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论著

β-catenin特异的RNA干扰对Jurkat和K562细胞的作用

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摘要 摘要：目的 干扰β-catenin在Jurkat和K562细胞中的表达, 探讨β-catenin对细胞生长、增殖和凋亡等方面的作用。方法 设计合成β-catenin的siRNA干扰序列和对照序列, 阳离子脂质体法介导转入Jurkat和K562细胞, 分别用RT-PCR和Western blot方法检测β-catenin在干扰后mRNA水平和蛋白水平的表达变化。采用台盼兰拒染法计数, MTT比色法和集落形成能力检测细胞的生长增殖, AnnexinV/PI检测细胞凋亡以及PI染色检测细胞周期。结果 与对照组相比, 实验组细胞β-catenin的mRNA和蛋白水平的表达均降低。在Jurkat细胞, 实验组和对照组的细胞增殖抑制率分别为（49.30±9.86）%和（15.10±6.55）%（P＜0.05）, 而在K562细胞分别为（39.40±7.56）%和（10.10±6.89）%（P＜0.05）, 实验组细胞生长明显受抑。在Jurkat细胞, 实验组和对照组的集落形成率分别为(25.00±5.13)/104细胞和(31.90±5.55)/104细胞（P＜0.05）, 而在K562细胞分别为(39.33±6.26)/104细胞和(47.33±8.52)/104细胞（P＜0.05）, 实验组细胞集落形成能力明显减弱。在Jurkat细胞, 实验组和对照组的细胞凋亡率分别为（55.90±2.22）%和（23.50±2.82）%（P＜0.05）, 而在K562细胞分别为（27.90±15.30）%和（14.90±8.54）%（P>0.05）, 实验组细胞凋亡率有所增加。在这两种细胞系中均未发现细胞周期的改变。结论 β-catenin基因有可能对Jurkat和K562细胞具有促进细胞生长、增殖, 抑制凋亡的作用。

关键词 β-catenin Jurkat细胞系 K562细胞系 白血病 RNA干扰

分类号

Effects of β-catenin-specific siRNA Interference on Jurkat and K562 Cells

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Abstract ABSTRACT:Objective To inhibit the expression of β-catenin and investigate the effect of the β-catenin gene on Jurkat and K562 cells. Methods siRNA specifically knocking down the expression of β-catenin was used to testify the function of β-catenin in Jurkat and K562 cells. Real time polymerase chain reaction and Western blot were performed respectively to testify the mRNA level and protein level of β-catenin. Growth curve was determined by counting viable cells using trypan blue refusal-dyed method. The proliferation of cells was assayed by clonogenic counting and MTT method. The apoptotic cells were measured by Annexin V/PI staining. The cell cycle analysis was performed based on propidium iodide staining. Results Compared with the control group (transfected with siRNA directed against scramble gene), the survival, colonogenicity, and proliferation of the Jurkat and K562 cells were significantly decreased in experimental group transfected with β-catenin siRNA. The colonogenicity was decreased from 31.9±5.55 (siRNA) to 25.0±5.13 (control) in Jurkat cells, and from 47.33±8.52 (siRNA) to 39.33±6.26 (control) in K562 cells (both P＜0.05). The inhibition rate was (49.3±9.86)% (siRNA) and (15.1±6.55)% (control) respectively in Jurkat cells, and (39.4±7.56)% (siRNA) and (10.1±6.89)% (control) in K562 cells (both P＜0.05). In addition, the apoptotic rate increased from (23.5±2.82)% (control group) to (55.9±2.22)% (experiment group) in Jurkat cells and from (14.9±8.54)% (control group) to (27.9±15.3)% (experiment group) in K562 cells. However, cell cycle analysis revealed no obvious phases change both in Jurkat and in K562 cells. Conclusion Knock-down of β-catenin gene may decrease the proliferation, survival, and clonogenicity in Jurkat cells and K562 cells.

Key words β-catenin Jurkat cell lines K562 cell lines leukemia RNA interference

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