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RISP, a Novel Rev-interacting Protein

S Kramer-Haemmerle, F Ceccherini-Silberstein, C Bickel, H Wolff, M Vincendeau, T Werner, V Erfle*‡ and R Brack-Werner

Address: Institute of Molecular Virology, Munich

Email: V Erfle* - erfle@gsf.de

* Corresponding author ‡Presenting author

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Yeast-two hybrid screening of a T-cell cDNA library with Rev as bait led to isolation of a novel human cDNA product (16.4.1). 16.4.1-containing fusion proteins showed predominant cytoplasmic localization, which was dependent on CRM1-mediated export from the nucleus. Nuclear export activity of 16.4.1 was mapped to a 60 amino acid region and a novel transport signal identified. Interaction of 16.4.1 with Rev in human cells was shown in a mammalian two-hybrid assay and by colocalization of Rev and 16.4.1 in nucleoli, indicating that Rev can recruit 16.4.1 to the nucleus/nucleoli. Rev-dependent reporter expression was inhibited by overexpressing 16.4.1 and stimulated by siRNAs targeted to 16.4.1 sequences, demonstrating that 16.4.1 expression influences the transactivation function of Rev.

These results suggest that 16.4.1 may act as a modulator of Rev activity and it has been named RISP (Rev interacting shuttling protein). The experimental strategies outlined in this study are applicable to the identification and biological characterization of further novel Rev-interacting cellular factors.