

↓ pathogenic sps. (X)

Corynebact. Diphtheriae.

↓

classified into ③ biotypes by Mcleod's
based on severity of Diphtheria

McLeod's Biotypes.	Severity	selective media PTBA. (Potassium Tellurite Blood A.)
C. Diph. Gravis.	→ severe. (paralytic & Hemorrhagic)	DALY HEAD Colony
C. Diph. intermedius	→ intermed. (Hemorrhagic)	Frog's egg Colony
C. Diph. mitis.	→ mild. (obstructive).	Poached egg "

VIRULENCE FACTOR:

TOXINS

* Diphtheria Toxin

⊖ EF₂ (elongatⁿ Factor-2).

This factor helps in elongatⁿ of polypeptide chain

Thus protein synthesis ↓

phage coded Toxin

↓
Lysogenic conversion by Bacteria...

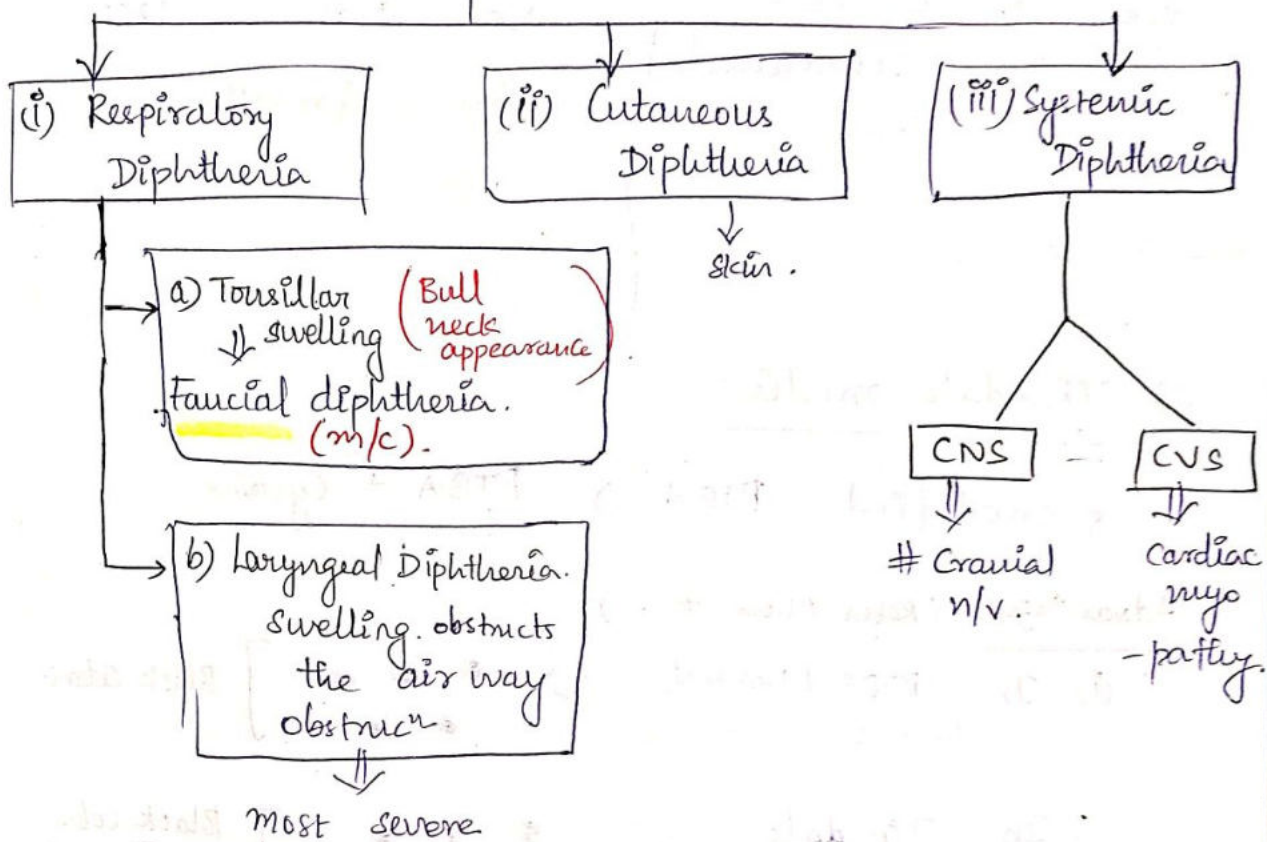
Requires Iron

(optimal conc. 0.1 mg/L)

↓
low/high conc. ⊖ Toxin

characterized by form of Pseudomembrane

(3) Types..



