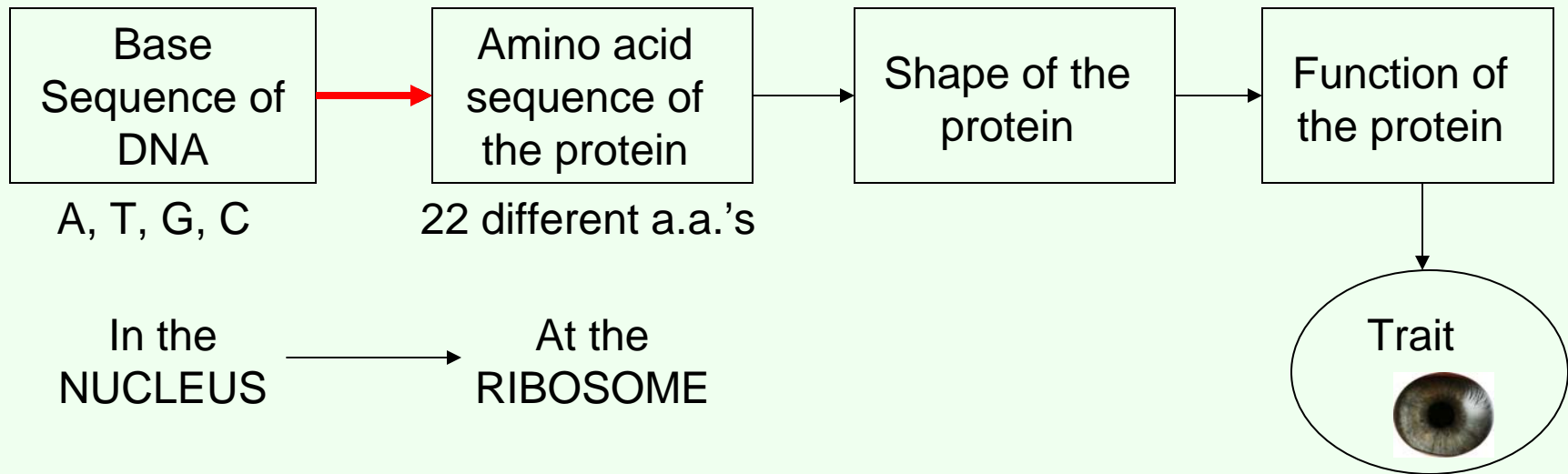


Makin' Proteins!

How genes make you

Modern Genetics



DNA doesn't
leave the nucleus.

It's code is "used"
at the ribosome.

HOW?

RNA = Ribonucleic Acid

mRNA – “messenger” RNA – Brings the code of DNA to the ribosome

Uses a sequence of N-bases to encode info

(A, **U**, G and C – *almost* the same as DNA)

