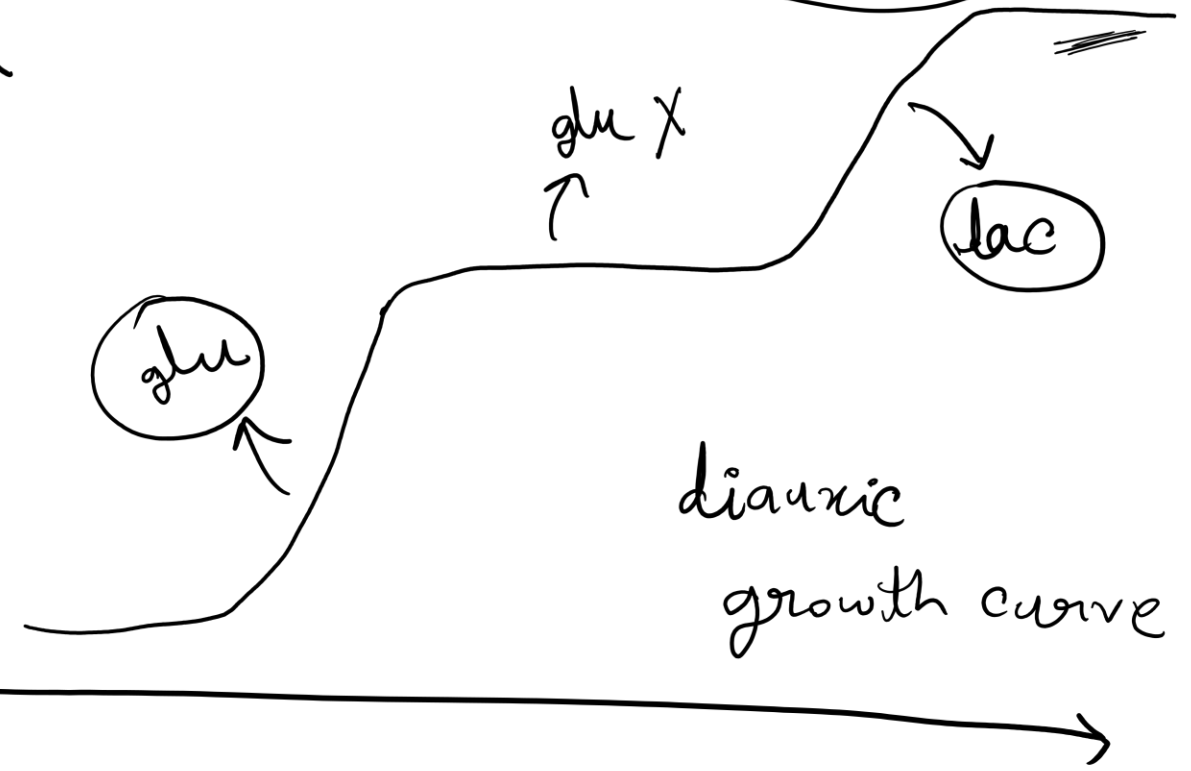
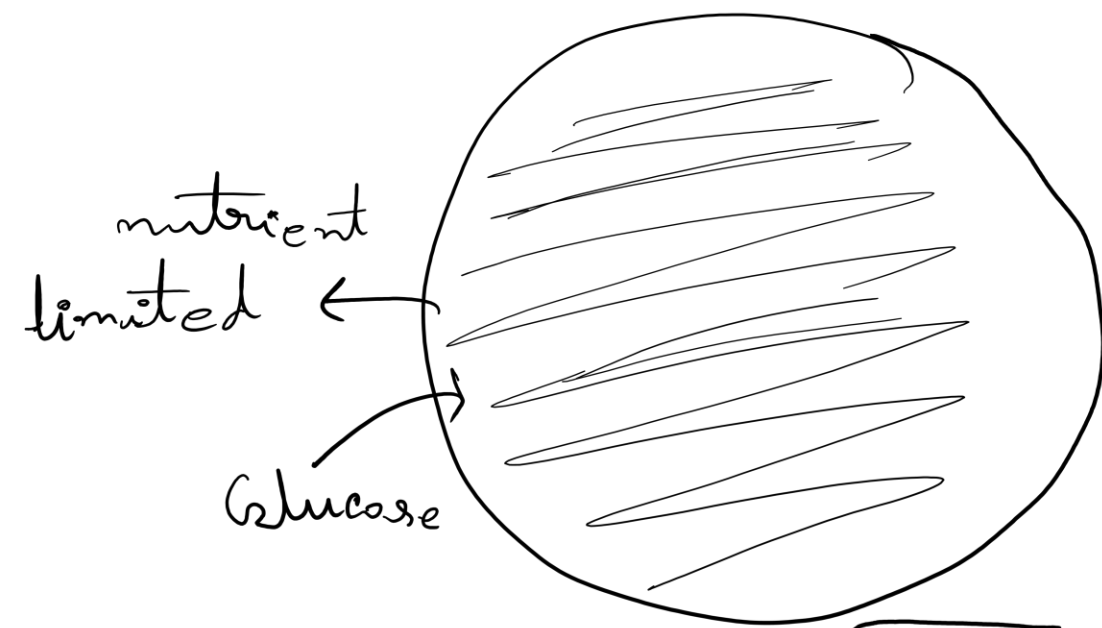
