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Effect of dietary compounds on bacteriophages and possible repercussion on dysbiosis and risk of cancer

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Phage therapy is gaining momentum as a tool to combat bacterial infections and it is particularly relevant in the context of antibiotic resistance. Natural compounds such as essential oils and tea are used for millennia in popular medicine, and current research is unveiling the molecular role of their anti-microbial properties. However, the effect of these compounds on phages is still poorly understood. A better knowledge of how dietary products can affect phages and, in turn, the whole gut microbiome can help maintain healthy homeostasis, reducing the risk of developing diseases such as acute gastroenteritis or inflammatory bowel disease.

I present a literature review listing natural compounds that affect phages. The vast majority of the nutrients that I identified as active against phages were polyphenolic compounds, particularly flavonoids, but there were also polysaccharides and essential oils. The main consequence that these compounds produced was the inactivation of the phages, but some compounds, such as caffeine, were capable of inducing prophages. I will discuss the mechanism of these compounds' mechanism and how they could help fight bacterial infections.

Keywords: nutrition, cancer, phage, dysbiosis, microbial modulation.

Biography:

Luigi Marongiu have a PhD from UCL, he completed his first postdoctoral position at the University of Cambridge studying noroviral infections and a second at the University of Edinburgh on veterinary viral infections. Currently working at the University of Heidelberg, Medical Faculty in Mannheim assessing the role of viral infections in the development of cancer and metastasis.