

Killing efficiency affected by mutually modulated PD-1 and PD-L1 expression via NKT-hepatoma cell interactions

Liwei Liu¹, Mingya Yang², Qia Xu³, Yide Qin¹, Bo Liu⁴, Min Zhou⁵, Yan Cheng⁴, and Heming Xu⁴

¹Anhui Medical University

²First Affiliated Hospital of Anhui Medical University

³Anhui Medical University,

⁴The PLA Clinical College(901 Hospital) of Anhui Medical University

⁵Anhui Kedgene Science and Technology Co. Ltd

May 5, 2020

Abstract

Tumour antigens and other lymphocyte-activating factors, such as IFN- γ , can induce PD-1 expression, The combination of PD-1 with PD-L1 has negative effects on activation, proliferation and cytotoxicity of T lymphocytes. The use of a PD-1/PD-L1 blocking strategy has produced some achievements in solid tumours. The immune checkpoints related to blocking therapy ultimately depend on T cells to express an effect. It is unclear Whether interaction between T cells and hepatoma cells on different backgrounds affects PD1 or PDL1 expression,It is also unclear whether there is a difference between the killing effect of knocking out PD-1 receptors and that of blocking the PD-1 pathway with monoclonal antibodies on hepatoma cells with different backgrounds. In this study, the interactions between expression of PD-1/PD-L1 were observed by coculturing umbilical cord blood derived NKT cells with hepatoma cell lines on different backgrounds (MHCC97H,HepG2, SMMC-7721 and Huh-7), Furthermore, the killing effect of NKT cells targeting tumor cells were investigated after knocking out PD-1 on NKT cells or applying monoclonal antibodies to block PD-1. Our results showed that Coculture of hepatoma cells with NKT cells mutually affected the expression of PD-L1 and PD-1;Hepatoma cells in different genetic lines respond to NKT-cell-induced PD-L1 stimulats differently, and those tumor cells with lower PDL1 expression fail to PD1 blocking intervention; The killing effect was more time-efficient with PD-1 knockout than with monoclonal antibody blockade, although it only advanced one or two weeks.

Hosted file

Title Page.doc available at <https://authorea.com/users/307369/articles/438340-killing-efficiency-affected-by-mutually-modulated-pd-1-and-pd-l1-expression-via-nkt-hepatoma-cell-interactions>

Hosted file

Manuscript.doc available at <https://authorea.com/users/307369/articles/438340-killing-efficiency-affected-by-mutually-modulated-pd-1-and-pd-l1-expression-via-nkt-hepatoma-cell-interactions>

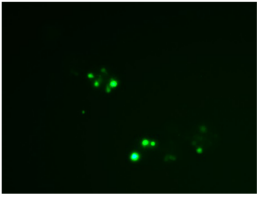
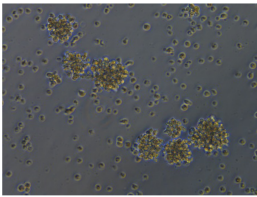


