



Stuart Goodman, MD, PhD

The Robert L. and Mary Ellenburg Professor in Surgery

Orthopaedic Surgery

 NIH Biosketch available Online

CLINICAL OFFICES

- **Joint Replacement Center**

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ACADEMIC CONTACT INFORMATION

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Bio

BIO

Brief Biography: Stuart B. Goodman MD MSc PhD FRCSC FACS FBSE

Stuart B. Goodman is the Robert L. and Mary Ellenburg Professor of Surgery, and Professor with Tenure in the Department of Orthopaedic Surgery at Stanford University. He has a courtesy appointment in the Department of Bioengineering, and is a Fellow of the Institute of Chemistry, Engineering and Medicine for Human Health (ChEM-H) at Stanford University. He was Chief of Orthopaedic Surgery at Stanford University from 1994-2002. Dr. Goodman received his BSc, MD and MSc (Institute of Medical Science) from the University of Toronto, and his PhD in Orthopedic Medical Science from Lund University in Sweden. He is a Fellow of the Royal College of Surgeons (Canada), the American Academy of Orthopaedic Surgeons and the American College of Surgeons. Dr. Goodman's clinical practice concentrates on adult reconstructive surgery. His clinical research interests center on the outcome of surgery for arthritis including primary and revision total joint replacement, juvenile arthritis, and osteonecrosis of the hip and knee. His basic science interests center on biocompatibility of orthopaedic implants, inflammation, and musculoskeletal tissue regeneration and repair. Dr. Goodman is a member of numerous academic organizations including the AAOS Biological Implants Committee (Chairman), and is a former member of the AAOS Biomedical Engineering Committee. He is a member of the Hip Society, Knee Society and AAHKS, a consultant to the Orthopaedic and Rehabilitation Devices Advisory Panel of the FDA, and former vice-chairman of the Musculoskeletal Tissue Engineering study section at NIH. Dr. Goodman is on the editorial board of the Journal of Orthopaedic Research (Associate Editor), Clinical Orthopaedics (Deputy Editor-Hip Society Liaison), Biomaterials (Associate Editor), Journal of Arthroplasty, Journal of Biomedical Materials Research, and other journals, and is a manuscript reviewer for over 20 journals in the fields of orthopaedic surgery, arthritis, bioengineering and biomaterials. Dr. Goodman has published over 400 peer-reviewed manuscripts in medical and bioengineering journals. Dr. Goodman and co-workers have received awards for their research from the Society for Biomaterials, Orthopaedic Research Society, the American Orthopaedic Association, Western Orthopaedic Association, and the Association of Bone and Joint Surgeons. Dr. Goodman was awarded the Clemson Award for Basic Research from the Society For Biomaterials in May 2000. He was the President of the Society For Biomaterials (2001-2) and served on the Board of Directors of the Orthopaedic Research Society. Dr. Goodman served as Co-Chair for the 1995, 2000 and 2007 NIH/AAOS-sponsored workshops on Implant Wear. Dr. Goodman was recognized as a Fellow, Biomaterials Science and Engineering (FBSE) by the International Union of Societies, Biomaterials Science and Engineering in May 2004, a Fellow of the Japanese Society of the Promotion of Science in 2011, and a Fellow of the American Institute of Medical and Biological Engineers in 2012.

Dr. Goodman serves as a consultant for several companies including Biomimica, Accelalox, Integra and Wright Medical Technology.

CLINICAL FOCUS

- Adult Reconstruction- Lower Extremity
- Orthopaedic Surgery
- Osteonecrosis - hip and knee
- primary and revision hip and knee replacement

ACADEMIC APPOINTMENTS

- Professor, Orthopaedic Surgery
- Member, Bio-X
- Faculty Fellow, Stanford ChEM-H

ADMINISTRATIVE APPOINTMENTS

- Fellow, Institute for Chemistry, Engineering and Medicine for Human Health (ChEM-H), Stanford University, (2014- present)
- Professor (by courtesy), Department of Bioengineering, Stanford University, (2011- present)
- Fellowship Director, Orthopaedic Adult Reconstruction, Stanford University, (2008- present)
- Affiliated Faculty – Department of Bioengineering, Stanford University, (2007- present)
- Robert and Mary Ellenburg Professor of Surgery, Stanford University, (2006- present)
- Affiliated Faculty – Stanford Center on Longevity, Stanford University, (2005- present)
- Professor, Orthopaedic Surgery, Stanford University, (2002- present)
- Associated Faculty - Biomechanical Engineering Program, Mechanical Engineering Department, Stanford University, (1990- present)