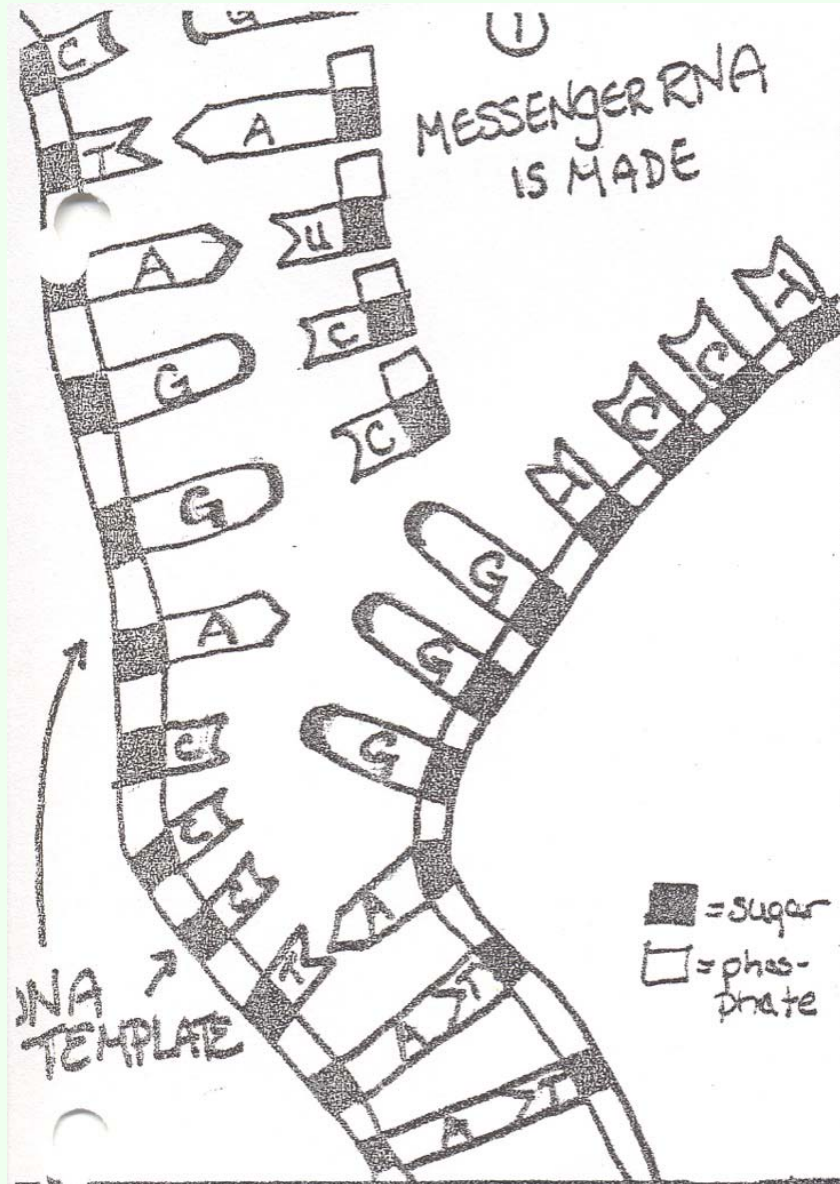
The “.pdf” of protein synthesis

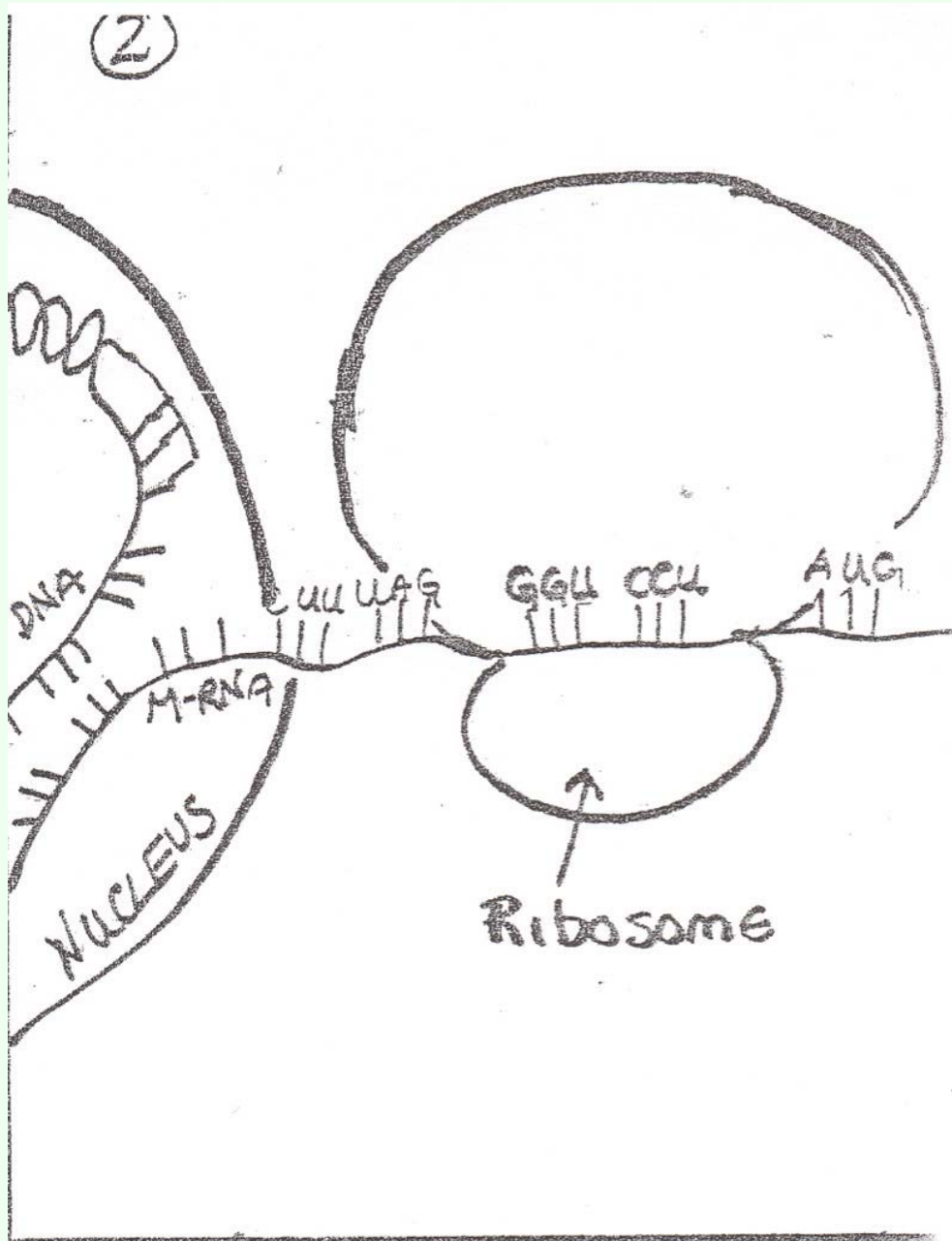
There are other types of RNA. We’ll see those later...

