

Regulation of Class II Bacteriocin Production in Lactic Acid Bacteria

Luis E. N. Quadri
Weill Medical College of Cornell University
Department of Microbiology and Immunology
New York, NY 10021, USA

Production of ribosomally synthesized antimicrobial peptides is an inducible trait in several Gram-positive bacteria, particularly in those belonging to the group of lactic acid bacteria. In this group of organisms, induction of antimicrobial peptide production requires secretion and extracellular accumulation of peptides that act as chemical messengers and trigger antimicrobial peptide production. These inducer peptides are often referred to as autoinducers and are believed to permit a quorum sensing-based regulation of antimicrobial peptide production. Notably, the peptides acting as autoinducers are the antimicrobial peptides themselves or dedicated peptides with or without antimicrobial activity. The autoinducer-dependent induction of antimicrobial peptide production requires histidine protein kinases and response regulator proteins of two-component signal transduction systems. The current working model for the regulation of class II bacteriocin production in lactic acid bacteria and the experimental evidence supporting the model are discussed in this review.