

Curriculum Vitae



Personal Data

Name: Takashi Kaito, M.D., Ph.D.

Present position: Director,
Department of Orthopaedic Surgery
Osaka Rosai Hospital

Specially appointed Associate Professor,
Department of Orthopaedic Surgery,
Osaka University Graduate School of Medicine

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Date of birth: June 18th, 1974

Education

1993-1999: M.D. (1999)
Osaka University Medical School

2002-2006: Ph.D. (2006)
Department of Orthopaedic Surgery
Osaka University Graduate School of Medicine

Postgraduate Education

1999-2000 Residency in Orthopaedic surgery, Osaka University
Hospital, Osaka, Osaka

2000-2001 Residency in Orthopaedic Surgery, Sinshu University
Hospital, Matsumoto, Nagano

Previous Positions

2006- Attending spine surgeon, Osaka Kosei-Nenkin Hospital

2007- Attending spine surgeon, Osaka Minami Medical Center

2010- Visiting researcher,
UCLA (Prof. Jeffrey C. Wang)
2012.7- Assistant Professor, Department of Orthopaedic Surgery,
Osaka University Hospital
2014.4- Chief of Spine Section, Department of Orthopaedic Surgery,
Osaka University Hospital
2019.4- Associate Professor, Department of Orthopaedic Surgery,
Osaka University Hospital
2023.7- Director, Department of Orthopaedic Surgery
Osaka Rosai Hospital

Specially appointed Associate Professor,
Department of Orthopaedic Surgery,
Osaka University Graduate School of Medicine

Medical License

1999- Japan License Registration (No, 406728)

Thesis

Potential of the activity of bone morphogenetic protein-2 in bone
regeneration by a PLA-PEG/hydroxyapatite composite.

Doctor of Philosophy, Osaka University, 2006

Board Certification

2006- Japanese Orthopaedic Association (No. 117183)

2008- Board-certified Spine Surgeon (Japanese Society for Spine Surgery
and Related Research)

Area of Expertise

Orthopaedic surgery (Spine)

Research topics

Clinical: Spinal fusion, Spinal deformity, Cervical myelopathy, Rheumatoid
arthritis

Basic: Bone tissue engineering, Bone and cartilage metabolism, Biologic
enhancement of spinal fusion, Brain network analysis in cervical
myelopathy

Awards

2020 CSRS 21st Century Research Grant (PI)

2020 Journal of Orthopaedic Science,
Annual Best Paper Award

- 2019 71st annual meeting of ABJS (Association of Bone and Joint surgeons),
Best Paper Award
- 2019 AOA-JOA Travelling fellowship
- 2017 CSRS travelling fellowship 2017
- 2014 The Japanese Society for Spine Surgery and Related Research (JSSR),
Best Clinical Research Award
- 2013 The 20th International Meeting on Advanced Spine Technique (IMAST),
WhiteCloud Best Basic Research Award
- 2013 Annual meeting of Japanese Orthopaedic Association,
Governor Award
- 2013 Japan Orthopaedics and Traumatology Foundation Research Award
- 2011 JSSR Asia Travelling Fellowship
- 2010 Japanese Spinal Instrumentation Society,
Best Paper Award
- 2010 JSPS Excellent Young Researcher Overseas Visit Program
(UCLA, Prof. Jeffrey Wang)

Board Member

- 2014- Japanese Spinal Instrumentation Society
- 2016- Japanese Low Back Pain Society
- 2015- Cervical Spine Research Society Japan
- 2018- Japanese Society for Spine Surgery and Related Research (JSSR)
- 2020- Japan Scoliosis Research Society

Committee activities

Japanese Orthopaedic Association (JOA)

- Guideline committee for lumbar disc herniation
- Guideline committee for lumbar canal stenosis
- Guideline committee for ossification of spinal ligaments
- International committee
- Spine specialist committee

The Japanese Society for Spine Surgery and Related Research (JSSR)

- Research project committee (committee chair)
- Guideline committee for thoracic XLIF and ACR

The Japanese Scoliosis Society (JSS)

COI committee

Ethics committee

International committee

Japanese Spinal Instrumentation Society (JSIS)

Finance committee

COI committee

Editorial committee

Scoliosis Research Society

IMAST program committee

AIS the new 3D classification workforce

Editorial Review Board

NASSJ: Associate Editor

Spine Research: Associate Editor-in-Chief

JOR spine: Advisory Review Board

Neurospine: Editor

Reviewer (topic)

Scientific Reports

Biomaterials

Spine

JOR

Spine J

Acta Biomaterialia,

Journal of Orthopaedic Science

Clinical Orthopaedics and Related Research (CORR)

