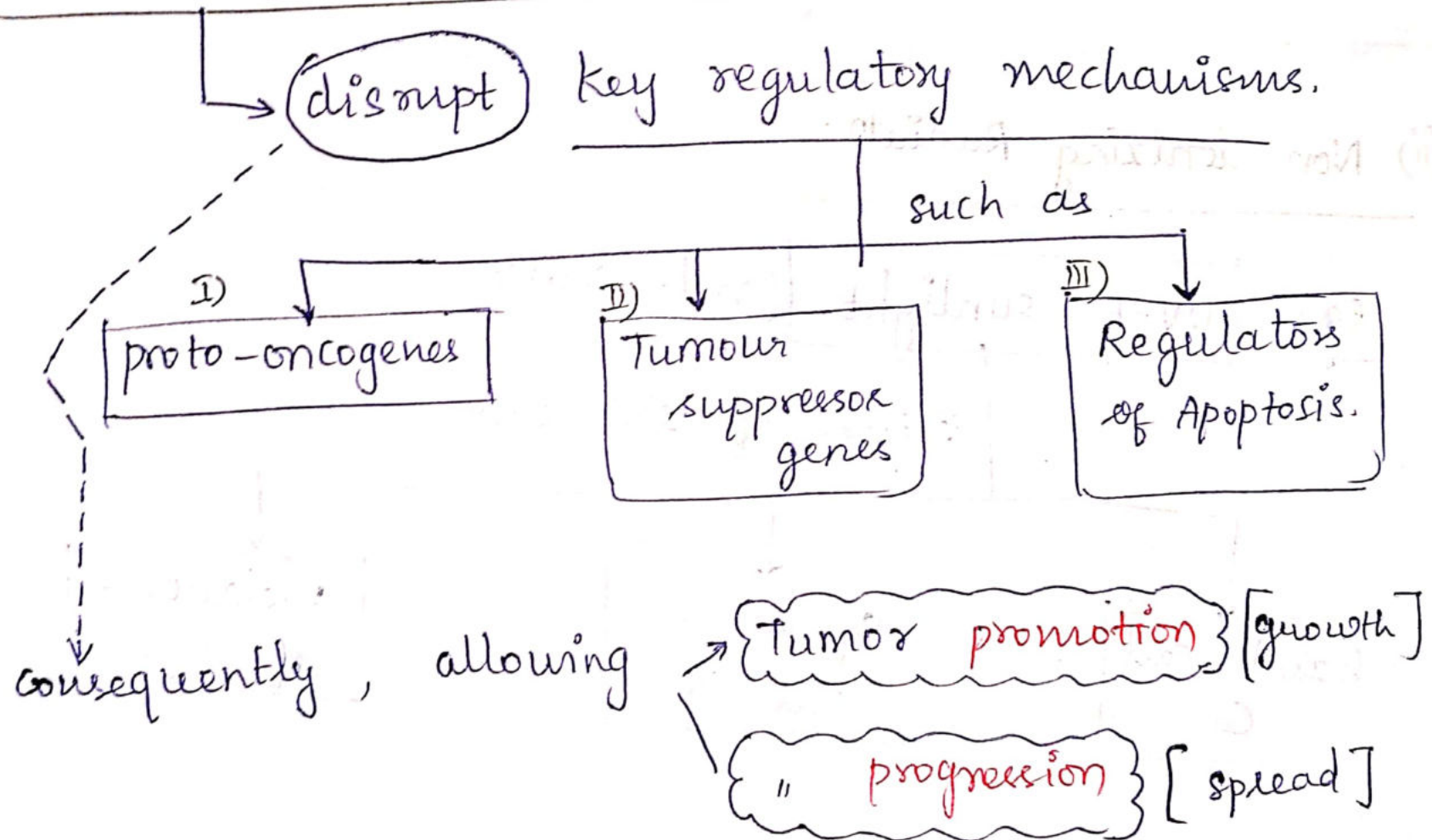


18/8/21

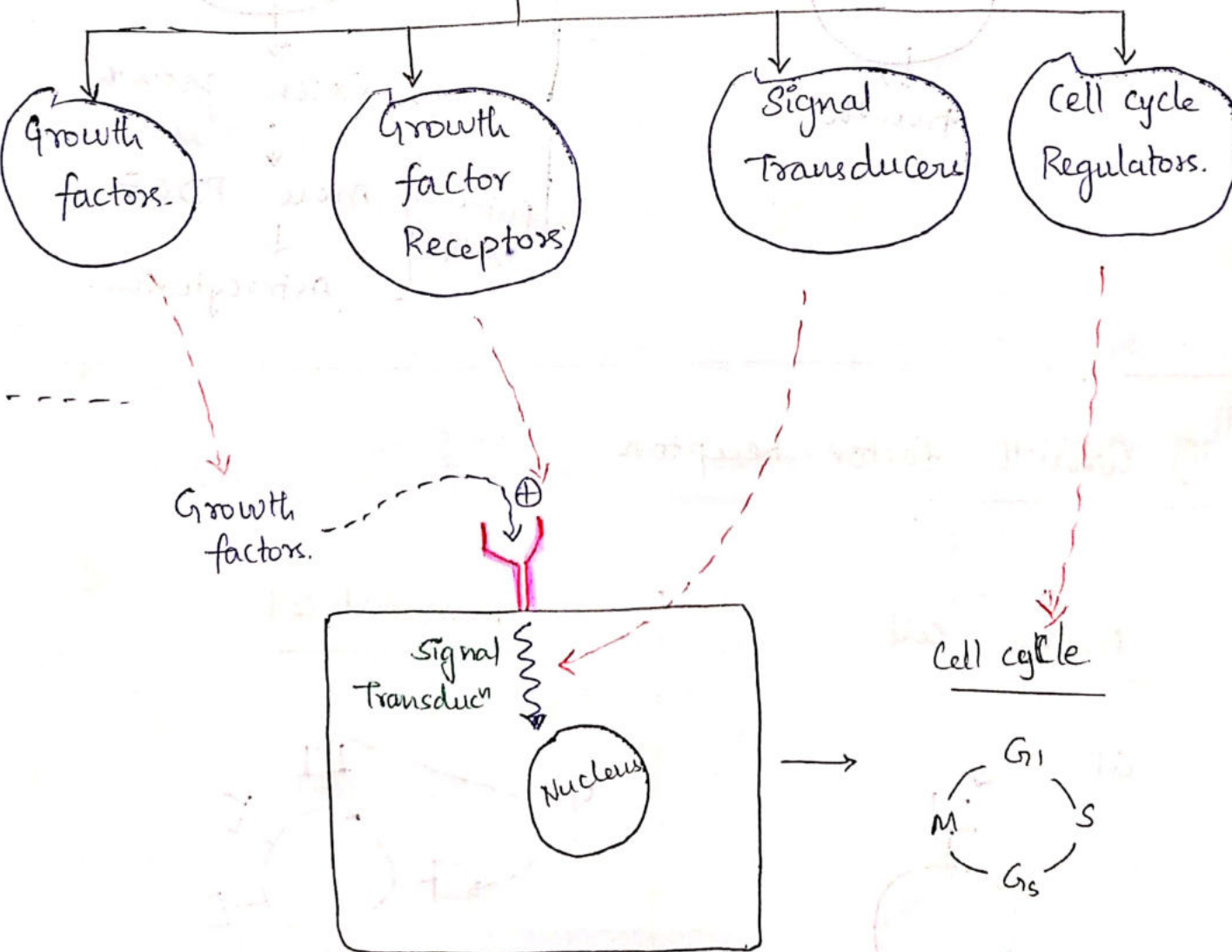
3. Q. 6. Carcinogenesis

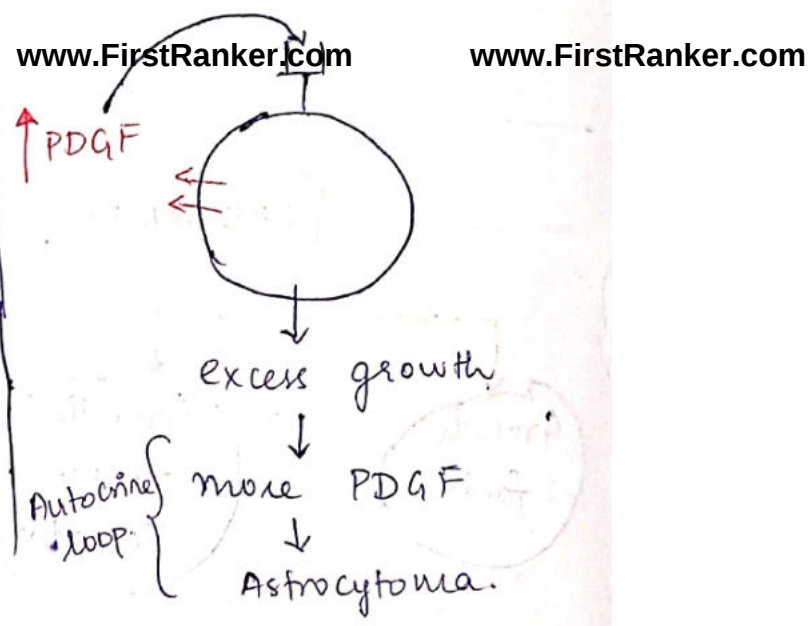
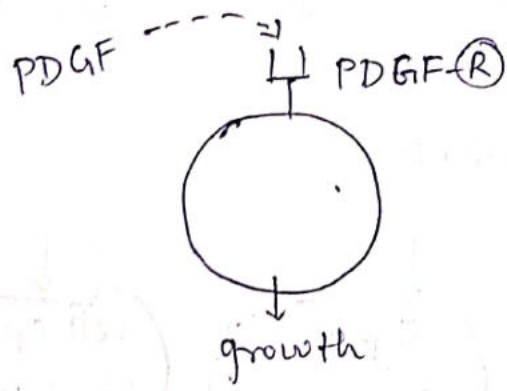
Effect of DNA mutations :



Causes Unregulated cell growth

