



## Yunzhi Peter Yang

Associate Professor of Orthopaedic Surgery and, by courtesy, of Materials Science and Engineering and of Bioengineering

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#### ACADEMIC APPOINTMENTS

- Associate Professor, Orthopaedic Surgery
- Associate Professor (By courtesy), Materials Science and Engineering
- Associate Professor (By courtesy), Bioengineering
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

#### ADMINISTRATIVE APPOINTMENTS

- Editorial Board, The International Journal of Oral & Maxillofacial Implants, (2007-2012)
- Voting member, U.S. Technical Advisory Group for ISO/TC 106 Dentistry, (2008- present)
- Director-at-Large, International Association For Dental Research (IADR) Implantology Research Group, (2010-2014)
- Editorial Board, Journal of Thermodynamics & Catalysis, (2010-2014)
- Editorial Board, Journal of Cancer Science & Therapy, (2010-2014)
- Session Editor of Biomaterials topic, Journal of Orthopedic Translation, (2013- present)
- Editorial Board, Genes and Diseases, (2014- present)
- Editorial Board, Tissue Engineering (A, B, C), (2015- present)

#### HONORS AND AWARDS

- Research Award, Memphis Bioworks Foundation (2005-2006)
- Research Award, March of Dimes Foundation (2006-2010)
- Early Career Translational Research Award Phase I, Wallace H Coulter Foundation (2007-2009)
- Research Award, Implant Dentistry Research and Education Foundation (2007-2009)
- Aircast Award for Basic Science, AMERICAN ORTHOPAEDIC SOCIETY FOR SPORTS MEDICINE (2008)
- Research Award, UTRF Technology Maturation Fund Program (2008-2009)
- Young Investigator Award, the University of Texas Health Science Center at Houston (2009)
- Early Career Translational Research Award Phase II, Wallace H Coulter Foundation (2009-2012)
- Congressional Briefing on translational research breakthroughs at Capitol Hill, the American Institute of Medical and Biological Engineering (2010)

- Research Award, Airlift Research Foundation (2010-2012)
- Research Award, National Institutes of Health (2010-2014)
- Research Award, Department of Defense (2010-2014)
- Dean's Teaching Excellence Award in "Scholarship of Engagement and Collaboration", the University of Texas Health Science Center at Houston (2011)
- Research Award, Boswell Foundation (2011)
- Wallace H. Coulter Fellow, Wallace H. Coulter Foundation (2011)
- Research Award, NanoHealth Alliance (2011-2013)
- Research Award, National Institutes of Health (2011-2015)
- Research Diversity Supplement Award, National Institutes of Health (2012-2014)
- Research Diversity Supplement Award, National Institutes of Health (2012-2015)
- 2014 Defense University Research Instrumentation Program Award, Army Research Office (2014)
- Coulter Translational Research Seed Grant, Stanford Coulter Program (2014)
- Research Award, Foundation of Orthopedic Trauma (2014)
- Spark Seed Grant Award, Stanford Spark Program (2014)
- Research Award, National Institutes of Health (2014-2020)
- Coulter Translational Research Seed Grant, Stanford Coulter Program (2015)
- NIH Transformative Research Award Finalist, National Institutes of Health (2015)
- Star Research Award, National Institute of Health (2015-2020)
- Coulter Translational Research Seed Grant, Stanford Coulter Program (2016)
- Research Award for Clean Energy, The Precourt Institute for Energy and the TomKat Center for Sustainable Energy (2016)
- The 2016 Annals of Biomedical Engineering Award, the Annals of Biomedical Engineering (2016)
- Research Award, National Institutes of Health (NIAMS/NIBIB) (2016-2022)
- Monetary Gift for Research, Kent Thiry and Denise O'Leary (2017)
- Research Award, Stanford Spectrum MedTech Program (2017)
- 2018 TechConnect Innovation Awardee for Hybprinter, TechConnect World Conference (2018)
- Research Award, Orthopaedic Research and Education Foundation (2018-2019)
- Research Award, National Institutes of Health (2018-2023)
- Research Award, AOTrauma North America (2019-2020)
- Research Award, National Institutes of Health (2019-2024)
- AIMBE Fellow, American Institute for Medical and Biological Engineering (AIMBE) (2020)
- Research Award, Department of Defense (2020-2023)

