• 計畫中文名稱	光感物質經口傳輸系統之研發		
• 計畫英文名稱	Development of Photosensitizer Buccal Delivery System		
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• 研究人員	蔡翠敏,陳進庭		
• 中文關鍵字	口腔癌；光動力治療；藥物傳輸系統		
• 英文關鍵字	Oral Cancer；Photodynamic Therapy (PDT)；Drug Delivery System		
• 中文摘要	口腔癌爲國人頸部常見的癌症病變，其產生的確切病因目前並不清楚，目前所知可能和嚼食檳榔、嗜食 辛辣食物以及配戴假牙等長期慢性的反覆刺激有密切的關係。近年來台灣社會因嚼食檳榔的人口大量增 加，造成口腔癌盛行率亦有逐年上升的趨勢。 傳統上對於口腔癌的治療主要是以外科手術切除爲主，放 射線療法及制癌劑化學療法爲輔。這一類侵入式治療法又常造成病人在講話、咀嚼、吞嚥甚至味覺喪失 的嚴重問題，因此發展一有別於傳統的治療方法實有其必要性。近十年來由於新一代光感物質和雷射的 研發，以光動力治療法做爲一新型的腫瘤治療工具，已逐漸受到醫學工作者的重視與注意。光動力治療 法的基本工作原理主要是利用會選擇性滯留於腫瘤組織內之外加光感物質，這些物質在吸收用來照射腫 瘤組織之特定波長的光後，會產生光動力效應進而殺死腫瘤細胞。相對於化學藥物治療和放射線療法， 由於光動力治療並不常產生一般或長期累積性的毒性，因此具有減輕病人痛苦的優點。傳統上這類光感 物質大都以注射或口服方式來導入人體中，因此也易造成光感物質在皮膚間質產生特定期限的蓄積。爲 避免導致皮膚的灼傷，病人常必須避免光照達一個月之久。爲有效利用光動力治療法來做爲口腔癌之治 療方式，並避免皮膚光灼傷的副作用，在本計畫中我們擬開發利用經口傳輸系統來將光感物質導入口腔 腫瘤中，以避免光感物質在皮膚間質的累積；並藉由 in vitro 動力學釋放實驗和 in vivo 動物實驗模式來探討 所設計之經口傳輸系統之光動力治療效果。配合將來新型、價格低廉之雷射光源的發展與應用，這一類 黏膜傳輸系統的開發成功不僅可利用於口腔腫瘤的光動力治療，避免病人因傳統治療方式 所導致的生活上困擾，藉此降低個人及家庭生命財產上的損失。這一類黏膜傳輸系統的研發成功，將來尙可應 用於其他藥物劑型上之改良，或者其他黏膜組織病變的治療，譬如子宮頸癌、大腸直腸癌等可容易直接投以治 療劑的組織。		
• 英文摘要	In Taiwan, there are over two million people have the betel nut chewing habit and a large number of oral cancer deaths are associated with this habit. Presently, surgery, chemotherapy and radiotherapy are the most common choices of treatments for oral cancer. Because of the tissue characteristics and unpredictable risks of oral malignancy, the conventional therapy causes difficulties in patient's ability of chewing, speech, swallowing, and even loss of the esthetics after treatment. Therefore, it is necessary to develop another modality for the treatment of oral carcinomas. Photodynamic therapy (PDT) has		

	attracted many attentions and become the intense topics studied by researchers and clinicians. The principle of PDT is based on the application of tumor-localizing and photosensitizing chemicals followed by exposure of the tumor area to certain red light that results in the generation of cytotoxic effects. Traditionally, the introduction of photosensitizers for PDT is mainly through oral or parenteral administration. However, such administration routes often cause patient's skin phototoxicity due to the retention of photosensitizers in the stroma. In this research, we intend to develop a buccal delivery system which can localize the photosensitizers at the buccal pouch for the treatment of oral cancer. To fulfill this goal, the following specific aims will be proposed. First, develop the buccal delivery system for Photofrin, ALA and mTHPC photosensitizers. Second, test the kinetics of the dosage form in vitro. Third, in vivo evaluation of the photodynamic effect of the delivery system in the hamster with DMBA-induced different stages of carcinoma. In the future, with the development of low-cost diode lasers, this type of mucoadhesive delivery systems can be effectively used for the treatment of oral cancer. Furthermore, the development of mucoadhesive delivery systems can also be applied in the design and modification of other therapeutic agents on their dosage forms for the treatment of other mucous tissue related diseases.