PANGENOME ANALYSIS OF LACTIC ACID BACTERIA STRAINS OBTAINED FROM MARINE ENVIRONMENTS.

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Résumé

The MaOI Institute houses an extensive library of Lactic Acid Bacteria (LAB) strains, known as the Marine Microbe Library. This collection comprises over 6,000 LAB strains, all isolated from diverse marine environments such as seawater, seaweed and seagrass, and the tissues of various marine animals. These marine LAB strains have primarily been supplied to companies in the food industry for the development of new fermented food products.

Globally, most LAB strains have been traditionally isolated from fermented foods or terrestrial environments like plants and soil. In contrast, there have been relatively few studies on LAB isolates from marine environments. It remains uncertain whether marine LAB strains are truly adapted to and established within their marine habitats.

To explore this question, we conducted a pangenome analysis on approximately 1,100 genomes of *Lactiplantibacillus plantarum* strains, including 43 marine LAB strains. The phylogenetic tree derived from this analysis revealed several clusters containing only marine LAB strains(Figure 1). One notable cluster comprised 16 marine LAB strains isolated from various marine environments. These strains shared 198 cloud genes (present in less than 15.0% of strains), which are mostly unique to these strains and are predicted to have roles in diverse cellular processes and metabolic functions.

These findings suggest that marine LAB strains may exhibit unique cellular mechanisms that could offer advantages for industrial applications. Genome sequencing and subsequent analysis of the marine LAB strains are ongoing, and we will present the latest results in our upcoming presentation.

Mots-Clés: Lactic acid bacteria, pangenome analysis, marine microbe

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