

Introduction

The mRNA is **read** according to the genetic code, three bases at a time [**codon**] each of which refers to an amino acid

Occurs in the **cytoplasm** of the cell

Produces **polypeptide** which undergo folding to become functional protein

Key Machineries

mRNA Transcribed from DNA

Ribosome Large & Small sub-units

e

*Large sub-unit A-[**Aminoacyl**]-site, P-[**Peptidyl**]-site, E-[**Exit**]-site

*Small sub-unit latches onto mRNA, forms the **initiation complex**

tRNA Carrying Amino acid specified by anti-codon

GTP supplies energy as hydrolyzes into GDP

The Process

Can be split into 3 steps as follows:

Initiation

Elongation

Termination

Step 1: Initiation

The Small sub-unit looks for **initiator** seq.
Sequence

In Prokaryotes, **Shine-Dalgarno** seq.
In Eukaryotes, **Kozak** seq.

tRNA #1 Charged with an **N-formylated Methionine** Called only by **initiator AUG**

Initiation Factors **IF-3** Prevents binding of large sub-unit thus allowing small sub-unit to bind with mRNA

IF-2 Forms a complex with **f-Met-tRNA** & **GTP** and binds with the small sub-unit

IF-1 Joins in after **f-Met-tRNA** arrives at initiation codon **AUG**