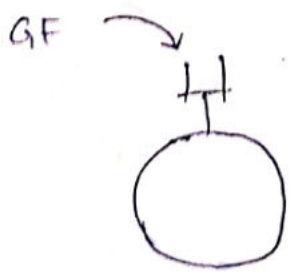
CATEGORIES OF ONCOGENES



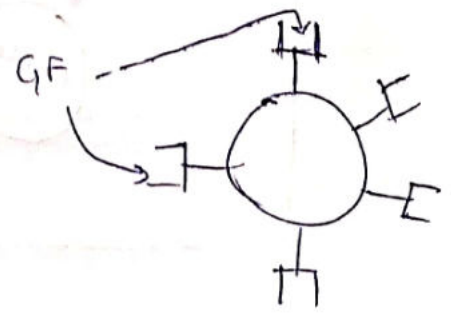


ii) Growth factor Receptors :

Normal cell.



mutated cell



overexpression of receptors
↓
excess division

breast Ca where other receptors are involved.

b) RET (Neural g.F. receptor).

* mutated in MEN 2A & MEN 2B (Refer Endocrine)
assoc. medullary Ca of Thyroid.

* If RET mutatⁿ is detected in a pt.
of MEN 2A & 2B then thyroid is prophylactically
removed

c) KIT (Stem cell G.F. (R))

* GI stromal tumour.

