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Ribosomal Shedding Hypothesis

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RIBOSOMAL SHEDDING HYPOTHESIS

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Protein kinases regulate a number of signal transduction pathways. These enzymes phosphorylate proteins, which leads to functional changes. Protein kinase C (PKC) belongs to a subgroup of protein kinases and is important in regulating cell growth and cancer in humans. In signal transduction, several PKC kinases utilize the protein Receptor Activated C Kinase protein1 (RACK1). RACK1 has a homologue in yeast, Asc1p.

Yeast Asc1p is tightly bound to the ribosomal 40S subunit of cells growing in logarithmic phase, but may dissociate as cells reach stationary phase (Biochem J. 380:823-30, 2004). The dissociation of Asc1p from the 40S ribosomal unit may cause post-translational silencing. Research on the mechanism of post-translation silencing in Asc1p may lead to a better understanding of cancer in humans. This research reexamines the hypothesis that Asc1p is found in the ribosomal fraction during logarithmic phase, but dissociates from the ribosome as yeast cells reach stationary phase.