Step One:

Transcription:

- Base sequence of DNA converted to base sequence of mRNA.
- Same language (bases)
- Occurs in nucleus.





Step Two:

mRNA carries info
from nucleus to
ribosome

More ribonucleic acid, please!

mRNA base sequence is “read” in groups of three bases called ***codons***.

tRNA – “transfer” RNA – Allows mRNA base sequence to be translated into amino acid sequence.

Each mRNA *codon* has a corresponding tRNA with a particular amino acid attached.

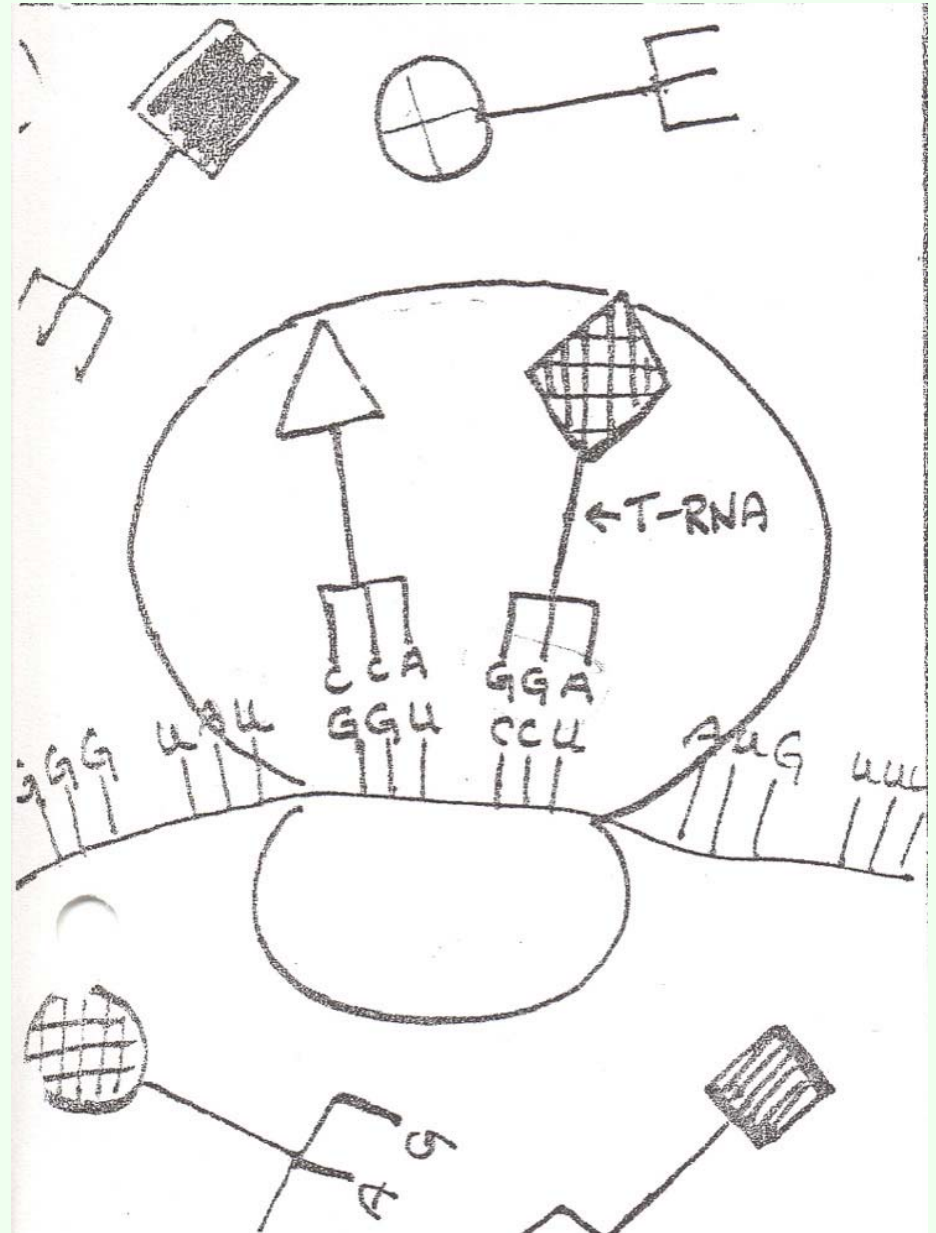
Wait...there's *more* RNA?

