

**Name of the Scholar:** MD SHABBIR ALAM  
**Name of the Supervisor:** Dr. Moshahid A Rizvi  
**Name of the Co-supervisor:** Dr. A K Mandal  
**Department :** Biosciences  
**Title of the thesis :** Molecular analysis of PTEN gene in cervical cancer patients

## **Findings**

On the basis of our findings we can conclude that HPV infection is playing a major role in tumorigenesis of cervical carcinoma and that HPV-16 predominates in squamous cell carcinomas and HPV-18 predominates in adenocarcinomas in Indian subcontinent. A high rate of promoter methylation of PTEN gene was observed which suggest that silencing of this gene through methylation may contribute in the tumorigenesis of cervical cancer. Exon 5 is a functional domain of the PTEN gene. Any abnormalities in this region may affect the function of this gene, and this may be important for carcinogenesis in human uterine cancer. The data of our study shows that frequency of LOH is very common among patients, whereas mutations within the exons of PTEN are rarely observed. However, according to other reports for several other types of carcinoma frequency of mutation in PTEN gene is comparatively higher than what we have seen in our patients of either SCC or AC. Statistically significant association with respect to loss of PTEN expression with age could only be noticed among the patients of more than fifty years of age. Thus, the present study shows that age is an important factor in determining the level of PTEN expression and eventually influencing the occurrence of cervical cancer. This may indicates that PTEN gene inactivation is caused by promoter methylation as well as by other inactivating mechanisms, such as mutation or loss of heterozygosity. Our results suggest that PTEN may play an important role in the regulation of tumor progression during the development of uterine cervix. Taking

together all the clinical stages, absence of apoptosis was seen with increasing trend from clinical stage I through IV. Furthermore, when compared with patients of CC who did not show the absence of apoptosis, the difference was statistically significance. However, within clinical stage I the statistical significance was much high as seen is case of PTEN expression loss also. Loss of PTEN expression and phenomenon of apoptosis may have their roles in establishing the diseases but contribution of this phenomenon for the disease progression is less important.