

# Human telomerase reverse transcriptase expression in oral carcinogenesis - A preliminary report

Article type: Article.

Abstract:

Human telomerase reverse transcriptase (hTERT), the catalytic subunit of telomerase, is strongly associated with telomerase activity implicated in cellular immortalization and tumorigenesis. In situ detection of hTERT will aid in determining the localization of telomerase positive cells. The aim of this study was to detect hTERT protein expression in multistep oral carcinogenesis using paraffin embedded tissue samples, and to study the relationship of hTERT expression with different histological stages in oral carcinogenesis. Normal (n=4), hyperplastic (n=4), dysplastic (n=4) and neoplastic (n=10) oral epithelia representing different histological stages in oral carcinogenesis were included in the study. hTERT protein detection was done by immunohistochemistry (IHC) technique. Nuclear staining intensities were noted and the hTERT-labelling index was determined. Dysplastic and neoplastic oral epithelia showed an increased percentage of hTERT positive cells (Grade 4: >50% positive staining nuclei) with intense staining in the basal, parabasal and superficial layers of the epithelia, unlike normal oral mucosa which showed intense staining only in the basal and parabasal cell layers, which are the normal proliferative progenitor compartments. hTERT protein expression was elevated with the corresponding advancement of the histological stages of oral carcinogenesis, from normal to hyperplasia to dysplasia to carcinoma. There seems to be an upregulation of hTERT protein expression during the progression of oral cancer, therefore, this may indicate the feasibility of IHC detection of hTERT protein in oral carcinogenesis as a potential diagnostic or prognostic marker.

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Source	Journal of Experimental and Clinical Cancer Research
ISSN	0392-9078
DOI	-
Volume	24
Page	639-646
Year	2005

Keyword:

Human telomerase reverse transcriptase, Immunohistochemistry, Oral precancer  
Oral squamous cell carcinoma, Telomerase.

Please Cite As:

KUMAR, S. K. S., ZAIN, R. B., ISMAIL, S. M. & CHEONG, S. C. 2005. **Human telomerase reverse transcriptase expression in oral carcinogenesis - A preliminary report.** *Journal of Experimental and Clinical Cancer Research*, 24, 639-646.

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