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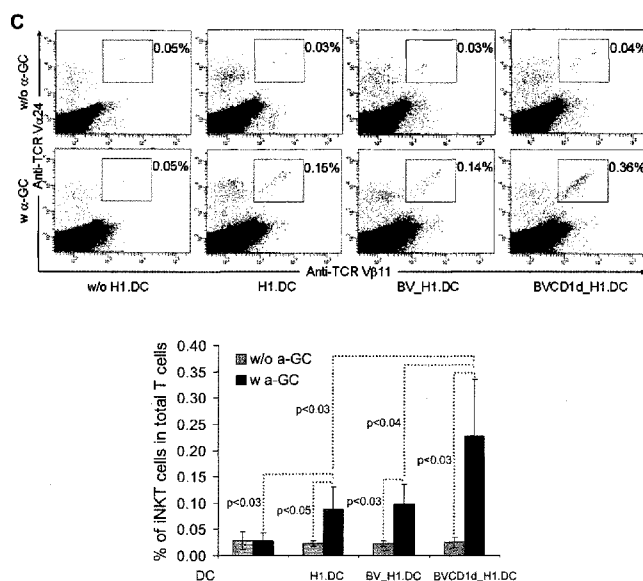
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[Continued on next page]

(54) Title: METHOD OF USING CD1d OVER-EXPRESSION IN HUMAN DENDRITIC CELLS TO ENHANCE CD8+ T CELL-
BASED AND INVARIANT NATURAL KILLER T CELL- BASED ANTITUMOR IMMUNITY

FIGURE 3



(57) Abstract: The manipulation of human dendritic cells (DCs) to induce potent anti-tumor immunity remains an essential subject of study. Here we report that the overexpression of CD1d in human DCs can enhance the priming of naïve CD8+ T cells against tumor antigen. We showed that CD1d can be overexpressed in the human DCs using baculoviral vector carrying the CD1d gene. This CD1d-overexpression is functional as demonstrated by the increased expansion of invariant natural killer T (iNKT) cells while using these modified DCs to present α -galactosylceramide (α -GC). Pulsed with tumor antigenic peptide, these CD1d-overexpressing human DCs showed enhanced capability to prime naïve CD8+ T cells. CD1d-overexpressing human DCs also induced a pro-inflammatory cytokine profile that may favor the priming. Moreover, this CD1d-overexpression strategy can be extrapolated to monocyte-derived human DCs. Therefore, our study suggest that overexpression of CD1d in human DCs may provide a novel strategy to enhance DC immunogenicity and the possible translation into human cancer immunotherapy.



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