

Project title: Rapid diagnosis and effective chemoprevention for malignant transformation of oral potentially malignant disorders in Taiwan

Rapid Diagnosis and Effective Chemoprevention for Malignant Transformation of Oral Potentially Malignant Disorders in Taiwan

Ko-Jiunn Liu, Tsang-Wu Liu, Shih-Sheng Jiang, Ya-Wen Chen, Shine-Gwo Shiah, Alan Yueh-Luen Lee, Su-Fang Lin

劉柯俊，劉滄梧，江士昇，陳雅雯，夏興國，李岳倫，林素芳

National Institute of Cancer Research, National Health Research Institutes, Taiwan

Research aim: This integrated project aims to verify risk factors and molecular targets involved in the malignant transformation of oral potentially disorder into oral cancer, and develop rapid diagnosis tools and chemoprevention strategies. To this end, we will integrate the clinical resources of major medical centers and hospitals with translational research platforms to establish reliable biomarkers of malignant precancerous lesions and targets of chemotherapy that can be applied in clinical setting.

Methods: This integrated project will extend our previous results and focus on the identification of risk factors and targets of chemoprevention for the malignant transformation of OPMD. The sub-project 1 will analyze miRNA, genetic and protein level changes in OPMD to select for biomarkers for the detection of OPMD and potential malignant transformation risk factors. In addition, the supporting core will provide support for the collection of clinical data and biological specimens as well as management of bioinformatics and other research-related resources for the project.

Results: We have identified 2 miRNA that demonstrated differential expression in OPMD patients and may serve as potential diagnosis biomarker. We have also selected 2 signal transduction pathways that are related to the malignant progression of OPMD and have identified 3 cytokines that are related to OPMD and oral cancer. Further studies reveal that miR-375 may suppress lymphoangiogenesis and down-regulation in tumor cells may enhance cancer metastasis. These factors may serve as potential biomarkers for early diagnosis of OPMD patients. Questionnaire analysis indicates that the presence of OPMD is closely related to the consumption of betel quid and cigarette, and the use of flossing and consumption of orange-related fruits may reduce the incidence of OPMD.

Discussion and suggestion: We will set up a risk evaluation guideline based on the potential risk factors and biomarkers obtained in this study. In our future project, we will use this evaluation guideline for risk assessment of OPMD patients and provide physicians an additional reference for patient follow-up evaluation. With these efforts, results derived from this study will provide direct and immediate benefits for the prevention and treatment of oral cancer.