

Stanford



Junichi Kushioka, MD, PhD

Postdoctoral Scholar, Orthopedic Surgery

Bio

HONORS AND AWARDS

- The 33rd Basic Award, Japanese Society for Spine Surgery and Related Research
- Postdoctoral Fellowship, The Uehara Memorial Foundation
- The 39th Young Researcher Award, Japanese Society for Bone Morphometry
- 2017 Research Grant, Kaken Pharmaceutical CO., LTD. Award, Japan Orthopaedics and Traumatology Foundation Research Inc. (JOTF)
- The 10th Best Presentation Award, Japanese Association for the Study of Musculoskeletal Pain
- Fellowship, The Konishi Foundation
- Fellowship, The Nakatomi Foundation
- Fellowship, The Watanabe Foundation
- Fellowship, Kanzawa Medical Research Foundation
- 2017 International fellowship, Public Interest Incorporated group corporation, Medical Promotion “Ichokai”

PROFESSIONAL EDUCATION

- Board Certification, Japanese Board of Orthopaedic Surgery (2019)
- Fellowship, Osaka University Hospital (Osaka, JAPAN) , Orthopaedic Surgery (2016)
- Ph.D., Osaka University Graduate School of Medicine (Osaka, JAPAN) (2020)
- M.D., Osaka University, Medical School (Osaka, JAPAN) (2011)

STANFORD ADVISORS

- Stuart Goodman, Postdoctoral Research Mentor
- Stuart Goodman, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Bone regeneration in inflammation with aging and cell-based immunomodulatory therapy.** *Inflammation and regeneration*
Kushioka, J., Chow, S. K., Toya, M., Tsubosaka, M., Shen, H., Gao, Q., Li, X., Zhang, N., Goodman, S. B.
2023; 43 (1): 29
- **Metabolic profile of mesenchymal stromal cells and macrophages in the presence of polyethylene particles in a 3D model.** *Stem cell research & therapy*
Teissier, V., Gao, Q., Shen, H., Li, J., Li, X., Huang, E. E., Kushioka, J., Toya, M., Tsubosaka, M., Hirata, H., Alizadeh, H. V., Maduka, C. V., Contag, et al
2023; 14 (1): 99

