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FACULTY OF ENGINEERING &TECHNOLOGY

DEPARTMENT OF BIOTECHNOLOGY

The interaction between the small ribosomal subunit (30S) and two initiation factors (**IF 1 and IF 3**).

The complex (30S ribosomal subunit + IF1 + IF 3) bind to the mRNA at a specific location.

A special initiator tRNA binds to the 30S ribosome and mRNA at the start codon.

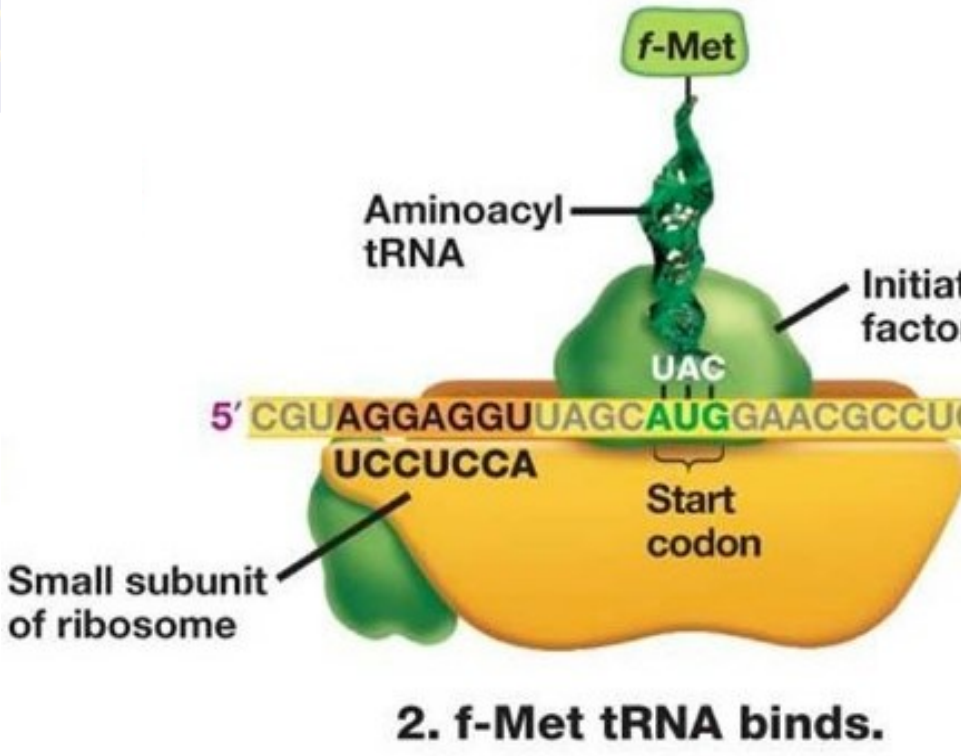
Initiator tRNA in bacteria

The initiator tRNA carries a specific modified amino acid call
ormyl-methoionine (fMet- tRNA). It is a methoionine with
ormyl group added.

When AUG is in the middle of a transcript another tRNA is used.
It is called **Met-tRNA.**

Initiator tRNA in bacteria

.The initiator tRNA (fMet-tRNA) gets carried to
ne complex (30S ribosome + IF1 + IF 3) by
itiation factor IF2 using GTP.