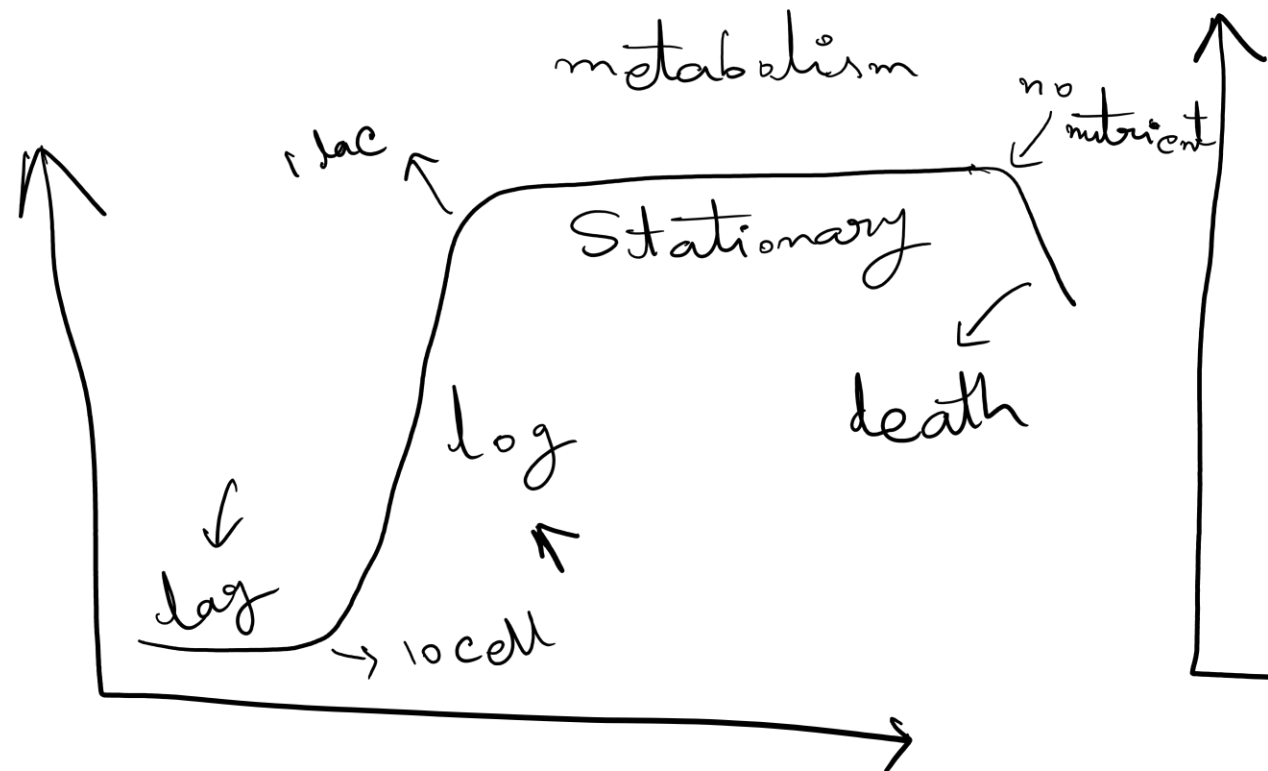