Δ^{sis}:

i) Culture:

Selective media

a) LSS (Loeffler's Serum Slope).

b) PTBA. (Highly selective)

c) Tinsdale media

a) LSS:

Advantages:

* Early detecⁿ is possible bcoz
Coryneb. diph. takes only 6-8hrs.
for growth

* Better Demonstratn of
Metachromatic granules

Disadvantage

* If we keep
for long time,
even some
Commensals can
grow.

Adv.	Disadv.
* Highly selective even if we keep long time commensals won't grow.	* Early detection Not possible, takes 48hrs - Growth

c) Tinsdale media:

* modified PTBA $\Rightarrow$ PTBA + Cysteine

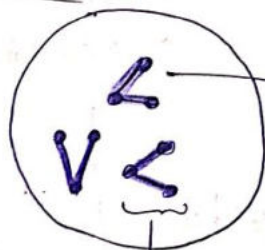
Advantage: (Refer Above + ...)

(i) In PTBA (Normal) $\Rightarrow$  Black Colonies

In Tinsdale $\Rightarrow$  Black Colony
Brown Halo.
(due to cysteine).

ii) Microscopy:

G/s.

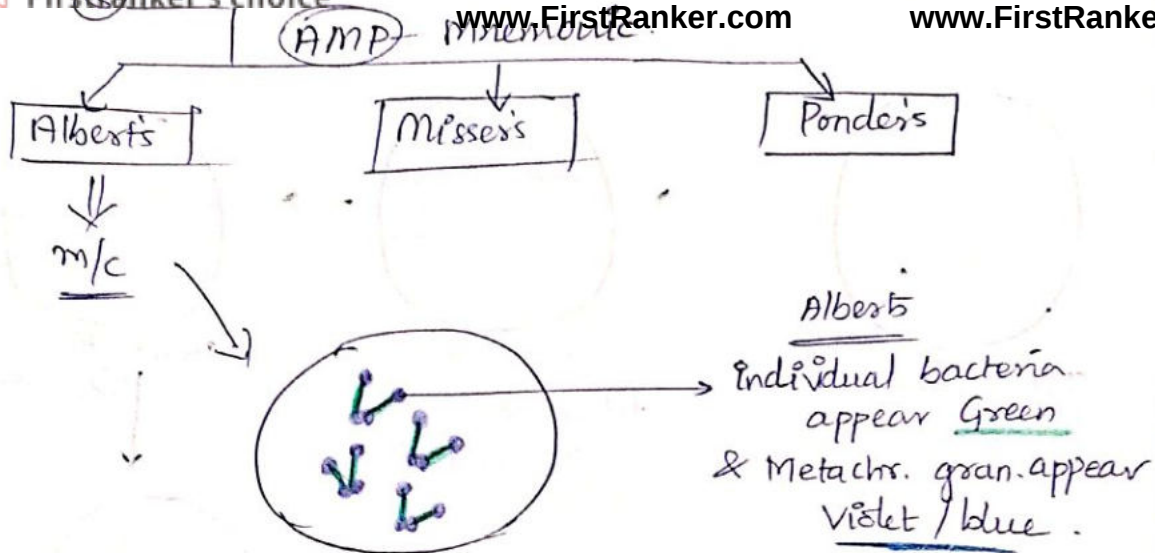


club shape
(due to Metachr. gran.).

Arrangement:

- * V-shaped / L-shaped
- * Chinese letter pattern
(or)
Cuneiform pattern

* $\therefore$ Metachr. gr. don't appear distinctly in G/s
Spl. media can be used --- Contd.



