

十一、研究計畫中英文摘要：請就本研究計畫要點作一概述，並依本研究計畫性質自訂關鍵詞。

(二) 計畫英文摘要。(5 百字以內)

Green Chemistry is diffusing throughout the chemical industry and includes use and development of new substances and processes. Green Chemistry intends to eliminate intrinsic hazard itself, rather than focusing on reducing risk by minimizing exposure. Much of the chemical industry is capital-intensive, based on economies of scale, and thus large companies are typically slow to convert to new technologies. Estrogen receptor and endogenous estrogens play important roles in the development and function of female reproductive system. Selective estrogen receptor modulators (SERMs) which fully antagonize the effects of estrogen on uterine and mammary tissues, while mimicking the effects of estrogen on the bone and cardiovascular system have been investigated as a possible alternative to estrogen replacement therapy. Raloxifene has been treating for prevention of breast cancer and prevention of osteoporosis.

In this proposal will development green chemistry method applies in synthesis series of SERMs. Using microreactor technology that small-scale commercial applications, reducing waste, include safety, potential performance enhancement, and environmental impact. The experiments will designed to use mix level orthogonal array to find optimized operation factors. Several parameters will studied and optimized, such as time of reaction, reaction temperature, reactant flow, kinds of ionic liquid. The products of detection also will be determined with chromatography and spectroscopy. If the proposal execute successfully will be carry out active pharmaceutical industry promote to manufacture, increase efficiency and prevent waste.