The Study of Molecular Mechanism Underlying the Anti-tumor Effect of Malabaricone A in Oral Cancer Cells

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Background: The mortality of oral squamous cell carcinoma (OSCC) is one of the ten leading causes of cancer deaths in Taiwan. Although many antioral cancer drugs were reported, the drug discovery against oral cancer remains a challenge. In this study, we investigated the anti-cancer activity of Malabaricone A (Mal-A) and its molecular mechanisms in the oral squamous cell carcinoma cell line Ca922. **Materials and Methods:** Mal-A obtained from the methanol extract of the plant *Myristica malabarica* (*Myristicaceae*). Its pharmacological activities range from hepatoprotective, anti-ulcerogenic to anti-cancer. Using MTT assay, we evaluated the cytotoxicity of Mal-A in Ca922 cell. Apoptosis was examined by annexing V staining. **Results:** Mal-A inhibited Ca922 cell viability in a dose- and time-dependent manner by MTT assay. Treatment with 25、50 and 75 μM of Mal-A for 48 h led to DNA damage and apoptosis by DAPI staining. We also show that Mal-A reduced cell viability and induced cell death though the induction of apoptosis which was determined by PI and Annexin V assays. **Conclusion:** Our results suggested that Mal-A might exert cytotoxicity by induction of apoptosis and then leads to cell death in Ca922 cells. These findings provide important new possible molecular mechanisms for the anti-oral cancer activities of Mal-A on OSCC cells.