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MIR-155-5P CONTROLS COLON CANCER CELL MIGRATION VIA POST-TRANSCRIPTIONAL REGULATION OF HUMAN ANTIGEN R (HUR)

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Colorectal cancer (CRC) is the third most common cancer and a significant cause of cancer-related deaths worldwide. Metastasis is the worst prognostic factor for patients with CRC. HuR (ELAVL1) is overexpressed in CRC and has been reported to promote colon cancer growth by targeting RNA in the cell cytoplasm. Herein, the role of miR-155-5p in regulating HuR expression and cell migration was examined in colon cancer cells. MiR-155-5p knockdown in serum-starved colon cancer cells decreased both colon cancer cell chemotaxis and cytoplasmic expression of HuR. Bioinformatics analysis predicted two putative binding sites in the AU-rich elements (AREs) at the 3'-UTR of HuR mRNA. MiR-155-5p binding to HuR was verified using specific target site blockers and functionally validated by use of RNA immunoprecipitation assays, showing that miR-155-5p-dependent regulation of HuR expression is mediated by AREs. Targeting AREs with a specific blocker inhibited colon cancer cell migration. Taken together, these novel findings demonstrate that AREs mediate miR-155-5p positive regulation of HuR mRNA levels and translation as well as migration in colon cancer cells, suggesting that targeting miR-155-5p and/or Hur might be useful therapeutic strategies against colon cancer metastasis.

Keywords— Colon cancer, HuR, Metastasis; microRNA

Biography

Amr Al-Haidari is a senior PhD student at the surgery department at Lund University. His current research is focusing on colon cancer metastasis and the mechanism of the metastatic biology behind colon cancer cells. In his PhD studies, he published four articles in highly reputed journals and currently has two more research manuscripts under publication. He is also a scientific web blogger and the head of PhDLive mentor group at faculty of medicine in Lund University.

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