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## G蛋白偶联受体激酶4对大鼠血管平滑肌细胞AT<sub>1</sub>受体的调节作用 [\(PDF\)](#)

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Title: G protein-coupled receptor kinase 4 regulates expression and phosphorylation status of AT<sub>1</sub> receptor in rat vascular smooth muscle cells

作者: 刘莉; 杨剑; 陈彩宇; 王微; 周永巧; 韩愈; 何多芬; 周林; 曾春雨  
汕头大学医学院第一附属医院心内科; 第三军医大学大坪医院野战外科研究所: 心血管内科, 重庆市心血管病研究所, 营养科

Author(s): Liu Li; Yang Jian; Chen Caiyu; Wang Wei; Zhou Yongqiao; Han Yu; He Duofen; Zhou Lin; Zeng Chunyu  
Department of Cardiology, First Affiliated Hospital, Shantou University Medical College, Shantou, Guangdong Province, 515041; Chongqing Institute of Cardiovascular Diseases, Department of Nutrition, Institute of Surgery Research, Daping Hospital, Third Military Medical University, Chongqing, 400042, China

关键词: G蛋白偶联受体4; 血管紧张素II 1型受体; 血管平滑肌细胞; 原发性高血压

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摘要: 目的 应用siRNA干扰抑制大鼠胸主动脉血管平滑肌细胞G蛋白偶联受体激酶4 (G protein-coupled receptor kinase 4, GRK4) 的表达, 探讨GRK4对血管紧张素II 1型 (angiotensin II type 1, AT<sub>1</sub>) 受体的调节作用。 方法 免疫组化检测大鼠回结肠动脉血管平滑肌组织GRK4蛋白表达; 以大鼠胸主动脉平滑肌细胞株 (A10细胞株) 为研究对象, 免疫印迹检测GRK4、AT<sub>1</sub>受体蛋白表达变化, 免疫共沉淀检测GRK4和AT<sub>1</sub>受体的相互作用和AT<sub>1</sub>受体磷酸化改变。 结果 大鼠动脉平滑肌组织GRK4表达良好; siRNA干扰后, GRK4蛋白表达明显下降 ( $P<0.05$ ); AT<sub>1</sub>蛋白表达降低 ( $P<0.05$ ), AT<sub>1</sub>受体磷酸化明显增强 ( $P<0.05$ ); GRK4和AT<sub>1</sub>受体存在共连接, 抑制GRK4表达后增加GRK4与AT<sub>1</sub>受体之间的共连接。 结论 GRK4能够调控大鼠胸主动脉平滑肌细胞AT<sub>1</sub>受体蛋白表达及其磷酸化状态, 该调节作用可能与两者的共连接有关。

Abstract: Objective To determine the effect of G protein-coupled receptor kinase 4 (GRK4) on angiotensin II type 1 (AT<sub>1</sub>) receptor in rat vascular smooth muscle cells by siRNA against GRK4. Methods S-P immunohistochemistry was used to detect the expression of GRK4 in SD rat ileocolic artery sample. Western blotting were employed to detect the expression of GRK4 and AT<sub>1</sub> receptor in A10 cells, an embryonic thoracic aortic smooth muscle cell line from normotensive Berlin-Druckrey IX, with or without RNA interference. The phosphorylation of AT<sub>1</sub> receptor and the interaction between GRK4 and AT<sub>1</sub> receptor were determined by co-immunoprecipitation. Results GRK4 protein was expressed in rat aortic smooth muscle cells. GRK4 siRNA interference inhibited GRK4 protein expression and AT<sub>1</sub> receptor expression in A10 cells ( $P<0.05$ ), while the AT<sub>1</sub> receptor phosphorylation was enhanced ( $P<0.05$ ). There was co-immunoprecipitation between GRK4 and AT<sub>1</sub> receptor, which was increased after GRK4 siRNA interference. Conclusion GRK4 regulates AT<sub>1</sub> receptor expression and phosphorylation, which may be related with the linkage between GRK4 and AT<sub>1</sub> receptor.

### 参考文献/REFERENCES

刘莉, 杨剑, 陈彩宇, 等. G蛋白偶联受体激酶4对大鼠血管平滑肌细胞AT<sub>1</sub>受体的调节作用[J]. 第三军医大学学报, 2012, 34(7): 593-596.

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