## **PROFESSIONAL EDUCATION**

- Postdoctoral Fellow, University of Texas Health Science Center at San Antonio, San Antonio, TX , Biomaterials (2003)
- Postdoctoral Fellow, West China University of Medical Sciences, Chengdu, China , Biomaterials (1999)
- Ph.D., Sichuan University, Chengdu, China , Biomedical Engineering (1997)
- M.E., Sichuan University, Chengdu, China , Inorganic Materials (1995)
- B.S., Sichuan University, Chengdu, China , Inorganic Materials (1992)

## LINKS

- Peter Yang Lab Site: <http://yanglab.stanford.edu/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our research interests are in the areas of biomaterials, implant devices, drug delivery, 3D printing, and musculoskeletal tissue engineering. In particular, we are interested in developing bio-inspired biomaterials and platform technologies to engineer tissues and organs. We aim to improve understanding of tissue-like chemistry and structure of medical device design using advanced 3D printing, how these lead to tissue-like properties and functions, and the extent to which they can enhance clinical outcomes. Our research methodology includes concept design and development of medical devices as well as advanced 3D printing, characterization and evaluation in vitro, and in vivo validation of novel biomaterials and implant devices. Our current program comprises the following themes: Enabling technology for musculoskeletal tissue engineering and bioprinting, surface nanotechnology for osseointegrated implant devices, and naturally derived novel biomaterials for cancer treatment.

## Teaching

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### COURSES

#### 2019-20

- Introduction to Bioengineering Research: BIOE 390, MED 289 (Aut)
- Orthopaedic Tissue Engineering: ORTHO 270 (Win)

#### 2018-19

- Introduction to Bioengineering Research: BIOE 390, MED 289 (Aut)
- Orthopaedic Tissue Engineering: ORTHO 270 (Win)

#### 2017-18

- Introduction to Bioengineering Research: BIOE 390, MED 289 (Aut)
- Orthopaedic Tissue Engineering: ORTHO 270 (Win)

#### 2016-17

- Introduction to Bioengineering Research: BIOE 390, MED 289 (Aut)
- Orthopaedic Tissue Engineering: ORTHO 270 (Win)

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Jiannan Li, Sien Lin, Seyedsina Moeinzadeh