PROFESSIONAL EDUCATION

- Internship: Toronto General Hospital Postgraduate Education (1979) Canada
- Residency: University of Toronto (1984) Canada
- Board Certification: Orthopaedic Surgery, American Board of Orthopaedic Surgery (1987)
- Fellowship: Sunnybrook Medical Center (1985) Canada
- Fellowship: Wellesley Hospital (1985) Canada
- Medical Education: University of Toronto (1978) Canada

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

As an academic orthopaedic surgeon, my interests center on adult reconstructive surgery including total joint replacement, osteotomies and the fixation of fractures.

Both clinical and basic science investigations are ongoing.

My specific research interests include the following:

1. the biological aspects of the interface between orthopaedic implants/biomaterials and bone
2. total joint replacement: prosthesis design, biomechanics, biomaterials, mechanisms of failure, imaging etc
3. tissue engineering and mesenchymal tissue differentiation

4. arthritis: etiology, diagnosis, imaging, treatment, outcomes

CLINICAL TRIALS

- Use of PET/MR Imaging in Chronic Pain, Recruiting

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Yusuke Kohno, Monica Romero Lopez

Postdoctoral Research Mentor

Yusuke Kohno, Monica Romero Lopez

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Adult Reconstruction (Fellowship Program)
- Bioengineering (Phd Program)

Publications

PUBLICATIONS

- **Continuous Femoral Nerve Catheters Decrease Opioid-Related Side Effects and Increase Home Disposition Rates Among Geriatric Hip Fracture Patients.** *Journal of orthopaedic trauma*
Arsoy, D., Gardner, M. J., Amanatullah, D. F., Huddleston, J. I., Goodman, S. B., Maloney, W. J., Bishop, J. A.
2017; 31 (6): e186-e189
- **The effect of desflurane versus propofol anesthesia on postoperative delirium in elderly obese patients undergoing total knee replacement: A randomized, controlled, double-blinded clinical trial.** *Journal of clinical anesthesia*
Tanaka, P., Goodman, S., Sommer, B. R., Maloney, W., Huddleston, J., Lemmens, H. J.
2017; 39: 17-22
- **Venous Thromboembolism Prophylaxis After TKA: Aspirin, Warfarin, Enoxaparin, or Factor Xa Inhibitors?** *Clinical orthopaedics and related research*
Bala, A., Huddleston, J. I., Goodman, S. B., Maloney, W. J., Amanatullah, D. F.
2017
- **CCL2/CCR2, but not CCL5/CCR5, mediates monocyte recruitment, inflammation and cartilage destruction in osteoarthritis** *ANNALS OF THE RHEUMATIC DISEASES*
Raghu, H., Lepus, C. M., Wang, Q., Wong, H. H., Lingampalli, N., Oliviero, F., Punzi, L., Giori, N. J., Goodman, S. B., Chu, C. R., Sokolove, J. B., Robinson, W. H.
2017; 76 (5)
- **Cortical Strut Allograft Support of Modular Femoral Junctions During Revision Total Hip Arthroplasty** *JOURNAL OF ARTHROPLASTY*
Lim, C. T., Amanatullah, D. F., Huddleston, J. I., Hwang, K. L., Maloney, W. J., Goodman, S. B.
2017; 32 (5): 1586-1592
- **Use of Cortical Strut Allograft After Extended Trochanteric Osteotomy in Revision Total Hip Arthroplasty** *JOURNAL OF ARTHROPLASTY*
Lim, C. T., Amanatullah, D. F., Huddleston, J. I., Hwang, K. L., Maloney, W. J., Goodman, S. B.
2017; 32 (5): 1599-1605
- **Radiographic scoring system for the evaluation of stability of cementless acetabular components in the presence of osteolysis** *BONE & JOINT JOURNAL*
Narkbunnam, R., Amanatullah, D. F., Electricwala, A. J., Huddleston, J. I., Maloney, W. J., Goodman, S. B.
2017; 99-B (5): 601-606
- **Outcome of 4 Surgical Treatments for Wear and Osteolysis of Cementless Acetabular Components.** *journal of arthroplasty*