- **The efficiency of genetically modified mesenchymal stromal cells combined with a functionally graded scaffold for bone regeneration in corticosteroid-induced osteonecrosis of the femoral head in rabbits.** *Journal of biomedical materials research. Part A*
Tsubosaka, M., Maruyama, M., Lui, E., Moeinzadeh, S., Huang, E. E., Kushioka, J., Hirata, H., Jain, C., Storaci, H. W., Chan, C., Toya, M., Gao, Q., Teissier, et al
2023
- **Gait Variability to Phenotype Common Orthopedic Gait Impairments Using Wearable Sensors.** *Sensors (Basel, Switzerland)*
Kushioka, J., Sun, R., Zhang, W., Muaremi, A., Leutheuser, H., Odonkor, C. A., Smuck, M.
2022; 22 (23)
- **Therapeutic effects of MSCs, genetically modified MSCs, and NFkB-inhibitor on chronic inflammatory osteolysis in aged mice.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*
Kushioka, J., Toya, M., Shen, H., Hirata, H., Zhang, N., Huang, E., Tsubosaka, M., Gao, Q., Teissier, V., Li, X., Utsunomiya, T., Goodman, S. B.
2022
- **Effects of rhBMP-2-loaded hydroxyapatite granules/beta-tricalcium phosphate hydrogel (HA/beta-TCP/hydrogel) composite on a rat model of caudal intervertebral fusion.** *Scientific reports*
Nakagawa, S., Okada, R., Kushioka, J., Kodama, J., Tsukazaki, H., Bal, Z., Tateiwa, D., Ukon, Y., Hirai, H., Makino, T., Takenaka, S., Okada, S., Kaito, et al
2022; 12 (1): 7906
- **Ageing attenuates bone healing by mesenchymal stem cells in a microribbon hydrogel with a murine long bone critical-size defect model.** *Immunity & ageing : I & A*
Hirata, H., Zhang, N., Ueno, M., Barati, D., Kushioka, J., Shen, H., Tsubosaka, M., Toya, M., Lin, T., Huang, E., Yao, Z., Wu, J. Y., Zwillingenberger, et al
2022; 19 (1): 14
- **Selective Retinoic Acid Receptor gamma Antagonist 7C is a Potent Enhancer of BMP-Induced Ectopic Endochondral Bone Formation.** *Frontiers in cell and developmental biology*
Tateiwa, D., Kaito, T., Hashimoto, K., Okada, R., Kodama, J., Kushioka, J., Bal, Z., Tsukazaki, H., Nakagawa, S., Ukon, Y., Hirai, H., Tian, H., Alferiev, et al
2022; 10: 802699
- **Sex differences in the therapeutic effect of unaltered versus NFkappaB sensing IL-4 over-expressing mesenchymal stromal cells in a murine model of chronic inflammatory bone loss.** *Frontiers in bioengineering and biotechnology*
Shen, H., Kushioka, J., Toya, M., Utsunomiya, T., Hirata, H., Huang, E. E., Tsubosaka, M., Gao, Q., Li, X., Teissier, V., Zhang, N., Goodman, S. B.
2022; 10: 962114
- **Effect on Osteogenic Differentiation of Genetically Modified IL4 or PDGF-BB Over-Expressing and IL4-PDGF-BB Co-Over-Expressing Bone Marrow-Derived Mesenchymal Stromal Cells In Vitro.** *Bioengineering (Basel, Switzerland)*
Tsubosaka, M., Maruyama, M., Huang, E. E., Zhang, N., Utsunomiya, T., Gao, Q., Shen, H., Li, X., Kushioka, J., Hirata, H., Yao, Z., Yang, Y. P., Goodman, et al
2021; 8 (11)
- **Amine modification of calcium phosphate by low-pressure plasma for bone regeneration.** *Scientific reports*
Kodama, J., Harumningtyas, A. A., Ito, T., Michlicek, M., Sugimoto, S., Kita, H., Chijimatsu, R., Ukon, Y., Kushioka, J., Okada, R., Kamatani, T., Hashimoto, K., Tateiwa, et al
2021; 11 (1): 17870
- **A novel BMP-2-loaded hydroxyapatite/beta-tricalcium phosphate microsphere/hydrogel composite for bone regeneration.** *Scientific reports*
Tateiwa, D., Nakagawa, S., Tsukazaki, H., Okada, R., Kodama, J., Kushioka, J., Bal, Z., Ukon, Y., Hirai, H., Kaito, T.
2021; 11 (1): 16924
- **Low magnetic field promotes recombinant human BMP-2-induced bone formation and influences orientation of trabeculae and bone marrow-derived stromal cells.** *Bone reports*
Okada, R., Yamato, K., Kawakami, M., Kodama, J., Kushioka, J., Tateiwa, D., Ukon, Y., Zeynep, B., Ishimoto, T., Nakano, T., Yoshikawa, H., Kaito, T.
2021; 14: 100757
- **Antibacterial efficacy of quaternized chitosan coating on 3D printed titanium cage in rat intervertebral disc space.** *The spine journal : official journal of the North American Spine Society*
Kodama, J., Chen, H., Zhou, T., Kushioka, J., Okada, R., Tsukazaki, H., Tateiwa, D., Nakagawa, S., Ukon, Y., Bal, Z., Tian, H., Zhao, J., Kaito, et al
2021
- **A novel nano-hydroxyapatite/synthetic polymer/bone morphogenetic protein-2 composite for efficient bone regeneration.** *The spine journal : official journal of the North American Spine Society*

