

15/5/14

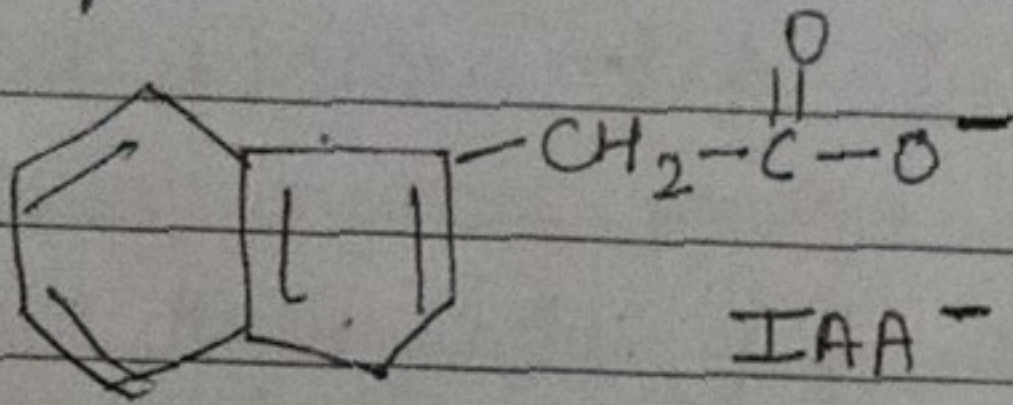
Auxin → IAA (Indole 3 acetic acid)
 IBA (Indole 3 butyric acid)
 PAA (Phenyl acetic acid)
Plant Hormones

classmate

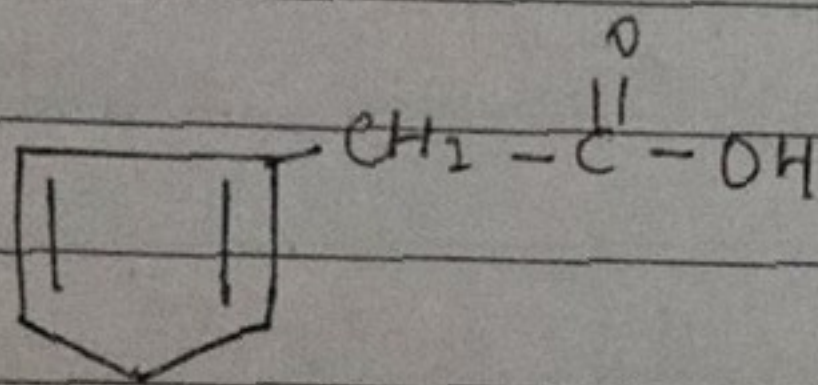
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Auxin → Indole 3 acetic acid

Indole-3-acetic acid is synthesized by tryptophan. Auxin moves from the shoot tip towards roots. (mostly via phloem)



