



(Aims 2015)

MICROBIOLOGY
INICET PYQ
KBMD

Medsynapse by Dr. Nikita

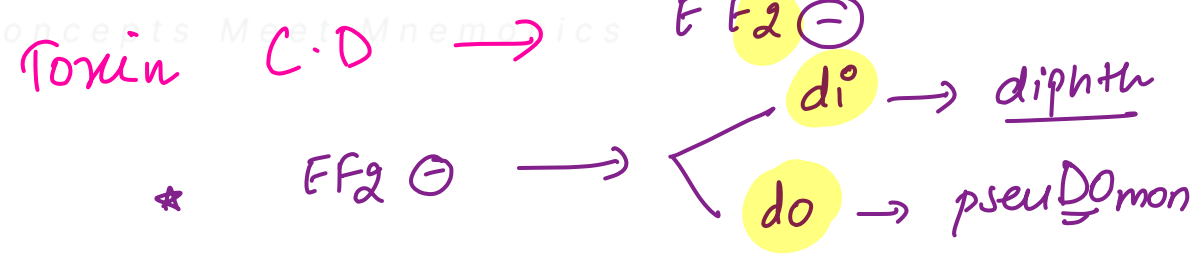


Phage mediated change in C.diphtheriae is due to which of the following

- a. Conjugation
- ~~b. Transduction~~
- c. Transformation
- d. None of the above

Corynephage

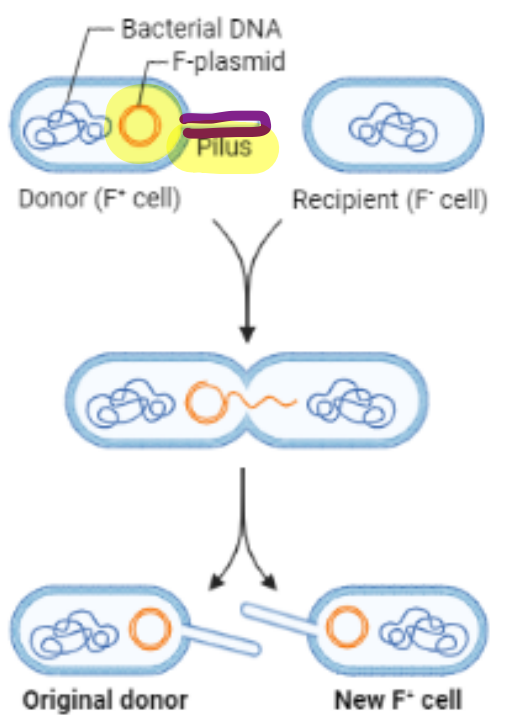
* PYQ → Beta phage



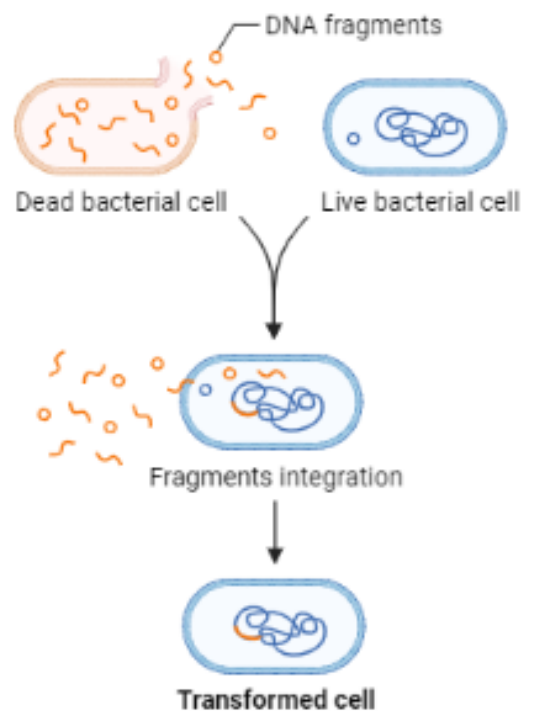
MEDSYNAPSE
Where Concepts Meet Mnemonics