Yes, there's even another type of RNA. Ribosomes are actually made of RNA as well referred to as rRNA (“r” for *ribosomal*). Not so important for high school bio though...

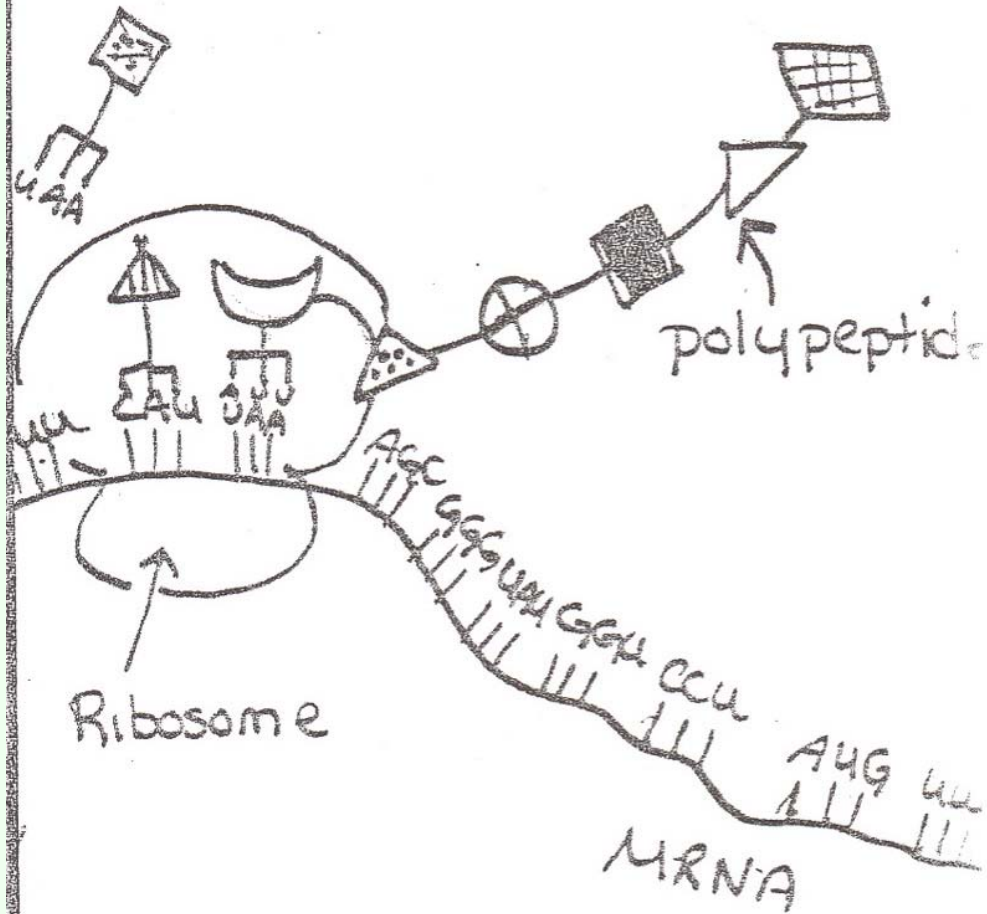
Step Three

Translation:

- mRNA base sequence converted to amino acid sequence.
- Change in “language” (from bases to amino acids).
- Occurs at ribosome.



4



Step Four

As codon sequences are translated into amino acids, a chain of amino acids grows.

A chain of amino acids = polypeptide

For our purposes, a polypeptide is basically a protein (there is a difference)