

Division of Geriatric Dentistry
Department of Human Biology and Pathophysiology

Outline

More over a quarter of the total Japanese population are the elderly. It has become much more important to advance the research of geriatric dentistry. Our major research topics are to understand aging of stomatognathic system, to study causes, pathology, symptoms and diagnosis of deterioration of oral function and dysphagia, and to learn the treatment methods for both. We perform translational research based on biological and epidemiological approaches in the field of geriatric dentistry. Our ongoing research projects are shown below.

Faculty members

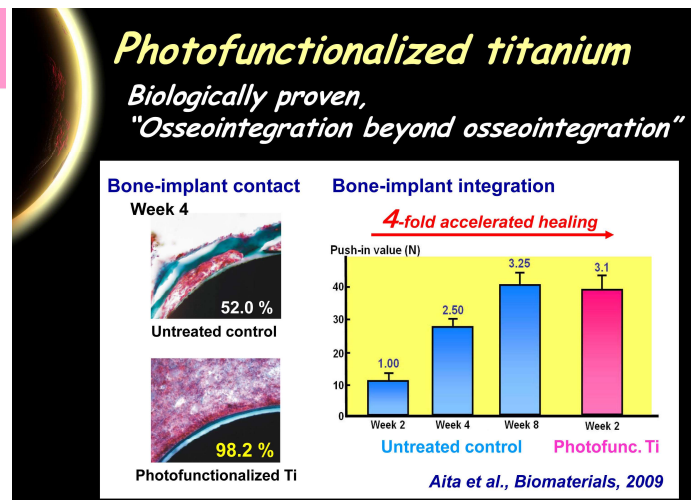
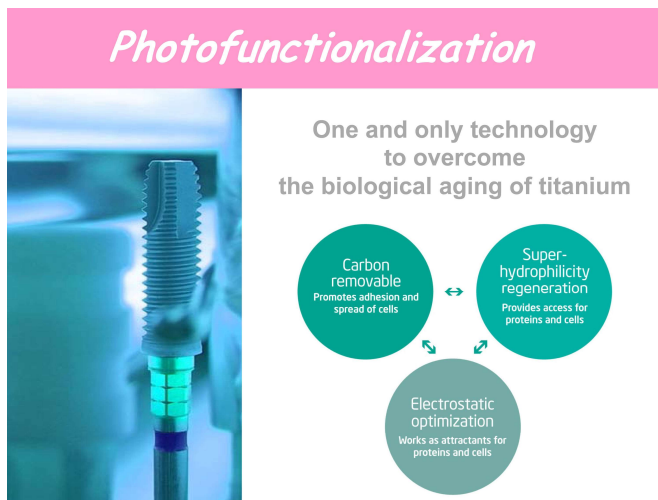
Professor;	Hideki Aita D.D.S., Ph.D.
	Tomofumi Kawakami D.D.S., Ph.D. (Concurrent post)
Assistant professor/full-time lecturer ;	Shin Tsukagoshi D.D.S., Ph.D
Assistant professor/research associate ;	Hikari Odachi D.D.S.
Clinical instructor;	Syuhei Kemuriyama D.D.S., Ph.D.
	Kenji Iida D.D.S.



Chair: Hideki AITA

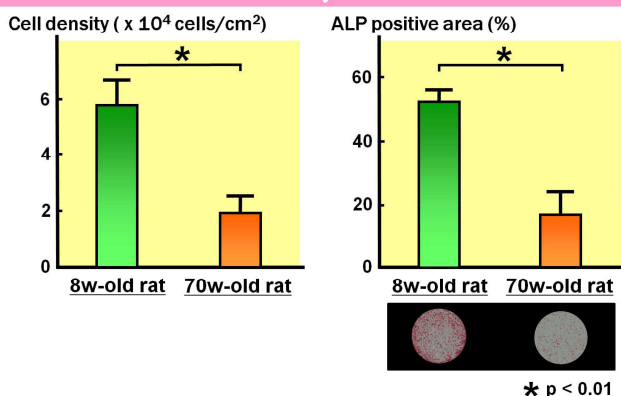
Main research in progress

1) Translational research on biofunctionalization of titanium

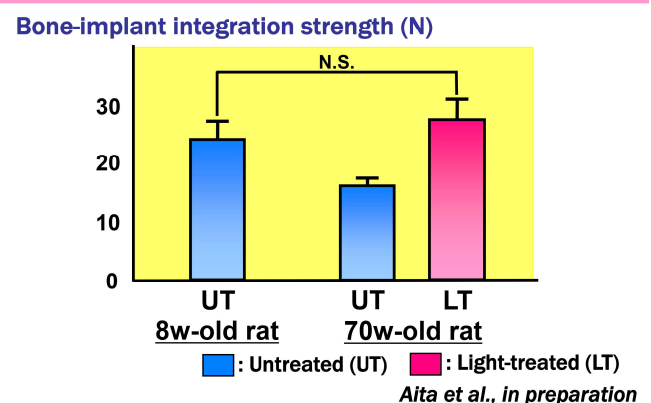


<https://ogawalabteamsurface.dentistry.ucla.edu/>

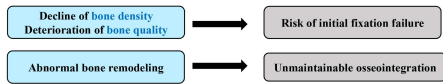
Aging of host decreases the activity of osteoblasts



