

List of scientific publications

A) Articles in international peer-reviewed journals

Original publications

1. El-Ghannam A, Nakamura M, Muguruza LB, Sarwar U, Hassan M, Fotawi RAI, Horowitz R. Inhibition of osteoclast activities by SCPC bioceramic promotes osteoblast-mediated graft resorption and osteogenic differentiation. *J Biomed Mater Res* 2021: 1–12. Doi: 10.1002/jbm.a.37167
2. Plyusnin A, He J, Elschner C, Nakamura M, Kulkova J, Spickenheuer A, Scheffler C, Lassila LV.J, Moritz N. A Polymer for Application as a Matrix Phase in a Concept of In Situ Curable Bioresorbable Bioactive Load-Bearing Continuous Fiber Reinforced Composite Fracture Fixation Plates. *Molecules* 2021: 26, 1256. Doi: 10.3390/molecules26051256.
3. Nohara K, Itoh S, Akizuki T, Nakamura M, Matsuura T, Fukuba S, Okada M, Izumi Y, Iwata T, Yamashita K. Enhanced new bone formation in canine maxilla by a graft of electrically polarized β -tricalcium phosphate particles. *J Biomed Mater Res. Applied Biomaterials B*: 2020, 108(7), 2820-2826. Doi: 10.1002/jbm.b.34612
4. Luukkonen J, Hilli M, Nakamura M, Ritamo I, Valmu L, Kauppinen K, Tuukkanen J, Lehenkari P. Osteoclasts secrete osteopontin into resorption lacunae during bone resorption. *Histochem Cell Biol* 2019: 151(6):475-487. <https://doi.org/10.1007/s00418-019-01770-y>.
5. Kylmäoja E, Nakamura M, Turunen S, Patlaka C, Andersson G, Lehenkari, P, Tuukkanen J. Peripheral blood monocytes show increased osteoclast differentiation potential compared to bone marrow monocytes. *Heliyon* 2018: 4(9) e00780.
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7. Horiuchi N, Iwasaki Y, Nozaki K, Nakamura M, Hashimoto K, Nagai A, Yamashita K. A critical phenomenon of phase transition in hydroxyapatite investigated by thermally stimulated depolarization currents. *J Am Ceram Soc* 2017: 100 (2), 501-505. Doi: [/10.1111/jace.14620](https://doi.org/10.1111/jace.14620)
8. Wada N, Horiuchi N, Nishio M, Nakamura M, Nozaki K, Nagai A, Hashimoto K, Yamashita K. Crystallization of Calcium Phosphate in Agar Hydrogels in the Presence of Polyacrylic Acid under Double Diffusion Conditions. *Cryst. Growth Des* 2017: 17 (2), 604-611. Doi:[10.1021/acs.cgd.6b01453](https://doi.org/10.1021/acs.cgd.6b01453)
9. Nakamura M, Hori N, Ando H, Namba S, Toyama T, Nishimiya N, Yamashita K. Surface Free Energy Predominates in Cell Adhesion to Hydroxyapatite through Wettability. *Mater Sci Eng C* 2016: 62, 283-292. Doi: 10.1016/j.msec.2016.01.037.
10. Horiuchi N, Wada N, Nozaki K, Nakamura M, Nagai A, Yamashita K. Dielectric relaxation in monoclinic hydroxyapatite: Observation of hydroxide ion dipoles, *J Appl Phys* 2016: 119, 084903. Doi: 10.1063/1.4942236
11. Nakamura M, Hiratai R, Hentunen T, Salonen J, Yamashita K. Hydroxyapatite with High Carbonate Substitutions Promotes Osteoclast Resorption through Osteocyte-like Cells. *ACS Biomater Sci Eng* 2016: 2 (2), 259-267. Doi: 10.1021/acsbiomaterials.5b00509
12. Horiuchi N, Endo J, Wada N, Nozaki K, Nakamura M, Nagai A, Katayama K, Yamashita K. Dielectric properties of fluorine substituted hydroxyapatite: the effect of the substitution on configuration of hydroxide ion chains. *J Mater Chem B* 2015: 3 (33), 6790-6797. Doi: [/10.1039/C5TB00944H](https://doi.org/10.1039/C5TB00944H)
13. Wada N, Horiuchi N, Nakamura M, Nozaki K, Hiyama T, Nagai A, Yamashita K. Controlled calcite nucleation on polarized calcite single crystal substrates in the presence of polyacrylic acid. *J Cryst Growth* 2015: 415, 7-14. Doi: 10.1016/j.jcrysgro.2014.12.027
14. Nozaki K, Shinonaga T, Ebe N, Horiuchi N, Nakamura M, Tsutsumi Y, Hanawa T, Tsukamoto M, Yamashita K, Nagai A. Hierarchical periodic micro/nano-structures on nitinol and their influence on oriented endothelialization and anti-thrombosis. *Mater Sci Eng C Mater Biol Appl* 2015: 12 (57), 1-6. Doi:10.1016/j.msec.2015.07.028