Initiator tRNA in bacteria

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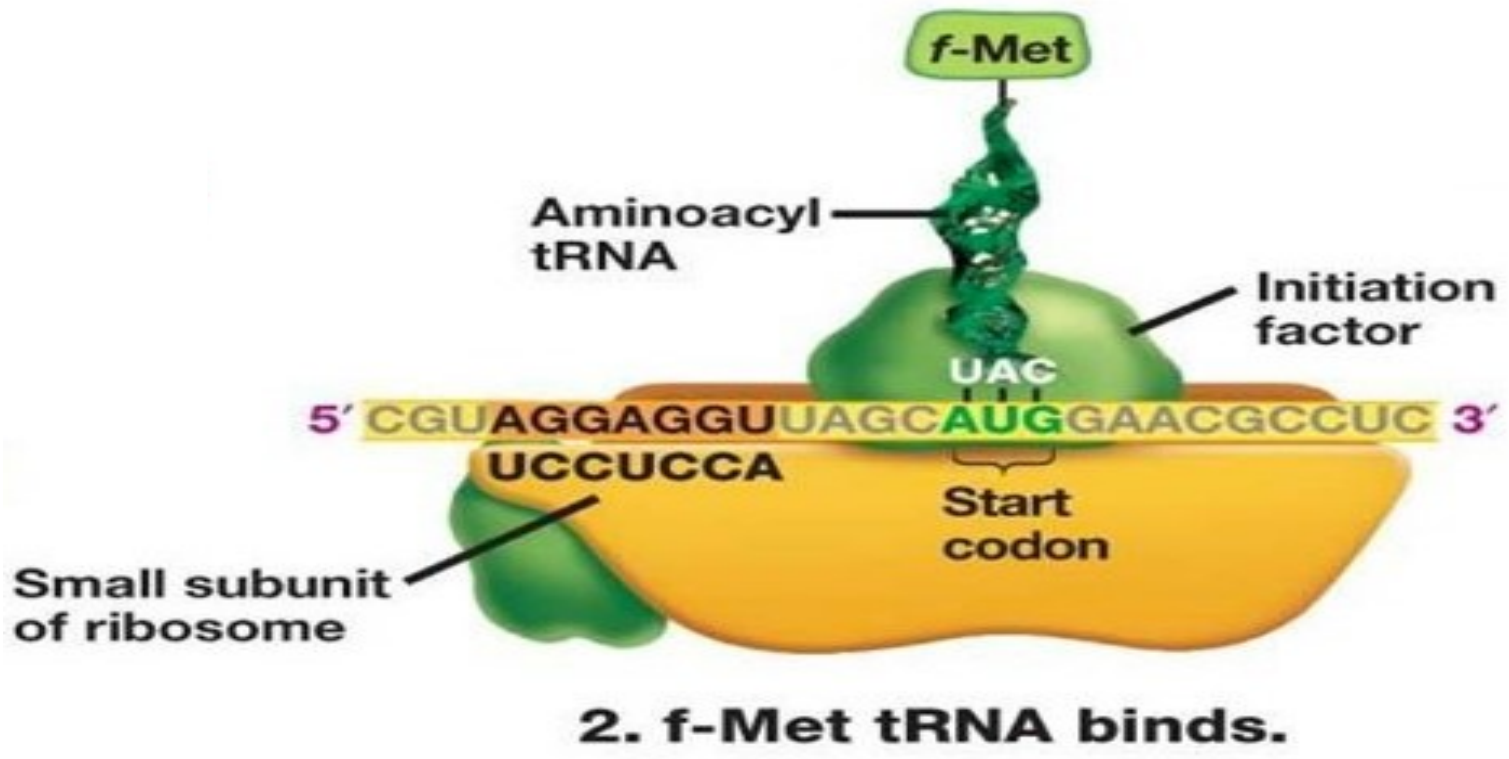


2. f-Met tRNA binds.

Functions of translation initiation factors

IF 1:

- Blocks the A site in the ribosome so that only P site available for initiator tRNA is available to bind to.

Functions of translation initiation factors

F 2:

- Carries the initiator tRNA to the small ribosomal subunit and places it in the P site.

Functions of translation initiation factors

F 3:

- Binds to the mRNA in ribosomal binding site.
- Prevent the binding of the 50S ribosomal large subunit to the small one.