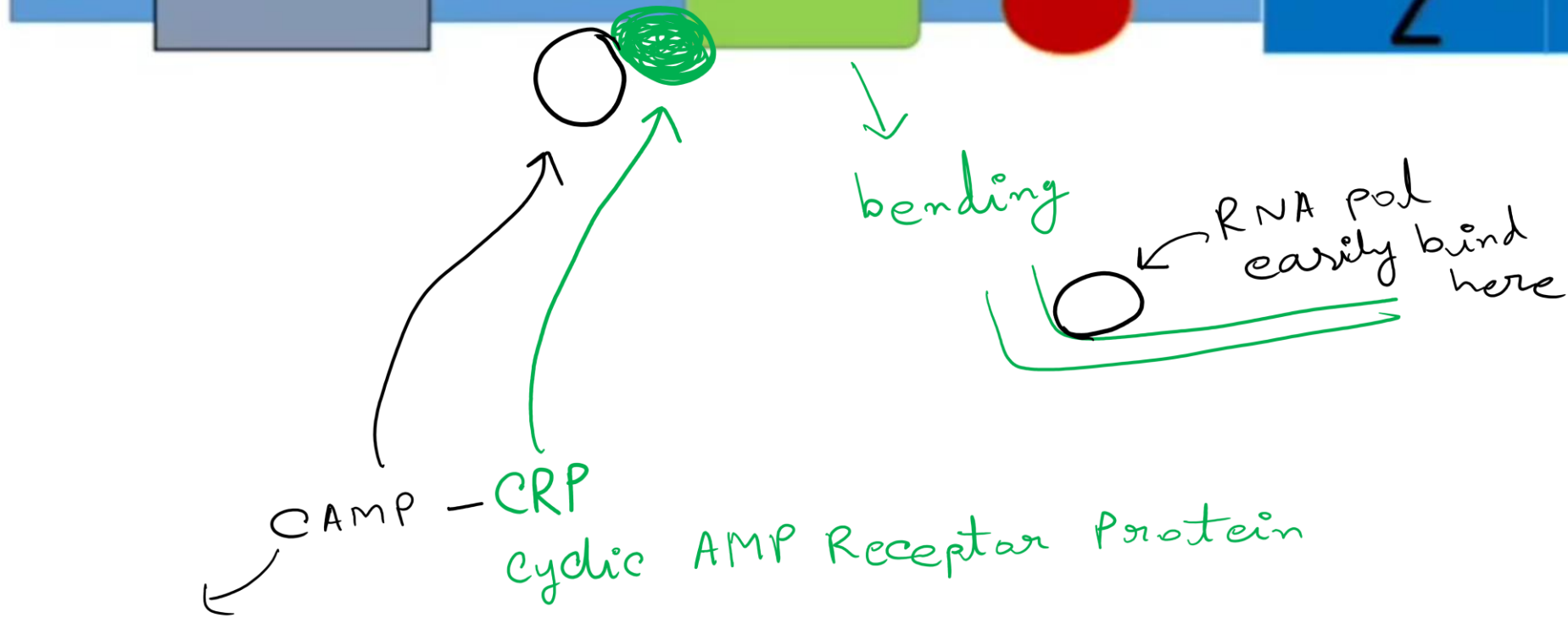
Effect of Glucose on Operon

MicroDome
Sayan Ganguly
23.04.25

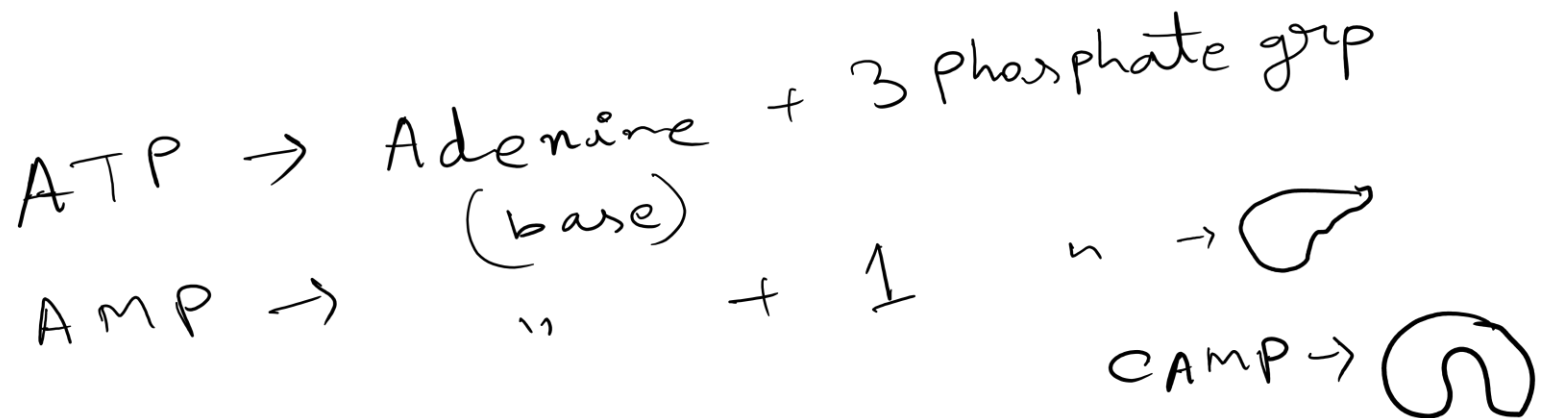
