



# Ribosome-associated Chaperones as Key Modulators of Protein Homeostasis

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## Abstract:

In eukaryotes, a Hsp70/Hsp40 chaperone system (termed Ssb-RAC in yeast) and the conserved nascent polypeptide-associated complex (NAC) transiently associate with ribosomes and interact with nascent polypeptides. Our data suggest that these systems assist *de novo* protein folding processes and likewise control ribosome biogenesis and the cellular translational activity by a yet unknown mechanism. Moreover, recent data indicate that Ssb-RAC and NAC are associated with diverse protein aggregates and required to de-toxify insoluble PolyQ-protein aggregates in yeast suggesting yet another function of these chaperones off of ribosomes. We set out to analyze these multiple cellular functions of NAC and the Hsp70/Hsp40 system using different eukaryotic model systems to disclose their impact on protein homeostasis.

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