Abstract
Bacillus subtilis and some of its close relatives have a long history of industrial and biotechnological applications. Search for antigen expression systems based on recombinant B. subtilis strains sounds attractive both by the extensive genetic knowledge and the lack of an outer membrane, which simplifies the secretion and purification of heterologous proteins. More recently, genetically modified B. subtilis spores have been described as indestructible delivery vehicles for vaccine antigens. Nonetheless, both production and delivery of antigens by B. subtilis strains face some inherent obstacles, as unstable gene expression and reduced immunogenicity that, otherwise, can be overcome by already available genetic technology approaches. In the present review, we present the status of B. subtilis-based vaccine research, either as protein factories or delivery vectors, and discuss some alternatives for a better use of genetically modified strains.

Keywords
vaccines, Bacillus subtilis, immunization, protein expression.