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miR-34c plays a key role in *Theileria*-transformed macrophages and human cancer cell lines by targeting *PRKAR2B*

Malak Haidar[1, 2, 3], **Hifzur Ansari**[3], **Zineb Rchiad**[1, 2, 3], **Fathia ben Rached**[3], **Arnab Pain**[3] and **Gordon Langsley**[1, 2]
[1]Université Paris Descartes, France
[2]Cochin Institute, France
[3]King Abdullah University of Science and Technology, Saudi Arabia

MicroRNAs (miRNAs) play critical roles in regulating a wide range of cellular signaling pathways; for example, both physiological and pathological processes in cancer. Here, we report on the role of miR-34c in regulating PKA activity during in cell transformation. *Theileria* is an intracellular eukaryotic parasite that transforms its bovine host leukocytes into disseminating leukomas that cause a widespread disease of economic importance called tropical theileriosis. By studying this unique model of cellular transformation we identified *PRKAR2B* (cAMP-dependent protein kinase type II-beta regulatory subunit) as a new miR-34c target gene. Overexpression of miR-34c repressed *PRKAR2B* levels and consequently increased PKA activity in *Theileria*-transformed leukocytes promoting their virulent disseminating tumor phenotype. We also validated miR-34c repression of *PRKAR2B* expression using human colon cancer (HCT-116) and promyelocytic leukemia (HL-60) cells. The identification of miR-34c as a novel regulator of PKA activity could improve understanding of glucose-independent growth of many different types of cancer.

Biography

Malak Haidar is a Post-doctoral fellow is studying host-pathogen interaction of *Theileria annulata* causative agent of tropical theileriosis. She is focused in examining how different autocrine loops and epigenetic landscape changes contribute to infected macrophage virulence and how their oxidative stress status impacts on pathogenicity. She did her PhD in the laboratory of Cellular Biology of Apicomplexa in CNRS, INSERM, Paris, France, supervised by Prof. Gordon Langsley.

malak.haidar.1@kaust.edu.sa

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