Translation initiation in bacteria

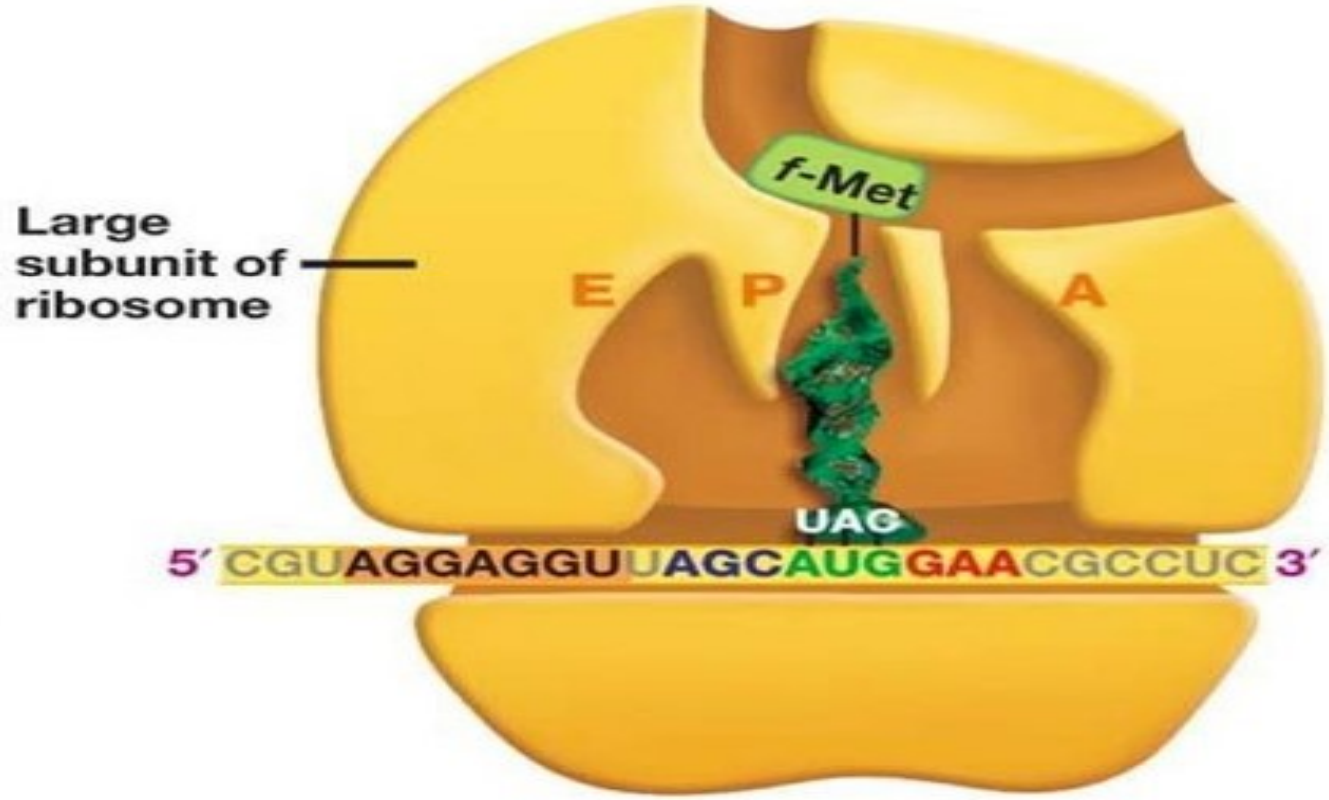
The interaction between the small ribosomal subunit (30S) and two initiation factors (**IF 1 and IF 3**).

The complex (30S ribosomal subunit + IF1 + IF 3) bind to the mRNA at a specific location.

A special initiator tRNA binds to the 30S ribosome and mRNA at the start codon.

The 50S ribosomal subunit binds to the (30S + mRNA + fMet tRNA) using GTP as a source of energy.

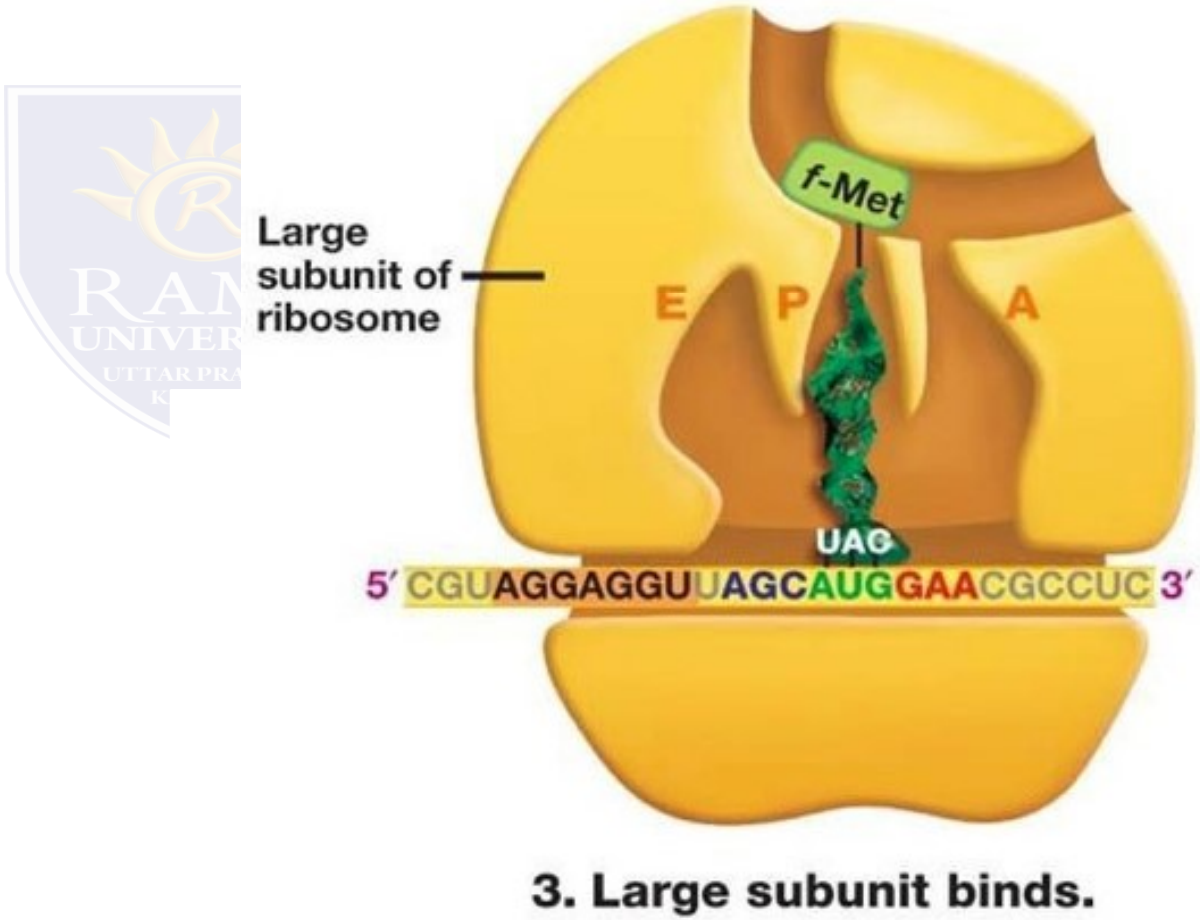
The initiation factors (IF1 and IF3) gets released and the resul complex is called **the initiation complex.**