- Narkbunnam, R., Amanatullah, D. F., Electriwala, A. J., Huddleston, J. I., Maloney, W. J., Goodman, S. B.
2017
- **Mesenchymal stem cells in the aseptic loosening of total joint replacements.** *Journal of biomedical materials research. Part A*
Pajarinen, J., Lin, T., Nabeshima, A., Jämsen, E., Lu, L., Nathan, K., Yao, Z., Goodman, S. B.
2017; 105 (4): 1195-1207
 - **Total hip arthroplasty using a monobloc cementless femoral stem for patients with childhood Perthes' disease** *BONE & JOINT JOURNAL*
Lee, K. H., Jo, W., Ha, Y. C., Lee, Y. K., Goodman, S. B., Koo, K. H.
2017; 99B (4): 440-444
 - **Total hip arthroplasty using a monobloc cementless femoral stem for patients with childhood Perthes' disease.** *bone & joint journal*
Lee, K. H., Jo, W., Ha, Y. C., Lee, Y. K., Goodman, S. B., Koo, K. H.
2017; 99-B (4): 440-444
 - **Revision Hip Arthroplasty Using a Modular, Cementless Femoral Stem: Intermediate-Term Follow-Up** *JOURNAL OF ARTHROPLASTY*
Sivananthan, S., Lim, C., Narkbunnam, R., Sox-Harris, A., Huddleston, J. I., Goodman, S. B.
2017; 32 (4): 1245-1249
 - **Pro-inflammatory M1 macrophages promote osteogenesis by mesenchymal stem cells via the COX-2-prostaglandin E2 pathway.** *Journal of orthopaedic research*
Lu, L. Y., Loi, F., Nathan, K., Lin, T., Pajarinen, J., Gibon, E., Nabeshima, A., Cordova, L., Jämsen, E., Yao, Z., Goodman, S. B.
2017
 - **The Direct Anterior Approach is Associated With Early Revision Total Hip Arthroplasty.** *journal of arthroplasty*
Eto, S., Hwang, K., Huddleston, J. I., Amanatullah, D. F., Maloney, W. J., Goodman, S. B.
2017; 32 (3): 1001-1005
 - **Weight Gain After Primary Total Knee Arthroplasty Is Associated With Accelerated Time to Revision for Aseptic Loosening.** *journal of arthroplasty*
Lim, C. T., Goodman, S. B., Huddleston, J. I., Harris, A. H., Bhowmick, S., Maloney, W. J., Amanatullah, D. F.
2017
 - **Correlations between macrophage polarizing cytokines, inflammatory mediators, osteoclast activity, and toll-like receptors in tissues around aseptically loosened hip implants** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Jamsen, E., Kouri, V., Ainola, M., Goodman, S. B., Nordstrom, D. C., Eklund, K. K., Pajarinen, J.
2017; 105 (2): 454-463
 - **Response to Letter to the Editor on 'Tibiofemoral Dislocation After Total Knee Arthroplasty'** *JOURNAL OF ARTHROPLASTY*
Jethanandani, R. G., Maloney, W. J., Huddleston, J. I., Goodman, S. B., Amanatullah, D. F.
2017; 32 (2): 700-700
 - **Mutant CCL2 protein coating mitigates wear particle-induced bone loss in a murine continuous polyethylene infusion model** *BIOMATERIALS*
Nabeshima, A., Pajarinen, J., Lin, T., Jiang, X., Gibon, E., Cordova, L. A., Loi, F., Lu, L., Jamsen, E., Egashira, K., Yang, F., Yao, Z., Goodman, et al
2017; 117: 1-9
 - **Decreased osteogenesis in mesenchymal stem cells derived from the aged mouse is associated with enhanced NF- κ B activity.** *Journal of orthopaedic research*
Lin, T., Gibon, E., Loi, F., Pajarinen, J., Córdoba, L. A., Nabeshima, A., Lu, L., Yao, Z., Goodman, S. B.
2017; 35 (2): 281-288
 - **NF- κ B as a Therapeutic Target in Inflammatory-Associated Bone Diseases.** *Advances in protein chemistry and structural biology*
Lin, T., Pajarinen, J., Lu, L., Nabeshima, A., Cordova, L. A., Yao, Z., Goodman, S. B.
2017; 107: 117-154
 - **Elevated Body Mass Index Is Associated With Early Total Knee Revision for Infection** *JOURNAL OF ARTHROPLASTY*
Electricwala, A. J., Jethanandani, R. G., Narkbunnam, R., Huddleston, J. I., Maloney, W. J., Goodman, S. B., Amanatullah, D. F.
2017; 32 (1): 252-255
 - **Cortical Strut Allograft Support of Modular Femoral Junctions During Revision Total Hip Arthroplasty.** *journal of arthroplasty*
Lim, C. T., Amanatullah, D. F., Huddleston, J. I., Hwang, K. L., Maloney, W. J., Goodman, S. B.
2016