- Bal, Z., Korkusuz, F., Ishiguro, H., Okada, R., Kushioka, J., Chijimatsu, R., Kodama, J., Tateiwa, D., Ukon, Y., Nakagawa, S., Dede, E. C., Gizer, M., Korkusuz, et al
2021
- **A novel negative regulatory mechanism of Smurf2 in BMP/Smad signaling in bone** *BONE RESEARCH*
Kushioka, J., Kaito, T., Okada, R., Ishiguro, H., Bal, Z., Kodama, J., Chijimatsu, R., Pye, M., Narimatsu, M., Wrana, J. L., Inoue, Y., Ninomiya, H., Yamamoto, et al
2020; 8 (1): 41
 - **The small compound, TD-198946, protects against intervertebral degeneration by enhancing glycosaminoglycan synthesis in nucleus pulposus cells** *SCIENTIFIC REPORTS*
Kushioka, J., Kaito, T., Chijimatsu, R., Okada, R., Ishiguro, H., Bal, Z., Kodama, J., Yano, F., Saito, T., Chung, U., Tanaka, S., Yoshikawa, H.
2020; 10 (1): 14190
 - **Resting-state Amplitude of Low-frequency Fluctuation is a Potentially Useful Prognostic Functional Biomarker in Cervical Myelopathy** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Takenaka, S., Kan, S., Seymour, B., Makino, T., Sakai, Y., Kushioka, J., Tanaka, H., Watanabe, Y., Shibata, M., Yoshikawa, H., Kaito, T.
2020; 478 (7): 1667–80
 - **Assessment of effects of rhBMP-2 on interbody fusion with a novel rat model** *SPINE JOURNAL*
Okada, R., Kaito, T., Ishiguro, H., Kushioka, J., Otsuru, S., Kanayama, S., Bal, Z., Kitaguchi, K., Hashimoto, K., Makino, T., Takenaka, S., Sakai, Y., Yoshikawa, et al
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 - **Risk factors for in-hospital mortality after spine surgery: a matched case-control study using a multicenter database** *SPINE JOURNAL*
Kushioka, J., Takenaka, S., Makino, T., Sakai, Y., Kashii, M., Iwasaki, M., Yoshikawa, H., Kaito, T.
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 - **BMP and TGF beta use and release in bone regeneration** *TURKISH JOURNAL OF MEDICAL SCIENCES*
Bal, Z., Kushioka, J., Kodama, J., Kaito, T., Yoshikawa, H., Korkusuz, P., Korkusuz, F.
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 - **A novel and efficient method for culturing mouse nucleus pulposus cells** *SPINE JOURNAL*
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2019; 19 (9): 1573–83
 - **Administration of ONO-2506 suppresses neuropathic pain after spinal cord injury by inhibition of astrocytic activation** *SPINE JOURNAL*
Ishiguro, H., Kaito, T., Hashimoto, K., Kushioka, J., Okada, R., Tsukazaki, H., Kodama, J., Bal, Z., Ukon, Y., Takenaka, S., Makino, T., Sakai, Y., Yoshikawa, et al
2019; 19 (8): 1434–42
 - **Towards prognostic functional brain biomarkers for cervical myelopathy: A resting-state fMRI study** *SCIENTIFIC REPORTS*
Takenaka, S., Kan, S., Seymour, B., Makino, T., Sakai, Y., Kushioka, J., Tanaka, H., Watanabe, Y., Shibata, M., Yoshikawa, H., Kaito, T.
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 - **Intervertebral disc regeneration with an adipose mesenchymal stem cell-derived tissue-engineered construct in a rat nucleotomy model** *ACTA BIOMATERIALIA*
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2019; 87: 118–29
 - **Effect of the small compound TD-198946 on glycosaminoglycan synthesis and transforming growth factor beta 3-associated chondrogenesis of human synovium-derived stem cells in vitro** *JOURNAL OF TISSUE ENGINEERING AND REGENERATIVE MEDICINE*
Chijimatsu, R., Yano, F., Saito, T., Kobayashi, M., Hamamoto, S., Kaito, T., Kushioka, J., Hart, D. A., Chung, U., Tanaka, S., Yoshikawa, H., Nakamura, N.
2019; 13 (3): 446–58
 - **Tranexamic acid for reducing intra- and postoperative blood loss in posterior lumbar interbody fusion: Is it safe enough? Response** *JOURNAL OF NEUROSURGERY-SPINE*
Kushioka, J., Yamashita, T., Okuda, S., Maeno, T., Matsumoto, T., Iwasaki, M., Yamasaki, R.
2018; 29 (2): 227
 - **Difference in the fusion rate and bone formation between artificial bone and iliac autograft inside an inter-body fusion cage - A comparison between porous hydroxyapatite/type 1 collagen composite and autologous iliac bone** *JOURNAL OF ORTHOPAEDIC SCIENCE*

Kushioka, J., Kaito, T., Makino, T., Fujiwara, H., Tsukazaki, H., Takenaka, S., Sakai, Y., Yoshikawa, H.

2018; 23 (4): 622–26

- **Modified Scarf Osteotomy with Medial Capsule Interposition for Hallux Valgus in Rheumatoid Arthritis A Study of Cases Including Severe First Metatarsophalangeal Joint Destruction** *JOURNAL OF BONE AND JOINT SURGERY-AMERICAN VOLUME*

Kushioka, J., Hirao, M., Tsuboi, H., Ebina, K., Noguchi, T., Nampei, A., Tsuji, S., Akita, S., Hashimoto, J., Yoshikawa, H.

2018; 100 (9): 765–76

- **Utility of intravenous tranexamic acid in single-level posterior lumbar interbody fusions Response** *JOURNAL OF NEUROSURGERY-SPINE*

Kushioka, J., Yamashita, T., Okuda, S., Maeno, T., Matsumoto, T., Iwasaki, M., Yamasaki, R.

2017; 27 (5): 616

- **High-dose tranexamic acid reduces intraoperative and postoperative blood loss in posterior lumbar interbody fusion** *JOURNAL OF NEUROSURGERY-SPINE*

Kushioka, J., Yamashita, T., Okuda, S., Maeno, T., Matsumoto, T., Yamasaki, R., Iwasaki, M.

2017; 26 (3): 363–67

- **Outcomes of modified metatarsal shortening offset osteotomy for forefoot deformity in patients with rheumatoid arthritis: Short to mid-term follow-up** *MODERN RHEUMATOLOGY*

Hirao, M., Ebina, K., Tsuboi, H., Nampei, A., Kushioka, J., Noguchi, T., Tsuji, S., Owaki, H., Hashimoto, J., Yoshikawa, H.

2017; 27 (6): 981–89