Bacteria
prefer glu ↑
lac ↓

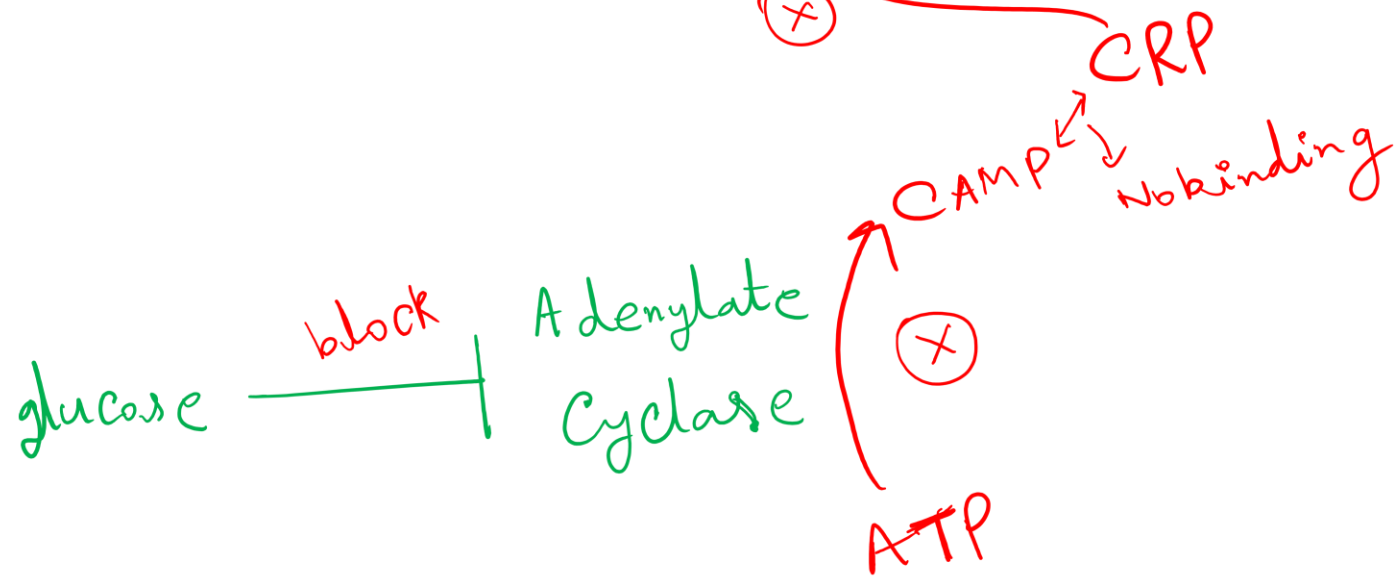
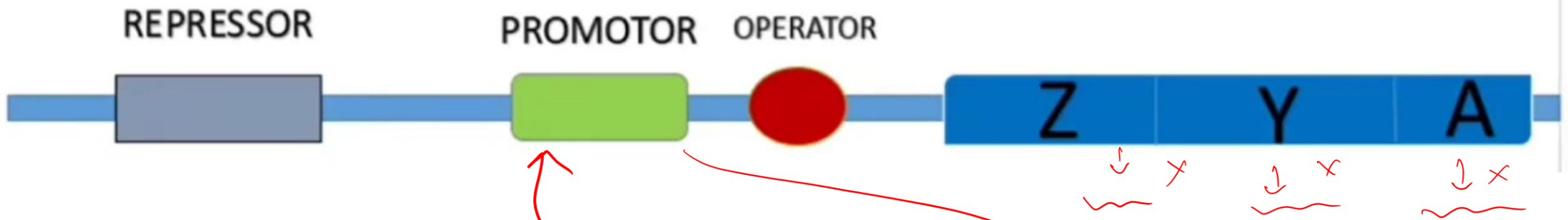
Glucose — block lactose
metabolism





