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Immunobiology of Hepatocarcinogenesis: Ways to go or almost there?

Pavan Patel, Steven Schutzer, Nikolaos Pyrsopoulos

Abstract

Hepatocellular carcinoma (HCC) is on the rise and occurs in the setting of chronic liver disease and cirrhosis. Though treatment modalities are available, mortality from this cancer remains high. Medical therapy with the utilization of biologic compounds such as the FDA approved sorafenib might be the only option that can increase survival. Immunotherapy, with modern pharmacologic developments, is a new frontier in cancer therapy and therefore the immunobiology of hepatocarcinogenesis is under investigation. This review will discuss current concepts of immunobiology in hepatocarcinogenesis along with current treatment modalities employing immunotherapy. The tumor microenvironment along with a variety of immune cells coexist and interplay to lead to tumorigenesis. Tumor infiltrating lymphocytes (TIL) including CD8⁺ T cells, CD4⁺ T cells along with regulatory T cells (T_{reg}), tumor associated macrophages (TAM), tumor associated neutrophils (TAN), myeloid derived suppressor cells (MDSC), and natural killer (NK) cells interact to actively provide anti-

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