3. Large subunit binds.

Initiation complex includes:

1. fMet-tRNA.
2. mRNA.
3. Small ribosome.
4. Large ribosome.



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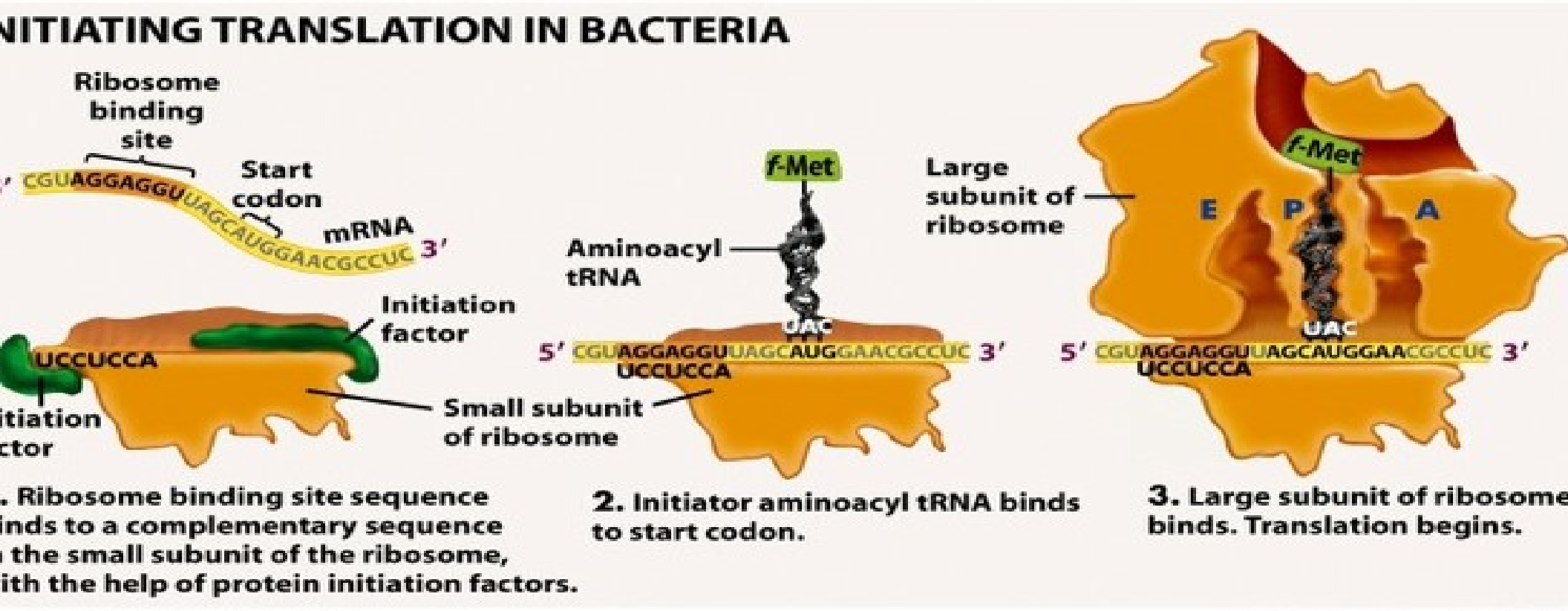

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