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论著

促酰化蛋白诱导的前脂肪细胞分化过程中转录因子表达的时序性研究

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摘要 目的：观察促酰化蛋白（ASP）诱导3T3-L1前脂肪细胞的分化过程，转录因子PPARγ、C/EBPδ、C/EBPα mRNA表达的强度及时序性。 方法： 以3T3-L1前脂肪细胞为实验对象，用ASP代替经典激素鸡尾酒诱导刺激中的胰岛素，即促酰化蛋白、1-甲基-3-异丁基黄嘌呤和地塞米松（ASP+IBMX+DEX）诱导3T3-L1前脂肪细胞分化，分别在诱导分化1 d、2 d、4 d、6 d、8 d收获细胞，采用RT-PCR法检测ASP诱导3T3-L1前脂肪细胞分化过程中转录因子PPARγ、C/EBPδ、C/EBPα mRNA表达的情况。 结果： PPARγ mRNA在诱导分化1 d时有低水平表达，在诱导分化过程中表达逐步升高，在终末分化阶段仍保持高水平表达。C/EBPδ mRNA在诱导分化1 d时有中等水平表达，在诱导分化2 d时表达水平最高，诱导分化4 d时表达明显减少，在诱导分化6 d和8 d，检测不到C/EBPδ mRNA的表达。C/EBPα mRNA在诱导分化1 d仅有低水平表达，在诱导分化过程中表达逐步升高，在终末分化阶段仍保持高水平表达。IBMX+DEX诱导前脂肪细胞分化过程中，PPARγ、C/EBPδ和C/EBPα mRNA分化早期也有一定升高，但明显低于ASP诱导的转录因子的表达。 结论：ASP对转录因子C/EBPδ、C/EBPα和PPARγ表达的时序性影响，可能是ASP诱导前脂肪细胞分化的重要分子机制之一。

关键词 促酰化蛋白； 脂肪细胞； 细胞分化； 转录因子

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Change of transcriptional factors PPARγ, C/EBPδ, C/EBPα mRNA expressions during differentiation of 3T3-L1 preadipocyte induced by acylation stimulating protein

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Abstract

<FONT face=Verdana>AIM: To study the expression of three kinds of transcriptional factors PPARγ, C/EBPα and C/EBPδ mRNA during differentiation in 3T3-L1 preadipocytes induced by acylation stimulating protein. METHODS: There were three groups in the study divided by the difference differentiation inducer: (1) control group: incubating the cells without any inducer; (2) IBMX+DEX group: incubating the cells with IBMX and DEX; (3) ASP group: incubating the cells with ASP, IBMX and DEX. The insulin of the typical hormone cocktail method was taken place by ASP. 3T3-L1 preadipocytes were induced to differentiate by 50 mg/L ASP+0.5 mol/L IBMX+1.0 μmol/L DEX. The cells were harvested on the first day, second day，4th day, 6th day and 8th day after differentiation, then the total RNA of these cells were abstracted. The transcription factors PPARγ, C/EBPα, and C/EBPδ mRNA expressions were assayed by RT-PCR. RESULTS: (1) During the differentiation induced by ASP group, PPARγ mRNA expression in the 3T3-L1 cells were very low on the first day after inducing differentiation. The expression was increased lightly on the second and 4th day after inducing differentiation, and it was kept on the high level on the 6th and 8th day after induction. The C/EBPδ mRNA was expressed at low level on the first day after inducing differentiation. It was increased significantly on the second day and decreased significantly on the 4th day after induction. C/EBPδ mRNA was not be detected on the 6th and 8th day after induction. The expression of C/EBPα mRNA was low on the first day after inducing differentiation. It was increased on the second and 4th day after induction and it was kept on high level on the 6th and 8th day after induction. (2) During the

differentiation induced by IBMX+DEX group, PPARγ, C/EBPδ and C/EBPα mRNA expressions were increased at the beginning of differentiation, but the levels of expression were lower than those in ASP group. CONCLUSION: The sequential expression of these transcription factors induced by ASP may be the important mechanism for the role of ASP to induce the preadipocytes to differentiate. </FONT>

Key words Acylation stimulating protein Adipocytes Cell differentiation Transcription factors

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