- **Use of Cortical Strut Allograft After Extended Trochanteric Osteotomy in Revision Total Hip Arthroplasty.** *journal of arthroplasty*
Lim, C. T., Amanatullah, D. F., Huddleston, J. I., Hwang, K. L., Maloney, W. J., Goodman, S. B.
2016
- **CCL2/CCR2, but not CCL5/CCR5, mediates monocyte recruitment, inflammation and cartilage destruction in osteoarthritis.** *Annals of the rheumatic diseases*
Raghu, H., Lepus, C. M., Wang, Q., Wong, H. H., Lingampalli, N., Oliviero, F., Punzi, L., Giori, N. J., Goodman, S. B., Chu, C. R., Sokolove, J. B., Robinson, W. H.
2016
- **Revision Hip Arthroplasty Using a Modular, Cementless Femoral Stem: Intermediate-Term Follow-Up.** *journal of arthroplasty*
Sivanathan, S., Lim, C., Narkbunnam, R., Sox-Harris, A., Huddleston, J. I., Goodman, S. B.
2016
- **Iron oxide nanoparticles inhibit tumour growth by inducing pro-inflammatory macrophage polarization in tumour tissues.** *Nature nanotechnology*
Zanganeh, S., Hutter, G., Spittle, R., Lenkov, O., Mahmoudi, M., Shaw, A., Pajarinen, J. S., Nejadnik, H., Goodman, S., Moseley, M., Coussens, L. M., Daldrup-Link, H. E.
2016; 11 (11): 986-994
- **Deficient Activity of the Nuclease MRE11A Induces T Cell Aging and Promotes Arthritogenic Effector Functions in Patients with Rheumatoid Arthritis.** *Immunity*
Li, Y., Shen, Y., Hohensinner, P., Ju, J., Wen, Z., Goodman, S. B., Zhang, H., Goronzy, J. J., Weyand, C. M.
2016; 45 (4): 903-916
- **Tibiofemoral Dislocation After Total Knee Arthroplasty.** *journal of arthroplasty*
Jethanandani, R. G., Maloney, W. J., Huddleston, J. I., Goodman, S. B., Amanatullah, D. F.
2016; 31 (10): 2282-2285
- **Correlations between macrophage polarizing cytokines, inflammatory mediators, osteoclast activity, and toll-like receptors in tissues around aseptically loosened hip implants.** *Journal of biomedical materials research. Part A*
Jämsen, E., Kouri, V., Ainola, M., Goodman, S. B., Nordström, D. C., Eklund, K. K., Pajarinen, J.
2016
- **The effect of local IL-4 delivery or CCL2 blockade on implant fixation and bone structural properties in a mouse model of wear particle induced osteolysis.** *Journal of biomedical materials research. Part A*
Sato, T., Pajarinen, J., Behn, A., Jiang, X., Lin, T., Loi, F., Yao, Z., Egashira, K., Yang, F., Goodman, S. B.
2016; 104 (9): 2255-2262
- **Obesity is Associated With Early Total Hip Revision for Aseptic Loosening** *JOURNAL OF ARTHROPLASTY*
Electricwala, A. J., Narkbunnam, R., Huddleston, J. I., Maloney, W. J., Goodman, S. B., Amanatullah, D. F.
2016; 31 (9): S217-S220
- **The effect of SDF-1 on low dose BMP-2 mediated bone regeneration by release from heparinized mineralized collagen type I matrix scaffolds in a murine critical size bone defect model** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Zwingenberger, S., Langanke, R., Vater, C., Lee, G., Niederlohm, E., Sensenschmidt, M., Jacobi, A., Bernhardt, R., Muders, M., Rammelt, S., Knaack, S., Gelinsky, M., Guenther, et al
2016; 104 (9): 2126-2134
- **Obesity is Associated With Early Total Hip Revision for Aseptic Loosening.** *journal of arthroplasty*
Electricwala, A. J., Narkbunnam, R., Huddleston, J. I., Maloney, W. J., Goodman, S. B., Amanatullah, D. F.
2016; 31 (9): 217-220
- **The effect of SDF-1a on low dose BMP-2 mediated bone regeneration by release from heparinized mineralized collagen type I matrix scaffolds in a murine critical size bone defect model.** *Journal of biomedical materials research. Part A*
Zwingenberger, S., Langanke, R., Vater, C., Lee, G., Niederlohm, E., Sensenschmidt, M., Jacobi, A., Bernhardt, R., Muders, M., Rammelt, S., Knaack, S., Gelinsky, M., Günther, et al
2016; 104 (9): 2126-2134
- **NF- κ B decoy oligodeoxynucleotide mitigates wear particle-associated bone loss in the murine continuous infusion model.** *Acta biomaterialia*
Lin, T., Pajarinen, J., Sato, T., Loi, F., Fan, C., Córdova, L. A., Nabeshima, A., Gibon, E., Zhang, R., Yao, Z., Goodman, S. B.
2016; 41: 273-281