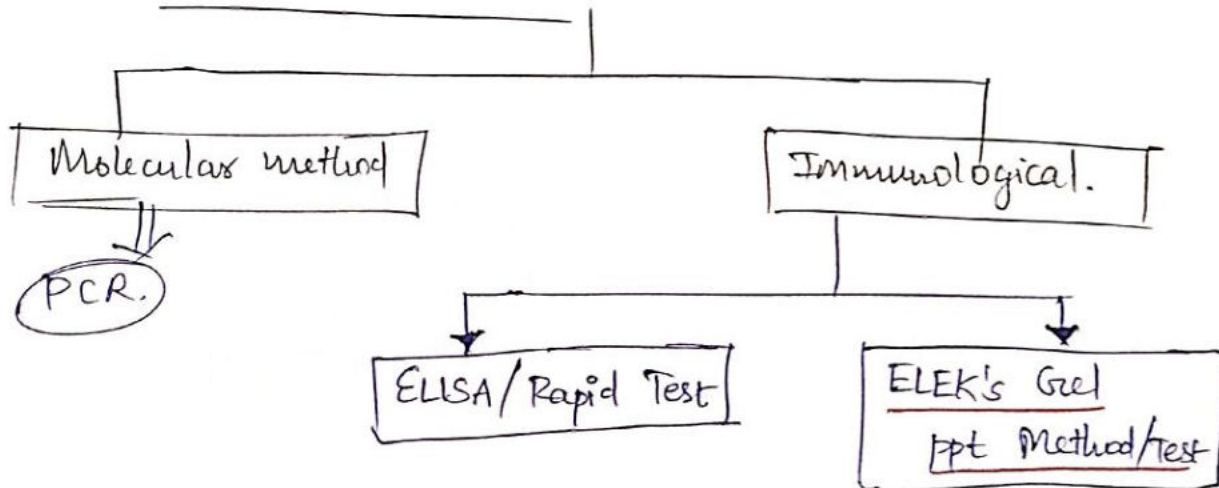
What are Metachr. granules?

- * granules which STORE ENERGY in the form of POLY META "PHOSPHATE"

Other Names of Metachr. granules

- * Volutin
- * Babes Earnest.

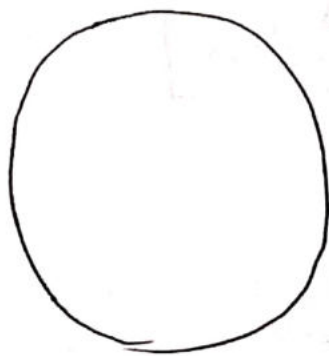
iii) Toxin Demonstration: In vitro.



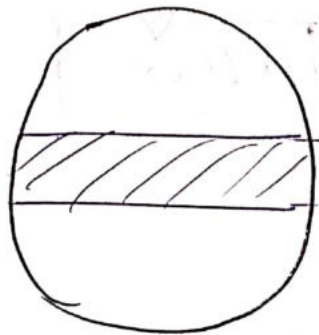
Materials Reqd

- Horse Serum Agar
- Filter paper strip soaked in ~~AKK~~-Diphth. Anti Toxin.
- Sample of Diphtheria

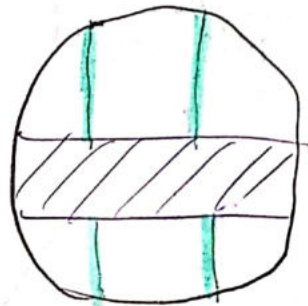
Elek's Gel ppt Test:



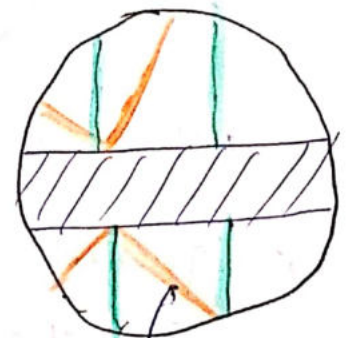
Take Horse
Serum Agae.



place the
filter paper in
the middle



streak the sample
② parallel
lines



PPE - of
Toxin & Anti Toxin

Diphtheria
is present. ⇐

Elek's Gel
Test ⊕ve. ⇐