High pH
 low H⁺ concn



Very low pH

IAA⁻ → Active Transport → 2 transporter

Auxin efflux

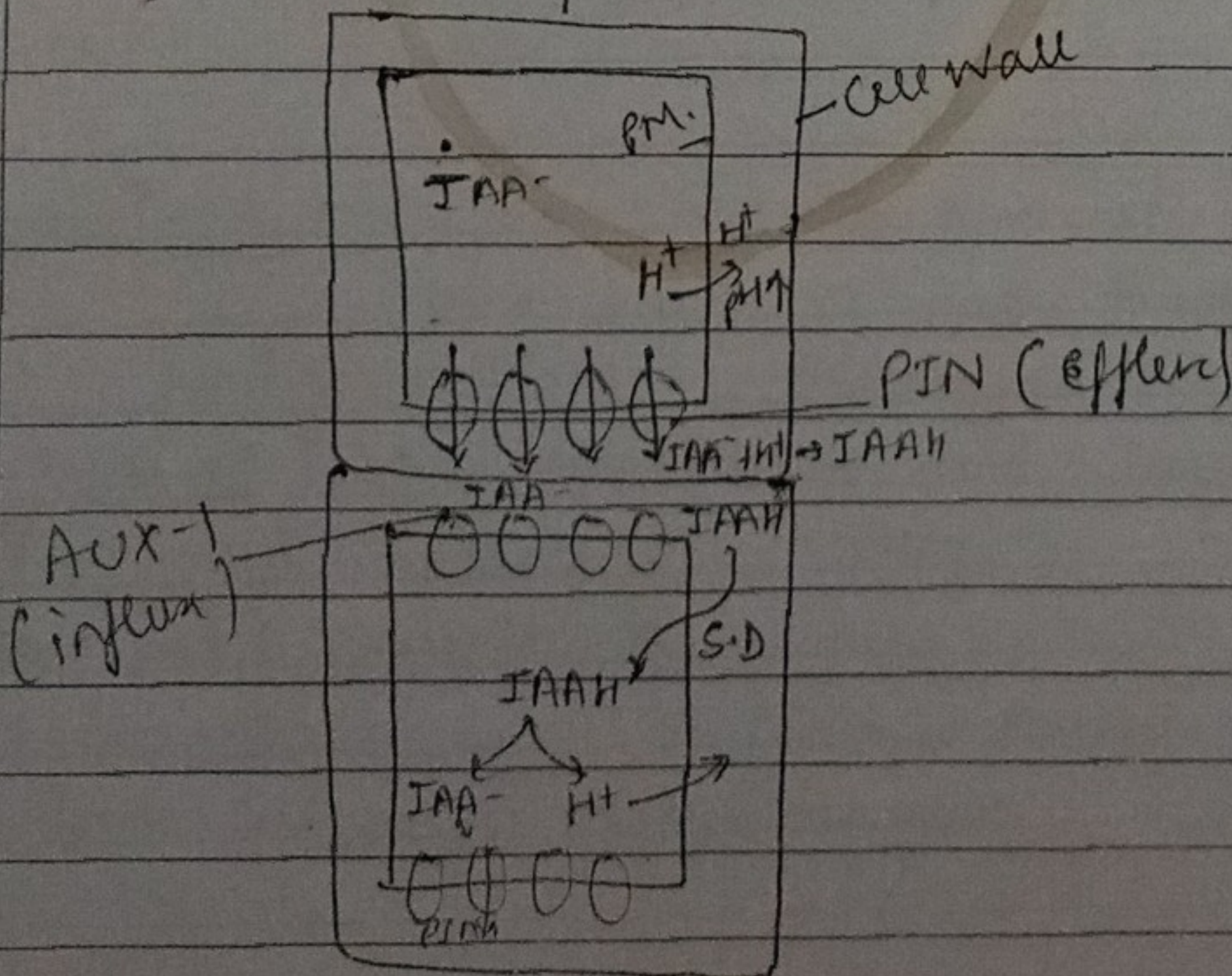
↑
 PIN

→ AUX-1

↓
 Influx

IAAH → Cross by S.D.

Transport of Auxin → Auxin synthesized in meristem
 Meristem present in Root tip
 shoot tip. (Apical meristem)

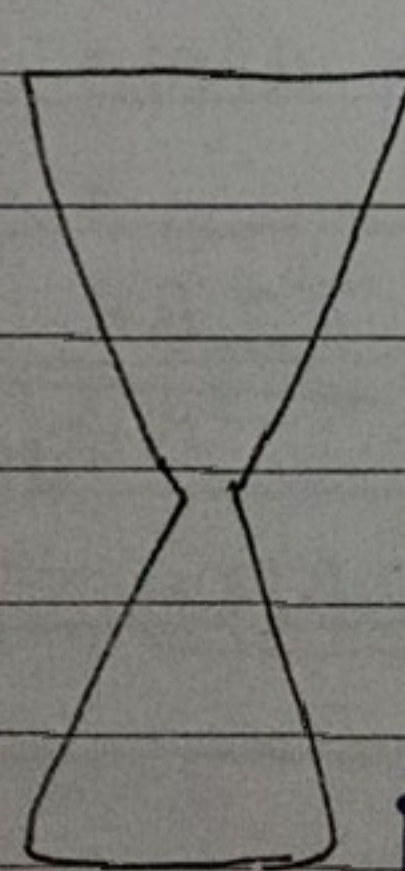
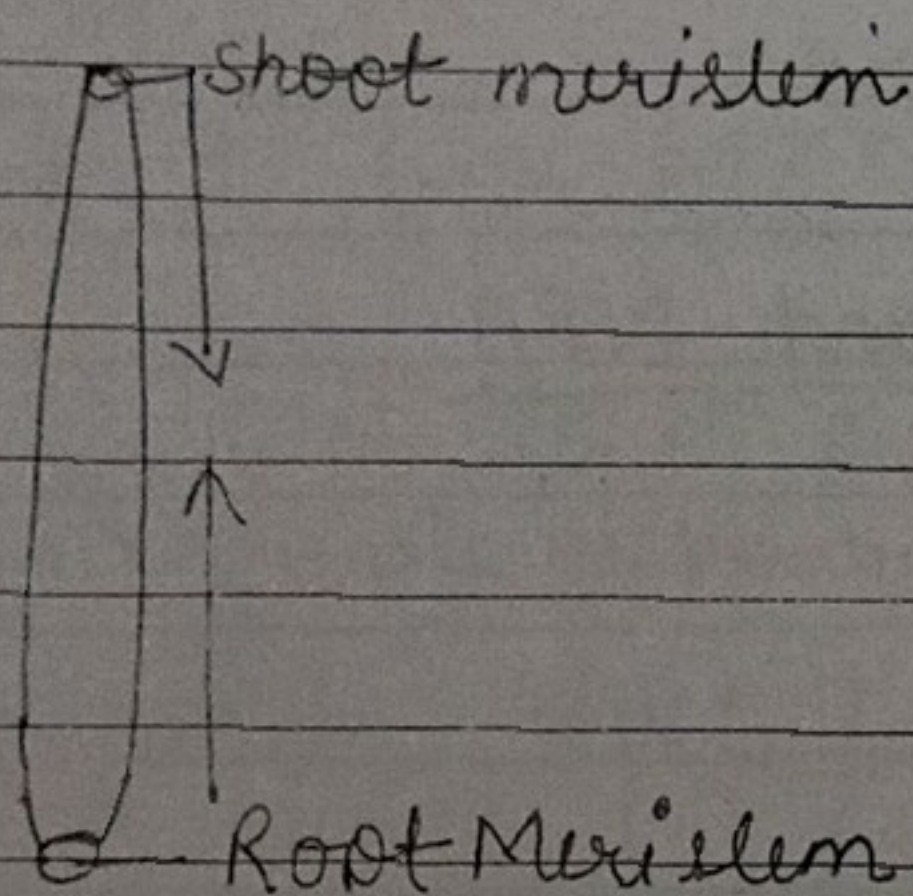


