

论著

## 云锡矿粉诱导永生化人支气管上皮细胞BEAS-2B恶性转化

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**摘要** 目的: 研究云锡矿粉对人支气管上皮细胞的致癌转化效应, 以探讨云锡矿工肺癌病因及其机制。方法: 采用永生化人支气管上皮细胞BEAS-2B细胞, 设200 $\mu$ g/ml及50 $\mu$ g/ml剂量的2个氧化矿染毒组和1个溶剂对照组, 染毒72h后, 隔代染毒直至第9代。系统观察转化过程中细胞的生物学特性及血清抗性、锚着独立性生长能力等转化表型特征。结果: 第20代时各组细胞均未表现出血清抗性, 第25代200 $\mu$ g/ml组细胞出现血清抗性和倍增时间增长、染色体畸变率增高; 第30代时200 $\mu$ g/ml组细胞在软琼脂上可形成小的细胞集落, 至第40代时, 200 $\mu$ g/ml及50 $\mu$ g/ml剂量组细胞均能在软琼脂上形成克隆。结论: 云锡矿粉能体外诱发人支气管上皮细胞恶性转化。经传代及软琼脂培养基筛选, 建立了可在体外长期传代的云锡矿粉诱发的癌前转化细胞。

**关键词** [永生化人支气管上皮细胞](#); [BEAS-2B](#); [矿粉](#); [恶性转化](#)

## Malignant Transformation of Immortalized Human Bronchial Epithelial Cells BEAS-2B Induced by Tin Mine Dust in Yunnan Province

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**Abstract** **BACKGROUD & AIM:** To explore the malignant transformation effects of Yunnan tin mine dust on human bronchial epithelial cells, further investigate the cause and mechanism of lung cancer in Yunnan tin miners. **MATERIAL AND METHODS:** The immortalized human bronchial epithelial cells BEAS-2B were treated with tin mine dust at the concentrations of 200  $\mu$ g/ml and 50  $\mu$ g/ml for 72 hours on every other generation and was stopped in the 9 th generation, including a negative control group. The characteristics of the cellular biology and the malignant transformation phenotype of cells were identified through observing serum resistance, anchorage independent growth, etc. **RESULTS:** Each group of cells in the 20 th generation didn't show serum resistance. For the high mine dust concentration group cells in the 25 th generation, the multiplication time, the serum resistance and the aberration of chromosome were increased, with the formation of small cell colonies in soft agar in the 30th generation. The anchorage independent growth appeared in high and low concentration groups in the 40th generation. **CONCLUSONS:** Tin mine dust in Yunnan province could induce malignant transformation of BEAS-2B cells. By passing generation and selection in soft agar medium we established the pre-cancerous transformation cells that could be cultured long term in vitro.

**Keywords** [Human bronchial epithelial cells](#); [BEAS-2B](#); [Tin mine dust](#); [Malignant transformation](#)

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