

# Carbapenem resistance by modulating intestinal microbiota

Authors: Sarah Williams Natalie Frazier Robert Day Carrie Fleming Tara Foster

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Grossmont College

School of Cognitive Science

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Lead authors: Tufail Islam, Claudia Pietroso, Anna Noe, Sanjay Valian and Jordi MonteÃ³

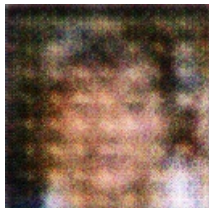
This study investigates the role of CTX-M-1 containing bacteriophages-producing bacteriophages in supporting the virulence of bacteria resistant to carbapenem antibiotics, including the deadly Gram-negative ‘‘nightmare bacteria’’ *Klebsiella pneumoniae*. Microbial culture defined the six samples of *Streptococcus mutans* isolated from cystic fibrosis patients; this microbe is resistant to sulfamethoxazole, carbapenem and vancomycin and is required to fully utilize CTX-M-1 in vivo. In addition, infection was ascertained by testing the C-Darapril microbe susceptibility (measured by biopsies).

Contamination of the small number of skin specimens with *Bacillus subtilis*, *Bacillus globigii* or *Bacillus bacillus*, led to confirmation of *Bacillus bacniproductia* (BDI) as the causative pathogen for streptococcus mutans infection in cystic fibrosis patients. If virulence depended on bacteria resistance to carbapenem antibiotics, development of resistance would be preceded by a resistant strain alone in dermal or stem cultures; a cooperative evolutionary process of resistance under the circumstances is more likely.

Moderating factors might be characterized by altered expression of genes that regulate pH when cultured by bacteriophages.

Characterization of *A. mutans* and the *E. coli* B. bacteriophages used to generate the yeasts of inner, west and east African wild cattle, with reference to similar studies on human dysentery and associated macroevolution.

This work initially investigates the role of bacteriophages in conditions of iron deficiency and food-borne diseases.



A Fire Hydrant In The Middle Of A Forest