Turgor Pressure → The pressure potential is the effect of hydrostatic pressure on the potential energy of a solution. The positive value of pressure potential within cells is referred to as turgor pressure. (OMI asile) at standard state.

→ PIN is at basal plasma membrane. (at Posterior)

→ Remaining IAA^- is transported through $Aux-1$ (influx)

→ For cell division cytokinin is required. Cytokinin synthesis is stimulated by auxin. Hence CK work only in auxin primed cell. Auxin is synthesized by all meristem cell. Highest by shoot meristem, then Root M. lowest quantity in leaves meristem and flower M.



High Auxin synthesis
shoot, root, leaves, flower -
Auxin concⁿ curve.

IAA^- = soluble (diffusible)

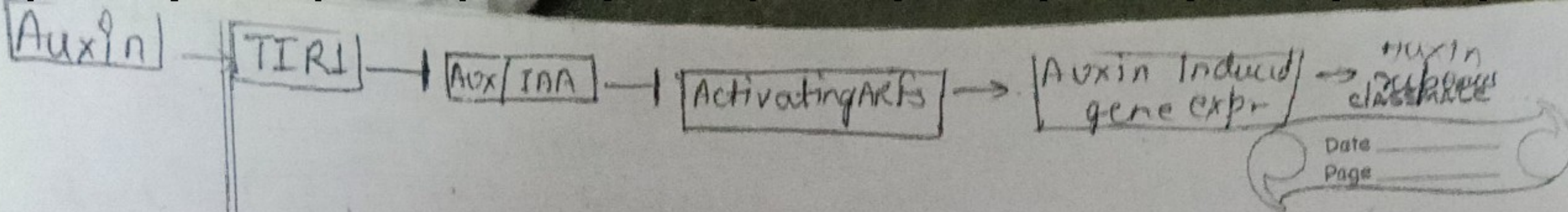
$IAA^- + H^+$ = Symport

PIN = Auxin anion efflux carrier.

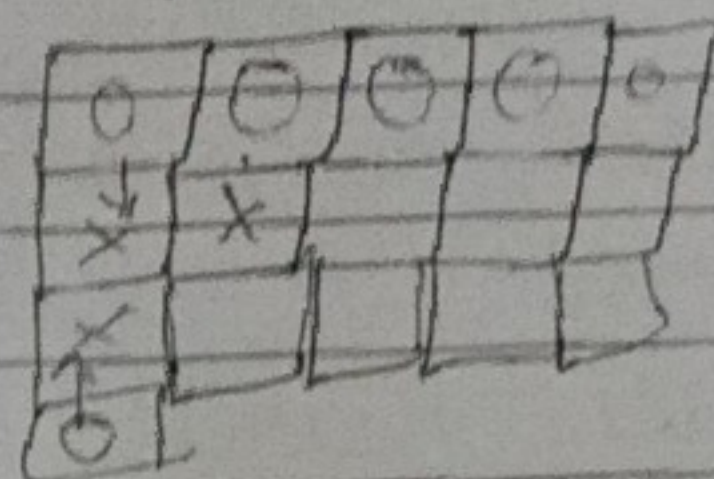
→ Highest concⁿ of auxin is received in Meristematic cell. So CK also present in high level in Root & Shoot M. so the cell division is highest in meristematic cell.

Apical Dominance → CK synthesized by root meristem and this CK is transported to shoot meristem, work as sink for CK. that means shoot " receive high concⁿ of CK. Hence S.M. divide very fast. Same viceversa for Root Meristem.