#### Doctoral Dissertation Advisor (AC)

Carolyn Kim, Elaine Lui, Chi-chun Pan, Alex Stahl

#### Doctoral (Program)

Mihyun Choi

#### Postdoctoral Research Mentor

Jiannan Li, Sien Lin, Seyedsina Moeinzadeh

## Publications

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### PUBLICATIONS

- **The Influence of Electron Beam Sterilization on In Vivo Degradation of beta-TCP/PCL of Different Composite Ratios for Bone Tissue Engineering.** *Micromachines*  
Kang, J., Kaneda, J., Jang, J., Sakthibirami, K., Lui, E., Kim, C., Wang, A., Park, S., Yang, Y. P.  
2020; 11 (3)
- **Acoustic Patterning of Growth Factor for 3D Tissue Engineering.** *Tissue engineering. Part A*  
Shanjani, Y., Siebert, S. M., Ker, D. F., Mercado-Pagan, A., Yang, Y. P.  
2020
- **Administration of allogeneic mesenchymal stem cells in lengthening phase accelerates early bone consolidation in rat distraction osteogenesis model.** *Stem cell research & therapy*  
Yang, Y., Pan, Q., Zou, K., Wang, H., Zhang, X., Yang, Z., Lee, W. Y., Wei, B., Gu, W., Yang, Y. P., Lin, S., Li, G.  
2020; 11 (1): 129
- **Cell-Based and Scaffold-Based Therapies for Joint Preservation in Early-Stage Osteonecrosis of the Femoral Head: A Review of Basic Research.** *JBJS reviews*  
Maruyama, M., Lin, T., Pan, C., Moeinzadeh, S., Takagi, M., Yang, Y. P., Goodman, S. B.  
2019
- **Ruminants: Evolutionary past and future impact.** *Science (New York, N.Y.)*  
Ker, D. F., Yang, Y. P.  
2019; 364 (6446): 1130–31
- **A simple layer-stacking technique to generate biomolecular and mechanical gradients in photocrosslinkable hydrogels.** *Biofabrication*  
Ko, H., Suthiwanich, K., Mary, H., Zanganeh, S., Hu, S., Ahadian, S., Yang, Y. P., Choi, G., Fetah, K., Niu, Y., Mao, J., Khademhosseini, A.  
2019
- **The effects of a functionally-graded scaffold and bone marrow-derived mononuclear cells on steroid-induced femoral head osteonecrosis** *BIOMATERIALS*  
Maruyama, M., Nabeshima, A., Pan, C., Behn, A. W., Thio, T., Lin, T., Pajarinen, J., Kawai, T., Takagi, M., Goodman, S. B., Yang, Y.  
2018; 187: 39–46
- **Effect of Plasma Treatment and Its Post Process Duration on Shear Bonding Strength and Antibacterial Effect of Dental Zirconia.** *Materials (Basel, Switzerland)*  
Park, C., Park, S., Yun, K., Ji, M., Kim, S., Yang, Y. P., Lim, H.  
2018; 11 (11)
- **Identifying deer antler uhrf1 proliferation and s100a10 mineralization genes using comparative RNA-seq.** *Stem cell research & therapy*  
Ker, D. F., Wang, D., Sharma, R., Zhang, B., Passarelli, B., Neff, N., Li, C., Maloney, W., Quake, S., Yang, Y. P.  
2018; 9 (1): 292
- **Effect of Electron Beam Sterilization on Three-Dimensional-Printed Polycaprolactone/Beta-Tricalcium Phosphate Scaffolds for Bone Tissue Engineering** *TISSUE ENGINEERING PART A*  
Bruyas, A., Moeinzadeh, S., Kim, S., Lowenberg, D. W., Yang, Y.  
2019; 25 (3-4): 248–56
- **The effects of a functionally-graded scaffold and bone marrow-derived mononuclear cells on steroid-induced femoral head osteonecrosis.** *Biomaterials*  
Maruyama, M., Nabeshima, A., Pan, C., Behn, A. W., Thio, T., Lin, T., Pajarinen, J., Kawai, T., Takagi, M., Goodman, S. B., Yang, Y. P.  
2018; 187: 39–46
- **Effect of electron beam sterilization on 3D printed PCL/beta-TCP scaffolds for bone tissue engineering.** *Tissue engineering. Part A*  
Bruyas, A., Moeinzadeh, S., Kim, S., Lowenberg, D. W., Yang, Y. P.  
2018
- **Systematic characterization of 3D-printed PCL/beta-TCP scaffolds for biomedical devices and bone tissue engineering: Influence of composition and porosity** *JOURNAL OF MATERIALS RESEARCH*  
Bruyas, A., Lou, F., Stahl, A. M., Gardner, M., Maloney, W., Goodman, S., Yang, Y.

