



## 人参皂苷Rg<sub>1</sub>对AD模型大鼠脑片P-Tau, caspase-3表达的影响

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**中文摘要:**目的: 研究人参皂苷Rg<sub>1</sub>对AD模型大鼠脑片磷酸化Tau蛋白(Phosphory protein Tau, P-Tau)、半胱氨酸蛋白酶(caspase-3)表达的调控作用。方法: 将5周龄的雄性Wistar大鼠脑片(含海马及皮层)随机分为5组:空白对照组、模型组、人参皂苷Rg<sub>1</sub>低、中、高(60, 120, 240 μmol·L<sup>-1</sup>)3个浓度组,每组10张脑片。脑片放置人工脑脊液中培养。人参皂苷Rg<sub>1</sub>预防性加入人参皂苷Rg<sub>1</sub>各组2 h后,模型组和人参皂苷Rg<sub>1</sub>各组分别加入用冈田酸(okadaic acid, OA)3 h诱导大鼠脑片Tau蛋白过度磷酸化制备AD模型,运用免疫组织化学、图像分析技术等方法,观察人参皂苷Rg<sub>1</sub>预防性干预对各组大鼠脑片P-Tau,caspase-3表达的影响。结果: 模型组P-Tau,caspase-3的表达水平明显高于空白对照组(P<0.01);人参皂苷Rg<sub>1</sub>低、中、高浓度组与模型组比较,P-Tau,caspase-3的表达水平明显降低(P<0.01或P<0.05);P-Tau, caspase-3的表达随着人参皂苷Rg<sub>1</sub>浓度增加而降低。结论: 人参皂苷Rg<sub>1</sub>可以降低P-Tau水平,从而减缓神经纤维缠结的形成;还可通过抑制凋亡效应蛋白caspase-3的表达,从而抑制神经元凋亡,保护神经细胞,发挥抗痴呆的作用。

**中文关键词:**人参皂苷Rg<sub>1</sub> 阿尔茨海默病 磷酸化Tau蛋白 半胱氨酸蛋白酶 大鼠

### Experimental research on effect of ginsenoside Rg<sub>1</sub> on expressions of P-Tau and caspase-3 in brain slices from AD model rats

**Abstract:** Objective: To observe the effect of ginsenoside Rg<sub>1</sub> on the expressions of phosphory protein Tau (P-Tau) and caspase-3 in brain slices from AD model rats. Method: The brains of 5-week-old Wistar rats were cut into slices which were 400 μm thick. These brain slices were divided into five groups: normal control group, untreated group, low-dose, medium-dose and high-dose ginsenoside Rg<sub>1</sub> groups (60, 120, 240 μmol·L<sup>-1</sup>). And there were 10 slices in each group. These brain slices were cultured with artificial cerebrospinal fluid. After the brain slices in ginsenoside Rg<sub>1</sub> groups were administration with ginsenoside Rg<sub>1</sub> for 2 h preventively, brain slices in untreated group and ginsenoside Rg<sub>1</sub> groups were administrated with okadaic acid (OA) for 3 h to induce hyperphosphorylation of Tau protein to prepare AD models. And the effects of ginsenoside Rg<sub>1</sub> on the expressions of P-Tau and caspase-3 in brain slices from AD model rats in each group were observed with immunohistochemistry and image analysis technology. Result: The levels of the expressions of P-Tau and caspase-3 in the untreated group were significantly higher than those in the normal control group (P<0.01). Compared with untreated group, the levels of the expressions of P-Tau and caspase-3 in ginsenoside Rg<sub>1</sub> groups were significantly low (P<0.01 or P<0.05). Conclusion: Ginsenoside Rg<sub>1</sub> could inhibit the expression of P-Tau to slow the formation of neurofibrillary tangles and could inhibit the expression of caspase-3 to inhibit neuronal apoptosis to protect the nerve cells, so as to play the role of anti-dementia.

**keywords:** ginsenoside Rg<sub>1</sub> Alzheimer's disease P-Tau caspase-3 rats

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