→ If Shoot M is removed all cells of lateral side receive good amt of auxin. because auxin transport is cease from shoot to other parts of the body. Hence auxin is now at eq. conditⁿ. Now all cells become prime for cytokinin. so divide rapidly. This is known as apical dominance.



(M) in the PIN → cause appearance of Pin like flower bcoz no division in apical meristem or flower meristem so pin like phenotype.

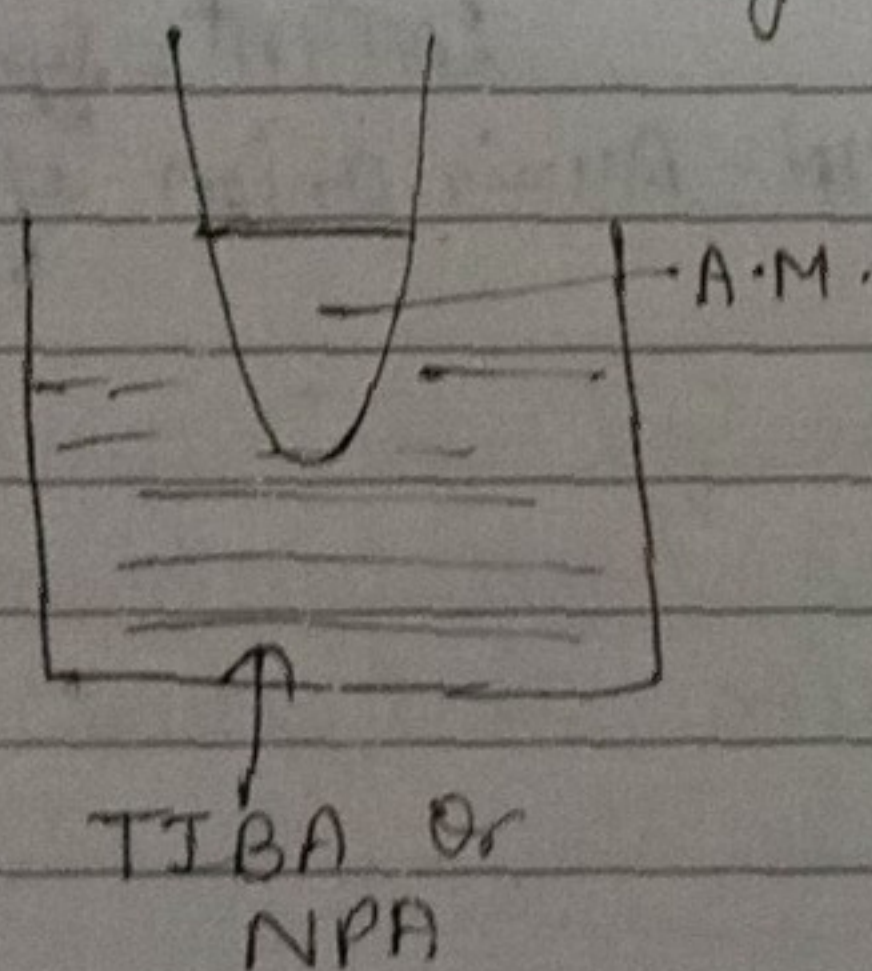


(M) in Aux-1 → slow division bcoz ~~After~~ influx is slow down.