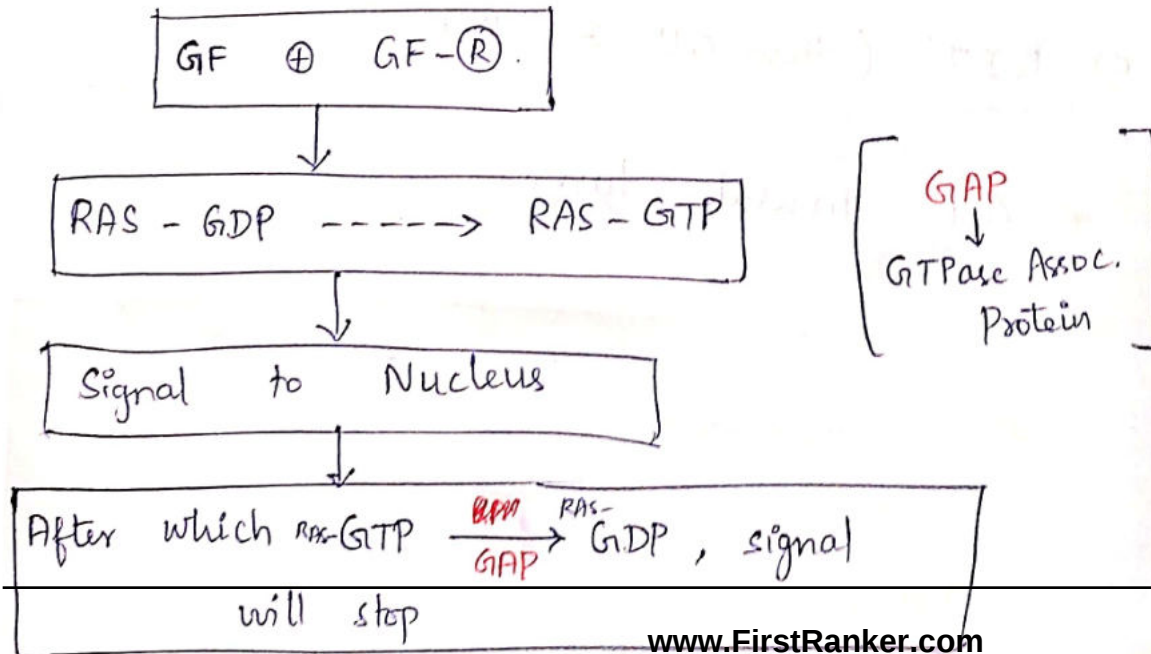
Normal Transducⁿ
(1 GF = 1 signal)

excess signals
Transducⁿ
(1 GF → many signals)

a) RAS gene family:

⊗ ~ 70-80% Tumors have RAS gene mutatⁿ.
[Ca, Melanoma. & lymphoma]

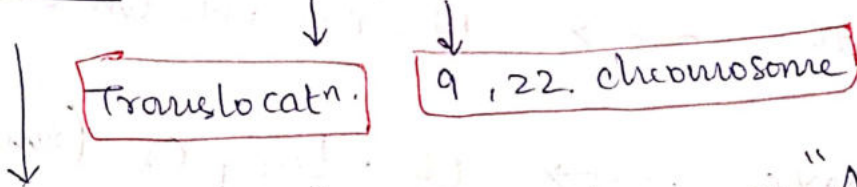
Biochemistry assoc. w RAS



b) ABL

* Tyrosine kinase

* Mutatio $\rightarrow$ $t(9, 22)$ $\bar{a}$ BCR



* Causes "CML" & some types of "ALL" (adult).