- **Cytokines as a predictor of clinical response following hip arthroscopy: minimum 2-year follow-up.** *Journal of hip preservation surgery*
Shapiro, L. M., Safran, M. R., Maloney, W. J., Goodman, S. B., Huddleston, J. I., Bellino, M. J., Scuderi, G. J., Abrams, G. D.
2016; 3 (3): 229-235
- **The biological response to orthopaedic implants for joint replacement: Part I: Metals.** *Journal of biomedical materials research. Part B, Applied biomaterials*
Gibon, E., Amanatullah, D. F., Loi, F., Pajarinen, J., Nabeshima, A., Yao, Z., Hamadouche, M., Goodman, S. B.
2016
- **Aging Affects Bone Marrow Macrophage Polarization: Relevance to Bone Healing.** *Regenerative engineering and translational medicine*
Gibon, E., Loi, F., Córdova, L. A., Pajarinen, J., Lin, T., Lu, L., Nabeshima, A., Yao, Z., Goodman, S. B.
2016; 2 (2): 98-104
- **Inflammation, fracture and bone repair.** *Bone*
Loi, F., Córdova, L. A., Pajarinen, J., Lin, T., Yao, Z., Goodman, S. B.
2016; 86: 119-130
- **The biological response to orthopedic implants for joint replacement. II: Polyethylene, ceramics, PMMA, and the foreign body reaction.** *Journal of biomedical materials research. Part B, Applied biomaterials*
Gibon, E., Córdova, L. A., Lu, L., Lin, T., Yao, Z., Hamadouche, M., Goodman, S. B.
2016
- **Multifunctional coatings to simultaneously promote osseointegration and prevent infection of orthopaedic implants.** *Biomaterials*
Raphel, J., Holodniy, M., Goodman, S. B., Heilshorn, S. C.
2016; 84: 301-314
- **Aging, inflammation, stem cells, and bone healing** *STEM CELL RESEARCH & THERAPY*
Gibon, E., Lu, L., Goodman, S. B.
2016; 7
- **Engineered protein coatings to improve the osseointegration of dental and orthopaedic implants.** *Biomaterials*
Raphel, J., Karlsson, J., Galli, S., Wennerberg, A., Lindsay, C., Haugh, M. G., Pajarinen, J., Goodman, S. B., Jimbo, R., Andersson, M., Heilshorn, S. C.
2016; 83: 269-282
- **Removal of Well-Fixed Cementless Acetabular Components in Revision Total Hip Arthroplasty.** *Orthopedics*
Adelani, M. A., Goodman, S. B., Maloney, W. J., Huddleston, J. I.
2016; 39 (2): e280-4
- **Lipoteichoic acid modulates inflammatory response in macrophages after phagocytosis of titanium particles through Toll-like receptor 2 cascade and inflammasomes** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Naganuma, Y., Takakubo, Y., Hirayama, T., Tamaki, Y., Pajarinen, J., Sasaki, K., Goodman, S. B., Takagi, M.
2016; 104 (2): 435-444
- **Can a Conical Implant Successfully Address Complex Anatomy in Primary THA? Radiographs and Hip Scores at Early Followup** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Zhang, Q., Goodman, S. B., Maloney, W. J., Huddleston, J. I.
2016; 474 (2): 459-464
- **Is There a Benefit to Modularity in 'Simpler' Femoral Revisions?** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Huddleston, J. I., Tetreault, M. W., Yu, M., Bedair, H., Hansen, V. J., Choi, H., Goodman, S. B., Sporer, S. M., Della Valle, C. J.
2016; 474 (2): 415-420
- **The effects of immunomodulation by macrophage subsets on osteogenesis in vitro** *STEM CELL RESEARCH & THERAPY*
Loi, F., Cordova, L. A., Zhang, R., Pajarinen, J., Lin, T., Goodman, S. B., Yao, Z.
2016; 7
- **Treatment of Periprosthetic Knee Infection With a Two-stage Protocol Using Static Spacers** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Lichstein, P., Su, S., Hedlund, H., Suh, G., Maloney, W. J., Goodman, S. B., Huddleston, J. I.
2016; 474 (1): 120-125
- **Comprehensive Operative Note Templates for Primary and Revision Total Hip and Knee Arthroplasty.** *The open orthopaedics journal*

