CURRICULUM VITAE (11 March 2020)

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PUBLICATIONS:
(A) BIOGEOCHMISTRY

1. Y. Tani*, N. Miyata, K. Iwahori, M. Soma, S. Tokuda, H. Seyama and B.K.G. Theng, Biogeochemistry of manganese oxide coatings on pebble surfaces in the Kikukawa River System, Shizuoka, Japan. *Applied Geochemistry* **18**(10), 1541-1554 (2003).
2. N. Miyata, Y. Tani, K. Iwahori and M. Soma Enzymatic formation of manganese oxides by an *Acremonium*-like Hyphomycete fungus, strain KR21-2. *FEMS Microbiology Ecology* **47**(1), 101-109 (2004).
3. Y. Tani*, M. Ohashi, N. Miyata, H. Seyama, K. Iwahori and M. Soma, Sorption of Co(II), Ni(II) and Zn(II) ions on biogenic manganese oxide produced by a Mn-oxidizing fungus, strain KR21-2. *The Journal of Environmental Science and Health, Part A* **39**(10), 2641-2660 (2004).
4. Y. Tani*, N. Miyata, M. Ohashi, T, Ohnuki, H. Seyama, K. Iwahori and M. Soma, Interaction of inorganic arsenic with biogenic manganese oxide produced by a Mn-oxidizing fungus, strain KR21-2. *Environmental Science and Technology* **38**(24), 6618-6624 (2004).
5. N. Miyata, K. Maruo, Y. Tani, H. Tsuno, H. Seyama, M. Soma, and K. Iwahori, Production of Biogenic Manganese Oxides by Anamorphic Ascomycete Fungi Isolated from Streambed Pebbles, *Geomicrobiology Journal* **23**, 63-73 (2006).
6. N. Miyata, Y. Tani, K. Maruo, H. Tsuno, M. Sakata, and K. Iwahori, Manganese(IV) oxide production by *Acremonium* sp. Strain KR21-2 and extracellular Mn(II) oxidasa activity. *Applied and Environmental Microbiology* **72**(10), 6467-6473 (2006).
7. K. Tanaka, F. Akagawa, K. Yamamoto, Y. Tani, I. Kawabe and T. Kawai: Rare earth element geochemistry of Lake Baikal sediment: Its implication for geochemical response to climate change during the Last

Glacial/Interglacial Transition. *Quaternary Science Review* **26**, 1362-1368 (2007).

