1 | Protein Translation

After KBhBIO101DNATranscription and KBhBIO101mRNAPreprocessing.pdf, the mature mRNA was sent to ribosome. mRNA must travel to the cytoplasm in the Eukarotes to catch the RNA, whereas in prokarotes they don't have to go anywhere.

1.1 | Ribosomes

Ribosomes are the protein devices that takes mRNA and create the actual sequence of amino acids that are folded together to create a protein.

Ribosomes has two units: 50S unit + 30S unit => they come together whenever a mRNA needs it. Each contained specialized rRNA + tTRNA to catalyze attachment of and carry amino acids + adapt the incoming mRNA respectively.

1.2 | The Actual Process of Translation

Firstly, a **Note! The beginning of mRNA is not translated.** There a portion on the 5' end of the mRNA (starts with AGGAGG) — about 170 nuclotides in humans, and shorter in bacteria — that's called UTR (untranslated region.) This region helps ribosomes bind to it + stablize the binds.

Basically: smaller ribosome unit grabs the incoming mRNA, larger facilate the attraction of amino-acid carrying tRNA to the mRNA and pluck the resulting amino acids on the tRNA to form an amino acid.

1. 3 protein factors IF1, IF2, IF3 forms a complex for transcription by binding to a subunit on the ribosome
2. Methionine-carrying tRNA binds to the start of the mRNA, which forms the initiation complex. This is typically removed after translation if not coded for (f M-A amino acid pair coded for, methonine removed; but if M-L pairs coded for, methonine not removed.)
3. A-site: translates mRNA to tRNA — anti-codon pairs
4. P-site: amino acid dumped from tRNA to the actual chain being built
5. Spent tRNA ejected to the E-site, which is then recycled
6. Catalyst tRNA combines with rRNA to catalyze amino acid peptide bond
7. Each codon (group of 3 units in tRNA), matches a specific KBhBIO101AminoAcids

After the amino acids are assembled, it's time for KBe2020bio101refProteinFolding. See also KBhBIO101Proteins => After the amino acid sequence is done, shaperones fold proteins, and if its finds proteins impossible to fold, it flags it using ubiquitin to send to the garbage