It is carried out by a single release factor eRF, a GTP driven protein. After multiple cycles of elongation, the nonsense codon of mRNA appears in the A site, which is recognized by release factor This factor, in conjunction with GTP and the peptidyl transferase promotes the hydrolysis of the bond between the peptide and the tRNA occupying P site

POLYSOMES

These are assemblies of ribosomes.

Because of their relatively large size, the ribosome particles cannot attach to an mRNA closer than 80 nucleotides apart. Multiple ribosomes on the same mRNA molecule form a polyribosome.

- A single mammalian ribosome is capable of synthesizing about 400 peptide bonds each minute.
- The proteins synthesized by the attached polyribosomes are extruded into the cisternal space between the sheets of endoplasmic reticulum and are exported from here.
- Polyribosomal particles free in the cytosol are responsible for the synthesis of proteins required for intracellular functions.

Inhibitors of Protein Synthesis

Tetracycline Prevents the binding of aminoacyl tRNA to A site

Chloromycetin and macrolide class of antibiotics

Bind to 23S rRNA, which has a role in peptide bond formation

Puromycin Structural analog of tyrosinyl-tRNA

Cycloheximide Inhibits peptidyl transferase in 70s ribosomal subunit

Diphtheria toxin Catalyses ADP- ribosylation of eEF-2 in mammalian cells and inactivates it.

CO- AND POSTTRANSLATIONAL MODIFICATION OF POLYPEPTIDE CHAINS

Post-translational modification (PTM) refers to the covalent and generally enzymatic modification of proteins during or after protein biosynthesis. Proteins are synthesized by ribosomes translating mRNA into polypeptide chains, which may then undergo PTM to form the mature protein product. PTMs are important components in cell signaling.