HLA-A2-restricted CTL epitope induces anti-tumor effects against human lung cancer in mouse xenograft model

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Abstract:

Cancer immunotherapy is a new option addition to the current standard therapies. The main goal of the cancer immunotherapy is to induce tumor-specific T cells to eliminate cancer cells. The cytotoxic T lymphocytes (CTLs) epitopes-based immunotherapy is one of the major approaches to be used to treat cancer. Tumor-associated antigen L6 (TAL6) has been found that over-expressed in different epithelial cancers. It was recognized as a good target for monoclonal antibody immunotherapy. However, the anti-TAL6 antibody therapy only limited effects in clinical studies. Induction of CTLs responses would be necessary for successful eliminating cancer cells. In our previous studies, we identified a HLA-A2-restricted peptide derived from tumor-associated antigen L6 (TAL6) using breast cancer model. Here, we report that the TAL6-derived CTL epitope immunized with HLA-A2 transgenic mouse could induce CTLs to kill human lung cancer cells. The expression of TAL6 was found in 80 % of lung cancer cell lines and lung cancer tissues. Adoptively transferring the CD8+ T cells of immunized mice inhibited the tumor growth in human lung cancer xenograft mouse model. By combining the chemotherapeutic drugs with the adoptive CD8+ T cells transfer, the synergistic tumor regression was observed. These results demonstrated that TAL6-derived CTL epitope have the potential to treat human lung cancer. The successful results provide a promising strategy for further development of lung cancer immunotherapy in human.

Key words: