Amador-Canizares et al., J Vaccines Vaccin 2014, 5:5
http://dx.doi.org/10.4172/2157-7560.S1.022

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Vaccines & Vaccination
September 24-26, 2014 Valencia Convention Centre, Spain

Induction of de novo HCV core-specific cell-;mediated immune responses and enhancement of neutralizing antibodies response by CIGB-230, a DNA-based vaccine candidate, on triple therapy with IFN-α plus ribavirin

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CIGB-230 is a vaccine candidate based on the mixture of a DNA plasmid, expressing HCV structural proteins, with recombinant HCV core protein. In this work CIGB-230 was administered in different schedules regarding IFN-α plus ribavirin therapy in a Phase II clinical trial. Paired serum and PBMC samples from baseline and end of treatment were analyzed. Data on virological and histological response and their association with immune variables are also provided. From week 12 to week 48, all groups of patients showed a significant reduction in mean leukocyte counts. Statistically significant decrements in antibody titres were frequent, but only individuals immunized with CIGB-230 as early add-on sustained the core-IgG response, and the neutralizing antibody response was enhanced only in patients receiving CIGB-230. Cell-mediated immune responses also tended to decline, but significant decrements in IFN-γ secretion and total absence of core-specific lymphoproliferation were exclusive of the control group. Only CIGB-230-immunized individuals showed de novo induced lymphoproliferative responses against the structural antigens. Importantly, it was demonstrated that the quality of CIGB-230-induced immune response depends on number of doses and timing of administration in relation to the antiviral therapy. Specifically, the administration of six doses of CIGB-230 as late add-on to therapy increased the neutralizing antibody activity and the de novo core-specific IFN-γ secretion, with a favorable impact in the virological response. In conclusion, CIGB-230, combined with IFN-α-based therapy, modifies the immune response in chronic patients. These evidences shed light in the design of more effective therapeutic vaccine interventions against HCV.

Biography

Amador-Canizares Y has completed her PhD at the age of 33 years from Havana University. She is a young investigator at the Hepatitis C Section, of the Vaccines Department, at the Center for Genetic Engineering and Biotechnology, a leading biotechnology institute at Havana, Cuba. She has published more than 10 papers in reputed journals. She is member of the Cuban Societies of Hepatology and Immunology. She received 4 awards at the Cuban Academy of Sciences.

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