

Requests for Collaboration

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<p>Research Interests</p> <ul style="list-style-type: none"> ● Synthetic biopolymer-based hemostat ● Boron delivery system for Neutron Capture Therapy ● Solubilization and cell-specific delivery of water-insoluble drugs by using β-1,3-glucan 	
<p>Creative Achievements in The Application of New and Existing Science and Technology</p> <p>(1) The novel synthetic hemostat was developed as a tissue adhesive hydrogel which comprises a polyaldehyde obtained by introducing an aldehyde group into a branched glucose in a β-1,3-glucan and a polyamine obtained by increasing the molecular weight of a poly-L-lysine.</p> <p>(2) Water-insoluble kojic acid-modified carborane (CKA) is suggested to have boron cluster o-carborane and have affinity for melanocyte. Hydroxypropyl-β-cyclodextrin (HP-β-CD) was used to include CKA in order to increase the water solubility. This water-soluble complex (CKA/HP-β-CD) was evaluated as a novel boron agent for melanoma BNCT. Furthermore, it was found that CKA not only has melanoma specificity but also has metastasis inhibitory effect on melanoma cells.</p> <p>(3) The anti-inflammatory effect on contact dermatitis of the water solubilized 1'-Acetoxychavicol Acetate (ACA) by complexation with β-1,3-glucan isolated from <i>Aureobasidium pullulans</i> black yeast was estimated. Solubilization of ACA by complexation with highly branched β-1,3-glucan was achieved. The effect of anti-inflammatory response of water-soluble ACA complex with β-1,3-glucan was confirmed <i>in vitro</i> and <i>in vivo</i>.</p>	
<p>Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration</p> <ul style="list-style-type: none"> ● Water-insoluble physiologically active compounds requiring delivery system ● Cell-targetable boron compounds for boron neutron capture therapy ● Novel biopolymer-based hydrogel for the hemostat and the anti-adhesion material 	
<p>A List of 5 Key Publications</p> <ul style="list-style-type: none"> • Formation of β-(1,3-1,6)-D-glucan-complexed [70]fullerene and its photodynamic activity towards macrophages, A. Ikeda, M. Akiyama, K. Sugikawa, K. Koumoto, Y. Kagoshima, J. Li, T. Suzuki, <u>T. Nagasaki</u>, <i>Org. Biomol. Chem.</i>, 15, 1990-97 (2017). • Water-solubilization of fullerene derivatives by β-(1,3-1,6)-D-glucan and their photodynamic activities toward macrophages, A. Ikeda, T. Iizuka, N. Maekubo, K. Nobusawa, K. Sugikawa, K. Koumoto, T. Suzuki, <u>T. Nagasaki</u>, and M. Akiyama, <i>Chemistry-An Asian Journal</i>, 12(19), 1069-74 (2017). • Anti-inflammatory effect of water-soluble complex of 1'-acetoxychavicol acetate with highly branched β-1,3-glucan on contact dermatitis, J. Li, Y. Aizawa, K. Hiramoto, E. Kasahara, D. Tsuruta, T. Suzuki, A. Ikeda, H. Azuma, <u>T. Nagasaki</u>, <i>Biomed. Biopharmacoter.</i>, 69, 201-207 (2015). • HVJ-E/importin-β hybrid vector for overcoming cytoplasmic and nuclear membranes as double barrier for non-viral gene delivery, T. Kawazu, H. Kanzaki, A. Uno, H. Azuma, <u>T. Nagasaki</u>, <i>Biomed. Biopharmacoter.</i>, 66, 519-524 (2012). • Tumor accumulation of ϵ-poly-lysines-based polyamines conjugated with boron clusters, M. Umamo, K. Uechi, T. Uriuda, S. Murayama, H. Azuma, A. Shinohara, Y. Liu, K. Ono, M. Kirihata, H. Yanagie, <u>T. Nagasaki</u>, <i>Appl. Radiat. Isot.</i>, 69, 1765-1767 (2011). 	