Analysis of the Peptidoglycan Hydrolases of *Listeria monocytogenes*: Multiple Enzymes with Multiple Functions

Magdalena Popowska

Department of Bacterial Physiology, Institute of Microbiology
Faculty of Biology, Warsaw University
Miecznikowa 1, 02-096 Warsaw, Poland
E-mail: magdapop@biol.uw.edu.pl

Abstract

*Listeria monocytogenes* is a ubiquitous gram-positive, rod-shaped, widespread in nature, facultative intracellular human and animal pathogen that causes infections collectively termed listeriosis. *L. monocytogenes* EGD encodes a total of 133 surface proteins, the abundance of which, as well as the variety of anchoring systems, probably reflects the ability of this bacterium to survive in diverse environments and to interact with many kinds of eukaryotic cells. The group of surface proteins also includes proteins with murein hydrolase activity - autolysins. To date, five *L. monocytogenes* autolysins have been identified: p60, P45, Ami, MurA and Auto. These enzymes are involved in numerous cellular processes including cell growth, cell wall turnover, peptidoglycan maturation, cell division and separation, formation of flagella, sporulation, chemotaxis and biofilm formation, genetic competence, protein secretion, the lytic action of some antibiotics and pathogenicity. We have recently identified a putative sixth listerial peptidoglycan-degrading enzyme, which has surprisingly been identified as FlaA, a flagellar protein of *L. monocytogenes*.

Key words: *Listeria monocytogenes*, virulence, cell wall, peptidoglycan hydrolases