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Macrophage-specific expression of antimicrobial peptide PR-39 inhibits intracellular growth of BCG in mouse macrophage cells and lung

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Objective To construct an adenovirus expression vector encoding antimicrobial peptide PR39, and to observe its expression and antimicrobial activity in mouse macrophage RAW264.7 cells and lung. Methods Recombinant adenovirus vector pAd-PR39 was used to infect mouse macrophage RAW264.7 cells and lungs and its antimicrobial activity against BCG was detcted. The expression of PR39 gene in mouse macrophage RAW264.7 cells and lungs was detected by immunocytochemistry. Results Recombinant adenovirus Ad-PR39 were infected into macrophage RAW264.7 cells and lung for stable or transient expression of PR-39. PR-39 expression in macrophage cells was subsequently confirmed by immunocytochemistry and showed stronger antibacterial ability against BCG than control group. Conclusion These results demonstrated that macrophage-specific expression of antimicrobial peptide PR-39 in macrophages could inhibit the growth of intracellular BCG and indicated it to be a novel and promising approach for the control of refractory intracellular infection.

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