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High-risk Human papillomaviruses & Epstein–Barr Virus in breast cancer

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Breast cancer is the most frequent cause of cancer-related deaths among women worldwide; according to the World Health Organization more than 520,000 deaths have been attributed to breast cancer in 2018 (Global Health Estimates, WHO 2018). In fact, the majority of cancer deaths are the result of metastasis, either directly due to tumor involvement of critical organs or indirectly due to therapeutic resistance and the inability of available therapy to control tumor progression. It is estimated that 15–20% of human cancers are linked to virus infection including Epstein–Barr virus (EBV) and high-risk human papillomaviruses (HPVs). We have recently demonstrated that high-risk HPVs and EBV are present in the majority of invasive human breast cancer cases in Syrian women. In addition, we have established that E6/E7 onco–proteins of high-risk HPV type 16 convert non-invasive and non-metastatic breast cancer into invasive and metastatic phenotype; this was accompanied by an overexpression of Id-1 gene, which is an important regulator of cell invasion and metastasis. Furthermore, we showed that E6/E7 onco-proteins up-regulate Id-1 promoter activity in human breast cancer cells. On the other hand, it is important to mention that high-risk HPVs and EBV are the most studied oncoviruses in human breast cancer. In this presentation, I will discuss the presence and role of these viruses in human breast carcinogenesis and metastasis; especially, I will focus on the role of E6/E7 and LMP1 onco-proteins of high-risk HPV and EBV, respectively, which was largely explored by my group.

Biography

Ala-Eddin Al Moustafa has earned his B.Sc. from Aleppo University and his Master as well as PhD in Developmental Biology from the Institute of Embryology of the CNRS and Collège de France, and Paris XIII University. He completed his training as a postdoctoral fellow at McGill University. Al Moustafa established the first Cancer Research Centre in Aleppo-Syria and founded the Middle-Eastern Association for Cancer Research. He published more than eighty papers, in international journals, and book chapters. His main research focuses on the roles of several Oncogenes, gene cooperation and Onco-viruses, especially high-risk HPV and EBV in human carcinogenesis and metastasis. Al Moustafa joined the College of Medicine of Qatar University, as a Professor/Principal Investigator, where he established his cancer biology lab.

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