

miR-146a regulates cellular immune response and apoptosis during Singapore grouper iridovirus infection and enhances viral replication

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miRNA represents an indispensable role in post-transcription regulation during gene expression, this regulation participates in cell proliferation, differentiation, immune response, death and other cellular processes. Plenty studies have demonstrated that miRNA encoded by the host can be used as a tool to suppress cellular immune response and facilitated the viral replication. miR-146a has been reported as an inhibiting factor of innate immunity in kinds of cells of human, giving assistance to virus activity in both in vivo and *in vitro*. In our work, we discovered that fish derived miR-146a was remarkably up-regulated during Singapore Grouper Iridovirus (SGIV) and Nervous Necrosis Virus (NNV) infection *in vitro*. Overexpression of miR-146a through mimic transfection resulted in the suppression of NF- κ B activity and the expression of inflammatory cytokines including TNF- α and IL-8, cytopathic effect observation and quantitation of viral mRNA revealed that virus activity was more positive in miR-146a overexpressed cell than the negative control, western blot of viral protein and progeny virus titer assay also provided the consistent results. We also find that miR-146a restrained the caspase-3 activity and the early cell apoptosis induced by SGIV infection, this represented another assistance provided by miR-146a to promote the viral replication. To clarify the regulatory mechanism, we are still trying to search for and verify the target genes of miR-146a in fish cells, including the TNF receptor associated factor 6 (TRAF6) and interleukin-1 receptor associated kinase 1 (IRAK1). In short, we found that fish derived miR-146a plays a crucial role during SGIV and NNV infection and this regulation has a tight relationship with NF- κ B signal path, exploring of the regulatory mechanism may inform us more detail information of fish iridovirus and Nervous Necrosis Virus infection.

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Evaluation of immunological response of HIV/AIDS patients placed on HAART and herbal medicine within 12 months treatmentOgbonnaya Ogbu¹, Eda O E¹, Onu N¹, Iroha C², Okolo M O³ and Ekuma U O¹¹Ebonyi State University, Nigeria²Federal Teaching Hospital, Nigeria³Kogi State University, Nigeria

Immunological response of 140 HIV/AIDS patients who willingly after informed consent, accepted to participate in the study, included 100 HIV patients in Mile Four Hospital who were placed on HAART and 40 HIV patients who went for treatment at Herbal clinics at Izzi Local Government Area and were given herbal concoction. Blood specimens from the two groups were taken every four months (0 month (before medication started), then 4 months later, 8 months and 12 months. CD4⁺ cells and white blood cell counts (WBC) were determined with ABACUS 380 automated machine in accordance with manufacturer's instructions. The findings from the investigations revealed that all the patients who religiously took HAART medication had steady CD4⁺ lymphocytes for 8 months before an increase of about 5 to 20 CD4⁺/mm³. It was also observed that patients with low CD4⁺ cell counts of 120 to 250 cells per mm³ had increase of 5 to 10 cells/mm³, whereas others with CD4⁺ cell counts of 300-500 cell/mm³ increased with 15-20 CD4⁺ cells/mm³. For patients on herbal concoction, the decline of CD4⁺ cell count was noticed from the 4th month of medication. There was no significant difference in level of CD4⁺ cell counts decline of 10 to 15 cells per mm³ irrespective the level, before commencement of herbal medication. WBC increased with 0.3 \times 10⁹/l from onset till the end of the 12 months. The reverse was the case for patients who took herbal concoction. The decline was observed from the 4th month till the 12 month period. The findings are evidence that HAART with time can increase HIV/AIDS patients' CD4⁺ lymphocytes and white blood cells, thereby boosting immunity. Herbal concoction investigated in this study did increase patients' CD4⁺ lymphocytes and white blood cells.

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