- Electricwala, A. J., Amanatullah, D. F., Narkbunnam, R. I., Huddleston, J. I., Maloney, W. J., Goodman, S. B.
2016; 10: 725-731
- **Aging, inflammation, stem cells, and bone healing.** *Stem cell research & therapy*
Gibon, E., Lu, L., Goodman, S. B.
2016; 7 (1): 44-?
 - **The effects of immunomodulation by macrophage subsets on osteogenesis in vitro.** *Stem cell research & therapy*
Loi, F., Córdova, L. A., Zhang, R., Pajarinen, J., Lin, T., Goodman, S. B., Yao, Z.
2016; 7 (1): 15-?
 - **Local delivery of mutant CCL2 protein-reduced orthopaedic implant wear particle-induced osteolysis and inflammation in vivo.** *Journal of orthopaedic research*
Jiang, X., Sato, T., Yao, Z., Keeney, M., Pajarinen, J., Lin, T., Loi, F., Egashira, K., Goodman, S., Yang, F.
2016; 34 (1): 58-64
 - **Pain Duration and Resolution following Surgery: An Inception Cohort Study** *PAIN MEDICINE*
Carroll, I. R., Hah, J. M., Barelka, P. L., Wang, C. K., Wang, B. M., Gillespie, M. J., McCue, R., Younger, J. W., Trafton, J., Humphreys, K., Goodman, S. B., Dirbas, F. M., Mackey, et al
2015; 16 (12): 2386-2396
 - **Pain Duration and Resolution following Surgery: An Inception Cohort Study.** *Pain medicine*
Carroll, I. R., Hah, J. M., Barelka, P. L., Wang, C. K., Wang, B. M., Gillespie, M. J., McCue, R., Younger, J. W., Trafton, J., Humphreys, K., Goodman, S. B., Dirbas, F. M., Mackey, et al
2015; 16 (12): 2386-2396
 - **NF- κ B decoy oligodeoxynucleotide inhibits wear particle-induced inflammation in a murine calvarial model** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Sato, T., Pajarinen, J., Lin, T., Tamaki, Y., Loi, F., Egashira, K., Yao, Z., Goodman, S. B.
2015; 103 (12): 3872-3878
 - **Establishment of Green Fluorescent Protein and Firefly Luciferase Expressing Mouse Primary Macrophages for In Vivo Bioluminescence Imaging** *PLOS ONE*
Pajarinen, J., Lin, T., Sato, T., Loi, F., Yao, Z., Kontinen, Y. T., Goodman, S. B.
2015; 10 (11)
 - **Treatment of Secondary Osteonecrosis of the Knee With Local Debridement and Osteoprogenitor Cell Grafting** *JOURNAL OF ARTHROPLASTY*
Goodman, S. B., Hwang, K. L.
2015; 30 (11): 1892-1896
 - **Modulation of mouse macrophage polarization in vitro using IL-4 delivery by osmotic pumps.** *Journal of biomedical materials research. Part A*
Pajarinen, J., Tamaki, Y., Antonios, J. K., Lin, T., Sato, T., Yao, Z., Takagi, M., Kontinen, Y. T., Goodman, S. B.
2015; 103 (4): 1339-1345
 - **Yrjö tapio kontinen 1952-2014.** *Acta orthopaedica*
Pajarinen, J., Nordström, D., Nordström, D., Petterson, T., Ainola, M., Gómez-Barrena, E., Takagi, M., Goodman, S. B.
2015; 86 (2): 145-146
 - **Interaction Between Osteoarthritic Chondrocytes and Adipose-Derived Stem Cells Is Dependent on Cell Distribution in Three-Dimension and Transforming Growth Factor- β 3 Induction.** *Tissue engineering. Part A*
Lai, J. H., Rogan, H., Kajiyama, G., Goodman, S. B., Smith, R. L., Maloney, W., Yang, F.
2015; 21 (5-6): 992-1002
 - **A Rare Case of Pseudotumor Formation following Total Knee Arthroplasty.** *Malaysian orthopaedic journal*
Sivananthan, S., Pirapat, R., Goodman, S. B.
2015; 9 (1): 44-46
 - **Implant Survival and Patient-Reported Outcomes After Total Hip Arthroplasty in Young Patients With Juvenile Idiopathic Arthritis** *JOURNAL OF ARTHROPLASTY*
Swarup, I., Lee, Y., Christoph, E. I., Mandl, L. A., Goodman, S. M., Figgie, M. P.
2015; 30 (3): 398-402

