• 系統編號	RC8803-0038
• 計畫中文名稱	染料製造廠員工泌尿上皮細胞微核試驗與職業暴露之關係
• 計畫英文名稱	A Study on the Association with Micronuclei in Exfoliated Urothelial Cells and Occupational Exposure of Dye Workers
• 主管機關	行政院國家科學委員會
• 計畫編號	NSC87-2314-B038-028
• 執行機構	台北醫學院公共衛生系
• 本期期間	8608 ~ 8707
• 報告頁數	0 頁
• 使用語言	中文
• 研究人員	葉錦瑩 Yeh, Ching-Yin
• 中文關鍵字	聯苯胺；泌尿上皮細胞；微核；致癌物質
• 英文關鍵字	Benzidine；Urothelial cell；Micronucleus；Carcinogen

• 中文摘要

台灣地區染料製造的歷史已有三十年以上,而聯苯胺類染料及其中間體已被確認易導致膀胱癌,其潛伏期平均約爲十八年,且在離開暴露後仍有可能發生,故從業人員之長期追蹤及疾病早期偵測工作相當必要。一般認爲細胞內去氧核糖核酸的病變是癌變的開始,根據以往的研究顯示,大部分上皮細胞癌可在其脫落細胞中發現去氧核糖核酸的斷片即爲微核,因此細胞內微核數可視爲標的器官早期癌變之指標。本研究爲瞭解染料製造業者職業暴露與其泌尿上皮細胞病變之關係,針對某染料製造廠所有員工除作尿液沈渣細胞學檢查外,並以流式細胞儀分析其泌尿上皮細胞之週期,在以往研究中已發現作業現場員工之細胞週期中 S 相百分比有較高的現象,爲了探討非倍數體細胞的增加是否來自微核的產生,並進一步瞭解職業暴露對細胞染色體傷害的程度,特針對以往暴露於聯苯胺類染料製造之員工作泌尿上皮細胞的微核試驗,細胞週期中 S 相百分比較高者,其微核細胞頻率顯著偏高。而經影響因子的調整後現場作業員工微核頻率有較高的傾向,研究結果更明顯呈現出喝茶習慣對微核生成的抑制作用,而喝酒則似乎有促進的趨勢。

• 英文摘要

Several investigators have found that occupational exposure to benzidine and benzidine-based dyes in workers is a risk factor for urinary bladder cancer in humans. As benzidine had been used in Taiwan since the late-1950's, and the average induction period of bladder cancer is about 18 years, the workers who had been highly exposed to benzidine should be under surveillance. Damage to DNA is considered a crucial mechanism in cancer development. Because over 90% cancers are epithelial, micronuclei or DNA fragments in exfoliated cells may provide a marker of early stage carcinogenesis in target tissues. Elevated frequencies of micronuclei have been found in exfoliated urothelial cell preparations from individuals who were exposed to inorganic arsenic compounds, Schistosomiasis, smoking, and some occupational chemicals. In this study, we used the micronucleus

assay in exfoliated urothelial cells to evaluate the possible carcinogenic effects of occupational benzidine exposure on the bladder. It is found that micronuclei frequency is marginal significantly higher in exposed group than in unexposed worker, and it is positively associated with age, work-years, smoking and drinking. In contrast, it is showed statistically significant as a protective effect with tea. It is also observed a statistically high correlation between S-phase percentage of urothelial cells in workers and micronucleus cell frequency.