

研究简报

牛体细胞中端粒酶组分的表达及端粒酶活性的研究

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摘要:

端粒酶是一种能够以自身的RNA组分为模板在染色体末端添加端粒重复序列的核酸蛋白复合体酶,主要由端粒酶RNA组分(TERC)与端粒酶逆转录酶组分(TERT)构成。通过对成年牛组织中端粒酶的这两种组分的表达情况及端粒酶活性状态进行检测,探讨牛端粒酶组分的组织特异性表达以及与端粒酶活性之间的关系。应用RT-PCR检测了成年牛的心脏、肾脏、肝脏及睾丸中TERC和TERT基因的mRNA表达情况,利用TRAP银染法检测各组织中的端粒酶活性状态。结果表明TERC基因在这4种组织中均有表达,但转录水平在各组织之间有差异;TERT基因仅在睾丸中表达,在其他3种组织中均没有表达,端粒酶活性同样只在睾丸中检测到。由此可见牛端粒酶活性在体细胞中普遍受到抑制,仅在生殖腺中具有活性。端粒酶两种组分的转录是相互独立的,逆转录酶TERT组分是端粒酶活性的关键成分。

关键词: 牛 正常体细胞 端粒酶

Study on Telomerase Activity in the Bovine Adult Tissues

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Abstract:

Telomerase is a nucleotide-protein complex enzyme mainly composed of the telomerase RNA component (TERC) and the telomerase reverse transcriptase (TERT), which catalyzes the addition of repeat sequence to telomeric DNA with its RNA component as template. To study the relationship between the different expression of telomerase components and the activity of telomerase, the transcription of two main components of telomerase and the activity status of telomerase in adult bovine tissues were examined. RT-PCR was used to detect the transcription of TERC gene and TERT gene in the heart, kidney, liver and testis of adult cattle and the telomerase activity was determined by Telomeric Repeat Amplification Protocols (TRAP) with silver staining. The TERC mRNA was detected in all of the tissues above, with level increasing. The TERT mRNA was only detected in the testis, not in other tissues. The activity of telomerase was also only detected in the testis. These results demonstrate that testis has high activity of telomerase, which is repressed in most of bovine somatic tissues. The transcription of two components of telomerase is independent, and the TERT is the key component of bovine telomerase.

Keywords: cattle adult somatic cells telomerase

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