Assistant Professor
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Background

2006 B. Sci The University of Tokyo, Faculty of Agriculture
2008 M.Sci The University of Tokyo, Graduate School of Agricultural and Life Sciences
2011 Ph.D. The University of Tokyo, Graduate School of Agricultural and Life Sciences
2008-2011 JSPS Research Fellow (DC1)
2011-2012 JSPS Research Fellow (PD, Juntendo University School of Medicine)
2012-2017 Project assistant professor of Biotechnology Research Center, UTokyo
2017-2020 JSPS Research Fellow (RPD, UTokyo)
2020- Assistant professor of Biotechnology Research Center, UTokyo

2012 JSPS Ikushi Prize
2019 JSBBA Award for Young Women Scientists, JSBBA
2019 Achievement Award for Young Scientists, The Foundation of agricultural Sciences of Japan

Research

Microorganisms utilize various metabolic regulation systems to maintain their homeostatis. Focusing on the biosynthesis and metabolism of amino acids and (short chain) fatty acids, we analyze the metabolic regulation through feedback inhibition, transcriptional regulation, and protein-protein interaction. In addition, protein acylation on lysine residues, which is one of the most common post-translational modifications, is considered to be involved in metabolic regulation. We aim to clarify the complex regulatory mechanism of metabolism using biochemical, genetic, and structural biological approach.

Key papers

1. Yoshida A, Yoshida M, Kuzuyama T, Nishiyama M, Kosono S (2019) "Protein acetylation on 2-isopropylmalate synthase from *Thermus thermophilus* HB27." **Extremophiles**, 23: 377-388
2. Yoshida A, Kosono S, Nishiyama M (2018) "Characterization of two 2-isopropylmalate synthase homologs from *Thermus thermophilus* HB27." **Biochem Biophys Res Commun**, 501: 465-470
3. Fujita S, Cho SH, Yoshida A, Hasebe F, Tomita T, Kuzuyama T, Nishiyama M (2017) "Crystal structure of LysK, an enzyme catalyzing the last step of lysine biosynthesis in *Thermus thermophilus*, in complex with lysine: Insight into the mechanism for recognition of the amino-group carrier protein, LysW." **Biochem Biophys Res Commun**, 491: 409-415
4. Shimizu T, Yin L, Yoshida A, Yokooji Y, Hachisuka SI, Sato T, Tomita T, Nishida H, Atomi H, Kuzuyama T, Nishiyama M (2017) "Structure and function of an ancestral-type β-decarboxylating dehydrogenase from *Thermococcus kodakarensis*." **Biochem J**, 474: 105-122
5. Yoshida A, Tomita T, Atomi H, Kuzuyama T, Nishiyama M (2016) "Lysine biosynthesis of *Thermococcus kodakarensis* with the capacity to function as an ornithine biosynthetic system." **J Biol Chem**, 291: 21630-21643
6. Tsujimoto M, Yoshida A, Shimizu T, Tomita T, Ohnishi Y, Kuzuyama T, Nishiyama M (2016) "Aspartate kinase involved in 4-hydroxy-3-nitrosobenzamide biosynthesis in *Streptomyces murayamaensis*." **Biosci Biotechnol Biochem**, 80: 2255-2263
7. Yoshida A, Tomita T, Fujimura T, Nishiyama C, Kuzuyama T, and Nishiyama M (2015) "Structural insight into amino group-carrier protein-mediated lysine biosynthesis: crystal structure of the LysZ·LysW complex from *Thermus thermophilus*." **J Biol Chem**, 290: 235-447
8. Ouchi T, Tomita T, Horie A, Yoshida A, Takahashi K, Nishida H, Lassak K, Taka H, Mineki R, Fujimura T, Kosono S, Nishiyama C, Masui R, Kuramitsu S, Albers SV, Kuzuyama T, and Nishiyama M (2013) "Lysine and arginine biosynthesis mediated by a common carrier protein in *Sulfolobus*." **Nat Chem Biol**, 9: 277-283
9. Yoshida A, Tomita T, Kuzuyama T, and Nishiyama M (2010) "Mechanism of concerted inhibition of $\alpha_2\beta_2$-type hetero-oligomeric aspartate kinase from *Corynebacterium glutamicum*." **J Biol Chem**, 283: 27477-27486
10. Yoshida A, Tomita T, Kono H, Fushinobu S, Kuzuyama T, and Nishiyama M (2009) "Crystal structure of the regulatory subunit of Thr-sensitive aspartate kinase from *Thermus thermophilus*." **FEBS J**, 276: 3124-3136