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Detecting and profiling extracellular miRNAs among some Wilms Tumor Moroccan patients using molecular biology tools

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Nephroblastoma or Wilms Tumor (WT) results from the abnormal kidney development at embryonic stage. WT is the most common childhood renal malignancy (95 %) that affects approximately 1/10000 children. Its current diagnosis approach (medical imaging and pathological exam) takes a long time before defining the appropriate treatment that is generally presented in chemotherapy, surgery and X-Ray treatment, which have harmful side effects on children's health.

The genetic and epigenetic factors associated with Wilms tumor are the WT Suppressor tumor genes that have an important role in normal kidney development. In the case of nephroblastoma, overexpression of oncomirs (Oncogenic miRNAs) inhibits their expression. MiRNAs are small non-coding RNA sequences of 22nt that regulate post-transcriptional gene expression. Moreover, miRNAs originating from WT are overexpressed, so that we can find them at high levels in blood circulation comparing with other miRNAs. My research interest is to detect and profile extracellular miARNs among some Moroccan WT patients. This has many goals; to use those miARNs as disease biomarkers for diagnosis and prognosis of WT, to understand disease pathogenesis and to correlate miRNA expression patterns with disease progression. MiARNs could even have a role in Cancer therapy by the injection of other miRNAs that inhibit oncomirs. To achieve those goals, many molecular techniques are used from DNA and RNA extraction to DNA sequencing. So far, we've succeeded in extracting miRNAs from different materials as blood, serum, plasma and embedded paraffin tissue. As well as transforming (reverse transcripting) those miRNAs into cDNA for qRT-PCR and sequencing.

Speaker Biography

Sara Benlhachemi is a PhD student at Medical school, Mohammed 5th University, Morocco working on Cancer Epigenetics. Her thesis is about detecting and profiling extracellular miRNAs among some Wilms Tumor Moroccan patients using molecular biology tools. She's under the supervision of Professor EL Mostafa El Fahime at the National Center of Scientific and Technical Research. She had her Master's Degree in Medical Biotechnology in 2016 at Medical school of Rabat. Likewise, her end of study project was under the supervision of Professor EL Mostafa EL Fahime and it was titled: "Approach for highlighting mutations in ENPP1 gene among Moroccan patients with Pseudoxanthoma Elasticum". She had her Bachelor's Degree in 2014 at Faculty of Sciences and Techniques – Mohammedia, her end of study project was about the assessment of the early screening and diagnosis of HIV infection in Morocco following the introduction of the quick blood test, under the supervision of Dr Elmir ELHARTI at the National HIV Reference Laboratory of the National Institute of Hygiene –Rabat.

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