2018; 33 (14): 1948–59

- **Tunable Elastomers with an Antithrombotic Component for Cardiovascular Applications.** *Advanced healthcare materials*  
Stahl, A. M., Yang, Y. P.  
2018; e1800222
- **Functionally Graded, Bone- and Tendon-Like Polyurethane for Rotator Cuff Repair** *ADVANCED FUNCTIONAL MATERIALS*  
Ker, D., Wang, D., Behn, A., Wang, E., Zhang, X., Zhou, B., Mercado-Pagan, A., Kim, S., Kleimeyer, J., Gharaibeh, B., Shanjani, Y., Nelson, D., Safran, et al  
2018; 28 (20)
- **Systematic characterization of 3D-printed PCL/β-TCP scaffolds for biomedical devices and bone tissue engineering: influence of composition and porosity.** *Journal of materials research*  
Bruyas, A., Lou, F., Stahl, A. M., Gardner, M., Maloney, W., Goodman, S., Yang, Y. P.  
2018; 33 (14): 1948–59
- **Investigating Regeneration** *DEVELOPMENTAL CELL*  
Marshall, W. F., Alvarado, A., Shaw, T., Tanaka, E. M., Unguez, G. A., Poss, K., Kusumi, K., Amaya, E., Seifert, A. W., Yang, Y., Dev Cell Editorial Team  
2017; 43 (4): 373–76
- **Functional Outcomes of Heparin Binding - Epidermal Growth Factor Like Growth Factor for Regeneration of Chronic Tympanic Membrane Perforations in Mice.** *Tissue engineering. Part A*  
Santa Maria, P. L., Gotlieb, P., Santa Maria, C., Puria, S., Kim, S., Yang, Y. P.  
2017
- **Endothelial pattern formation in hybrid constructs of additive manufactured porous rigid scaffolds and cell-laden hydrogels for orthopedic applications** *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*  
Shanjani, Y., Kang, Y., Zarnescu, L., Bowden, A. K., Koh, J., Ker, D. F., Yang, Y.  
2017; 65: 356-372
- **Additive Manufacturing of Vascular Grafts and Vascularized Tissue Constructs.** *Tissue engineering. Part B, Reviews*  
Elomaa, L., Yang, Y. P.  
2017; 23 (5): 436–50
- **Single Administration of a Sustained-Release Formulation of KB-R7785 Inhibits Tympanic Membrane Regeneration in an Animal Model** *JOURNAL OF INTERNATIONAL ADVANCED OTOLOGY*  
Maria, P. L., Maria, C. S., Kim, S., Yang, Y. P.  
2016; 12 (3): 237-240
- **No systemic exposure of transtympanic heparin-binding epidermal growth factor like growth factor.** *Drug and chemical toxicology*  
Santa Maria, P. L., Kim, S., Yang, Y. P.  
2016; 39 (4): 451-454
- **Engineering a Dual-Layer Chitosan-Lactide Hydrogel To Create Endothelial Cell Aggregate-Induced Microvascular Networks In Vitro and Increase Blood Perfusion In Vivo** *ACS APPLIED MATERIALS & INTERFACES*  
Kim, S., Kawai, T., Wang, D., Yang, Y.  
2016; 8 (30): 19245-19255
- **Synthesis and characterization of polycaprolactone urethane hollow fiber membranes as small diameter vascular grafts** *MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS*  
Mercado-Pagan, A. E., Stahl, A. M., Ramseier, M. L., Behn, A. W., Yang, Y.  
2016; 64: 61-73
- **In Response to the Letter to the Editor Regarding: Heparin Binding-Epidermal Growth Factor-Like Growth Factor for the Regeneration of Chronic Tympanic Membrane Perforations in Mice.** *Tissue engineering. Part A*  
Santa Maria, P. L., Kim, S., Varsak, Y. K., Yang, Y. P.  
2016; 22 (5-6): 570-571
- **A novel bioprinting method and system for forming hybrid tissue engineering constructs** *BIOFABRICATION*  
Shanjani, Y., Pan, C. C., Elomaa, L., Yang, Y.  
2015; 7 (4)

