Molecular regulation of the cellular immunity to fight hepatocellular carcinoma

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Hepatocellular carcinoma is a complex challenging disease, Endemic in Egypt and not amenable to traditional treatment. An urge has developed for new strategies shifted toward boosting the body’s immune system to harness HCC progression. IGF-axis is a primary gatekeeper in HCC initiation as well as a paradigmatic immunity modulator. NKs are the native sentinels of the innate immunity, mediated by IGF-axis and microRNAs. We aimed at investigating miR-615-5p on IGF-signalling and function in NKs of HCC patients and Huh-7 as a proposed triad for an efficient immunotherapy. We found that miR-615-5p is up-regulated in NKs of 130 HCC patients compared to 35 healthy controls. The miR-615-5p overexpression in NKs of HCC and Huh-7 directly repressed IGF-IR and STAT3. In NKs, miR-615-5p reduced NKG2D, TNF-α and perforins. In Huh-7, miR-615-5p repressed mTOR and NKG2D ligand (ULBP2). The miR-615-5p attenuated the NK cell cytolytic effect, decreased CD56dim and increased CD56bright. In conclusion, miR-615-5p acts in a cell and disease specific manner in NKs and their target having contradicting role by directly targeting IGF-IR providing a novel insight on the pivotal role of IGF-IR as a functional modulator of NKs and paving the road for correction of NK functional impairment and eventually an efficient immunotherapy.

Biography
Mai Atef Mohammed Rahmoon has completed her MSc in Molecular Medicine and Translational Research from the German University in Cairo under the supervision of Associate Professor Dr. Ahmed Ihab Abdelaziz. She is a Research Associate and Assistant Lecturer at the Pharmaceutical Biology Department, German University in Cairo. Her Master thesis has been published as a book with the title: 'miR-615-5p and miR-155-5p in Hepatocellular Carcinoma Immunotherapy.'

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