

微生物サステナビリティ研究センター MiCS国際セミナー

日時：2026年7月13日（月） 14：30～16：30

会場：筑波大学環境防災研究棟 203講義室

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Demethylation of Bioactive Compounds by Human Gut Bacterium *Blautia producta* MRG-PMF1

Gut metabolism of natural products has been extensively studied over the past two decades in my lab because it had been under-investigated, despite its significant health and biocatalytic implications. Our current research mainly focuses on developing new biocatalysts by uncovering novel biochemical conversions in the gut and elucidating their reaction mechanisms. In this lecture, unprecedented ethereal C-O bond cleavage reactions catalyzed by a newly isolated human gut bacterium, *Blautia producta* MRG-PMF1, are presented. These unique bioconversions are mediated by a cobalamin-dependent methyltransferase system comprising four components: methyltransferase 1 (MT1), corrinoid protein (CP), methyltransferase 2 (MT2), and an activating enzyme (AE). The canonical conversion of aryl methyl ethers is catalyzed by the cooperative action of MT1 and CP, but the *O*-demethylase in *B. producta* MRG-PMF1 also converts alkyl aryl ethers and allyl aryl ethers. Our ongoing efforts to unravel the underlying reaction mechanism of this unique reactivity will be discussed.

Keywords: bioactive compound, biocatalyst, *Blautia producta* MRG-PMF1, cobalamin, dietary natural products, ether cleavage, gut metabolism

主催：筑波大学 微生物サステナビリティ研究センター

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