

INTRODUCTION

Human umbilical cord blood (CB) has been ~~successfully utilized~~ used successfully as an alternative to allogeneic bone marrow for ~~the~~ hematopoietic reconstitution in children and adults ~~for with~~ various hematological disorders. This clinical application is used because ~~of~~ CB is readily available and has a rich source of hematopoietic stem cells with highly proliferative capacities, ~~and a rapid availability~~¹⁻³. There are some reports that CB is composed of phenotypically and functionally immature cytotoxic T lymphocytes (CTLs) ~~lymphocytes that are associated~~ with decreased allo-antigen-specific c~~cytotoxicity~~. In comparison to CTLs in peripheral blood, these CB T cells T lymphocytes(CTL), showing the characters of express high levels of CD45RA (a naïve T cell marker) high expression and low levels of CD45RO (an activated T cell marker) ~~low expression on cell surface in CB T cells compared to peripheral blood~~⁴⁻⁷. However, CB T cells have more extensive polyclonal diversity in the complementarity ~~of~~ determining region 3 (CDR3) ~~in of their~~ T cell receptors (TCR) than ~~compared with do~~ adult T cells, that Adult T cells have a more monoclonal profile due to the selection process they have gone through in the thymus⁸⁻⁹.

Immunotherapy with infusion of donor lymphocytes ~~infusion~~ after allogeneic hematopoietic stem cell transplantation, ~~recently~~, has recently provided an effective means of augmenting the graft-versus-tumor (GVT) response to eliminate a variety of tumors¹⁰⁻¹³. Adoptive T cell transfer with from allogeneic and autologous sources ~~was an effective treatment for~~ can augment the regression of tumors and elimination of viral infections, diseases, These adoptively transferred T cells are specific to with the biological capacities of tumor antigens specificity and retain their ability to proliferative proliferate, ability thus maintaining preserving their effector function and homing abilities *in vivo*^{12,14}. In humans, T cell therapy for cancer has been conducted with peripheral blood, tumor infiltrating lymphocytes (TIL), and draining aspirates from lymph nodes, ~~so far~~¹⁵.

Commented [SK1]: Per author guidelines, this section gets no heading.

Commented [SK2]: Check the change here carefully; the original placement of the word "availability" at the end of the sentence indicated that the cells, rather than the blood, have a "rapid availability".

Commented [SK3]: Please check this carefully for accuracy. It seemed inappropriate to say that one would treat the REGRESSION of a tumor or viral infection; since regression means the decreasing of severity of the disease.

Formatted: Font: Italic

Commented [SK4]: Please check this; this means something which is suctioned from a lymph node.