

عنوان مقاله:

Restoration of IL-11 and IL-15 cytokine production post calcium modulators and ROS treatment can assist viral clearance both in vitro and in vivo

محل انتشار:

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خلاصه مقاله:

Objective(s): Hepatitis B virus (HBV) infection alters the cytokines production to establish persistent infection. A reversion of cytokines back to their normal state can be a promising therapeutic approach to establish an optimal host immune response. Materials and Methods: We investigated the alteration in expression of IL-15 and IL-11 after HBV infection in vitro and in vivo in PBMCs of 63 individuals divided into various HBV-infected patient groups. The mRNA expression was evaluated post-anti-oxidant and calcium modulators treatment by Real-time qPCR. Results: In vitro mRNA expression of both cytokines, post-infection was down-regulated considerably. Interestingly, in line with in vitro results, both cytokines' in vivo expression was intensively down-regulated in chronic HBV-infected individuals rather than healthy controls. Both cytokines' expression was up-regulated in cases of recovery compared with the inactive carriers and chronic HBV-infected individuals. IL-15 mRNA expression was significantly up-regulated in both cell lines post EGTA and Ru³⁺ treatment while a significant increase was observed in the HepAD³⁸ cell line with NAC and BAPTA treatment. IL-11 mRNA expression was significantly up-regulated in the HepG² cell line after all modulator treatments, whereas in the HepAd³⁸ cell line it was observed after BAPTA treatment. Our results thus indicate that viral infection tends to down-regulate the expression of cytokines and an in vivo up-regulation is an indication of recovery. Conclusion: Treatment of anti-oxidants and calcium modulators has resulted in the successful restoration of these cytokines thus pointing towards the use of calcium modulators to boost natural antiviral cytokine production.

کلمات کلیدی:

Hepatitis B virus, Interleukin-11, Interleukin-15, Hepatocellular carcinoma, Reactive Oxygen Species

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