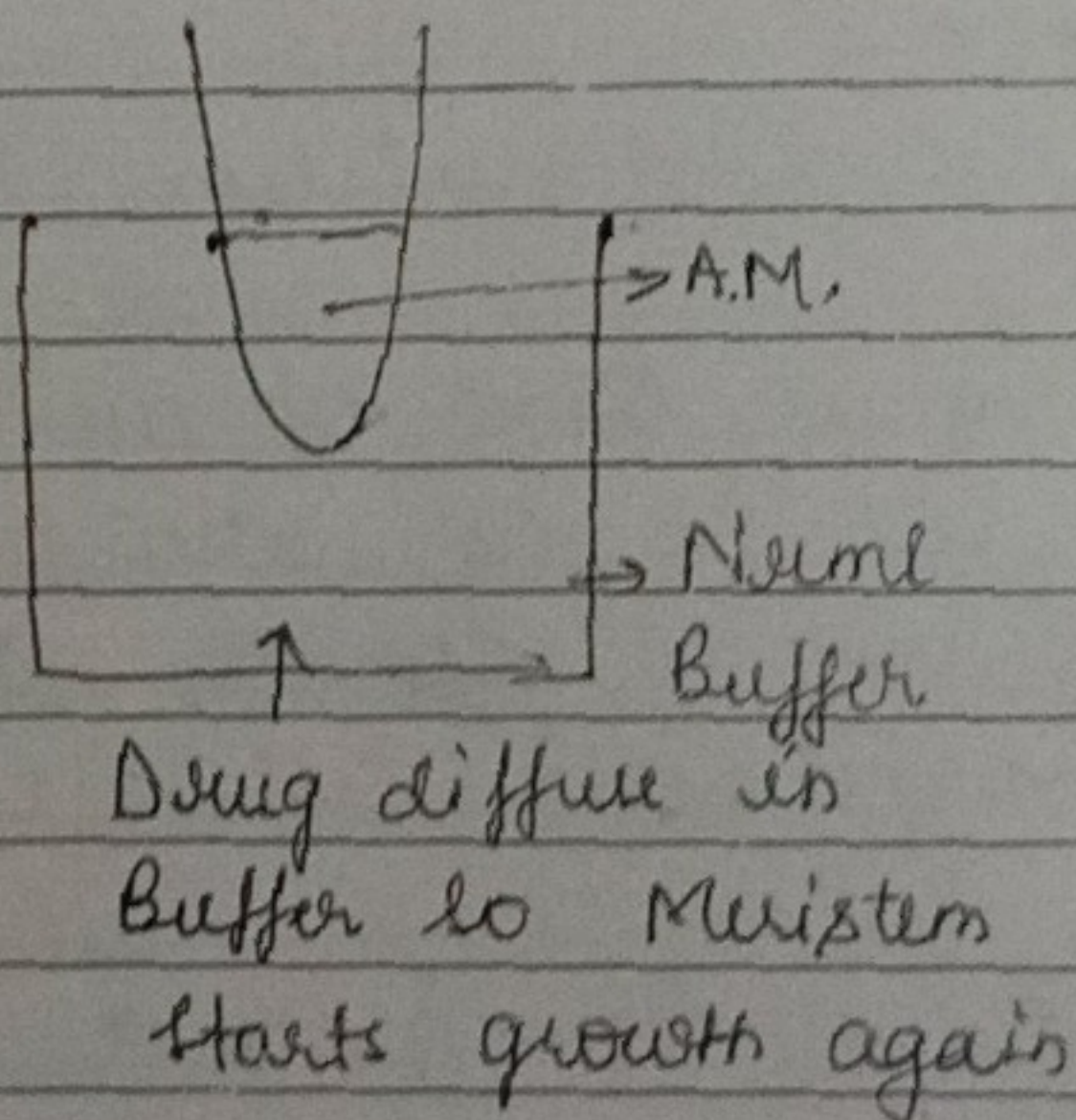
→ PIN is block by TIBA and NPA

→ Aux-1 is block by NOA → ^{flower} reduced in size not pin like

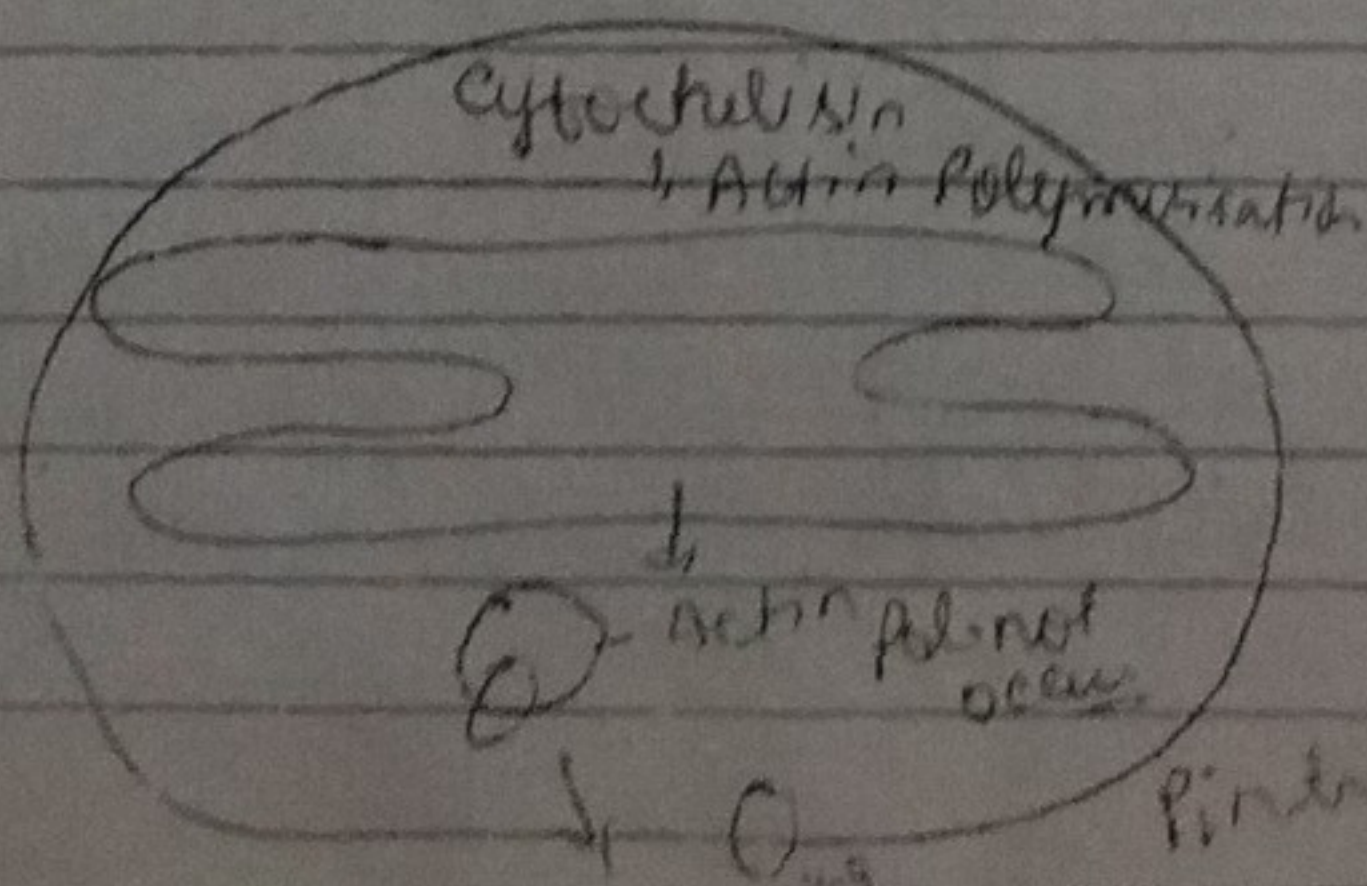
Exp



↓
Meristem growth will stop due to drug



Same Exp. with NOA.



