

# 微生物サステイナビリティ研究センター MiCS国際セミナー

日 時：2026年1月19日（月）15:00～17:00

会 場：筑波大学 総合研究棟 A110 公開講義室

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## Gut Metabolism of Natural Products for the Development of Biocatalysts

### Abstract

Gut metabolism of natural products has been investigated recently, due to its significance of the health-related implications. In addition, it holds great potential for the development of new biocatalysts through the discovery of the novel biochemical conversion. By understanding reaction mechanism and utilizing the chemical principle, synthesis of the “unnatural” natural products can be pursued. Focusing on the cleavage of C-C and C-O bonds, the bacteria capable of biotransforming C-glycosides and methyl aryl ether were isolated from human fecal samples. For example, *Dorea* sp. MRG-IFC3 converted puerarin to daidzein, while *Blautia* sp. MRG-PMF1 metabolized various polymethoxyflavones to the phenolic compounds. A Mn-dependent C-deglycosidase has utilized only 3"-oxo-C-glycosides to produce the aglycones and the hexose enediolone monosaccharide. On the other hand, biotransformation of various dietary natural products containing aryl methyl ether groups was mediated by a cobalamin-dependent *O*-demethylase. In this presentation, the biochemical properties of the key enzymes will be explored and their potential utility as a versatile biocatalyst will be discussed.

**Keywords:** allyl/methyl aryl ether, biocatalyst, biomimetic, C-glycoside, gut metabolism, natural products

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