University of Baghdad				
College Name	**MEADICIAL**			
Department	**pathology**			
Full name as written in passport	**Shoroq Mohammed Abas Al-Temimi**			
e-mail				
Career	◌ **Assistant Lecturer**	◌ **Lecturer**	◌ **Assistant Professor**	◌ **Professor**
	◌ **Master**		◌ **hD diploma**	
Thesis Title	**MicroRNA-21 overexpression mediated phosphatase with homology to tensin (PTEN) downregulated in breast cancer in association with clinicopathological status**			
Year	**2015**			
Abstract	**Background:- Breast cancer is the most common cancer in women in worldwide. The phosphatase and tensin homolog gene is a tumor suppressor gene, and a key negatively regulator of cell signaling pathways that regulate growth and survival signaling pathways . More recently, microRNAs are small non protein coding RNAs involved in gene regulation. MicroRNA-21 was one of the first oncogenic microRNAs and as an anti-apoptotic factor, to be characterized, being up-regulated in numerous tumors including breast cancer. The phosphatase and tensin homolog gene is one of microRNA-21target genes** **Aim of the study:- To assess the validity of microRNA-21 and phosphatase and tensin homolog (PTEN) gene expression as a diagnostic tool for gene alteration .** **Patients and Methods :- A prospective study , from January 2013 to January 2015. Fifty-pairs of fresh tissues from both breast cancer of invasive ductal carcinoma "NOS" and apparently normal adjacent tissues (from modify radical mastectomy) were by patients were recruited at the Surgical Department /Al-Diawania Teaching Hospital in Al-Diawania city . Total RNA extraction and real-time quantitative polymerize chain reaction technique were used for assessment of microRNA-21 and phosphatase and tensin homolog gene expression. Tissue sample present in the paraffin embedded blocks belonging to tumor and normal adjacent tissue were used for Immunohistochemistry staining for (estrogen receptor, progesterone receptor and human epidermal growth factor receptor-2) and dual color –chromogenic insitu hybridization technique for positive human epidermal growth factor receptor-2 by Immunohistochemistry.** **Results :- Majority of cases 48(96%) ,were up regulated of microRNA-**			

	21, indicating cancer tissue fold change of microRNA-21 was significantly higher than that of normal adjacent breast tissue, and the best cutoff value for microRNA-21 fold change in breast cancer tissues was (2.940)for diagnosis of gene alteration , (≥ 4.156) for positive lymph node involvement and (≥6.340) for higher stage (III,VI). **All patients 50(100%) exhibit phosphatase and tensin homolog gene expression down regulation, indicating fold change of cancer tissue for phosphatase and tensin homolog gene expression was significantly lower than that of normal adjacent tissue and the best cutoff value for gene expressional alteration in breast cancer tissues was (0.210) for diagnosis of gene alteration, (≤ 0.175) for positive lymph node involvement and (≤ 0.098) for higher stage (III,VI) .** **Up-regulation of microRNA-A21 and down regulation of phosphatase and tensin homolog gene expression show no significantly correlate with other patients criteria like (age , grade ,size of tumor ,(estrogen receptor, progesterone receptor and human epidermal growth factor receptor-2) by Immunohistochemical technique and human epidermal growth factor receptor-2 gene amplification by dual color – chromogenic insitu hybridization technique . Identified significant negative correlation of up-regulation microRNA-21 and down regulation of phosphatase and tensin homolog gene expression in breast cancer tissues.** **Conclusion:- gene expression of both microRNA-21 and phosphatase and tensin homolog was significantly alterated in breast cancer tissues . It has been associated with positive lymph node involvement and higher tumor stage (III,VI).**