Result in PIN like Phenotype

Pin transporter not come on pin

Stem Elongation By Auxin →

IAA⁻ Move

↓
More H⁺ expression occurs

↓
ER

↓
PUMP come on P.M

↓
More H⁺ come outside H⁺

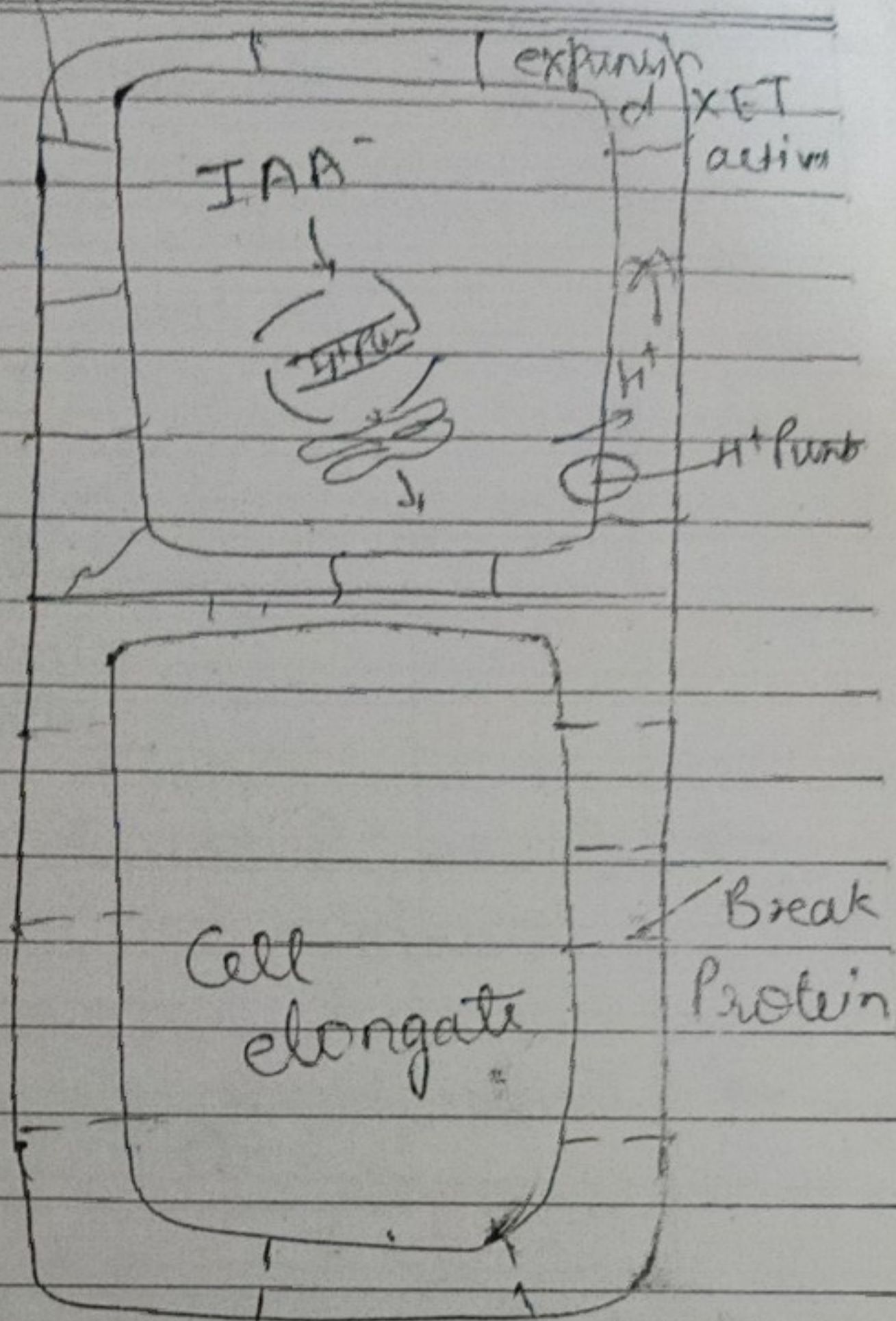
↓
Expansin & XET active

↓
Break the Protein Binding with cell

↓
Cell elongate

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Extensin Protein



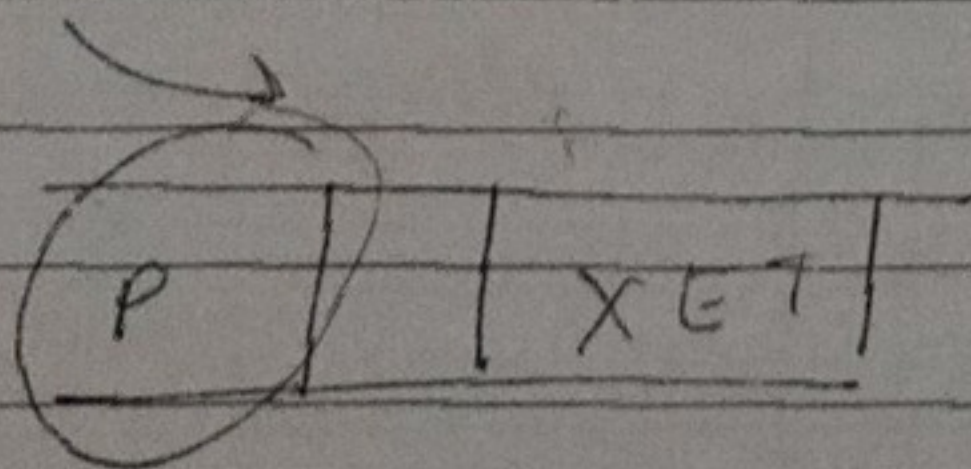
→ Same work is done by Gibberelic Acid

G.A

↓ activate

DELA

~~Wrong~~