Figure 1a

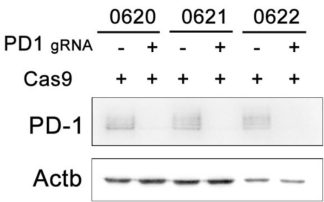


Figure 1b

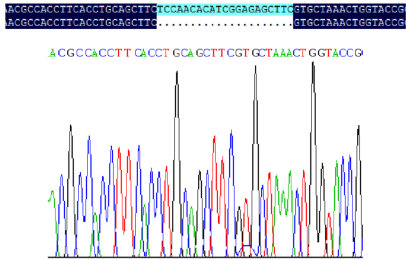
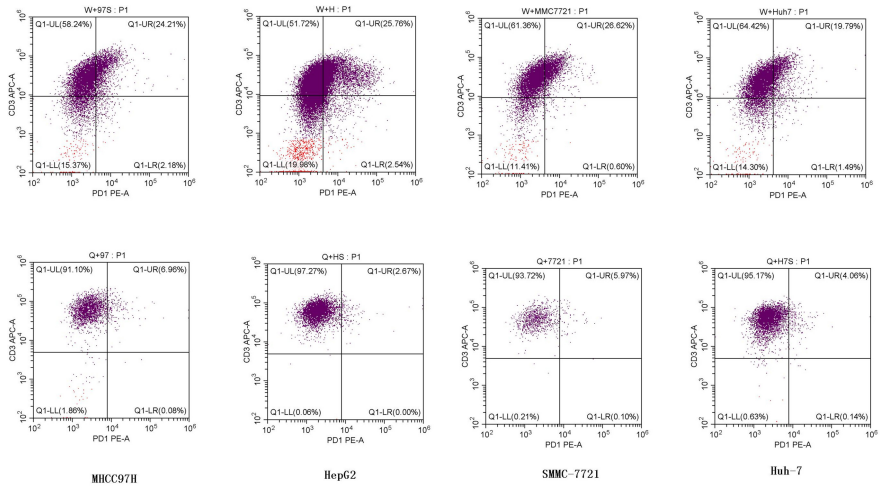
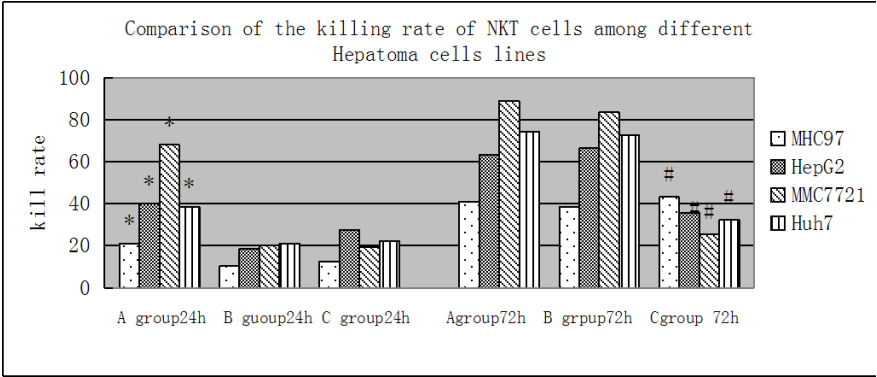
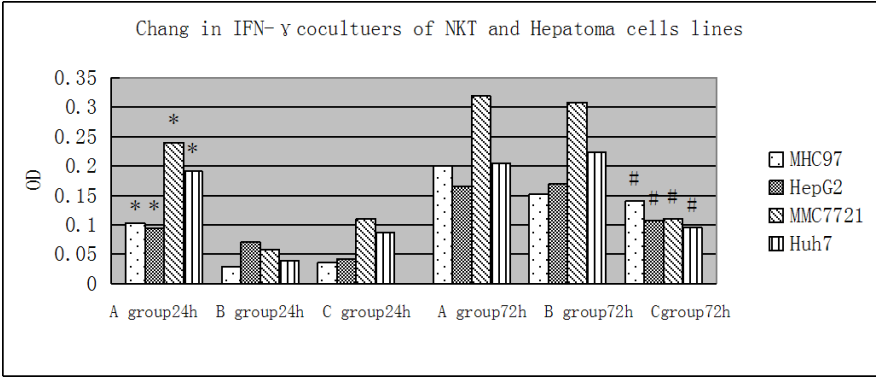
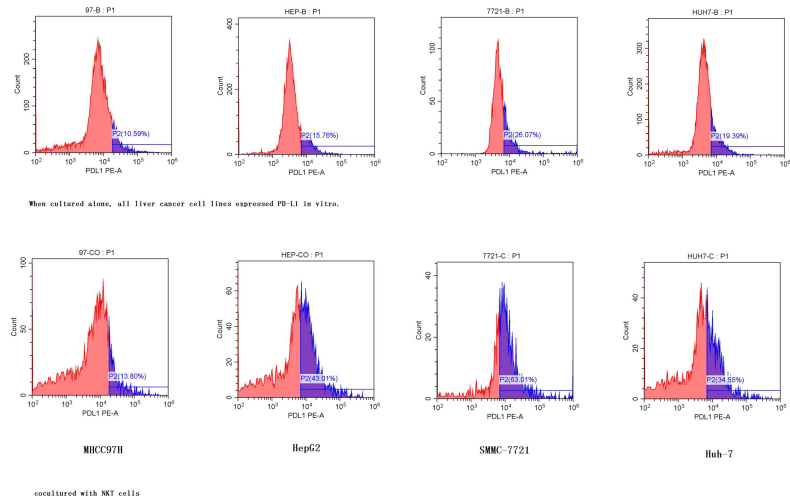
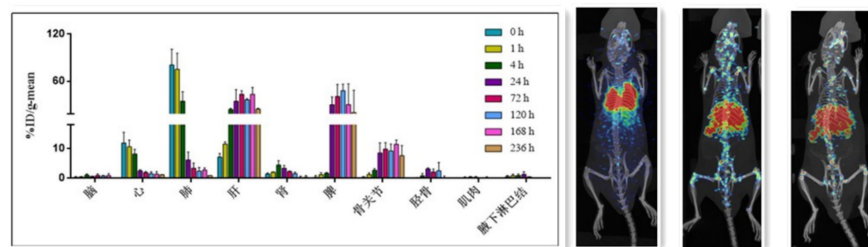


Figure 1c







Hosted file

Table 1.xls available at <https://authorea.com/users/307369/articles/438340-killing-efficiency-affected-by-mutually-modulated-pd-1-and-pd-l1-expression-via-nkt-hepatoma-cell-interactions>

Hosted file

Table 2.xls available at <https://authorea.com/users/307369/articles/438340-killing-efficiency-affected-by-mutually-modulated-pd-1-and-pd-l1-expression-via-nkt-hepatoma-cell-interactions>