Cyclic
Adenosine
monophosphate





$\text{IPTG} \rightarrow \text{Isopropyl Thiogalactosidase}$
 acts like \rightarrow Lactose

Initial \rightarrow glucose $\uparrow\uparrow\uparrow$
|
Adenylate cyclase

ATP

$\xrightarrow{\text{⊗}}$ CAMP

⊗

↓

CAMP - CRP no binding

Inactive

\rightarrow No exp. ✓

Finally \rightarrow glucose $\downarrow\downarrow\downarrow$

⊗

Adenylate cyclase

ATP

$\xrightarrow{\text{✓}}$ CAMP - CRP

✓

\rightarrow promoter \uparrow

bend \uparrow

RNA pol \uparrow

exp. \uparrow

Initial

×

Final

✓

Inducible operon

Glucose	Lactose		CAMP	Transcription
High	Low	↔	Low	Low (x)
Low	High	→	High	High
High	High	↔	Low	Low
Low	Low	→	High	Low

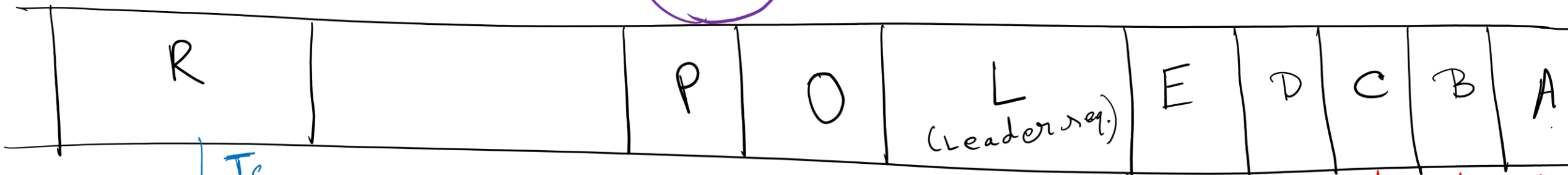
TRP Operon

↳ Tryptophan → Amino Acid
(w)

