

Thursday, August 10, 2017
9:00-10:00 AM
N-721, Parnassus Campus

Antonio Bertoletti, MD
Duke-Nus Medical School



Immunotherapy with T-cell receptor redirected T cells targeting viral antigen in HBV-related hepatocellular carcinoma

Adoptive transfer of lymphocytes expressing engineered T cell receptors (TCR) is a promising option for cancer treatment and could include hepatocellular carcinoma (HCC), where therapeutic options are limited. Since HBV-DNA integration frequently occurs in HBV-related HCC, we tested whether HBV antigen can be expressed in HCC cells and can be targeted by immune therapeutic strategies. We demonstrated in vitro and animal models that HBV antigens can act as a tumor specific antigen in HBV-related HCC and the ability of HBV-specific TCR redirected T cells to recognize and lyse such tumor cells [1-3]. These T cells genetically modified to express HBV-specific TCR have been used in the treatment of liver transplanted patients with chemoresistant HCC metastasis. The immunological and clinical results obtained in these patients and the immunological strategies that are under development to increase TCR-redirectioned T cell fitness in the liver and tumor microenvironment will be discussed.

References

1. Gehring AJ, Xue S-A, Ho ZZ, Teoh D, Ruedl C, Chia A, et al. Engineering virus-specific T cells that target HBV infected hepatocytes and hepatocellular carcinoma cell lines. *Journal of Hepatology* 2011;55:103–10.
2. Koh S, Shimasaki N, Suwanarusk R, Ho ZZ, Chia A, Banu N, et al. A Practical Approach to Immunotherapy of Hepatocellular Carcinoma Using T Cells Redirected Against Hepatitis B Virus. *Mol Ther Nucleic Acids* 2013;2:e114.
3. Qasim W, Brunetto M, Gehring AJ, Xue S-A, Schurich A, Khakpoor A, et al. Immunotherapy of HCC metastases with autologous T cell receptor redirected T cells, targeting HBsAg in a liver transplant patient. *Journal of Hepatology* 2015;62:486–91.

Hosted by Jody Baron, MD, PhD
No CME credits offered