15. Horiuchi N, Tsuchiya Y, Wada N, Nozaki K, Nakamura M, Nagai A, Okura T, Yamashita K. Polarization-assisted surface engineering for low temperature degradation-proof in yttria-stabilized zirconia ceramics. *J Asian Ceram Soc* 2015: 3(2), 156-159. Doi: 10.1016/j.jascer.2015.02.002
16. Nozaki K, Koizumi H, Horiuchi N, Nakamura M, Okura T, Yamashita K, Nagai A. Suppression effects of dental glass-ceramics with polarization-induced highly dense surface charges against bacterial adhesion. *Dent Mater J* 2015: 34(5), 671-678. Doi: 10.4012/dmj.2014-342
17. Nakamura M, Hori N, Namba S, Toyama T, Nishimiya N, Yamashita K. Wettability and surface free energy of polarised ceramic biomaterials. *Biomed. Mater* 2015: 10, 011001. Doi: 10.1088/1748-6041/10/1/011001
18. Nakamura M, Hentunen T, Varaniemi J, Salonen J, Hori N, Yamashita K. Characterization of Human Osteoclast on Different Bioceramics, *K Key Eng. Mater* 2015: 631, 363-366 10.4028/www.scientific.net/KEM.631.363
19. Nakamura M, Kobayashi A, Nozaki K, Horiuchi N, Nagai A, Yamashita K. Improvement of osteoblast adhesion through polarization of plasma-sprayed hydroxyapatite coatings on metal. *J Med Biol Eng* 2014: 34 (1), 44-48. DOI:10.5405/JMBE.1450
20. Hiratai R, Nakamura M, Yamashita K. Role of Collagen and Inorganic Components in Electrical Polarizability of Bone. *J Vet Med Sci* 2014: 76 (20), 205-210. 10.1292/jvms.13-0229
21. Horiuchi N, Endo J, Nozaki K, Nakamura M, Nagai A, Katayama K, Yamashita K. Dielectric evaluation of fluorine substituted hydroxyapatite. *J Ceram Soc Japan* 2013: 121 (1417), 770-774. doi: 10.2109/jcersj2.121.770
22. Wada N, Mukougawa K, Horiuchi N, Hiyama T, Nakamura M, Nagai A, Okura T, Yamashita K. Fundamental electrical Properties of ceramic Electrets, *Mater Res Bull* 2013: 48, 3854-3859. doi: 10.1016/j.materresbull.2013.05.105
23. Wada, N, Horiuchi N, Hiyama T, Nakamura M, Nagai A, Yamashita K. Effect of Polyacrylic Acid and Polarization on the Controlled Crystallization of Calcium Carbonate on Single-Phase Calcite Substrates, *Cryst. Growth Des* 2013 : 136 (7), 2928-2937. doi : 10.1021/cg400337m
24. Nakamura M, Toyama T, Morita A, Horiuchi N, Nozaki K, Nagai A, Yamashita K. Electric poling of cement composites of hydroxyapatite whiskers with chitosan and their chemical properties in simulated body fluid. *J Ceram Soc Jpn* 2013: 121 (10), 1-6. doi: 10.2109/jcersj2.121.895
25. Nakamura M, Hentunen T, Salonen J, Nagai A, Yamashita K. Characterization of bone mineral-resembling biomaterials for optimizing human osteoclast differentiation and resorption. *J Biomed Mater Res A*, 2013: 101A (11), 3141-3151. doi: 10.1002/jbm.a.34621
26. Nagai A, Horiuchi N, Nozaki K, Nakamura M, Yamashita K. Quantitative Evaluation of the Hydrophilic Properties of Polarized Hydroxyapatite, *Ceram Trans* 2013: 242, 103-112. Doi: 10.1002/9781118751015.ch12
27. Nakamura M, Nagai A, Yamashita K. Surface Electric Fields of Apatite Electret Promote Osteoblastic Responses. *Key Eng. Mater.* 2013: 529-530, 357-360. Doi: 10.4028/www.scientific.net/KEM.529-530.357
28. Horiuchi N, Nakamura M, Nagai A, Yamashita K. Drug Adsorption Property of Surfaces of Polarized Calcium Phosphate Powders. *Key Eng Mater* 2013: 566, 302-305. Doi: 10.4028/www.scientific.net/KEM.566.302
29. Tsuchiya Y, Horiuchi N, Nakamura M, Nozaki K, Nagai A, Hashimoto K, Yamashita K. Effect of polarization treatment time on inhibition of low temperature degradation in Y-doped ZrO₂, *Key Eng Mater* 2013: 529-539, 601-604. Doi: 10.4028/www.scientific.net/KEM.529-530.601
30. Hiratai R, Nakamura M, Nagai A, Yamashita K. The Storing Properties of Electric Energy in Bone. *Key Eng Mater* 2012: 493-494, 170-174. Doi: 10.4028/www.scientific.net/KEM.493-494.170
31. Nakamura M, Horiuchi N, Nagai A, Yamashita K. Electrical Polarization Depresses Low Temperature Degradation and Promotes Bioactivity of Chemically Treated Yttria-Stabilized Zirconia. *Key Eng Mater* 2012: 493-494, 11-15. Doi: 10.4028/www.scientific.net/KEM.493-494.11
32. Nakamura M, Yamashita K. Polarization Effect on Wettability of Bioceramic Electrets. *IEEE Trans Dielectr Electr Insul* 2012: 19(4), 1247-1252. Doi: 10.1109/TDEI.2012.6259998
33. Nakamura M, Inuzuka M, Hashimoto K, Nagai A, Yamashita K. Polarized Yttria-stabilized zirconia

