Improving Mycobacterium bovis bacillus calmette-Guèrin as a vaccine delivery vector for viral antigens by incorporation of glycolipid activators of NKT cells

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 Recombinant Mycobacterium bovis bacillus Calmette-Guèrin (rBCG) has been explored as a vector for vaccines against HIV because of its ability to induce long lasting humoral and cell mediated immune responses. To maximize the potential for rBCG vaccines to induce effective immunity against HIV, various strategies are being employed to improve its ability to prime CD8+T cells, which play an important role in the control of HIV infections. In this study we adopted a previously described approach of incorporating glycolipids that activate CD1d-restricted natural killer T (NKT) cells to enhance priming of CD8+T cells by rBCG strains expressing an SIV Gag antigen (rBCG-SIV gag). We found that the incorporation of the synthetic NKT activating

glycolipid ?-galactosylceramide (?-GC) into rBCG-SIV gag significantly enhanced CD8+T cell responses against an immunodominant Gag epitope, compared to responses primed by unmodified rBCG-SIV gag. The abilities of structural an