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• 計畫中文名稱	氧化性壓力對子宮內膜細胞生長之影響
• 計畫英文名稱	Characteristic Alteration in the Endometrial Cells by Oxidative Stress
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• 中文關鍵字	子宮內膜異位症; 侵入性; 轉移性; 共同培養; 粒線體 DNA 突變; 氧化性傷害
• 英文關鍵字	Endometriosis; Invasion; Metastasis; Coculture; MtDNA mutation; Oxidative damage
• 中文摘要	現代人的生活壓力逐年升高，根據資料顯示婦女罹患子宮內膜異位症的發生率愈來愈高，其發生率約佔婦女人口的 10%。此疾病常造成患者在生理上、心理上、生活上造成許多痛苦，成爲相當令人困擾的問題。依據研究顯示，子宮內膜異位症常爲女性不孕的主要族群，大約 50%的不孕婦女患有此一疾病。所謂子宮內膜異位症是子宮內膜 (endometrium)生長於子宮內腹腔以外的部位。此種異位性內膜上皮細胞具有可侵入性 (invasion)及轉移性(metastasis)的特性。迄今，對於子宮異位性內膜上皮細胞侵入性及轉移性的機轉及成因尚未清楚。許多學者認爲子宮內膜異位症與氧化壓力 (oxidative stress)有關，在異位的組織受到發炎反應影響而有較高含量的氧化傷害 (oxidative damage)，而使 oxidatively modified complexes 增加。此外，在免疫系統上，經由 cytokine 及 chemokine 活化 macrophage 也會造成發炎反應及增加氧化性傷害。在我們先前的研究證明在子宮內膜異位症患者的病灶處的檢體中，檢測出高含量的氧化性傷害物質(如 8-OH-dG 及脂質過氧化產物(lipoperoxide)及粒線體基因突變的堆積 (mitochondrial DNA mutation)。經由實驗結果，我們推測氧化性傷害於子宮異位性內膜上皮細胞引發 (initiation)及進展(progression)扮演重要的角色。本計畫中，我們將子宮內膜異位上皮細胞及基質細胞 (stroma cell)加以分離，分別探討這兩者細胞於氧化性傷害(如 H2O2 and CCCP)處理後的分別變化。並將此兩中細胞共同培養及分離培養，此兩種細胞間的互相影響，並釐清其扮演的腳色。並且尋找可減低侵入性及轉移性的因子及治療方法。冀望經由對此疾病的治病機轉的了解以其對此疾病的診 斷方法及治療有更進一步的進展 。
• 英文摘要	Endometriosis, one of frequent diseases in gynecology, is a considerable threat to the physical, psychological and social integrity of women. More, up to 50% of infertile patients have this disease. The etiology and pathogenesis of this important disease is poorly understood, which is

defined as the ectopic location of the endometrium-like glandular epithelium and stroma ouside the uterine cavity. Clinical observations and in vitro experiment imply that endometriotic cells are invasive and able to metastasize. To date, however, little is know about the mechanisms of invasion and metastasis in endometriosis. It still remains an open question as what extent the peritoneal environment influences the establishment and/or progression of endometriosis. As a result of such stress, a sterile, inflammatory reaction with the secretion of growth factors, cytokines, and chemokines is generated, which is deleterious especially to successful reproduction. In our preliminary data, the significantly higher amounts of oxidative damages were detected in endometriotic lesions than in controlled normal endometrium such as the mitochondrial DNA rearrangement, 8-OH-normal endometrium such as the mitochondrial DNA rearrangement, 8-OH- deoxyguanosine (8-OH-dG), and lipoperoxide contents (TBA reacted compounds). Our central hypothesis proposes that oxidative damages might be anticipated in the initiation or progression of endometriosis. In this study, we propose that such a pro-oxidant environment promotes growth of ectopic endometrium. In the future, in order to elucidate the oxidative stress promotes growth of ectopic endometrium, in the first, we must establish the primary culture of endometrial epithelial and stromal cell from eutopic endometrium, as co-culture model in vitro. In the study, we established the primary co-culture model of endometrial cells from the patients with endometriosis. Epithelial cells and stromal cells were separated and co-cultured. In order to clarify the cross talk between two types of cells, we traced on the regulation of cell growth by treating with oxidants. Only by understanding the mechanisms involved in the pathogenesis of endometriosis we can develop the basis for new diagnostic and therapeutic approaches.