- improves durability and apatite formation in simulated body fluid. *Phosphorus Res Bull* 2012: 26, 77-80. doi: 10.3363/prb.26.77
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35. Watarai T, Nakamura M, Horiuchi N, Nagai A, Hashimoto K, Yamashita K. Sintering condition and osteoclast behaviors of the carbonate apatite ceramics. *Phosphorus Res Bull* 2012: 27, 45-49. doi: 10.3363/prb.27.45
36. Mukougawa K, Wada N, Horiuchi N, Nakamura M, Nagai A, Okura T, Yamashita K. Surface properties of hydroxyapatite electrets. *Phosphorus Res Bull* 2012: 26, 6-7. Doi: 10.3363/prb.26.6
37. Horiuchi N, Wada N, Nakamura M, Nagai A, Yamashita K. Inhibition of low-temperature degradation on surface and biocompatibility of yttria-stabilized zirconia by electric polarization. *Ceram Trans* 2012: 233, 39-44. Doi: 10.1002/9781118511466.ch19
38. Horiuchi N, Nakamura M, Nagai A, Katayama K, Yamashita K. Proton conduction related electrical dipole and space charge polarization in hydroxyapatite. *J Appl Phys* 2012: 112(7), 074901. Doi: 10.1063/1.4754298
39. Nakamura M, Hiratai R, Yamashita K. Bone mineral as an electrical energy reservoir. *J Biomed Mater Res A* 2012: 100A, 1368-1374. doi: 10.1002/jbm.a.34076
40. Nakamura M, Soya T, Hiratai R, Nagai A, Hashimoto K, Morita I, Yamashita K. Endothelial cell migration and morphogenesis on silk fibroin scaffolds including hydroxyapatite electret. *J Biomed Mater Res A* 2012: 100A, 969-977. Doi: 10.1002/jbm.a.34046
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50. Tanaka Y, Kikuchi M, Tanaka K, Hashimoto K, Hojo J, Nakamura M, Nagai A, Sugiyama T, Munakata F, Yamashita K. Fast oxide ion conduction due to carbonate substitution in hydroxyapatite. *J Am Ceram Soc* 2010: 93 (11), 3577-3579. Doi: 10.1111/j.1551-2916.2010.04105.x
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54. Nakamura M, Nagai A, Hentunen T, Salonen J, Sekijima Y, Okura T, Hashimoto K, Toda Y, Monma H, Yamashita K. Surface Electric Fields Increase Osteoblast Adhesion through Improved Wettability on Hydroxyapatite Electret. *ACS Appl Mater Interfaces* 2009: 1 (10), 2181-2189. Doi: 10.1021/am900341v.
55. Okabayashi R, Nakamura M, Okabayashi T, Tanaka Y, Nagai A, Yamashita K. Efficacy of polarized hydroxyapatite and silk fibroin composite dressing on epidermal recovery from full-thickness porcine skin wounds. *J Biomed Mater Res Applied Biomaterials B* 2009: 90, 641-646. Doi: 10.1002/jbm.b.31329
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57. Wada N, Nakamura M, Tanaka Y, Kanamura K, Yamashita K. Formation of Calcite Thin Films by Cooperation of Polyacrylic Acid and Self-generating Electric Field due to Aligned Dipoles of Polarized Substrates. *J Colloid Interface Sci* 2009: 330, 374-379. Doi: 10.1016/j.jcis.2008.06.063.
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65. Nakamura M, Niwa K, Nakamura S, Sekijima Y, Yamashita K. Interaction of A Blood Coagulation Factor on Electrically Polarized Hydroxyapatite Surfaces. *J Biomed Mater Res. Applied Biomaterials B* 2007: 82, 29-36. Doi: 10.1002/jbm.b.30701.
66. Kobayashi T, Itoh S, Nakamura S, Nakamura M, Shinomiya K, Yamashita K. Enhanced Bone Bonding of Hydroxyapatite-coated Titanium Implants by Electrical Polarization. *J Biomed Mater Res* 2007: 82A, 145-151. Doi: 10.1002/jbm.a.31080
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Reviews

