UNIVERSITI TEKNOLOGI MARA

DETECTION OF TELOMERASE ACTIVITY IN ORAL SQUAMOUS CELL CARCINOMA PATIENTS BY TELOMERASE PCR ELISA

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of the requirements for the degree of
Master of Dental Science

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as references work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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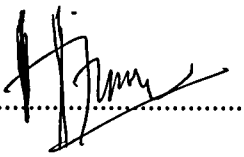
Signature Student	:	
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ABSTRACT

Telomerase is an enzyme that catalyzes the addition of TTAGGG repeats to the end chromosomes, using its intrinsic RNA component as template. Telomerase activity is also shown to be expressed in most permanent cell lines and tumors. In this study, the oral rinse was used because it is a non-invasive method of collecting sample. In addition, the previous study has shown that telomerase activity can easily be detected by using FFPE tissue. There are several types of oral cancers, but around 90% are OSCC. The aim of this study was to investigate the feasibility detection of telomerase activity level in oral rinse and FFPE tissue sample from OSCC patients. Oral rinse collected from 20 normal subjects, 20 precancer and OSCC patients and 20 of FFPE OSCC tissues obtained from Oral Cancer Research Coordinating Centre of University Malaya (OCRCC). Protein extraction was performed by using protein isolation kit for oral rinse and protein FFPE extraction kit for FFPE samples. Telomerase activity level was confirmed by nonradioactive photometric enzyme immunoassay, ELISA using microplate reader and the absorbance value at wavelength 450 nm was measured for each sample. The 690 nm wavelength was used as the reference. Test absorbance values were reported as the A450 nm reading blank against the reference wavelength of A690 nm. It was positively detected that telomerase activity for pre cancer and patients with OSCC in oral rinse was 75% (15/20), while telomerase activity with OSCC patients in FFPE tissue samples was 95% (19/20), which was positively proven. In conclusion, the present work of employing non radioactive Telomerase PCR ELISA method has been successfully revealed FFPE tissues give higher telomerase activity in OSCC samples if compare with oral rinses. Thus, telomerase activity in oral rinses and FFPE tissues may be used as a diagnostic tool in early OSCC detection using this photometric enzyme immunoassay.

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TABLE OF CONTENTS