Apo + Co → Holo
↓
⊗ Active

RNA Pol

exp ⊙



↓ Tc
mRNA
↓ Tn



Apo repressor (normally)
→ incomplete structure

↓
mRNA

Chorismic acid

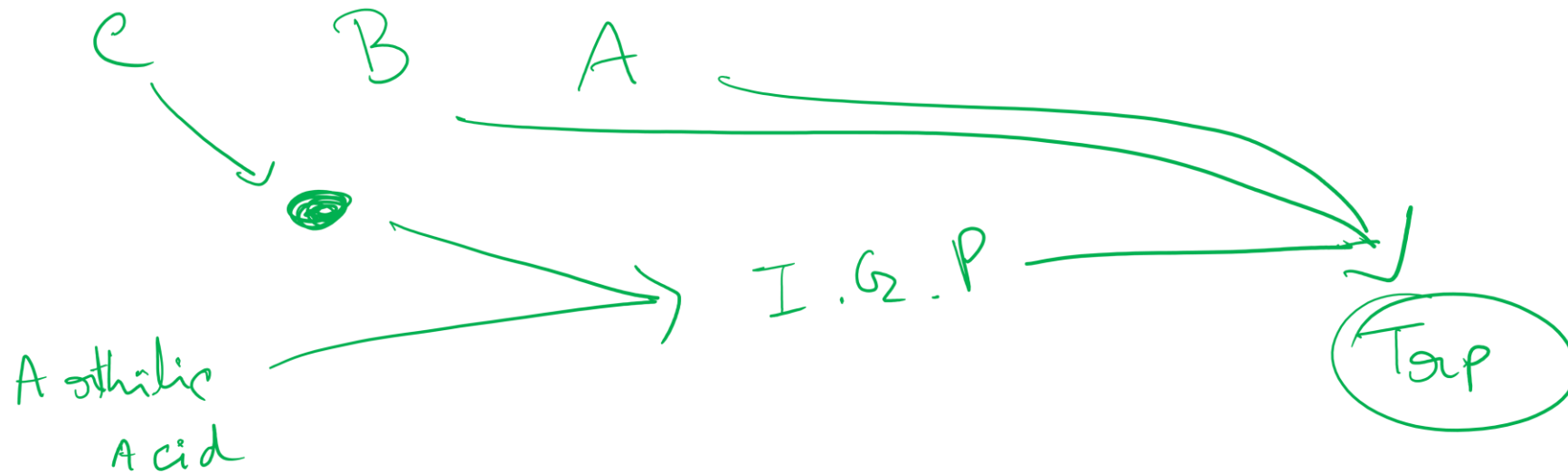
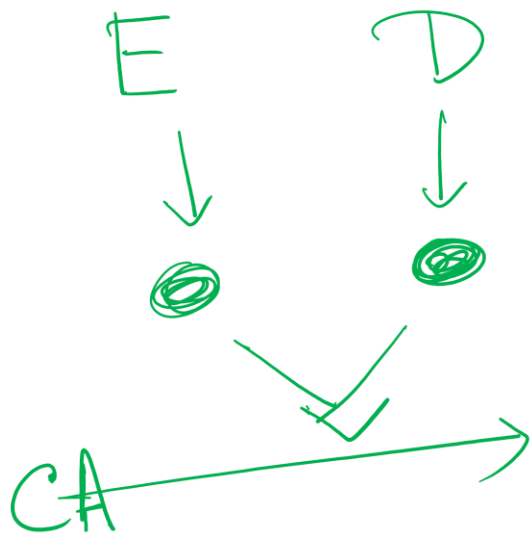
↓ Ts