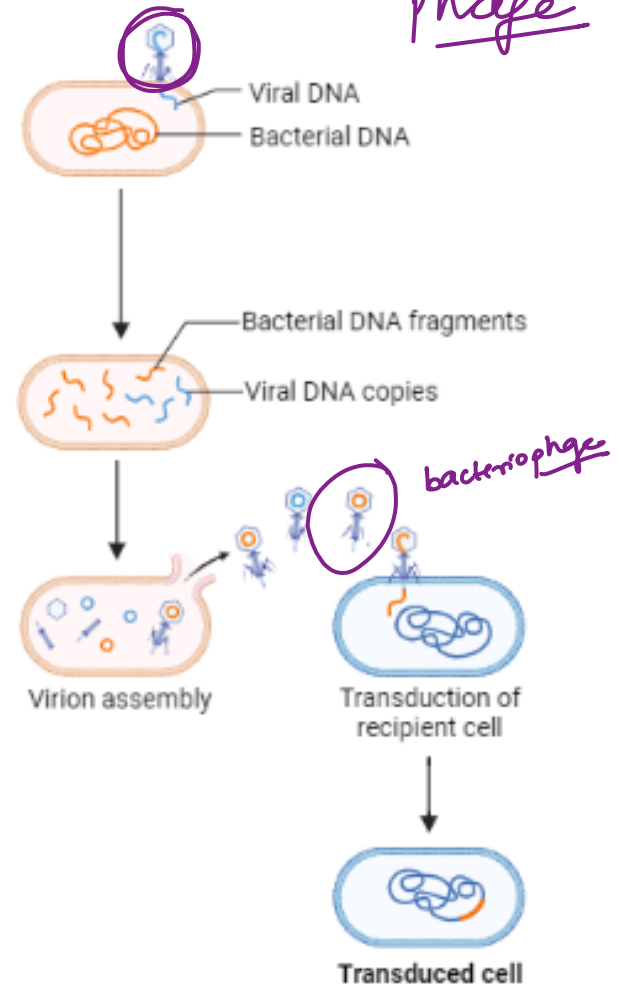
A. Conjugation *pilus*



B. Transformation *self environment*



C. Transduction





Which of the following structure is disrupted by Vibrio cholerae?

- alkaline • TCBS
- COT
- ZOT
- CTTA Motus

Zona occludens
Toni

a. Hemi desmosome

b. Gap junctions

c. Zona occludens

d. Zona adherens



PTG
FMGE

GM1 ganglioside

GM2 → Two - Tax sach's
• Toxin → ≡ → CAMP T
labile



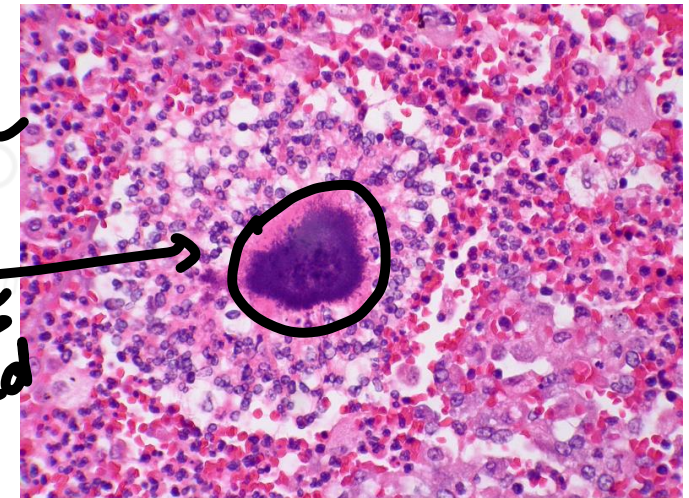
A 35-year-old male farmer presents with multiple discharging cervical sinuses. Which of these stains will be useful for the diagnosis? Where does this organism normally colonise in the body?

