

Mucosal vaccine delivery system based on lactic acid bacteria (LAB)

Jagusztyn-Krynicka Elzbieta Katarzyna, Kobierecka Patrycja and Wyszynska Agnieszka
University of Warsaw, Poland

The lactic acid bacteria (LAB), which constitute a very heterogeneous group of Gram-positive, non-sporulating, low-GC-content microorganisms and are ubiquitous in many nutrient rich environments, represent an attractive alternative for vaccinations employing attenuated bacterial pathogens. Apart from live LAB cells also nonliving TCA pretreated LAB cells (GEM particles- grampositive enhancer matrix) deprived of some surface components and intracellular content constitute safe and efficient vaccine delivery vectors for heterologous proteins. There are two strategies used to present heterologous antigens on the surface of LAB cells. The first approach makes use of the C-terminus of cell-anchoring proteins, which contain LPXTG motif. This mechanism requires processing by a sortase for covalent anchoring of the protein to the cell wall peptidoglycan. The second approach is based on PA (protein anchor) domain of some lactococcal proteins such as AcmA, the major autolysin of *Lactococcus lactis* required for cell separation and responsible for cell lysis during the stationary phase of growth. The PA comprises three LysM motifs consisting of about 45 amino acids separated by spacer sequences. After secretion AcmA is directed to the cell wall and its C-terminus determines its non-covalent binding to cell wall peptidoglycan. *Campylobacter* spp., mainly *C. jejuni*, is a leading cause of zoonotic enteric bacterial infections in most developed and developing nations worldwide. An attempt to generate LAB surface display system for *C. jejuni* antigens will be presented.

Biography

Jagusztyn-Krynicka Elzbieta Katarzyna obtained her PhD in 1974 from University of Warsaw. She became full Professor in 2004. She worked twice (1989-1981, a Post-doctoral fellow and 1989 -1991, a senior Research Associate) within Prof. R. Curtiss III group. She is the Head of research group involved in education and research. The group carries out fundamental and applied work on two pathogenic bacteria- *Campylobacter* and *Helicobacter*. She is the Director of the Institute of Microbiology. She has published more than 45 of original research papers published in English in peer-refereed international journals as well as numerous review articles.

e.k.jagusztyn-krynicka@uw.edu.pl; kjkryn@gmail.com