Publication

Total publication (English): 260

Total citations: 5790

h-index: 40

Representative original articles in recent 5 years

*Corresponding author

1. Tateiwa D, Nishida M, Kodama J, Hirai H, Nakagawa S, Ukon Y, Takeyama K, Yamamori N, Hirano K, Ikuta M, Kitahara T, Furuichi T, Bun M, Okada S, Kaito T*. [Development of a novel rat long-bone nonunion model and efficacy evaluation of a prostaglandin EP4 selective agonist \(AKDS001\) combined with iliac bone grafting.](#) Bone Joint Res. 2025 Mar 3;14(3):166-175.
2. Kodama J, Oichi T, Wilkinson KJ, Abzug JM, Kaito T, Enomoto-Iwamoto M, Iwamoto M, Otsuru S. [Apolipoprotein E is a marker of all chondrocytes in the growth plate resting zone.](#) Bone Res. 2025 Mar 3;13(1):31. doi: 10.1038/s41413-025-00407-2.
3. Ukon Y, Takenaka S, Hirai H, Sugiura T, Sakai Y, Fujimori T, Furuya M, Kanie Y, Okada S, Kaito T*. [Establishment of Scoring to Predict Severe Complication After Pyogenic Spondylodiscitis Surgery.](#) Clin Spine Surg. 2025 Jan 29. doi: 10.1097/BSD.0000000000001756. Online ahead of print.
4. Furuichi T, Hirai H, Kitahara T, Bun M, Ikuta M, Ukon Y, Furuya M, Oreffo ROC, Janeczek AA, Dawson JI, Okada S, Kaito T*. [Nanoclay gels attenuate BMP2-associated inflammation and promote chondrogenesis to enhance BMP2-spinal fusion.](#) Bioact Mater. 2024 Nov 5;44:474-487.
5. Kitahara T, Tateiwa D, Hirai H, Ikuta M, Furuichi T, Bun M, Ukon Y, Kanie Y, Furuya M, Fujimori T, Okada S, Kaito T*. rhBMP-2-loaded hydroxyapatite/beta-tricalcium phosphate microsphere/hydrogel composite promotes bone regeneration in a novel rat femoral nonunion model. Front Bioeng Biotechnol. 2024 Oct 7;12:1461260. doi: 10.3389/fbioe.2024.1461260. eCollection 2024.
6. Ukon Y, Kaito T*, Hirai H, Kitahara T, Bun M, Kodama J, Tateiwa D, Nakagawa S, Ikuta M, Furuichi T, Kanie Y, Fujimori T, Takenaka S, Yamamuro T, Otsuru S, Okada S, Yamashita M, Imamura T. Cellular senescence by loss of Men1 in osteoblasts is critical for age-related

osteoporosis. *Aging Cell*. 2024 Oct;23(10):e14254.

7. Tateiwa D, Iwamoto M, Kodama J, Ukon Y, Hirai H, Ikuta M, Kitahara T, Furuichi T, Bun M, Otsuru S, Okada S, Kaito T*. A synthetic retinoic acid receptor γ antagonist (7C)-loaded nanoparticle enhances bone morphogenetic protein-induced bone regeneration in a rat spinal fusion model. *Spine J*. 2024 May;24(5):899-908.
8. Dede EÇ, Gizer M, Korkusuz F, Bal Z, Ishiguro H, Yoshikawa H, Kaito T*, Korkusuz P. A pilot study: Nano-hydroxyapatite-PEG/PLA containing low dose rhBMP2 stimulates proliferation and osteogenic differentiation of human bone marrow derived mesenchymal stem cells. *JOR Spine*. 2023 Jun 1;6(3):e1258. doi: 10.1002/jsp2.1258. eCollection 2023 Sep.
9. Hagizawa H, Koyamatsu S, Okada S, Kaito T, Tsumaki N. Chondrocyte-like cells in nucleus pulposus and articular chondrocytes have similar transcriptomic profiles and are paracrine-regulated by hedgehog from notochordal cells and subchondral bone. *Front Cell Dev Biol*. 2023 May 15;11:1151947. doi: 10.3389/fcell.2023.1151947. eCollection 2023.
10. Tateiwa D, Kaito T*. Advances in bone regeneration with growth factors for spinal fusion: A literature review. *N Am Spine Soc J*. 2022 Dec 17;13:100193. doi: 10.1016/j.xnsj.2022.100193. eCollection 2023 Mar.
11. 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 T*. Effects of rhBMP-2-loaded hydroxyapatite granules/beta-tricalcium phosphate hydrogel (HA/ β -TCP/hydrogel) composite on a rat model of caudal intervertebral fusion. *Sci Rep*, 12 (1), 7906, 2022
12. Ukon Y, Nishida M, Yamamori N, Takeyama K, Sakamoto K, Takenaka S, Makino T, Fujimori T, Sakai Y, Kanie Y, Kodama J, Bal Z, Tateiwa D, Nakagawa S, Hirai H, Okada S, Kaito T*. Prostaglandin EP4 Selective Agonist AKDS001 Enhances New Bone Formation by Minimodeling in a Rat Heterotopic Xenograft Model of Human Bone. *Front Bioeng Biotechnol*, 10, 845716, 2022
13. Kamatani T, Hagizawa H, Yarimitsu S, Morioka M, Koyamatsu S, Sugimoto M, Kodama J, Yamane J, Ishiguro H, Shichino S, Abe K, Fujibuchi W, Fujie H, Kaito T, Tsumaki N. Human iPS cell-derived cartilaginous tissue spatially and functionally replaces nucleus pulposus. *Biomaterials*, 284:121491, 2022
14. 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 I, Chorny M, Otsuru S, Okada S, Iwamoto M. Selective Retinoic Acid Receptor γ Antagonist 7C is a Potent Enhancer of BMP-Induced Ectopic Endochondral Bone Formation. *Front Cell Dev Biol*, 10, 802699, 2022

