→ What is a genome: Total complement of genes in a cell

→ In all cells there are three processes involved in genetic information flow, what are they
Replication → Transcription → Translation

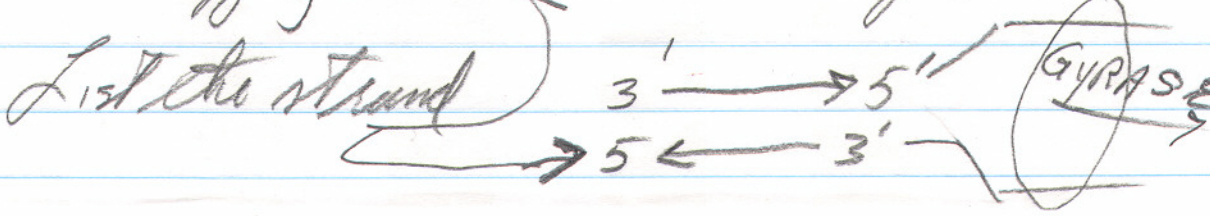
→ What are the three informational molecules involved in genetic information flow. mRNA, tRNA, rRNA

→ How are ant. parallel strands of DNA held together? Hydrogen Bonds

→ What is the function of a Topoisomerase inside a prokaryotic cell?
Topoisomerase, also known as gyrase enzymes, cause either negative or positive super coiling in a bacteria
Topoisomerase I causes single strand nicks in DNA causing rotation of one strand about the other in a double helix structure

→ Why are there leading & lagging strands of DNA during its replication process of DNA

Leading strand → Continuous synthesis 3'→5'
Lagging strand Discontinous synthesis



(2)

→ NAME THREE DIFFERENCE BETWEEN DNA & RNA (SET UP TABLE)

DNA	RNA
DOUBLE STRAND	SINGLE STRAND
THYMINE	URACIL
DEOXY RIBOSE	RIBOSE
DNA POLYMERASE	RNA POLYMERASE

WHAT IS A CONSENSUS SEQUENCE: TATAAT promoter recognition site by σ factor: PRIBNOW BOX

(2) TTGACA -35

→ AT WHAT LEVELS DOES RNA ACT AT

1) GENETIC 2) FUNCTIONAL level

→ what is a promoter site on DNA

RECOGNITION DNA BINDING Sites

→ WHAT IS the role of the sigma factor during TRANSCRIPTION

AID in RNA polymerase binding & decoding DNA

σ factor release after a small section of mRNA made

→ what are the three processes of transcription

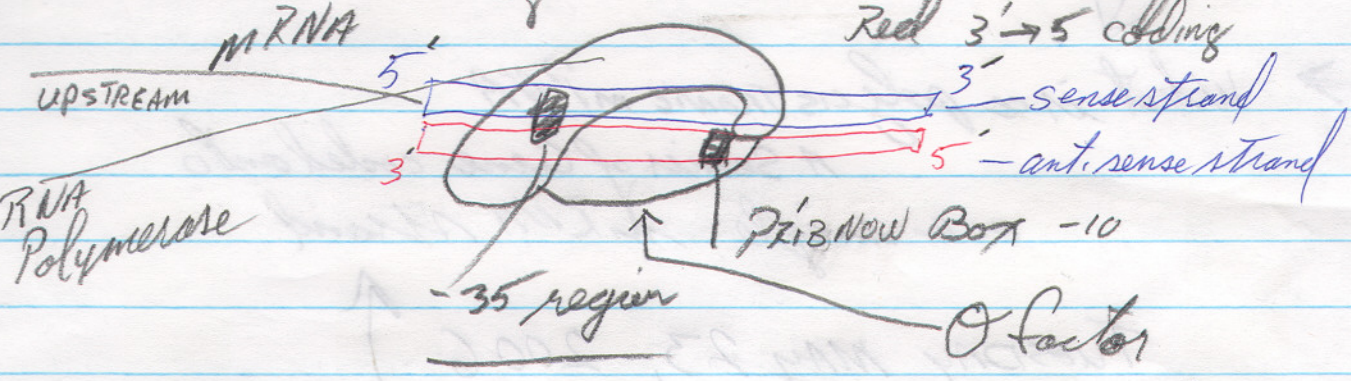
- initiation at promoter site
- mRNA elongation
- mRNA Termination

(3)

→ Where do sigma factors arise from

The DNA codes for σ factor
7 are known for *E. coli*
17 are identified in *Bacillus subtilis*

→ What strand of DNA is used to code for



→ How is termination in transcription accomplished

A sequence of DNA containing inverted repeat with a central non-repeating segment

INTRINSIC TERMINATOR
SITES RICH IN GC followed by AT sequences

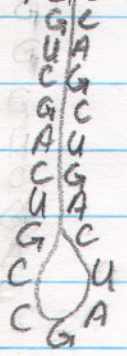
TGCG	GGTGCACTG	CCGAT	CAGTCGACC	TTTT	DNA with INVERTED REPEATS
ACGC	CCACGTGAC	GGCTA	GTCAGCTGG	AAAA	

↓ TRANSCRIPTION of one STRAND

UGCG	GGUGCACGG	CCGAU	CAGUCGACC	UUUU

Fold To FORM SECONDARY STRUCTURE

CGCGGCUUUU



stem-loop in RNA
IMMEDIATELY upstream
from a run of uracils leads
To Termination of Transcript

(4)

Rho protein factor used in E coli

Rho factor binds tightly to RNA & moves down the chain to RNA polymerase – DNA complex,

Rho factor causes RNA/DNA complex to disassociate

MAY 26, 06

→ What is a polycistronic mRNA

A series of Gene coded onto one single mRNA strand

TUESDAY MAY 23, 2006