Efficacy of tumor-targeting *Salmonella typhimurium* A1-R against patient-derived orthotopic xenograft (PDOX) malignant tumor mouse models

Takashi Murakami
Department of HBP Surgery, Teikyo University Medical Center
Department of Gastroenterological Surgery, Yokohama City University

Tumor-targeting *Salmonella typhimurium (S. typhimurium)* A1-R, a facultative anaerobe that is an auxotroph of leucine and arginine was developed. The tumor-targeting efficacy of *S. typhimurium* A1-R was demonstrated *in vivo* and *vitro* using several malignant cell lines including melanoma, sarcoma, glioma, breast, pancreatic, colon, cervical, prostate, and ovarian cancers. Our laboratory, AntiCancer, Inc., also developed a patient-derived orthotopic xenograft (PDOX) model by implanting patient-derived malignant tumor fragments into orthotopic sites in mice. We reviewed studies of *S. typhimurium* A1-R against recalcitrant cancers. *S. typhimurium* A1-R was effective against all PDOX tumor models tested and showed stronger efficacies than chemotherapy or molecular-targeting therapy against some tumors. Furthermore, the synergistic efficacy of *S. typhimurium* A1-R when combined with chemotherapeutic agents, molecular-targeting agents, or recombinant methioninase was also demonstrated. We suggest potential clinical uses of this *S. typhimurium* A1-R treatment.

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Takashi Murakami, MD, PhD

Assisitant professor, Department of HBP Surgery, Teikyo University Medical Center
Guest investigator, Department of Gastroenterological Surgery, Yokohama City University

2006	Yamagata University School of Medicine, MD
2006-	Junior resident, Tokyo Medical and Dental University
2008-	Senior resident, Department of Gastroenterological Surgery, Yokohama City University
2014-	Research fellow, Department of Surgery, University of California, San Diego and AntiCancer, Inc.
2017-	PhD, Assistant professor, Department of Gastroenterological Surgery, Yokohama City University
2019-	Assisitant professor, Department of HBP Surgery, Teikyo University Medical Center