Title: The role of efflux pumps in *Bacteroides fragilis* resistance to antibiotics

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Running title: Efflux pumps of *Bacteroides fragilis*

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Abstract

The resistance of *Bacteroides fragilis* to the most antimicrobial agents has been reported in the world. Identification of the microbial resistance mechanisms can play an important role in controlling these resistances. Currently, *B. fragilis* is resistant to most antibiotics. The multi-drug efflux pumps have been shown to underlie the antimicrobial resistance in *B. fragilis* strains. Two types of these efflux pumps including RND and MATE can be regarded as main structures responsible for antibiotic resistance. Therefore, the strategy for suppressing of this efflux system may be useful in the treatment and control of the multidrug-resistant *B. fragilis*. The purpose of this study is to review the *B. fragilis* efflux pumps and their functions in the resistance to antibiotics.

Keywords: Antibiotic resistance, *Bacteroides fragilis,* Drug efflux pumps