

论著

## 薯蓣皂苷对胶原性关节炎模型大鼠环氧合酶2及NF- $\kappa$ B的抑制作用

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**摘要** 目的 研究薯蓣皂苷对大鼠胶原性关节炎(CIA)的治疗作用并探讨其可能的作用机制。方法 第1天大鼠左后足底皮内注射胶原乳剂制备CIA模型,第7天加强注射。第12天ig给予薯蓣皂苷30, 60和120 mg·kg<sup>-1</sup>, 吲哚美辛8 mg·kg<sup>-1</sup>, 连续14 d。给药前和给药开始, 每4 d测量1次右后足跖肿胀程度; 处死后光镜观察右后足组织形态变化; 检测CIA大鼠脏器指数; Western印迹法检测踝关节滑膜组织中NF- $\kappa$ B p65亚基和环氧合酶2蛋白(COX-2)表达; 放射免疫法检测足爪肿瘤坏死因子 $\alpha$ (TNF- $\alpha$ )及前列腺素E<sub>2</sub>(PGE<sub>2</sub>)含量。结果 与正常对照组相比, CIA模型大鼠右后足跖明显肿胀( $P < 0.01$ ); 病理切片发现明显增生和大量炎症细胞浸润; 胸腺指数和脾指数明显增高( $P < 0.01$ ); 踝关节滑膜组织中NF- $\kappa$ B p65亚基和COX-2的水平显著升高( $P < 0.01$ ); 足爪TNF- $\alpha$ 及PGE<sub>2</sub>含量亦显著增高( $P < 0.01$ )。与模型组相比, 薯蓣皂苷60和120 mg·kg<sup>-1</sup>治疗可抑制CIA大鼠的足趾肿胀, 明显改善大鼠病变关节的病理组织结构, 降低大鼠胸腺指数, 显著降低NF- $\kappa$ B p65亚基和COX-2的水平( $P < 0.01$ ), 降低足爪TNF- $\alpha$ 及PGE<sub>2</sub>含量( $P < 0.01$ ), 对关节炎大鼠有明显的治疗作用。结论 薯蓣皂苷对CIA大鼠具有较强的抗炎作用, 机制可能与抑制NF- $\kappa$ B p65亚基和COX-2的表达有关。

**关键词** [关节炎](#), [胶原诱导性](#) [薯蓣皂苷](#) [NF- \$\kappa\$ B](#) [环氧合酶2](#) [前列腺素E<sub>2</sub>](#)

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## Inhibitory effect of dioscin on cyclooxygenase-2 and NF- $\kappa$ B in collagen-induced arthritis rats

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### Abstract

**OBJECTIVE** To investigate the inhibitory effects on cyclooxygenase-2(COX-2) and NF- $\kappa$ B in collagen-induced arthritis (CIA) rats by dioscin. **METHODS** The CIA model rats were established by intradermal injecting chicken type II collagen on the left hind toes of rats. The booster injection was carried out at the seventh day. Then each group was ig given dioscin 30, 60 and 120 mg·kg<sup>-1</sup> or indometacin 8 mg·kg<sup>-1</sup> on the 12th day, for 14 d, respectively. The right hind paw volume of rats was examined just before medicine given and every 4 d after medicine given. The right hind paws of sacrificed rats were taken to examine the change in histomorphology, and thymus and spleen indexes of CIA rats were measured. At the same time, the expressions of NF- $\kappa$ B p65 and COX-2 in synovium of ankle joints were examined by Western blotting, and the contents of tumor necrosis factor- $\alpha$ (TNF- $\alpha$ ) and prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) in claws were detected by the radioimmunoassay. **RESULTS** Compared with normal control group, the tumefaction of right hind toes in CIA rats were significantly increased ( $P < 0.01$ ), and infiltration of inflammatory cells and proliferation of the synovial cells were remarkably

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increased through pathological section analysis. The thymus index (TI) and spleen index (SI), the expression levels of NF- $\kappa$ B p65 and COX-2 in synovium of ankle joints and the contents of TNF- $\alpha$  and PGE<sub>2</sub> in CIA rats were significantly increased ( $P<0.01$ ) compared with normal control group. Dioscin 60 and 120 mg  $\cdot$  kg<sup>-1</sup> could inhibit the tumefaction of digitipedis, ameliorate the pathological changes of