

论著

## 银杏外种皮提取物对C<sub>57</sub>BL/6J小鼠Lewis肺癌转移的抑制作用及其机制

沈婷婷, 许爱华, 郑媛媛, 陈华圣

扬州大学医学院药理学教研室, 江苏 扬州 225001

收稿日期 2012-6-28 修回日期 2012-12-15 网络版发布日期 2013-2-21 接受日期

**摘要** 目的 研究银杏外种皮提取物(GBEE)对小鼠Lewis肺癌转移的抑制作用及其作用机制。方法制备C<sub>57</sub>BL/6J小鼠Lewis肺癌转移模型,随机分为正常对照、模型对照、替加氟80 mg·kg<sup>-1</sup>(阳性对照)和GBEE 50,100和200 mg·kg<sup>-1</sup>治疗组。正常和模型对照组ig给予等体积生理盐水,给药组分别ig给予相应药物,每天1次,连续15 d。给药结束后第2天剥瘤称取瘤质量,计算抑瘤率;摘取肺组织,Bouin's液固定后于解剖显微镜下计数肺表面转移灶,计算肺癌转移率和抗转移率;放射免疫法测定血清IV型胶原(Col IV)和透明质酸(HA)的含量;免疫组织化学法检测移植瘤细胞CD44和nm23-H1蛋白的表达。结果 GBEE 50,100和200 mg·kg<sup>-1</sup>对C<sub>57</sub>BL/6J小鼠Lewis肺癌移植瘤生长具有明显的抑制作用( $P<0.05$ ,  $P<0.01$ ),移植瘤质量分别为 $2.6\pm 0.4$ ,  $2.3\pm 0.4$ 和 $(2.3\pm 0.6)$ g,抑瘤率分别为21.3%, 32.2%和29.6%。模型对照组小鼠Lewis肺癌转移率为70%,GBEE 50,100和200 mg·kg<sup>-1</sup>治疗组肺癌转移率分别为50%,30%和40%。与模型对照组比较,GBEE 100 mg·kg<sup>-1</sup>治疗组小鼠肺癌转移灶明显减少( $P<0.01$ ),抗转移率为87.5%;50和200 mg·kg<sup>-1</sup>无明显影响。与模型对照组比较,GBEE 50,100和200 mg·kg<sup>-1</sup>可明显降低小鼠血清中Col IV和HA含量( $P<0.01$ ),抑制小鼠Lewis肺癌移植瘤细胞CD44蛋白表达,并促进nm23-H1蛋白表达( $P<0.05$ ,  $P<0.01$ )。结论 GBEE对Lewis肺癌转移模型小鼠具有抗肿瘤转移作用,其机制可能与增加肿瘤转移抑制基因nm23-H1表达、抑制肿瘤细胞黏附分子CD44表达并降低血清Col IV和HA含量有关。

**关键词** [银杏外种皮提取物](#) [Lewis肺癌](#) [肿瘤转移](#) [IV型胶原](#) [透明质酸](#) [CD44](#) [nm23-H1](#)

分类号 [R965.1](#) [R734.2](#)

## Anti-metastasis effect of *Ginkgo biloba* exocarp extracts on metastasis of Lewis lung cancer in C<sub>57</sub>BL/6J mice and its mechanism

SHEN Ting-ting, XU Ai-hua, ZHENG Yuan-yuan, CHEN Hua-sheng

Department of Pharmacology, Medical College of Yangzhou University, Yangzhou 225001, China

### Abstract

**OBJECTIVE** To study the anti-metastasis effect of *Ginkgo biloba* exocarp extracts (GBEE) on metastasis of Lewis lung cancer in C<sub>57</sub>BL/6J mice and its mechanism. **METHODS** C<sub>57</sub>BL/6J mice were sc given  $2\times 10^6$  Lewis tumor cells in the front right armpit. C<sub>57</sub>BL/6J model mice with Lewis lung metastasis were randomly divided into model control, tegafur 80 mg·kg<sup>-1</sup> (positive control) and GBEE 50, 100 and 200 mg·kg<sup>-1</sup> treatment groups. The mice of treatment groups were ig given tegafur or GBEE, once a day, for 15 d. One day after drug administration, the transplanted tumor tissue was striped and its mass weighed to calculate the inhibitory rate. The metastatic tumor foci on the lung surface in mice were counted to calculate the rate of cancer metastasis and anti-metastasis of tumor on the lung surface was observed under a dissecting microscope after fixing by Bouin's liquid. Radioimmunoassay was performed to observe the content of collagen IV (Col IV) and hyaluronic acid

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(HA) in serum. Immunohistochemistry method was used for measuring the protein expression of CD44 and tumor metastasis suppressor gene nm23-H1 of transplanted tumor cells. **RESULTS** GBEE could significantly inhibit the growth of transplanted tumor on C<sub>57</sub>BL/6J mice. The transplanted tumor mass of GBEE 50, 100 and 200 mg • kg<sup>-1</sup> treatment groups was 2.6±0.4, 2.3±0.4 and (2.3±0.6)g, respectively, while the inhibitory rate was 21.3%, 32.2% and 29.6%, respectively. The incidence of metastases of Lewis lung cancer in model group was 70% and that of GBEE 50, 100 and 200 mg • kg<sup>-1</sup> treatment groups significantly decreased to 50%, 30% and 40%. The occurrence rate of metastatic foci of GBEE 100 mg • kg<sup>-1</sup> treatment group on the lung surface was lower than that of model group. The inhibitory rate of metastases was 87.5%. At the same time, the content of HA and Col IV in mouse