TRANSLATION

Main Ideas: • decodes mRNA message (from DNA) into PROTEIN (transcription!)
• occurs in ribosomes.

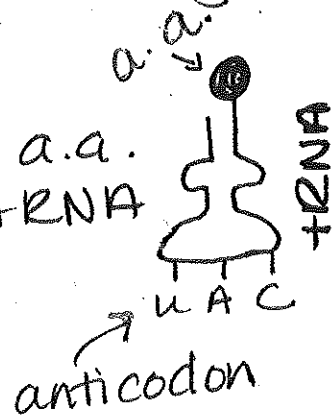
DNA → RNA → Proteins
transcription | translation

Remember! → Proteins are made of amino acids
→ there are 20 different amino acids

mRNA Translated:
• mRNA code "read" 3 nucleotides at a time
⇒ codon: 3 nucleotides that specify one amino acid

ex. UCGACGGU is read as UCG-ACG-GGU
[amino acids] Serine Histidine Glycine

• AUG = start codon & a.a. methionine
• UGA | UAA | UAG = stop codons & no a.a.
• each codon matches an anticodon on tRNA
• tRNA carries amino acid to ribosome



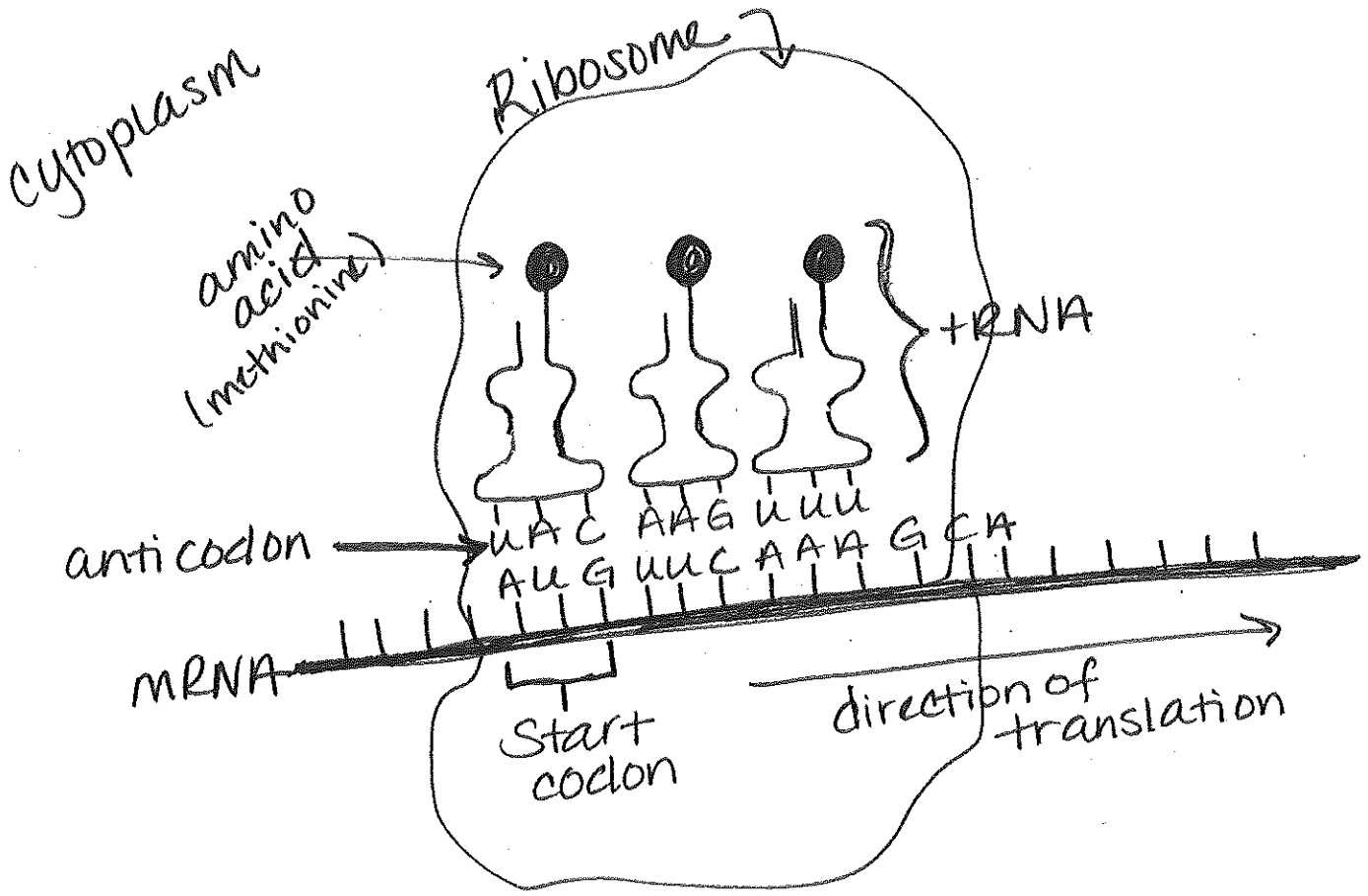
4 Steps of Translation

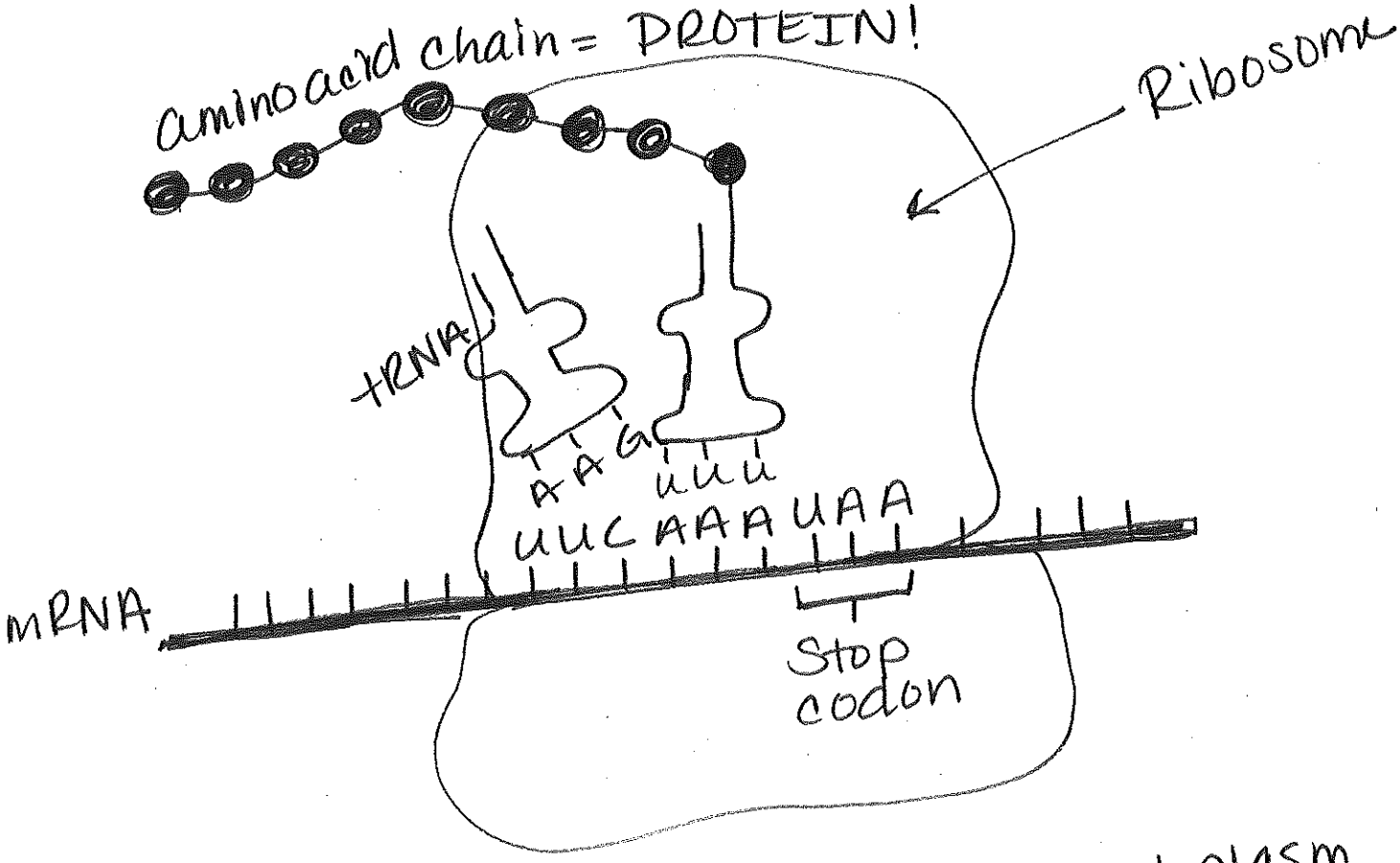
① mRNA leaves nucleus & finds ribosome

② translation begins at start codon (AUG).
tRNA with anticodon complementary to mRNA codon & delivers amino acid.

③ "Assembly Line"
ribosome joins 2 a.a.'s & breaks bond with tRNA
ribosome moves along mRNA, binding new tRNA & amino acids.

④ Process continues until one of stop codons reached.


Cytoplasm
Ribosome
amino acid (methionine)
tRNA
anticodon
UAC AAG UUU
AUG UUC AAA GCA
mRNA
Start codon
direction of translation


amino acid chain = PROTEIN!
Ribosome
tRNA
AAG UUU
UUC AAA UAA
mRNA
Stop codon
cytoplasm