Identification and characterization of a novel gene Saf transcribed from the opposite strand of Fas

賴基銘

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摘要

Abstract

Apoptosis is a morphologically distinct form of cell death involved in many physiological and pathological processes. The regulation of Fas/Apo-1 involved in membrane-mediated apoptosis has also been known to play crucial roles in many systems. More and more naturally occurring antisense RNAs are now known to regulate, at least in part, a growing number of eukaryotic genes. In this report, we describe the findings of a novel RNA transcribed from the opposite strand of the intron 1 of the human Fas gene. Using orientation-specific RT-PCR and northern blot analysis, we show that this transcript is 1.5 kb in length and was expressed in several human tissues and cell lines. This transcript was cloned by 5'- and 3'-RACE (rapid amplification of cDNA ends) and the transcription start site was determined by primer extension. This novel gene was named Saf. To assess the functions of Saf, Jurkat cells transfected with human Saf or control vector was prepared. The stable Saf-transfectant was highly resistant to Fas-mediated but not to TNF-alpha-mediated apoptosis. Although the overall mRNA expression level of Fas was not affected, expression of some novel forms of Fas transcripts was increased in Saf-transfectant, especially the inhibitory soluble forms. These findings collectively suggest that Saf might protect T lymphocytes from Fas-mediated apoptosis by blocking the binding of FasL or its agonistic Fas antibody. Saf might regulate the expression of Fas alternative splice forms through pre-mRNA processing.