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The use of polymer nanoparticles conjugated with lncRNA (MT1DP) as a potential therapeutic tool for HCC in a murine Mode

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Hepatocellular carcinoma (HCC) is one of the utmost deadly human malignancies. Emerging evidences have recently suggested that long noncoding RNAs (IncRNAs) can be used as a therapeutic tool during HCC tumorigenesis due to their tumor-suppressive effects. So, this study was designed to assess the use of IncRNA (MT1DP) alone and in conjugation with polymer nanoparticles as an innovative therapeutic tool for HCC in a murine model. One-hundred mice were included in this study and were categorized into five main groups (20 mice/group) including: the 1st act as Normal control group injected with saline only; the 2nd act as pathological control group injected with diethylnitrosamine (DEN) once/week for 16 weeks; the 3rd, 4th and 5th groups were injected intrahepatic 4 times weekly starting from the 12th week after initiating DEN injection with polymer nanoparticles, MT1DP and polymer conjugated MT1DP, respectively. At 16 weeks, the mice were sacrificed and blood samples and liver specimens were collected for biochemical and histopathological assessment. The results showed that AFP, VEGF, and TNF- α decreased significantly, in the 4th and 5th groups, in comparison to the pathological control group and the 3rd group. It was also observed that there was an improvement in histopathology in both the 4th and 5th groups when compared to the pathological control group and the 3rd group. In conclusion, the administration of IncRNA (MT1DP) alone or in conjugation with polymer nanoparticles can be used as novel therapeutic agents for HCC.

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Biography

Mohamed Elzallat is a Researcher at the immunology and therapeutic evaluation department, Theodor Bilharz Research Institute, Giza, Egypt. He graduated from the Faculty of Medicine, Alexandria University. He obtained his MD degree in clinical and chemical pathology from the Faculty of Medicine, Cairo University in 2020. His specialties are molecular biology, stem cells, and epigenetic changes as diagnostic and therapeutic tools in liver fibrosis and HCC. He has worked as a participant in 5 research projects sponsored by international and national agencies. He has published 2 research articles in peer-reviewed international journals

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