

5th World Congress on Biotechnology

June 25-27, 2014 Valencia Conference Centre, Valencia, Spain

Down-regulation of ZNF516 and FKBP6 tumor suppressor genes candidates in cervical cancer cell lines

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Background: In cervical cancer (CC) the role of HPV is fundamental; however, not all HPV infected women will develop this disease. Therefore, other mechanisms, such as silencing of tumor suppressor genes (TSG), could be implied in cervical carcinogenesis. In a previous study, methylation microarrays were constructed, where it was found promoter aberrant hypermethylation of ZNF516 and FKBP6 genes in CC, postulating them as TSG candidates. The aim of this study was to determinate ZNF516 and FKBP6 expression in CC cell lines.

Materials and methods: ECT1 E6/E7 (immortalized normal squamous epithelia cell line) and three CC cell lines: SiHa, C-4I and C-33A were cultivated for experiments. ZNF516 and FKBP6 expression was determined by qRT-PCR and western blot. Treatment with 10 μ M 5-aza-2 deoxycytidine (5' aza) was performed to evaluate a possible epigenetic regulation.

Results: ZNF516 mRNA expression was significantly downregulated in SiHa ($p < 0.01$) and C-33A ($p < 0.001$) respect to ECT1 E6/E7. Western blot showed a deregulated proteical expression of ZNF516 in all CC cell lines. In other hand, FKBP6 mRNA expression was downregulated in CC cell lines. ECT1 E6/E7 showed a higher proteical expression of FKBP6 than CC cell lines. After treatment with 5' aza, mRNA and proteical expression of FKBP6 and ZNF516 of all CC cell lines were restored ($p < 0.05$).

Conclusions: Results suggest a clear ZNF516 and FKBP6 desregulation in CC cell lines, which agrees with TSG behavior. New studies should be made to evaluate inactivation mechanism for both genes; despite initially methylation seems to be one of the regulators implied.

Biography

Carmen Ili has completed her PhD at the age of 30 years from Universidad de La Frontera, Temuco, Chile. She had a trainee at the Head and Neck Cancer Research Division in Johns Hopkins University, Baltimore, USA. At present she is a Postdoctoral Researcher and she works at Molecular Pathology Laboratory, Universidad de La Frontera, Chile. Researcher in areas of Biology and Molecular Pathology, Human Papillomavirus, Biomarkers in cancer and search of new tumor suppressor genes and oncogenes. She currently participates in several research projects (FONDECYT, FONDEF, INNOVA-Chile y DIUFRO). She has published more than 25 papers in reputed journals.

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