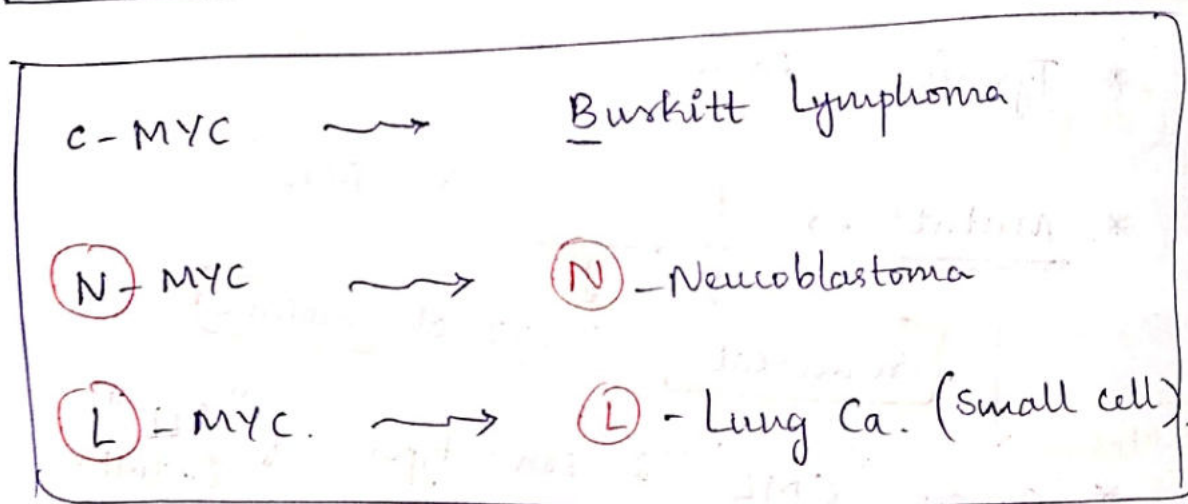
Note:

* "ALL" is a ds. of children but also occurs in adults.

* Adult ALL $\rightarrow$ mutatio of ABL. (poor prognosis)
(Translocatⁿ)

* 9, 22 chromosome aka Philadelphia chromosome.

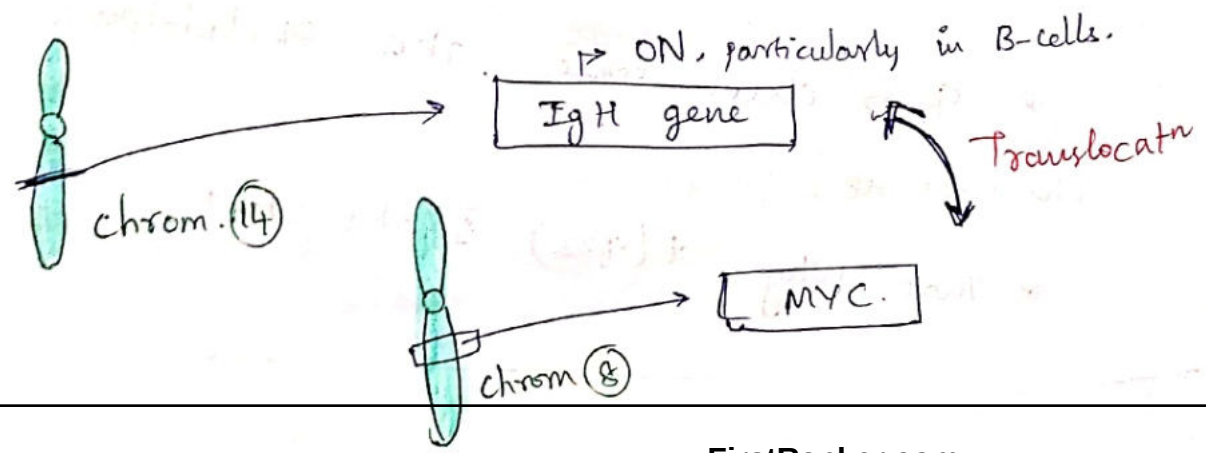
* That why $t(9, 22)$ is aka Ph⁺



c-MYC & Burkitt Lymphoma
 $\Downarrow$ $\rightarrow$ Ig Heavy chain

* Mutation - $t(8,14) \equiv$ IgH.

* Burkitt's $\rightarrow$ Lymphoma of (B)-cells.



↓
Causing lymphoma

Histologic finding of Burkitt lymphoma

"STARRY SKY" appearance

↓
white areas
in b/n Tumor cells
& represents the
macrophages eating
dying cells.