1. Tuukkanen J, Nakamura M. Hydroxyapatite as a nanomaterial for tissue engineering and drug therapy. *Curr Pharm Design*, 2017: 23 (26) 3786-3793. Doi: 10.2174/1381612823666170615105454
2. Kylmäoja E, Nakamura M, Tuukkanen J. Osteoclasts and Remodeling Based Bone Formation. *Curr Stem Cell Res Ther* 2016: 11 (8), 626-633. Doi: 10.2174/1574888x10666151019115724
3. Nakamura M. A study on tissue regeneration of the functionalized bioceramics. *J Ceram Soc Jpn* 2014: 122, 755-761. doi: 10.2109/jcersj2.122.755

B) Articles in peer reviewed international conference proceedings and compilation works

Peer-reviewed international congress proceedings

1. Tanaka Y, Yoshida M, Nakamura M, Nagai A, Hashimoto K, Toda Y, Yamashita K. Biocompatibility and water durability of alumina-zirconia ceramics blended with a small amount of HA particles. *Arch BioCeram Res* 2009: 9, 79-82.
2. Nakamura M, Nagai A, Okura T, Monma H, Sekijima Y, Hentunen T, Yamashita K. Polarization increases osteoblastic adhesion through improved wettability on hydroxyapatite. *Arch BioCeram Res* 2009: 9, 135-138.
3. Nakamura M, Soya T, Okabayashi R, Nagai A, Hashimoto K, Toda Y, Morita I, Yamashita K. Evaluation of Endothelial Cell Behaviors on Silk Fibroin Films Including Polarized Hydroxyapatite. *Proc. 22nd International Symposium on Ceramics in Medicine, Bioceramics 22* 2009: 22, 611-614.
4. Okabayashi R, Nakamura M, Tanaka Y, Nagai A, Yamashita K. Efficacy of polarized hydroxyapatite and silk fibroin composite gel on skin wounds in vivo. *22nd International Symposium on Ceramics in Medicine, Bioceramics 22* 2009: 22, 619-622.
5. Kumada M, Nakamura M, Nakamura S, Sekijima Y, Moriyoshi Y, Salonen JI, Yamashita K. Manipulation of adhesion and proliferation of *S. mutans* by poled hydroxyapatite. *Arch BioCeram Res* 2005: 5, 79-82.
6. Arai H, Kobayashi T, Nakamura M, Sekijima Y, Nakamura S, Yamashita K. Effective cell adhesion

and proliferation on electrically polarized hydroxyapatite surfaces in body fluid. Arch BioCeram Res 2005: 5, 71-74.