- **Geometrical versus Random beta-TCP Scaffolds: Exploring the Effects on Schwann Cell Growth and Behavior** *PLOS ONE*  
Sweet, L., Kang, Y., Czisch, C., Witek, L., Shi, Y., Smay, J., Plant, G. W., Yang, Y.  
2015; 10 (10)
- **Development of mRuby2-Transfected C3H10T1/2 Fibroblasts for Musculoskeletal Tissue Engineering** *PLOS ONE*  
Ker, D. F., Sharma, R., Wang, E. T., Yang, Y. P.  
2015; 10 (9)
- **Heparin Binding Epidermal Growth Factor-Like Growth Factor Heals Chronic Tympanic Membrane Perforations With Advantage Over Fibroblast Growth Factor 2 and Epidermal Growth Factor in an Animal Model** *OTOLOGY & NEUROTOLOGY*  
Maria, P. L., Weierich, K., Kim, S., Yang, Y. P.  
2015; 36 (7): 1279-1283
- **Heparin Binding-Epidermal Growth Factor-Like Growth Factor for the Regeneration of Chronic Tympanic Membrane Perforations in Mice** *TISSUE ENGINEERING PART A*  
Maria, P. L., Kim, S., Varsak, Y. K., Yang, Y. P.  
2015; 21 (9-10): 1483-1494
- **Development and evaluation of elastomeric hollow fiber membranes as small diameter vascular graft substitutes.** *Materials science & engineering. C, Materials for biological applications*  
Mercado-Pagán, Á. E., Kang, Y., Findlay, M. W., Yang, Y.  
2015; 49: 541-548
- **Vascularization in Bone Tissue Engineering Constructs** *ANNALS OF BIOMEDICAL ENGINEERING*  
Mercado-Pagan, A. E., Stahl, A. M., Shanjani, Y., Yang, Y.  
2015; 43 (3): 718-729
- **Engineering a vascularized collagen-beta-tricalcium phosphate graft using an electrochemical approach** *ACTA BIOMATERIALIA*  
Kang, Y., Mochizuki, N., Khademhosseini, A., Fukuda, J., Yang, Y.  
2015; 11: 449-458
- **Heparin Binding Epidermal Growth Factor-Like Growth Factor Heals Chronic Tympanic Membrane Perforations With Advantage Over Fibroblast Growth Factor 2 and Epidermal Growth Factor in an Animal Model.** *Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology*  
Santa Maria, P. L., Weierich, K., Kim, S., Yang, Y. P.  
2015; 36 (7): 1279-83
- **Three-dimensional fabrication of cell-laden biodegradable poly(ethylene glycol-co-depsipeptide) hydrogels by visible light stereolithography** *JOURNAL OF MATERIALS CHEMISTRY B*  
Elomaa, L., Pan, C., Shanjani, Y., Malkovskiy, A., Seppala, J. V., Yang, Y.  
2015; 3 (42): 8348-8358
- **Novel osteoinductive photo-cross-linkable chitosan-lactide-fibrinogen hydrogels enhance bone regeneration in critical size segmental bone defects** *ACTA BIOMATERIALIA*  
Kim, S., Bedigrew, K., Guda, T., Maloney, W. J., Park, S., Wenke, J. C., Yang, Y. P.  
2014; 10 (12): 5021-5033
- **Novel osteoinductive photo-cross-linkable chitosan-lactide-fibrinogen hydrogels enhance bone regeneration in critical size segmental bone defects.** *Acta biomaterialia*  
Kim, S., Bedigrew, K., Guda, T., Maloney, W. J., Park, S., Wenke, J. C., Yang, Y. P.  
2014; 10 (12): 5021-5033
- **Biodegradable Photocrosslinkable Poly(depsipeptide-co-epsilon-caprolactone) for Tissue Engineering: Synthesis, Characterization, and In Vitro Evaluation** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*  
Elomaa, L., Kang, Y., Seppala, J. V., Yang, Y.  
2014; 52 (23): 3307-3315
- **Hemocompatibility evaluation of small elastomeric hollow fiber membranes as vascular substitutes.** *Journal of biomaterials applications*  
Mercado-Pagán, Á. E., Ker, D. F., Yang, Y.  
2014; 29 (4): 557-565