8. N. Miyata, D. Sugiyama, Y. Tani, H. Tsuno, H. Seyama, M. Sakata and K. Iwahori, Production of biogenic manganese oxides by repeated-batch cultures of laboratory microcosms. *Journal of Bioscience and Bioengineering* **103**(5), 432-439 (2007).
9. N. Miyata, Y. Tani, M. Sakata, and K. Iwahori, Microbial Manganese oxide formation and interaction with toxic metal ions, *Journal of Bioscience and Bioengineering* **104**(1), 1-8 (2007).
10. H. Seyama, Y. Tani, N. Miyata, M. Soma and K. Iwahori, Characterization of pebble surfaces coated with biogenic manganese oxides by SIMS, XPS and SEM. *Applied Surface Science* **255**, 1509-1511 (2008).
11. K. Tanaka, Y. Tani, Y. Takahashi, M. Tanimizu, Y. Suzuki, N. Kozai, T. Ohnuki, A specific Ce oxidation process during sorption of rare earth elements on biogenic Mn oxide produced by *Acremonium* sp. strain KR21-2. *Geochimica et Cosmochimica Acta* **74**, 5463-5477 (2010).
12. S. Grangeon, B. Lanson, N. Miyata, Y. Tani and A. Manceau, Structure of nanocrystalline phyllomanganates produced by freshwater fungi, *American Mineralogist* **95**, 1608-1616 (2010).
13. K. Tanaka, Y. Tani, T. Ohnuki, Specific sorption behavior of actinoids on biogenic Mn oxide, *Chemistry Letters*, **40**(8) , 806-807 (2011).
14. J. Watanabe, Y. Tani*, N. Miyata, H. Seyama, S. Mitsunobu, H. Naitou, Concurrent sorption of As(V) and Mn(II) during biogenic manganese oxide formation. *Chemical Geology* **306**-**307**, 123-128 (2012).
15. N. Miyata, Y. Tani, Microbial manganese(II) oxidation: A potential tool for treatment of metal-contaminated waters, In *Handbook of Metal Biotechnology: Applications for Environmental Conservation and Sustainability*, M. Ike, M. Yamashita, S. Soda (eds.) Chapter 1, p1-10, Pan Stanford Publishing Pte. Ltd.(2012).
16. J. Watanabe, Y. Tani*, J. Chang, N. Miyata, H. Naitou, H. Seyama, As(III) oxidation kinetics of biogenic manganese oxides formed by *Acremonium strictum* strain KR21-2. *Chemical Geology* **347**, 227-232 (2013).
17. J. Chang, Y. Tani*, H. Naitou, N. Miyata, H. Seyama, Fungal Mn oxides supporting Mn(II) oxidase activity as effective Mn(II) sequestering materials. *Environmental Technology* **34**, 2781-2787 (2013).
18. J. Chang, Y. Tani*, H. Naitou, N. Miyata, H. Seyama, K. Tanaka, Cobalt(II) sequestration on fungal biogenic manganese oxide enhanced by manganese(II) oxidase activity. *Applied Geochemistry* **37**, 170-178 (2013).
19. K. Iwahori, J. Watanabe, Y. Tani, H. Seyama, N. Miyata, Removal of heavy metal cations by biogenic magnetite nanoparticles produced in Fe(III)-reducing microbial enrichment cultures. *Journal of Biosience and Bioengineering* **117**, 333-335 (2014).
20. H. Naitou, Y. Tani, S. Nishi, Verification of Drainage Sterilization System that Uses Low-Voltage Pulsed Electric Field in a Prawn Farm. *Journal of Agricultural Science and Technology* **A4**, 189-196 (2014).
21. J. Chang, Y. Tani*, H. Naitou, N. Miyata, H. Seyama, Zn(II) sequestration by fungal biogenic manganese oxide through enzymatic and abiotic processes. *Chemical Geology* **383**, 155-163 (2014).
22. J. Chang, Y. Tani*, H. Naitou, N. Miyata, H. Seyama, Sequestration of Cd(II) and Ni(II) on fungal manganese oxides associated with Mn(II) oxidase activity. *Applied Geochemistry* **47**, 198-208 (2014).
23. D. Inthorn, Y. Tani*, J. Chang, H. Naitou, N. Miyata, Magnetically modified fungal Mn oxides with high sequestration efficiency for simultaneously removing multiple heavy metal ions from wastewater. *Journal of Environmental Chemical Engineering* **2**, 1635-1641 (2014).
24. Q. Yu,, T. Ohnuki, K. Tanaka, N. Kozai, S. Yamasaki, F. Sakamoto, Y. Tani: Fungas-promoted transformation of lanhtanides during the biooxidation of divalent manganese. *Geochimica et Cosmochimica Acta* **174**, 1-12 (2016).
25. H. Zheng, Y. Tani*, H. Naitou, N. Miyata, F. Tojo: Oxidative Ce^{3+} sequestration on fungal manganese

oxides with an associated Mn(II) oxidase activity. Applied Geochemistry **71**, 110-122 (2016).

26. H. Zheng, Y. Tani*, H. Naitou, N. Miyata, F. Tojo, H. Seyama: Sequestration of La^{3+} by fungal manganese oxides and the effect of Mn(II) oxidase activity. *Journal of Environmental Chemical Engineering* **5**, 735-743 (2017).
27. R. Grandbois, C. Yeager, Y. Tani, C. Xu, S. Zhang, M. Beaver, K. Schwehr, D. Kaplan, P. Santschi, Biogenic manganese oxides facilitate iodide oxidation at pH ≤ 5, *Geomicrobiology Journal*, **35**, 167-173 (2018).
28. Q. Yu, K. Tanaka, N. Kozai, F. Sakamoto, Y. Tani, T. Ohnuk: Adsorption of Cs onto biogenic birnessite: effects of layer structure, ionic strength, and competition cations. *ACS Earth and Space Chemistry* **2**、797-810 (2018).
29. R. Suzuki, Y. Tani*, H. Naitou, N. Miyata, K. Tanaka: Sequestration and oxidation of Cr(III) by fungal Mn oxides with Mn(II) oxidizing activity. *Catalysts* **10**(1), 44(15 pages), (2020). doi:10.3390/catal10010044

