

Current efforts and future prospects in the development of live mycobacteria as vaccines

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Resumen

The development of more effective vaccines against *Mycobacterium tuberculosis* (Mtb) remains a major goal in the effort to reduce the enormous global burden of disease caused by this pathogen. Whole-cell vaccines based on live mycobacteria with attenuated virulence represent an appealing approach, providing broad antigen exposure and intrinsic adjuvant properties to prime durable immune responses. However, designing vaccine strains with an optimal balance between attenuation and immunogenicity has proven to be extremely challenging. Recent basic and clinical research efforts have broadened our understanding of Mtb pathogenesis and created numerous new vaccine candidates that have been designed to overcome different aspects of immune evasion by Mtb. In this review, we provide an overview of the current efforts to create improved vaccines against tuberculosis based on modifications of live attenuated mycobacteria. In addition, we discuss the use of such vaccine strains as vectors for stimulating protective immunity against other infectious diseases and cancers.


Palabras clave

Palabras clave de autor: attenuation; autophagy; auxotroph; immune evasion; live vaccine; mycobacterial antigens; *Mycobacterium tuberculosis*; phagosome; pro-apoptotic

KeyWords Plus: BACILLUS-CALMETTE-GUERIN; INVASIVE BLADDER-CANCER; LONG-TERM PROTECTION; GUINEA-PIG MODEL; T-CELL RESPONSES; BOVIS-BCG; PHAGOSOME MATURATION; ANTIGEN-85 COMPLEX; IMMUNE-RESPONSES; PANTOTHENATE AUXOTROPH

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