.J. Functionalized hydrogels to regulate cellular phenotype. University of Iowa Nov. 2005 (Invited).
45. Kong, H.J., & Mooney, D.J. FRET measurements of cell-traction forces and nano-scale clustering of adhesion ligands varied by substrate stiffness. Oral presentation at Biomedical Engineering Meeting Baltimore Sep. 2005.
46. Kong, H.J., & Mooney, D.J. Substrate stiffness regulates traction forces in parallel with cellular phenotype: Evaluation using FRET. Poster presentation at Gordon Conference (Organic Thin Film) July 2005.
47. Kong, H.J. Visualizing interactions between cells and biomimetically designed extracellular matrices. University of CA-Irvine May 2005 (Invited).
48. Kong, H.J., & Mooney, D.J. Independent control of rigidity and toughness of hydrogels. Oral presentation at MRS meeting Boston Dec. 2004.
49. Kong, H.J., Alsberg, E., & Mooney, D.J. Imaging and exploiting the degradation of hydrogels. Oral presentation at ACS meeting Anaheim Mar. 2004.
50. Boontheekul, T. Kong, H.J., & Mooney, D.J. Degradable alginate scaffolds for skeletal muscle tissue engineering. Poster presentation at Tissue Engineering Society Orlando Dec. 2003
51. Kong, H.J. Design of Hydrogels for Tissue Engineering. Pohang Institute of Technology Korea Nov. 2003 (Invited).
52. Kong, H.J. Visualizing cell-material interactions. Korean Institute of Science and Technology Nov. 2003 (Invited).
53. Kong, H.J. Visualizing cell-material interactions. Hanyang University Korea Nov. 2003 (Invited). 8
54. Kong, H.J. Design of hydrogels for tissue engineering. National Institute of Standard and Technology May 2003 (Invited).
55. Kong, H.J. & Mooney D.J. Constitutive design of hydrogels in tissue engineering. Oral Presentation at American Institute of Chemical Engineering (AIChE) meeting. Indianapolis Nov. 2002.
56. Kong, H.J. & Mooney D.J. Constitutive control of rheological/mechanical/ degradation properties of hydrogels in tissue engineering. Poster presentation at Gordon Conference (Signal Transduction by ECM) Aug. 2002.
57. Kong, H.J. & Mooney D.J. Controlling degradation of hydrogels by adjusting intermolecular binding forces. Poster presentation at Biomaterials Society Meeting, Apr. 2002.
58. Kong, H.J. & Mooney, D.J. Controlling material properties of ionically cross-linked alginate hydrogels by varying molecular weight distribution. Oral Presentation at Materials Research Society (MRS) Meeting Boston Nov. 2001.