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**Abstract Title: -** Single nucleotide polymorphisms in microRNA associated with the risk of oral squamous cell carcinoma in central India population

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**Aims: -** The disease burden of Oral Squamous Cell Carcinoma (OSCC) cancer is regularly increasing day-by-day, and expected to rise 62% through 2035. Tobacco, areca nut and betel leaf chewing, poor oral hygiene, chronic infection are common risk factors of OSCC, but genetic and epigenetic factors also contributes equally. MicroRNA (miRNA) comprises, a non-coding small endogenous RNA that regulates plethora of biological activities of human body by targeting messenger RNA through degradation or inhibition. Single Nucleotide Polymorphism in miRNA genes/promoter, and miRNA binding sites can directly or indirectly affect the expression of miRNAs or their binding to target mRNAs thereby affecting protein expression, and consequently cellular homeostasis. The aim of this study was to investigate the association between miRNA polymorphisms with the susceptibility towards OSCC.

**Methods: -** A total of 225 histo-pathologically confirmed OSCC cases, and 225 control samples from the central India population were recruited for the study. A total of 25 miRNA SNPs were genotyped using iPLEX® Assay and the MassARRAY® System (Agena MassARRAY®, San Diego, CA, USA).

**Results: -** A statistically significant protective effect from OSCC was observed for miR-4293 (rs12220909, OR=0.0431, p=3e-6). Whereas, miR-143 (rs4705342, OR=2.25, p=0.0007), miR-124 (rs531564, OR=24.18, p=3e-6), and miR-499 (rs3746444, OR=2.01, p=0.001) were associated with increased risk of OSCC.

**Conclusions: -** Taken together, above miRNA SNPs may contribute to high incidence of OSCC in central India.

**Keywords: -** A statistically significant protective effect from OSCC was observed for miR-4293 (rs12220909, OR=0.0431, p=3e-6). Whereas, miR-143 (rs4705342, OR=2.25, p=0.0007), miR-124 (rs531564, OR=24.18, p=3e-6), and miR-499 (rs3746444, OR=2.01, p=0.001) were associated with increased risk of OSCC.