- **In vitro evaluation of photo-crosslinkable chitosan-lactide hydrogels for bone tissue engineering** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS*  
Kim, S., Kang, Y., Mercado-Pagan, A. E., Maloney, W. J., Yang, Y.  
2014; 102 (7): 1393-1406
- **Hemocompatibility evaluation of small elastomeric hollow fiber membranes as vascular substitutes** *JOURNAL OF BIOMATERIALS APPLICATIONS*  
Mercado-Pagan, A. E., Ker, D. F., Yang, Y.  
2014; 29 (4): 557-565
- **Fabrication, vascularization and osteogenic properties of a novel synthetic biomimetic induced membrane for the treatment of large bone defects.** *Bone*  
Ren, L., Kang, Y., Browne, C., Bishop, J., Yang, Y.  
2014; 64: 173-182
- **Fabrication, vascularization and osteogenic properties of a novel synthetic biomimetic induced membrane for the treatment of large bone defects.** *Bone*  
Ren, L., Kang, Y., Browne, C., Bishop, J., Yang, Y.  
2014; 64: 173-182
- **Engineering Vascularized Bone Grafts by Integrating a Biomimetic Periosteum and beta-TCP Scaffold** *ACS APPLIED MATERIALS & INTERFACES*  
Kang, Y., Ren, L., Yang, Y.  
2014; 6 (12): 9622-9633
- **Hydrogel bioprinted microchannel networks for vascularization of tissue engineering constructs** *LAB ON A CHIP*  
Bertassoni, L. E., Cecconi, M., Manoharan, V., Nikkhah, M., Hjortnaes, J., Cristino, A. L., Barabaschi, G., Demarchi, D., Dokmeci, M. R., Yang, Y., Khademhosseini, A.  
2014; 14 (13): 2202-2211
- **Biodegradable Photocrosslinkable Poly(depsipeptide-co- $\epsilon$ -caprolactone) for Tissue Engineering: Synthesis, Characterization, and In Vitro Evaluation** *Journal of Polymer Science, Part A*  
Elomma, L., Kang, Y., Seppälä, J. V., Yang, Y.  
2014; 52 (23): 3307-3315
- **Radiation combined injury models to study the effects of interventions and wound biomechanics.** *Radiation research*  
Zawaski, J. A., Yates, C. R., Miller, D. D., Kaffes, C. C., Sabek, O. M., Afshar, S. F., Young, D. A., Yang, Y., Gaber, M. W.  
2014; 182 (6): 640-52
- **Deletion of the Transforming Growth Factor beta Receptor Type II Gene in Articular Chondrocytes Leads to a Progressive Osteoarthritis-like Phenotype in Mice** *ARTHRITIS AND RHEUMATISM*  
Shen, J., Li, J., Wang, B., Jin, H., Wang, M., Zhang, Y., Yang, Y., Im, H., O'Keefe, R., Chen, D.  
2013; 65 (12): 3107-3119
- **Synthesis and characterization of novel elastomeric poly(D,L-lactide urethane) maleate composites for bone tissue engineering** *EUROPEAN POLYMER JOURNAL*  
Mercado-Pagan, A. E., Kang, Y., Ker, D. F., Park, S., Yao, J., Bishop, J., Yang, Y. P.  
2013; 49 (10): 3337-3349
- **The effect of rhBMP-2 and PRP delivery by biodegradable beta-tricalcium phosphate scaffolds on new bone formation in a non-through rabbit cranial defect model** *JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE*  
Lim, H., Mercado-Pagan, A. E., Yun, K., Kang, S., Choi, T., Bishop, J., Koh, J., Maloney, W., Lee, K., Yang, Y. P., Park, S.  
2013; 24 (8): 1895-1903
- **Modeling vascularized bone regeneration within a porous biodegradable CaP scaffold loaded with growth factors** *BIOMATERIALS*  
Sun, X., Kang, Y., Bao, J., Zhang, Y., Yang, Y., Zhou, X.  
2013; 34 (21): 4971-4981
- **Osteogenic and angiogenic potentials of monocultured and co-cultured human-bone-marrow-derived mesenchymal stem cells and human-umbilical-vein endothelial cells on three-dimensional porous beta-tricalcium phosphate scaffold** *ACTA BIOMATERIALIA*  
Kang, Y., Kim, S., Fahrenholtz, M., Khademhosseini, A., Yang, Y.  
2013; 9 (1): 4906-4915
- **Directed endothelial cell morphogenesis in micropatterned gelatin methacrylate hydrogels** *BIOMATERIALS*  
Nikkhah, M., Eshak, N., Zorlutuna, P., Annabi, N., Castello, M., Kim, K., Dolatshahi-Pirouz, A., Edalat, F., Bae, H., Yang, Y., Khademhosseini, A.

