

Phage Cd2 and Lactic Acid Bacteria, New Strategies in Food Safety and Quality Preservation

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Oral Presentation Abstract: Lactic Acid Bacteria (LAB) play a key role in the food industry. They are essential for the production of fermented foods and they can also inhibit the growth of pathogenic bacteria, such as *Listeria*, since they naturally produce an array of antimicrobial peptides. However, certain species of LAB, such as *Carnobacteria*, are also associated with food spoilage. As such, the selective control of LAB is an important quest in the food industry. Recently, we isolated bacteriophage cd2, a phage that selectively kills *Carnobacterium divergens*. To better understand the potential use of this phage for the biocontrol of *C. divergens*, we have examined its biochemical and genetic features. Our results indicate that phage cd2 is a virulent phage with an infection cycle of 70 minutes, is fully active across a broad pH range (4-12) and is heat-sensitive (fully inactivated by treated at 60°C). Genome sequencing and analysis shows that the 55 kb genome shares limited homology with several enterococcal phages, and likely encodes ~90 genes. Future work is focused on identifying and studying the mechanisms by which phage cd2 selectively recognizes and kills *C. divergens*.

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