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MicroRNA expression and PTEN protein levels in uterine corpus endometrial carcinoma (UCEC)

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The phosphatase and tensin homolog (PTEN) tumor suppressor gene is one of the most frequently mutated genes in endometrial cancer, mainly in the endometrioid (ENDO) subtype and less commonly in the serous subtype. The goal of the study was to explore the role of PTEN regulating miRNAsin the two histological types of endometrial cancer using TCGA data. We defined PTEN loss as one MAD less than the median value of the normalized PTEN data generated from reverse phase protein arrays (RPPA), with PTEN-loss samples consisting of 15% of all samples. The PTEN-loss samples are primarily ENDO subtype. PTEN loss is associated with a higher risk of disease progression in the ENDO subtype but a lower risk in the serous group (not significant likely due to the low number of events in the TCGA sample set). Of the 492 miRNAs with detectable expression levels, 231 are differentially expressed between the ENDO and serous subtypes. Five miRs show significant association with overall survival (OS) in the ENDO subtype and none in the serous subtype.With in the ENDO subtype, two miRs are significantly associated with OS in the high microsatellite instability (MSI-H) samples both of which are significantly correlated with PTEN protein levels. While the other three miRs are significantly associated with OS in MSI-stable (MSS) samples only one of the miRs is significantly correlated with PTEN protein expression. Further analysis will explore the relationship between miRs and functional PTEN with a focus on the different subtypes in endometrial cancer.

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