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

（二）計畫英文摘要。（五百字以內）

Arsenic (As) is a ubiquitous metal in the environment and the accumulation of arsenic in ground water and plants poses a health risk to both humans and animals. Selenium (Se) is a trace element essential for animal and human growth. Se acts as an antioxidant with anticancer effect. Arsenic-induced toxicity is associated with the cellular uptake and the exclusion of arsenic compounds. The arsenic detoxification mechanistic paths involve antioxidative defense system and multidrug resistance transporters. Selenium was shown to inhibit the growth of drug-resistance cell lines and to prevent the development of drug resistance. However, additional information is limited on the interaction of selenium with multidrug resistance transporters. Cancer is the leading cause for death in human health and may be prevented through improving physiological antioxidative system by consuming protective compounds. Natural plant extracts have gained much attention recently due to the antioxidative and antimutagenic abilities to defense the dangerous effects caused by toxins or mutagens. With the knowledge of Se as an anticarcinogenic agent, delivery of this protective element through the food systems is a natural and harmless method to provide enrichment for humans. Since plants with high sulfur content tend to take up high levels of Se, broccoli has been enriched with Se for possible Se supplementation through dietary consumption. The addition of Se-enriched broccoli to the rat diets significantly reduced the mammary and colon tumor incidence. The primary objective of this proposed study during the first year will aim at the arsenic exclusion mechanism for arsenic trioxide (As_2O_3) in primary culture of porcine aortic endothelial cells (PECs). The action of the membrane transporters on arsenic exclusion of GSH-conjugated arsenic complex will be investigated. For the second year, the direct effect of the specific multidrug resistance transporters responsible for arsenic exclusion will be investigated using the specific inhibitor and the isolated membrane vesicles from PECs. For the third year, the regulation of selenium-enriched broccoli extract (SeB) on arsenic exclusion will be investigated. The final goal for this proposed study is to regulate arsenic exclusion by SeB to reduce or prevent the toxic damage in vascular endothelial cells during arsenic toxicity.