15. Kodama J, Harumningtyas AA, Ito T, Michlíček M, Sugimoto S, Kita H, Chijimatsu R, Ukon Y, Kushioka J, Okada R, Kamatani T, Hashimoto K, Tateiwa D, Tsukazaki H, Nakagawa S, Takenaka S, Makino T, Sakai Y, Nečas D, Zajíčková L, Hamaguchi S, Kaito T*. Amine modification of calcium phosphate by low-pressure plasma for bone regeneration. *Sci Rep*, 11 (1), 17870, 2021
16. Tateiwa D, Nakagawa S, Tsukazaki H, Okada R, Kodama J, Kushioka J, Bal Z, Ukon Y, Hirai H, Kaito T*. A novel BMP-2-loaded hydroxyapatite/beta-tricalcium phosphate microsphere/hydrogel composite for bone regeneration. *Sci Rep*, 11 (1), 16924, 2021
17. Okada R, Yamato K, Kawakami M, Kodama J, Kushioka J, Tateiwa D, Ukon Y, Zeynep B, Ishimoto T, Nakano T, Yoshikawa H, Kaito T*. Low magnetic field promotes recombinant human BMP-2-induced bone formation and influences orientation of trabeculae and bone marrow-derived stromal cells. *Bone Rep*, 14, 100757, 2021
18. 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 T*. Antibacterial efficacy of quaternized chitosan coating on 3D printed titanium cage in rat intervertebral disc space. *Spine J* 21,(7), 1217-1228, 2021
19. Bal Z, Korkusuz F, Ishiguro H, Okada R, Kushioka J, Chijimatsu R, Kodama J, Tateiwa D, Ukon Y, Nakagawa S, Dede EÇ, Gizer M, Korkusuz P, Yoshikawa H, Kaito T*. A novel nano-hydroxyapatite/synthetic polymer/bone morphogenetic protein-2 composite for efficient bone regeneration. *Spine J*, 21 (5), 865-873, 2021
20. Makino T, Takanaka S, Sakai Y, Yoshikawa H, Kaito T*. Impact of mechanical stability on the progress of bone ongrowth on the frame surfaces of a titanium-coated PEEK cage and a 3D porous titanium alloy cage: in vivo analysis using CT color mapping. *Eur Spine J*, 30 (5), 1303-1313, 2021
21. Kushioka J, Kaito T*, Okada R, Ishiguro H, Bal Z, Kodama J, Chijimatsu R, Pye M, Narimatsu M, Wrana JL, Inoue Y, Ninomiya H, Yamamoto S, Saitou T, Yoshikawa H, Imamura T. A novel negative regulatory mechanism of Smurf2 in BMP/Smad signaling in bone. *Bone Res*, 8(1) 41, 2020

22. Kushioka J, Kaito T*, Chijimatsu R, Okada R, Ishiguro H, Bal Z, Kodama J, Yano F, Saito T, Chung UI, Tanaka S, Yoshikawa H. The small compound, TD-198946, protects against intervertebral degeneration by enhancing glycosaminoglycan synthesis in nucleus pulposus cells. *Sci Rep.* 10 (1),14190, 2020
23. Hashimoto K, Kaito T*, Furuya M, Seno S, Okuzaki D, Kikuta J, Tsukazaki H, Matsuda H, Yoshikawa H, Ishii M. In vivo dynamic analysis of BMP-2-induced ectopic bone formation. *Sci Rep.* 10 (1), 4751, 2020
24. Takenaka S, Kan S, Seymour B, Makino T, Sakai Y, Kushioka J, Tanaka H, Watanabe Y, Shibata M, Yoshikawa H, Kaito T*. Resting-state Amplitude of Low-frequency Fluctuation is a Potentially Useful Prognostic Functional Biomarker in Cervical Myelopathy. *Clin Orthop Relat Res.* 478 (7), 1667-1680, 2020
25. 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 H. Assessment of effects of rhBMP-2 on interbody fusion with a novel rat model. *Spine J.* 20 (5), 821-829, 2020
26. Kitaguchi K, Kashii M, Ebina K, Kaito T, Okada R, Makino T, Etani Y, Ishimoto T, Nakano T, Yoshikawa H. The combined effects of teriparatide and anti-RANKL monoclonal antibody on bone defect regeneration in ovariectomized mice. *Bone.* 130, 115077, 2020
27. Takenaka S, Kaito T*, Ishii K, Watanabe K, Watanabe K, Shinohara A, Harada T, Nakada F, Majima Y, Matsumoto M. Influence of novel design alteration of pedicle screw on pull-out strength: A finite element study. *J Orthop Sci.* 25 (1), 66-72, 2020

