

Lmdd-MPFG Prevents HCC Occurrence through Dendritic Cells Related Signaling Pathways

Yun Chen* and Xin Wan

Department of Immunology, Nanjing Medical University 140 Hanzhong Road, Nanjing, Jiangsu Province, P.R. China

*Corresponding author: Yun Chen, Department of Immunology, Nanjing Medical University, 140 Hanzhong Road, Nanjing, Jiangsu Province, P.R. China, Tel: 86-25-86862901; E-mail: chenyun@njmu.edu.cn

Received date: December 30, 2015; Accepted date: January 27, 2016; Published date: February 05, 2016

Copyright: © 2016 Chen Y, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abbreviations

HCC: Hepatocellular Carcinoma; LM: Lmdd-MPFG (Listeria Monocytogenes Δ dal Δ dat- multiple peptide fusing genes); DCs: Dendritic cells; CTL: Cytotoxic Lymphocyte

Commentary

Hepatocellular carcinoma is the most common and deadliest form of primary liver tumors with limited treatment options. Immunotherapy is a rising promising treatment in recent years. An attenuated hepatocellular carcinoma-specific Listeria vaccine (Lmdd-MPFG, LM), constructed by is proven to have potency to induce a strong and specific anti-tumor cellular immunity to HCC [1]. It has been proven that dendritic cells (DCs) play an essential role in Lm infection. In this paper, the researchers elucidated the valuable mechanism how DC initiates and induces anti-HCC immunity by Lmdd-MPFG vaccine. The authors found co-culture with LM vaccine accelerates bone marrow DCs and make them over-express NOD1, NLRP3 and TLR4 via NF- κ B signaling pathway activation. Conversely, DCs can assist LM distribution in the spleen and promote LM mediated antitumor effects in tumor-bearing mice. The findings revealed that enhanced CTL responses against LM infection and induced anti-tumor effects were mainly through promoting IL-17A-producing T cells differentiation. Moreover, functional defects of dendritic cells were detected in HCC patients and the interactions between NLRP3, NOD1/2 and TLR4 might constitute a potential immune regulation mechanism that accounts for the efficacy of DC and LM combination therapy. This combination immunotherapy represents a potentially beneficial option for HCC patients, and provides an immune regulatory direction in LM vaccine-related tumor immunotherapy (Figure 1).

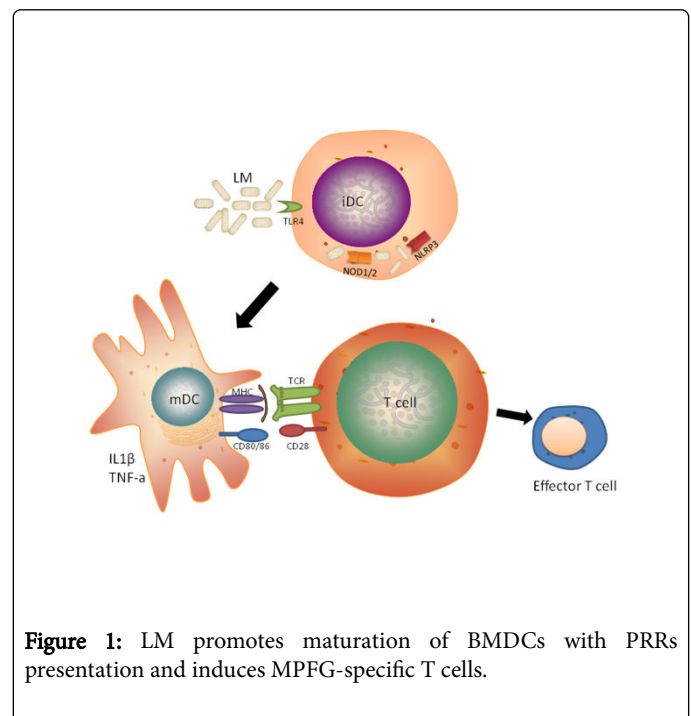


Figure 1: LM promotes maturation of BMDCs with PRRs presentation and induces MPFG-specific T cells.

References

1. Wan X, Cheng C, Lin Z, Jiang R, Zhao W, et al. (2015) The attenuated hepatocellular carcinoma-specific Listeria vaccine Lmdd-MPFG prevents tumor occurrence through immune regulation of dendritic cells. *Oncotarget* 6: 8822-8838.