↓
Tumour cells appear
v. blue & represent sky

why $G_1 \rightarrow S$ is Highly regulated?

- i) Bcoz otherwise mutated copied of DNA can be transferred to offsprings.
- ii) To ensure cell goes into S-phase.

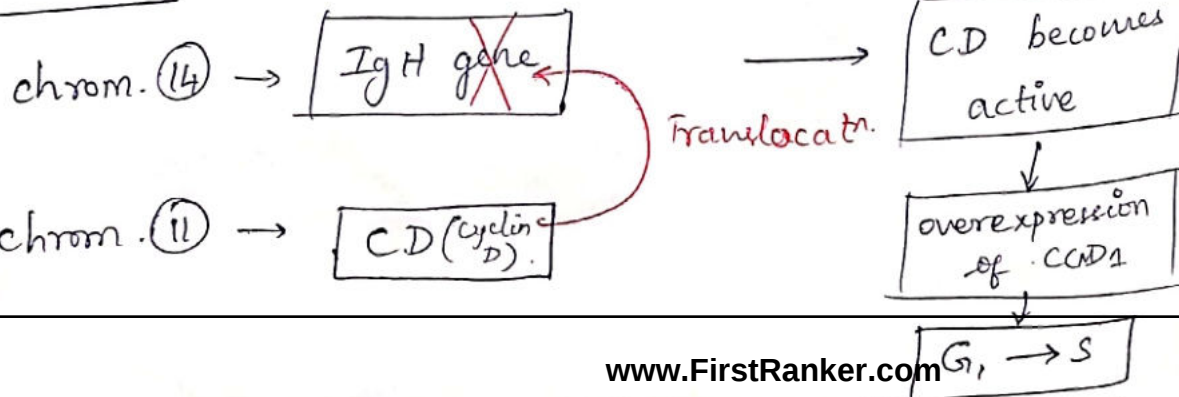
a) CCND₁ (cyclin D₁)

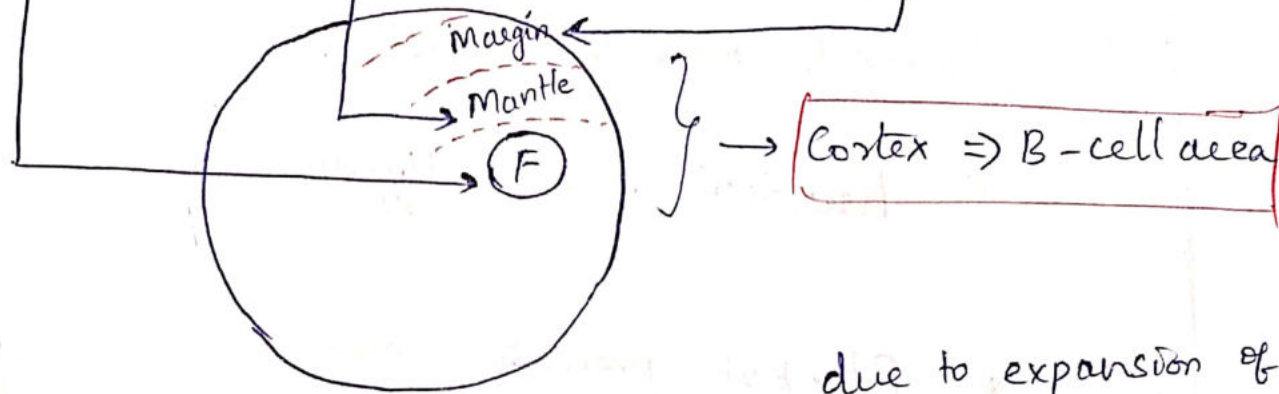
mutatⁿ $\rightarrow$ $t(11;14) \in$ IgH.

Causes Mantle cell Lymphoma

$t(11;14)$

ON in B-cells





due to expansion of
* Mantle cell lymphoma develops in Mantle region
of the Cortex of L.N.

b) CDK4 → Cyclin Dependent Kinase