(B) PALEOLIMNOLOGY and LAKE ECOSYSTEM

1. Y. Tani, K. Kurihara, F. Nara, N. Itoh, M. Soma*, Y. Soma, A. Tanaka, M. Yoneda, M. Hirota and Y. Shibata, Temporal changes in the phytoplankton community of the southern basin of Lake Baikal over the last 24,000 years recorded by photosynthetic pigments in a sediment core. *Organic Geochemistry* **33**, 1621-1634 (2002).
2. N. Itoh, Y. Tani, T. Nagatani and M. Soma*, Phototrophic activity and redox condition in Lake Hamana, Japan, indicated by sedimentary photosynthetic pigments and molybdenum over the last ~250 years. *Journal of Paleolimnology* **29**, 403-422 (2003).
3. M. Soma, Y. Soma, Y. Tani, N. Itoh, K. Kurihara, F. Nara, A. Tanaka, T. Kawai, Residual photosynthetic pigments in the sediment of Lake Baikal as indicators of phytoplankton history, In *Long Continental Records from Lake Baikal*, K. Kashiwaya (ed.), pp137-160, Springer-Verlag (2003).
4. N. Itoh, Y. Tani and M. Soma*, Sedimentary photosynthetic pigments of algae and phototrophic bacteria in Lake Hamana, Japan: temporal changes of anoxia in its five basins. *Limnology* **4**(3), 139-148 (2003).
5. T. Sakai, K. Minoura*, M. Soma, Y. Tani, A. Tanaka, F. Nara, N. Itoh, and T. Kawai, Influence of climate fluctuation on clay formation in the Baikal drainage basin. *Journal of Paleolimnology* **33**(1), 105-121 (2005).
6. Y. Soma*, N. Itoh, Y. Tani and M. Soma, Sterol composition of steryl chlorin esters (SCEs) formed through grazing of algae by freshwater crustaceans and its relevance to the composition of sedimentary SCEs. *Limnology* **6**(1), 45-51 (2005).
7. F. Nara, Y. Tani, Y. Soma, M. Soma*, H. Naraoka, T. Watanabe, K. Horiuchi, T. Kawai, T. Oda and T. Nakanura, Response of phytoplankton productivity to climate change recorded by sedimentary photosynthetic pigments and other biological indicators in Lake Hovsgol (Mongolia) for the last 23,000 years. *Quaternary International* **136**(1), 71-81 (2005).
8. Y. Soma, Y. Tani, M. Soma, H. Mitake, R. Kurihara, S, Hashimoto, T. Watanabe, and T. Nakamura, Sedimentary steryl chlorine esters (SCEs) and other photosynthetic pigments as indicators of paleolimnological change over the last 28,000 years from the Buguldeika Saddle of Lake Baikal. *Journal of Paleolimnology* **37**, 163-175 (2007).
9. N. Itoh, Y. Tani, Y. Soma and M. Soma, Accumulation of sedimentary photosynthetic pigments characterized by pyropheophytin *a* and steryl chlorine seters (SCEs) in a shallow eutrophic coastal lake (Lake Hamana, Japan). *Estuarine, Coastal and Self Science* **71**, 283-300 (2007).