2012; 33 (35): 9009-9018

- **Cytokine combination therapy prediction for bone remodeling in tissue engineering based on the intracellular signaling pathway** *BIOMATERIALS*  
Sun, X., Su, J., Bao, J., Peng, T., Zhang, L., Zhang, Y., Yang, Y., Zhou, X.  
2012; 33 (33): 8265-8276
- **The osteogenic differentiation of human bone marrow MSCs on HUVEC-derived ECM and beta-TCP scaffold** *BIOMATERIALS*  
Kang, Y., Kim, S., Bishop, J., Khademhosseini, A., Yang, Y.  
2012; 33 (29): 6998-7007
- **Vascularized Bone Tissue Engineering: Approaches for Potential Improvement** *TISSUE ENGINEERING PART B-REVIEWS*  
Nguyen, L. H., Annabi, N., Nikkhah, M., Bae, H., Binan, L., Park, S., Kang, Y., Yang, Y., Khademhosseini, A.  
2012; 18 (5): 363-382
- **Effect of Coadministration of Vancomycin and BMP-2 on Cocultured Staphylococcus aureus and W-20-17 Mouse Bone Marrow Stromal Cells In Vitro** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*  
Nguyen, A. H., Kim, S., Maloney, W. J., Wenke, J. C., Yang, Y.  
2012; 56 (7): 3776-3784
- **Sequential delivery of BMP-2 and IGF-1 using a chitosan gel with gelatin microspheres enhances early osteoblastic differentiation** *ACTA BIOMATERIALIA*  
Kim, S., Kang, Y., Krueger, C. A., Sen, M., Holcomb, J. B., Chen, D., Wenke, J. C., Yang, Y.  
2012; 8 (5): 1768-1777
- **Effect of Coadministration of Vancomycin and BMP-2 on Cocultured Staphylococcus aureus and W-20-17 Mouse Bone Marrow Stromal Cells In Vitro** *Antimicrob. Agents Chemother*  
A. H. Nguyen, S. Kim, W. J. Maloney, J. C. Wenke, Y. Yang  
2012; 56 (7): 3776-3784
- **In vitro evaluation of an injectable chitosan gel for sustained local delivery of BMP-2 for osteoblastic differentiation.** *Journal of biomedical materials research. Part B, Applied biomaterials*  
Kim, S., Tsao, H., Kang, Y., Young, D. A., Sen, M., Wenke, J. C., Yang, Y.  
2011; 99 (2): 380-390
- **Creation of bony microenvironment with CaP and cell-derived ECM to enhance human bone-marrow MSC behavior and delivery of BMP-2** *BIOMATERIALS*  
Kang, Y., Kim, S., Khademhosseini, A., Yang, Y.  
2011; 32 (26): 6119-6130
- **SAM-based Cell Transfer to Photopatterned Hydrogels for Microengineering Vascular-Like Structures** *Biomaterials*  
N. Sadr, M. Zhu, T. Osaki, T. Kakegawa, Y. Yang, M. Moretti, J. Fukuda, A. Khademhosseini  
2011; 32: 7479-7490
- **Enhanced mechanical performance and biological evaluation of a PLGA coated  $\beta$ -TCP composite scaffold for load-bearing applications.** *European polymer journal*  
Kang, Y., Scully, A., Young, D. A., Kim, S., Tsao, H., Sen, M., Yang, Y.  
2011; 47 (8): 1569-77
- **A chitosan/beta-glycerophosphate thermo-sensitive gel for the delivery of ellagic acid for the treatment of brain cancer** *BIOMATERIALS*  
Kim, S., Nishimoto, S. K., Bumgardner, J. D., Haggard, W. O., Gaber, M. W., Yang, Y.  
2010; 31 (14): 4157-4166
- **Novel template-casting technique for fabricating beta-tricalcium phosphate scaffolds with high interconnectivity and mechanical strength and in vitro cell responses.** *Journal of biomedical materials research. Part A*  
Liu, Y., Kim, J., Young, D., Kim, S., Nishimoto, S. K., Yang, Y.  
2010; 92 (3): 997-1006
- **Anodic Oxidized Nanotubular Titanium Implants Enhance Bone Morphogenetic Protein-2 Delivery** *J Biomed Mater Res*  
In-Ho Bae, Kwi-Dug Yun, Hyun-Seung Kim, Byung-Chul Jeong, Hyun-Pil Lim, Sang-Won Park, Kwang-Min Lee, Young-Chai Lim, Kyung-Ku Lee, Yun-Zhi Yang, Jeong-Tae Koh.  
2010; 93B: 484-491



- **Effect of growth factors in combination with injectable silicone resin particles on the biological activity of dermal fibroblasts: a preliminary in vitro study.** *Journal of biomedical materials research. Part B, Applied biomaterials*  
Jennings, J. A., Crews, R. M., Robinson, J., Richelsoph, K., Cole, J. A., Bumgardner, J. D., Yang, Y., Haggard, W. O.  
2010; 92 (1): 255-260
- **Effect of nanotubular-micro-roughened titanium surface on cell response in vitro and osseointegration in vivo** *Materials Science and Engineering*  
Yun, K., Yang, Y., Lim, H., Oh, G., Koh, J., Bae, I., Kim J., Lee, K., Park, S.  
2010; 30C: 27-33
- **The inhibition of glioma growth in vitro and in vivo by a chitosan/ellagic acid composite biomaterial** *BIOMATERIALS*  
Kim, S., Gaber, M. W., Zawaski, J. A., Zhang, F., Richardson, M., Zhang, X. A., Yang, Y.  
2009; 30 (27): 4743-4751
- **Development of chitosan-ellagic acid films as a local drug delivery system to induce apoptotic death of human melanoma cells.** *Journal of biomedical materials research. Part B, Applied biomaterials*  
Kim, S., Liu, Y., Gaber, M. W., Bumgardner, J. D., Haggard, W. O., Yang, Y.  
2009; 90 (1): 145-155
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