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The Expression and Biological Significance of PD-L1 on Lung Cancer Cell Lines

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摘要

Background and objective Tumor-associated PD-L1 expression was recently shown to promote T-cell apoptosis and proposed as a potential mechanism of immune evasion by tumors. On the basis of the ability of tumor-associated PD-L1 to mediate activated T-cell death, it is likely that manipulation of the PD-L1 pathway at defined time points during the development of the T-cell antitumor immune response can enhance the efficacy of T-cell-based immunotherapy. Here, the levels of expression of PD-L1 on lung cancer cell lines and its role in interaction of CTL and target cells was investigated. Methods Human PBMC derived DCs were loaded with apoptotic tumor cells and stimulated by CD40 mAb (5C11). Tumor specific CTL was generated in vitro by autologous T cells co-cultured with mature DCs. Expression of PD-L1 on lung cancer cell lines H1299 and A549 were analyzed by FCM. JAM assay was used to detect the cytolytic activity of CTL with or without blocking PD-L1 by PD-L1 mAb respectively. The concentrations of IFN-? in supernatants from distinct groups were analyzed by ELISA. Results Tumor cells-loaded mature DCs could induce the generation of the tumor specific CTL. Expression of PD-L1 was low on A549 cell, but high on H1299 cell. Blockade of PD-L1 on A549 could not improve cytolytic effect of CTL on target cells and IFN-? production, but fragmentation of H1299 cells and IFN-? production were significantly enhanced by the combination of PD-L1 mAb and CTL. Conclusion Expression of PD-L1 on lung cancer cell line can decrease the cytolytic effect of CTL on target cells.

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