

## **Messenger RNA Is Translated When Associated with the Cytoskeletal Framework In Normal and VSV-infected HeLa Cells**

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When the cytoskeletal framework is prepared from suspension-grown HeLa by extraction with nonionic detergent, all the polyribosomes are associated with the framework while 80% of tRNA and the major portion of monoribosomes as well as 75% of the cell proteins are found in the soluble fraction. The mRNA of polyribosomes is bound to the cytoskeleton and these molecules remain attached even after polyribosomes are disassembled in vivo prior to extraction. Although all actively translating message molecules are attached to the framework, about one quarter of the poly(A)+ mRNA is free of the framework. The binding of message to the skeleton may be obligatory for translation. Upon infection with VSV, all the viral polyribosomes but not all the viral messages of the infected cell are associated with the cytoskeletal framework. Pulse-chase labeling shows that VSV messages initially associate with the framework and then later detach and cease translation. The mRNA for the viral glycoprotein (G), known to translate only on ribosomes bound to endoplasmic reticulum, is also retained by the detergent-extracted structure. It appears that the protein substructure of the endoplasmic reticulum which binds polyribosomes is a component of the cytoskeletal framework.