Tzitzijanik Madrigal Domínguez, J Mol Genet Med 2018, Volume 12
DOI: 10.4172/1747-0862-C2-028

Regulation of miRNAs expression by mutant p53 gain of function in cancer

Tzitzijanik Madrigal Domínguez
UAM Iztapalapa, Mexico

p53 is a tumor suppressor protein encoded by the TP53 gene which is located in chromosome 17p13.1. In response to environmental and cellular stress p53 activates the expression of genes and microRNAs (miRNAs) involved in cell cycle arrest, senescence and apoptosis. The TP53 is the most frequently mutated gene in human cancers. It has also been demonstrated that some mutant p53 proteins not only lose tumor suppressor activity, but also acquire novel oncogenic functions also known as "gain of function" (GOF) that are independent of wild-type (WT) p53. Recent studies have shown that mutant p53 can regulate gene expression and exert oncogenic effects through specific miRNAs. We transfected p53 mutants (p53R273, p53R175H, p53R248Q) into p53-null Saos2 cells, profiled the miRNA expression by miRNA PCR array, we selected and validated the expression of miR-182, miR-200b, miR- 3151 and miR-509-5p by real-time quantitative PCR and observed that mutants of p53 have a global negative effect for human miRNome expression, however some miRNAs were upregulated. Here we found tumor suppressors miRNAs downregulated like miR-200b, miR- 3151 and miR-509-5p or oncomiRNAs like miR-182 upregulated. Many studies have reported that patients with tumors carrying p53 mutations have worse prognosis and poorer response to conventional anticancer treatments that those bearing p53 WT protein, therefore, our study contributes to the understanding of regulation of miRNAs by mutants of p53 that could explain in part the role of mutant p53 proteins in the development of cancer and may help propose new target therapies.

Biography

Tzitzijanik Madrigal Domínguez completed her Graduation in Biology from Universidad Autonoma Metropolitana (UAM) in 2010; studied at Molecular Oncology Laboratory and received her MA in Experimental Biology from UAM in 2013. She is currently a PhD student in Experimental Biology Program-UAM. She is a Member of Mexican Association for Cancer Research which is a civil association, made up of scientists recognized both nationally and internationally as leaders in the development of basic, clinical, pharmacological and social research projects associated with the study of cancer..

tzitzita@hotmail.com