Auxin → GA → Stem Elongation ↑

G.A. → Stem Elon. X

* Gibberellins are synthesized in young tissues of the shoot and also in the developing seed.

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* G. are capable of moving both up & down the stem

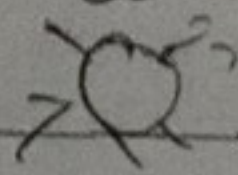
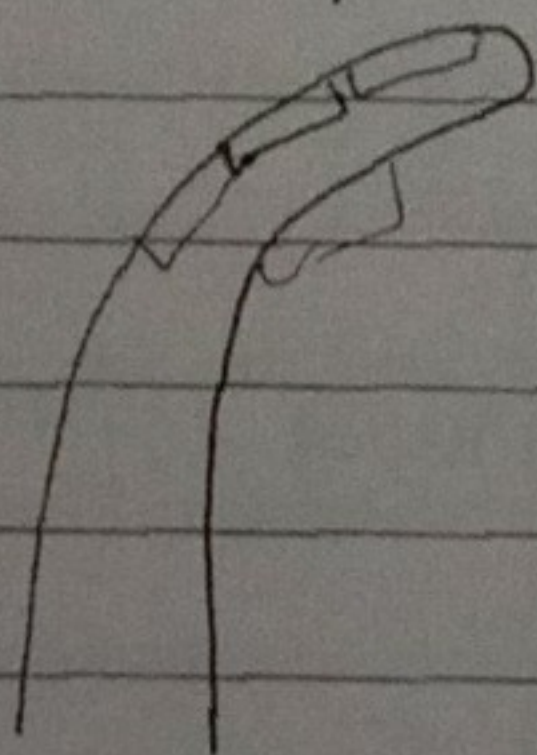
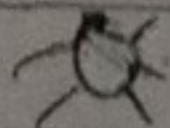
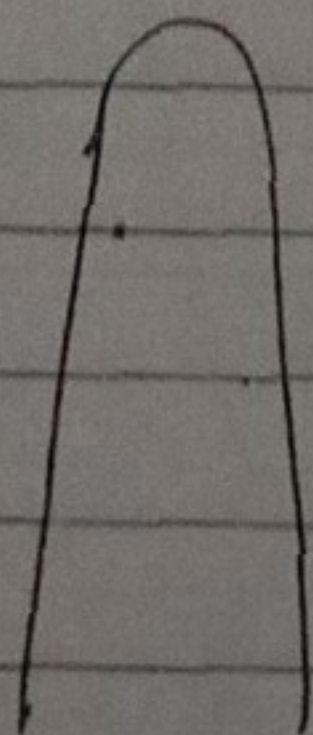
Auxin + G.A. $\rightarrow$ Stem Elongation
very high

↓
PH low ↓
XET

More Stem Elong.

