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## MicroRNA-21 expression in primary breast cancer tissue among female patients and its correlation with chromosome 17 aneusomy

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Breast cancer (BC) is the most common cancer worldwide and amongst Egyptian women. Micro-RNA-21 (miR-21), on chromosome 17q21.3, is one of the most up-regulated microRNAs in cancer that silences multiple target genes involved in cancer-signaling pathways. The study assessed the correlation between the miR-21 expression profile and numerical aberrations of chromosome 17 in BC tissues in female Egyptian patients. The study included 37 female patients with sporadic primary breast carcinoma, their age ranged from 31 to 65 years. Fresh breast tissue specimens were evaluated for miR-21 expression levels using reverse transcription-polymerase chain reaction technology and cytogenetic fluorescent in situ hybridization for chromosome 17 aneusomy. The miR-21 was up-regulated 12.9-fold in BC tissues and over-expression was significantly associated with several clinicopathologic characteristics; as tumor size, tumor grade, advanced stage and poor prognostic index. In addition, chromosome 17 aneusomy was, profoundly, observed in BC patients. However, the large majority (73%) of patients had heterogeneous cell populations. Chromosome 17 copy number heterogeneity in cell populations were significantly associated with advanced clinical stage and higher miR-21 expression profile in BC tissues. In conclusion, in breast cancer, expression of microRNA-21 located on 17q21.3 was correlated with the chromosome copy number. Chromosome 17 aneusomy and microRNA-21 levels can serve as potential prognostic biomarkers in breast cancer tissues. Chromosome 17 aneusomy analysis by cell heterogeneity gives more useful information than analysis by copy number variation alone. Polysomy of chromosome 17 may explain the significant miR-21 over-expression while miR-21 up-regulation in monosomic cases needs further genetic evaluation to explain it.

### Biography

Noura Ramadan Abdel-Hamid is currently working as an Assistant Lecturer of Medical Genetics, Faculty of Medicine of Suez Canal University. She has studied Medicine in the Faculty of Medicine, Suez Canal University, Egypt. She has worked as a House officer, Faculty of Medicine, Suez Canal University from March 2009 to February 2010. She has also worked as a Demonstrator of Medical Genetics, Faculty of Medicine, Suez Canal University from December 2010 to February 2015.

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