Photofunctionalization can compensate for age-related impaired osteoblastic response



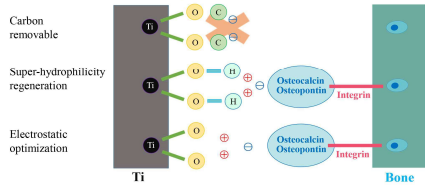
Risks of osteoporosis in implant treatment



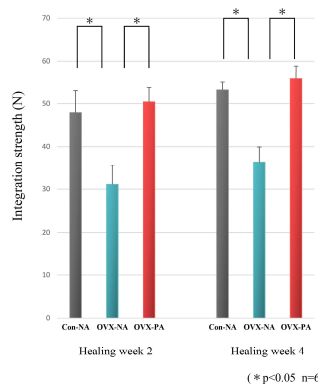
Osseointegration (Untreated control implant)



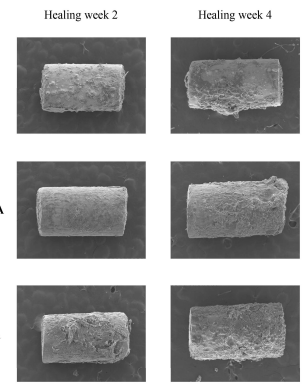
Osseointegration (Photofunctionalized implant)



Biomechanical push-in test



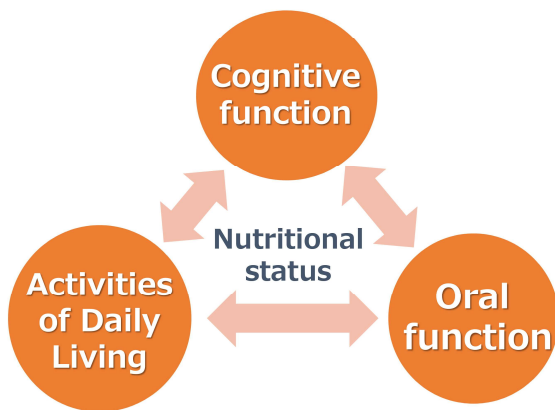
SEM observation



Kemuriyama et al., submitted

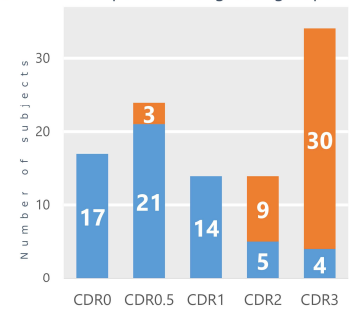
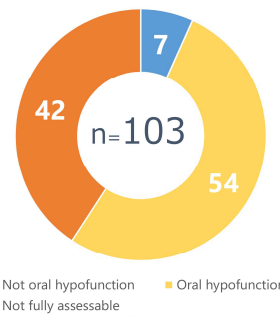
- Effect of home-visit dental treatment for the elderly on the maintenance of dentition and stomatognathic function
- Relationship between stomatognathic function and cognitive function in the elderly

Study on the predictors of oral functional decline in the institutional elderly



Study on the predictors of oral functional decline in the institutional elderly

- Assessment of oral function 3 or more signs or symptoms → Diagnosed with oral hypofunction
- Assessment of oral function Oral functional assessments compared among CDR groups



Matsue (Alumnae) et al., Japanese Journal of Gerodontology 2021

Current publications

- * Matsue, Aita, Yamada, Kawakami, Hirai. Predictors of deteriorated oral function for older adults in long-term care insurance facilities: Focusing on rinsing ability and activities of daily living evaluated by care providers. Jpn J Gerodontology 36, 227-38, 2021. [published in Japanese]
- * Ichioka, Kado, Aita et al. In vitro evaluation of NaOCl-mediated functionalization of biologically aged titanium surfaces. Dent Mater J 40, 74-83, 2021.
- * Kawanishi, Okahashi, Aita et al. Usefulness of the newly developed artificial denture plaque for practical denture care training. Clin Exp Dent Res 6, 254-265, 2020.
- * Kado, Aita et al. Chemical modification of pure titanium surfaces to enhance the cytocompatibility and differentiation of human mesenchymal stem cells. Dent Mater J 38:1026-35, 2019.
- * Kono, Aita et al. NaOCl-mediated biofunctionalization enhances bone-titanium integration. Dent Mater J 34:537-44, 2015.
- * Minamikawa, Ikeda, Att, Hagiwara, Hirota, Tabuchi, Aita et al. Photofunctionalization increases the bioactivity and osteoconductivity of the titanium alloy Ti6Al4V. J Biomed Mater Res A 102, 3618-30, 2014.
- * Kado, Hidaka, Aita et al. Enhanced compatibility of chemically modified titanium surface with periodontal ligament cells. Applied Surface Science 262, 240-247, 2012.
- * Aita et al. Application of UV light-induced biofunctionalization to titanium implant surface. Bull Kanagawa Dent Coll 39:37-39, 2011.
- * Aita et al. The effect of ultraviolet functionalization of titanium on integration with bone. Biomaterials 30:1015-25, 2009.