- **NF- κ B Decoy Oligodeoxynucleotide Enhanced Osteogenesis in Mesenchymal Stem Cells Exposed to Polyethylene Particle.** *Tissue engineering. Part A*
Lin, T., Sato, T., Barcay, K. R., Waters, H., Loi, F., Zhang, R., Pajarinen, J., Egashira, K., Yao, Z., Goodman, S. B.
2015; 21 (5-6): 875-883
- **Collagen VI Enhances Cartilage Tissue Generation by Stimulating Chondrocyte Proliferation.** *Tissue engineering. Part A*
Smeriglio, P., Dhulipala, L., Lai, J. H., Goodman, S. B., Dragoo, J. L., Smith, R. L., Maloney, W. J., Yang, F., Bhutani, N.
2015; 21 (3-4): 840-849
- **Comparative potential of juvenile and adult human articular chondrocytes for cartilage tissue formation in three-dimensional biomimetic hydrogels.** *Tissue engineering. Part A*
Smeriglio, P., Lai, J. H., Dhulipala, L., Behn, A. W., Goodman, S. B., Smith, R. L., Maloney, W. J., Yang, F., Bhutani, N.
2015; 21 (1-2): 147-155
- **Factors Associated with Opioid Use in a Cohort of Patients Presenting for Surgery.** *Pain research and treatment*
Hah, J. M., Sharifzadeh, Y., Wang, B. M., Gillespie, M. J., Goodman, S. B., Mackey, S. C., Carroll, I. R.
2015; 2015: 829696-?
- **Nanocoating for biomolecule delivery using layer-by-layer self-assembly** *JOURNAL OF MATERIALS CHEMISTRY B*
Keeney, M., Jiang, X. Y., Yamane, M., Lee, M., Goodman, S., Yang, F.
2015; 3 (45): 8757-8770
- **Establishment of Green Fluorescent Protein and Firefly Luciferase Expressing Mouse Primary Macrophages for In Vivo Bioluminescence Imaging.** *PLoS one*
Pajarinen, J., Lin, T., Sato, T., Loi, F., Yao, Z., Kontinen, Y. T., Goodman, S. B.
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