

# Dietary milk supplement does not provide a direct selective advantage to commensal SSuT *E. coli* from dairy calves

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Previous studies have shown that dairy calves harbor a high prevalence of commensal *E. coli* that are resistant to streptomycin, sulfadiazine and tetracycline (SSuT). Furthermore, addition of a dietary milk supplement (dried milk, vitamin A, and vitamin D) selects for a higher proportion of SSuT *E. coli* in the calf gut. The mechanism for this selection is unknown, but could be due to (1) direct growth advantages for SSuT strains, or (2) advantages due to changes in the gut microbial community, or (3) advantages due to physiological changes in the calf intestinal lumen. To test the first hypothesis we compared growth curves for SSuT *E. coli* strains, an SSuT-transformed lab strain, and a pansensitive strain. Growth curve experiments were conducted using a BioScreen incubator in a 100-well, static culture format. Addition of milk supplement to growth media (LB) led to increased growth for all strains, but SSuT strains exhibited no apparent advantage over non-SSuT strains. Thus, for the conditions tested herein, there is no evidence for a direct growth advantage in the presence of the milk supplement. This finding should be re-evaluated using test conditions more akin to what would be encountered *in vivo*, but at present there is no evidence that the SSuT strains benefit directly from addition of milk supplement.