10. G.I. Matsumoto, H. Suzuki, M. Sato, M. Makishita, Y. Tani, Y. Hase, N. Takamatsu, T. Takemura, and T. Kawai, Paleoenvironmental record of Lake Hovsgol (Mongolia) in northeast Eurasia. *Verhandlung Internationale Vereinigung Limnologie* **30**, 318-322 (2008).
11. Y. Tani*, G.I. Matsumoto, M. Soma, Y. Soma, S. Hashimoto, and T. Kawai, Photosynthetic pigments in sediment core HDP-04 from Lake Hovsgol, Mongolia, and their implication for changes in algal productivity and lake environment for the last 1 Ma, *Quaternary International* 205, 74-83(2009).
12. Y. Tani*, F. Nara, Y. Soma, M. Soma, N. Itoh, G.I. Matsumoto, A. Tanaka, and T. Kawai, Phytoplankton assemblage in the Plio-Pleistocene record of Lake Baikal as indicated by sedimentary steryl chlorin esters, *Quaternary International* **205**, 126-136 (2009).
13. G.I. Matsumoto, Y. Tani, K. Seto, T. Tazawa, M. Yamamuro, T. Watanabe, T. Nakamura, T. Takemura, S. Imura and H. Kanda, Holocene paleolimnological changes in Lake Skallen O-ike of the Syowa Station area in Antarctica estimated from organic components in a sediment core (Sk4C-02). *Journal of Paleolimnology*, **44**, 677-693 (2010).
14. K. Kusunoki, M. Sakata, Y. Tani, Y. Seike, K. Ayukawa, Evaluating the contribution of long-range transport of heavy metals from the Asian Continent to their concentrations in sediment cores from Lake Shinji, western Japan. Water, Air and Soil Pollution **223**, 1151-1160 (2012).
15. K. Kusunoki, M. Sakata, Y. Tani, Y. Seike and K. Ayukawa, Analysis of historical trend of carotenoid concentrations in sediment cores from Lake Shinji, Japan. *Geochemical Journal* **46**, 225-233 (2012).
16. N. K. Tsugeki, T. Agusa, S. Ueda, M. Kuwae, H. Oda, S. Tanabe, Y. Tani, K. Toyoda, W. Wang, J. Urabe, Eutrophication of mountain lakes in Japan due to increasing deposition of anthropogenically-produced dust. *Ecological Research* 27, 1041-1052 (2012).
17. M. Kuwae, N. K Tsugeki, T. Agusa, K. Toyoda, Y. Tani, S. Ueda, S. Tanabe, J. Urabe, Sedimentary records of metal deposition in Japanese alpine lakes for the last 250 years: Recent enrichment of airborne Sb and In in East Asia. *Science of the Total Environment* 442, 189-197 (2013).
18. K. Shichi, H. Takahara Y. Hase, T. Watanabe, F. W. Nara, T. Nakamura, Y. Tani, T. Kawai, Vegetation response in the southern Lake Baikal region to abrupt climate events over the past 33 cal kyr. *Palaeogeography, Palaeoclimatology, Palaeoecology* 375, 70-82 (2013).
19. G.I. Matsumoto, E. Honda, K. Seto, Y. Tani, T. Watanabe, S. Ohtani, K. Kashima, T. Nakamura and S. Imura: Holocene paleolimnological changes of Lake Oyako-ike in the Soya Kaigan of East Antarctica, Inland Waters 4, 105-112 (2014).
20. N.K. Tsugeki, M. Kuwae, Y. Tani, X. Guo., K. Omori, H. Takeoka, Temporal variations of phytoplankton abundance over the past 150 years in the western Seto Inland Sea, Japan. *Journal of Oceanography* **73**, 309-320 (2017).
21. N. Katsuta, G. I. Matsumoto, Y. Tani, E. Tani, T. Murakami, S. Kawakami, T. Nakamura, M. Takano, E. Matsumoto, O. Abe, M. Morimoto, T. Okuda, S. K. Krivonogov, T. Kawai: A higher moisture level in the early Holocene in northern 1 Mongolia as evidenced from sediment records of Lake Hovsgol and Lake Erhel. *Quaternary International* **455**, 70-81, (2017).
22. N. Katsuta, H. Ikeda, K. Shibata, Y. Kokubu, T. Murakami, Y. Tani, M. Takano, H. Seyama, T. Nakamura, A. Tanaka, S. Naito, S. Ochiai, Koji Shichi, S. Kawakami, T. Kawai: Hydrological and climate changes in southeast Siberia over the last 33 kyr , *Global and Planetary Change* **164**, 11-26 (2018).
23. N. Katsuta, M. Takano, N. Sano, Y. Tani, S. Ochiai, S. Naito, T. Murakami, M. Niwa, S. Kawakami: Quantitative μ-XRF scanning spectroscopy of wet sediment based on the X-ray absorption and emission theories: its application to freshwater lake sedimentary sequences. *Sedimentology* **66**(6), 2490-2510 (2019).

(C) ELECTROANALITICAL CHEMISTRY

1. Y. Tani, Y. Umezawa*, K. Chikama, A. Hemmi and M. Soma, Non-stoichiometric dissolution of lanthanum fluoride (LaF_3) and its relevalence to a process of ion-selective charge separation at the soild/solution interface, *Journal of Electroanalytical Chemistry* **378**, 205-213 (1994).
2. K. Iitaka, Y. Tani and Y. Umezawa*, Orthophosphate ion sensor based on a quartz crystal microbalance coated with insoluble orthophosphate salts, *Analytica Chimica Acta* **338**, 77-87 (1997).
3. Y. Tani and Y. Umezawa*, Alkali metal ion-selective electrodes based on relevant alkali metal ion doped manganese oxides, *Mikrochimca. Acta* **129**, 81-91 (1998).
4. Y. Tani, H. Eun and Y. Umezawa*, A cation selective electrodes based on copper(II) and nickel(II) hexacyanoferrates: dual response mechanisms, selective uptake or adsorption of analyte cations, *Electrochimca Acta* **43**, 3431-3441 (1998).
5. Y. Tani, M. Soma, E.G. Harsanyi and Y. Umezawa*, Effect of dissolved oxygen on the response of Cu(II) ion-selective electrodes in metal buffer solutions, *Analytica Chimica Acta* **395**, 53-63 (1999).
6. Y. Tani and Y. Umezawa, Ion-selective electrodes, *Sensor Letters* **3**(2), 99-107 (2005).
7. Y. Tani and Y. Umezawa, Ion-selective adsorption/desorption processes at inorganic materials/solution interfaces as a novel mode for ion sensing, *Analytical Letters* **37** (5), 845-869 (2004).