

XIX CONGRESO DE LA SOCIEDAD ARGENTINA DE MICROBIOLOGÍA GENERAL

22 al 25 de octubre del 2024

Centro cultural y Pabellón Argentina de la Universidad Nacional de Córdoba, Córdoba, ARGENTINA.



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IDENTIFICATION OF PEPTIDES MEDIATING THE INTERNALIZATION OF FILAMENTOUS M13 BACTERIOPHAGES IN ALVEOLAR EPITHELIAL CELLS

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Cell-penetrating peptides (CPPs) have shown great promise as versatile tools for intracellular delivery owing to their ability to traverse cellular membranes without the need for specific receptor interactions. Employing phage display, we generated a library of random peptides displayed on the surface of filamentous M13 bacteriophages. Through *in vivo* biopanning in murine lung tissue, we isolated sixty bacteriophages presenting unique peptide sequences. Using in-cell ELISA, five bacteriophages (A5R, B12R, B11R, C1R, and C10R) were selected and their intracellular localization was determined by immunofluorescence assays in A549 cells. All five peptides facilitated the internalization of bacteriophages into pulmonary cells. These peptides represent a novel platform for the design of targeted delivery vectors specifically designed for alveolar epithelial cells, with potential applications in the development of therapies for pulmonary diseases.

Palabras clave: Bacteriófagos filamentosos M13 - Biopanning - Células pulmonares. *in vivo* -