↓
Anthranilic Acid

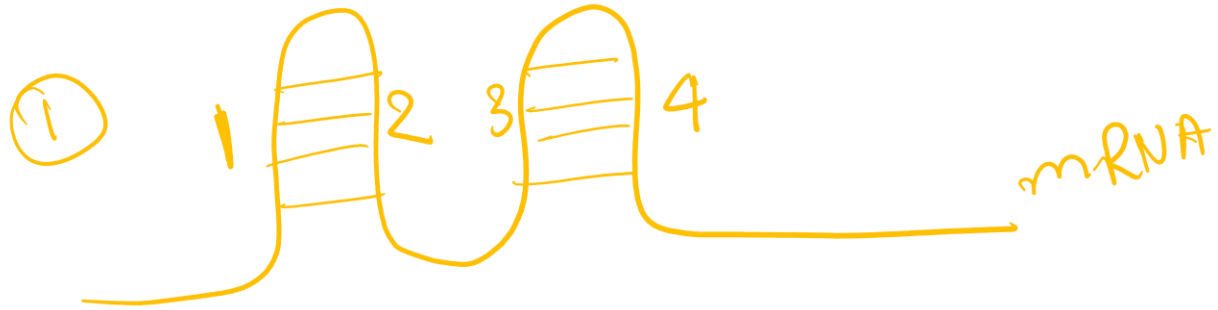
↓
Indole glycerate

Apo repressor + Corepressor
↓
Holo repressor

↓
Tryptophan

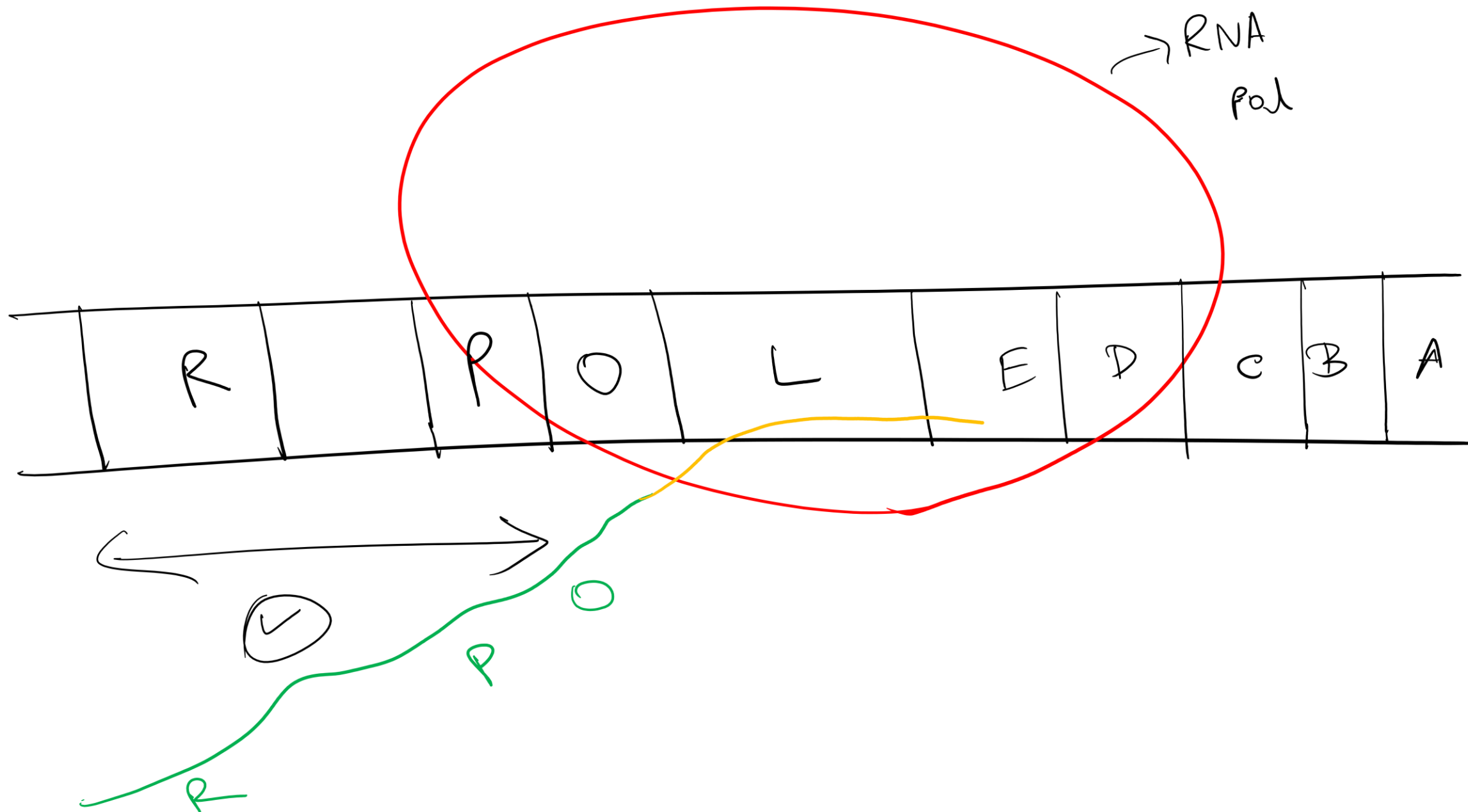


Leader seq.



1st complementary \rightarrow 2nd
2nd " \rightarrow 3rd
3rd " \rightarrow 4th





If Tc terminates
at 'L' → how str. genes
will be synthesised?

RNA pol.



→ Tc
termination

Thank You!