→ Alone Gibb. give more result than alone auxin.

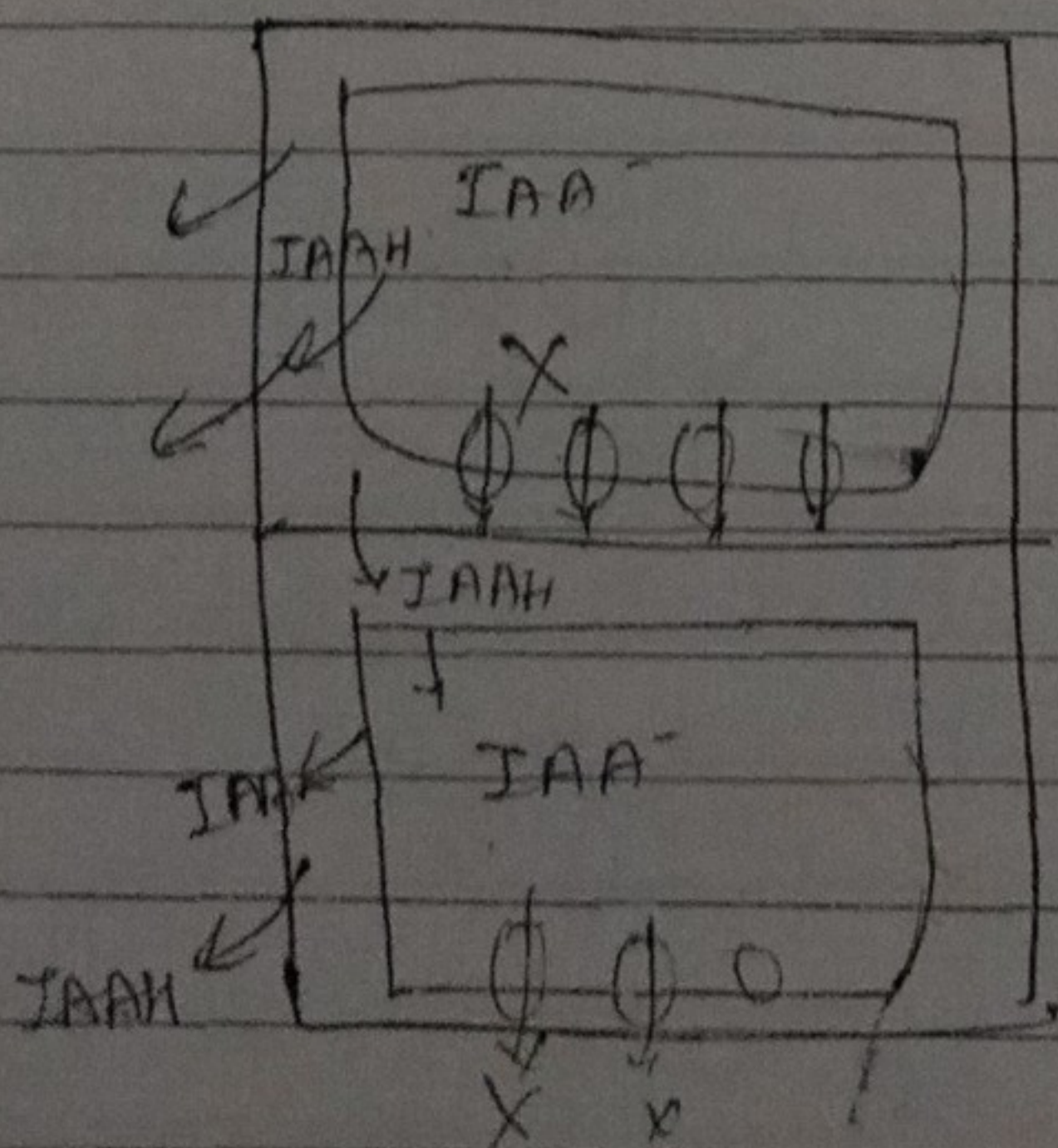
→ Gibb. work on auxin prime cell.



↓
Phototropin act

↓
PIN (P)

↓
Efflux X



IAAH concn or Auxin
concn increase in
dark side so cell
elongate more