7. Nakamura S, Nakamura M, Kobayashi T, Sekijima Y, Yamashita K. Osteoconductive mechanism of electrically poled hydroxyapatite ceramics. Trans Mater Res Soc Jpn 2004: 29(6), 2887-2890.
8. Obata A, Nakamura S, Nakamura M, Sekijima Y, and Yamashita K. Surface Reaction Regulation of Bioactive Glass by Induced Charge. Arch Bioceram Res; 2003: 3, 364-367.
9. Nakamura M, Sekijima Y, Kobayashi T, Obata A, Nakamura S, Yamashita K. Molecular Biologic Detections of Cell Activation Related Proteins on Biomaterial. Proc 2nd Asian Bioceram 2002: 2, 57-60.

C) Monographs: N/A

D) Other scientific publications

National peer-reviewed articles (in Japanese)

1. Nakamura M, Yamashita K. Control of biomineralization by inorganic electret. The Earth, 31 (1), 49056, 2017. (in Japanese)_ISSN : 0387-3498
2. Nakamura M, Yamashita K. Functionalization of bioceramics by polarization. FC report, 35 (2), 52-57, 2017. (in Japanese) ISSN : 0911-5269
3. Nakamura M, Yamashita K. Functionalization of bioceramics. PHOSPHORUS LETTER, 88, 402-409, 2017. (in Japanese) issn: 0917-9976
4. Kohata K, Horiuchi N, Ito S, Yamashita K, Nakamura M. Categorization of the pattern of electrical charges in bone. J Jpn Bio-Electr Phys Stimu Res Soc. 2015: 49: 37-40. 1882-1014
5. Horiuchi N, Wada N, Nakamura M, Ngai A, Yamashita K. Materials Science and application of vector materials. J. Jpn. Soc. Powder Powder Metall. 2011: 58(5), 287-296. Doi: <https://doi.org/10.2497/jjspm.58.287>
6. Yamashita K, Nakamura M, Okabayashi R, Wang F, Tanaka Y, Nagai A, Ito S. Electrical properties of bone. J Jpn Bio-Electr Phys Stimu Res Soc. 2008: 22: 15-19. ISSN : 1882-1014
7. Ito S, Kobayashi T, Nakamura S, Nakamura M, Shinomiya K, Yamashita K. Effects of electrical polarization treatment on osteobonding of titanium implants coated with hydroxyapatite. Orthopaedic Ceram. Implants 2007: 26, 9-11. 02892855
8. Ito S, Shinomiya K, Nakamura S, Nakamura M, Yamashita K. Effects of electrical polarization treatment on osteobonding of porous hydroxyapatite. J Jpn Bio-Electr Phys Stimu Res Soc. 2007: 21, 11-15. 18821014
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10. Nakamura M, Nakamura S, Sekijima Y, Kobayashi T, Yamashita K. Effects of polarized hydroxyapatite on early phase of bone healing process. Orthopaedic Ceram. Implants 2006: 25, 3-6. 02892855
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12. Nakamura M, Nakamura S, Sekijima Y, Kobayashi T, Yamashita K. Control of activation of blood coagulation factors by polarized hydroxyapatite. J Stomatol Soc Jpn. 2005: 72 (2), 192. 03009149, <https://doi.org/10.5357/koubyou.72.192>
13. Nakamura M, Sekijima Y, Nakamura S, Yamashita K. Inorganic pyrophosphate and mineralization. Phosphorus Letter 2003: 48: 27-30. 0917-9976

E) Other publications (text books, articles for the general public etc.), patents, software, talks, guest lectures, radio and TV programmes etc.

Textbooks (in English)

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