Actinomyces

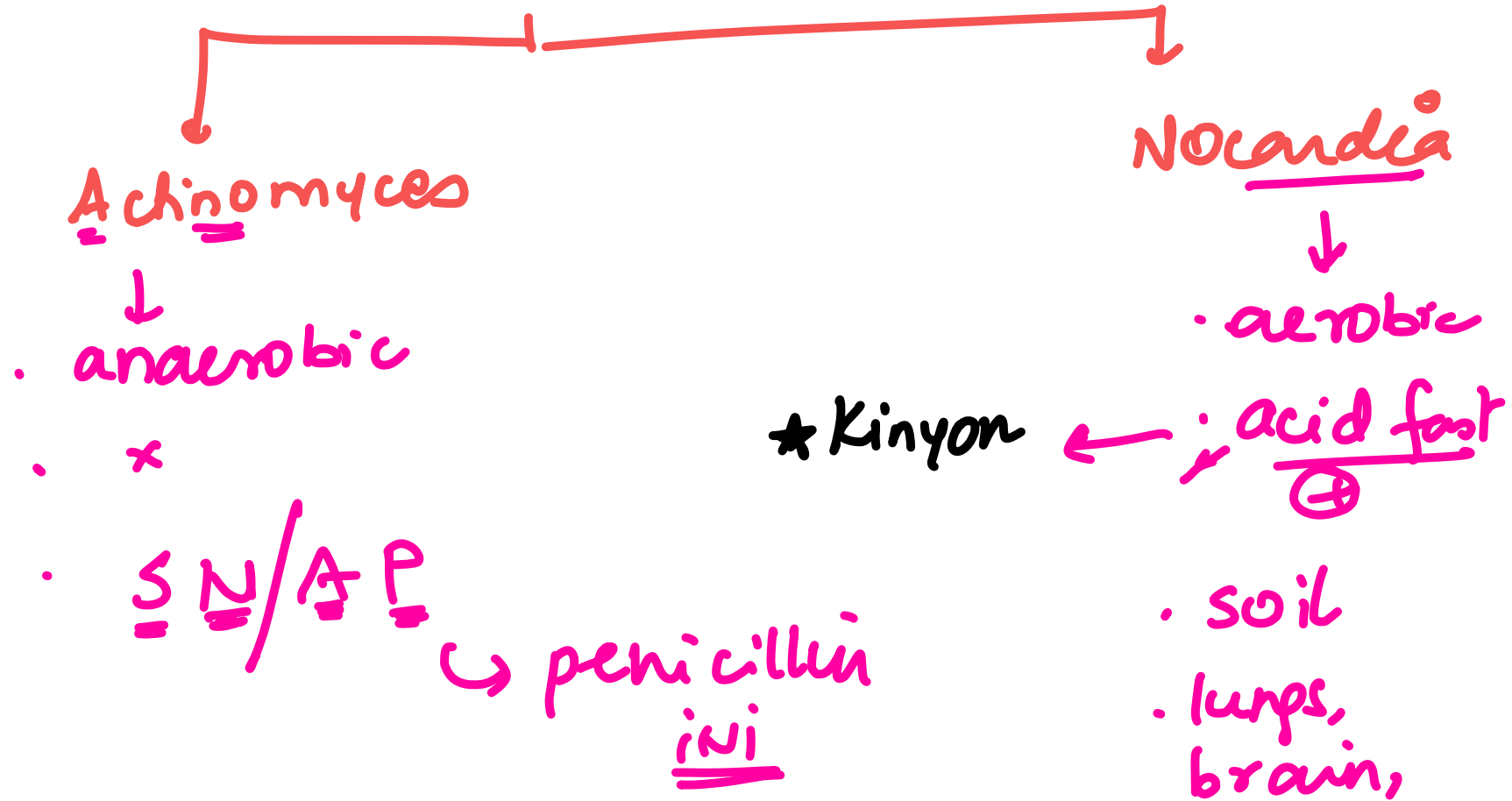
↳ Molar tooth colonies

slender
Hoepplie
astroid

- a) Gram-stain, oropharynx
- b) PAS, intestine
- c) AFB, mouth
- d) Grocott Methenamine silver, skin

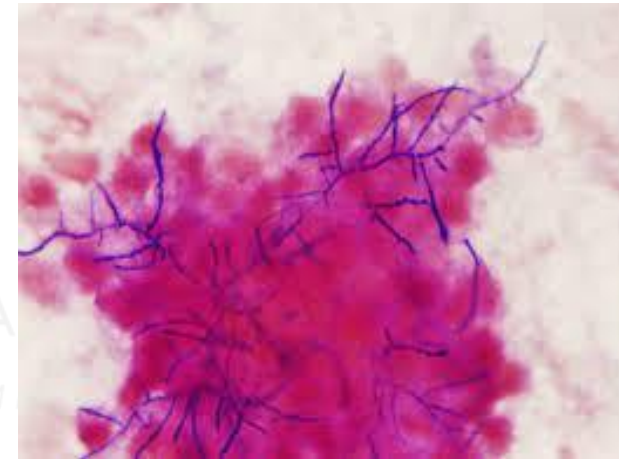


Gm +ve branching filaments





The following picture was seen in nasal biopsy from a patient with brain abscess. Identify the organism seen and the stain used?



- a) Staphylococcus, Gram-stain
- b) Streptococcus, Gram-stain
- c) Cryptococcus, India ink
- d) Nocardia, Gram-stain → *posit, br. filaments*

MEDSYNA
Concepts Meet M



A 24-year-old female presented with an **ulcer in the genital area**. A Giemsa stained cervical smear was taken which showed the following image. Identify the causative agent:

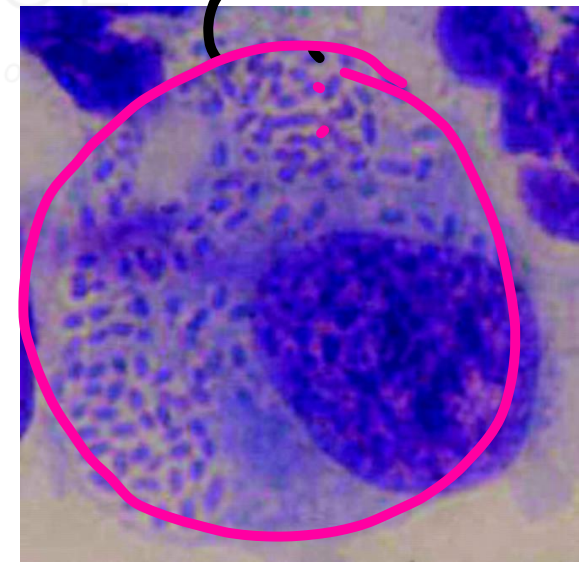
LD → macrophages
bodies

↓ school of fish
ducreyi

fish
Donovan bodies

- a. Chlamydia
- b. Gardenella vaginalis
- c. Hemophilus ducreyi →
- ✓ d. Calymmatobacterium donovani /

beefy ulcer → Donovanosis / granuloma inguinale
pseudo → klebsiella



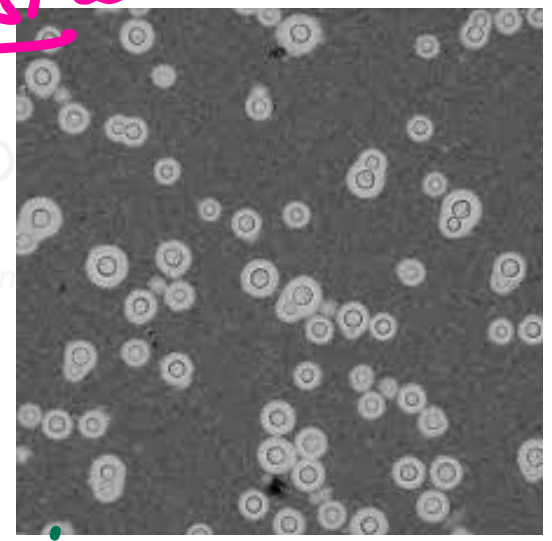


A patient presented with headache and projectile vomiting along with alteration in sensorium. The following parasite demonstrated on India ink staining. What is the likely diagnosis?

MRI → soap bubble app.
DOC → AMB + Flucytosine
↓
Fluconazole

- a. Coccidioides
- b. Histoplasma
- c. Blastomyces

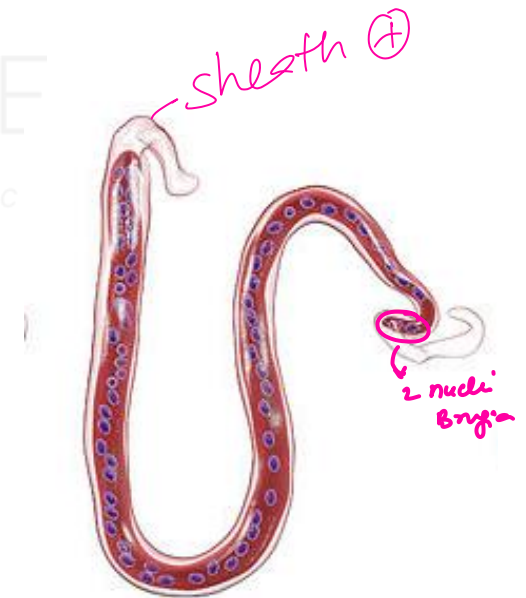
d. Cryptococcus →
↓
· pigeon droppings
· India ink
· negative stain
· capsule yeast



This is a diagram depicting body structure of which of these helminths?

AAJAV

- ~~a) Onchocerca volvulus~~
- b) Loa loa
- c) Brugia malayi
- d) Wuchereria bancrofti





ċ sheath ⊕
LBW ↗

ban crofti →
Bankrupt

Brugia = Bi
2 nuclei

no tail
tip
nuclei

↳ Lo Lo

W

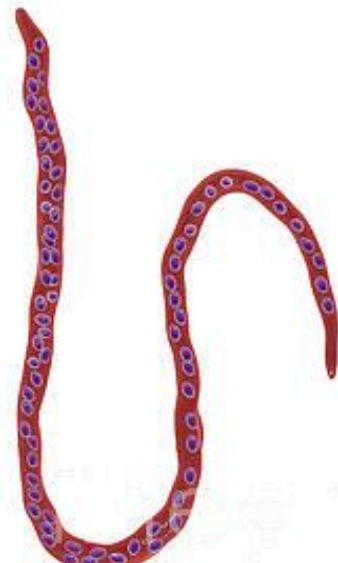
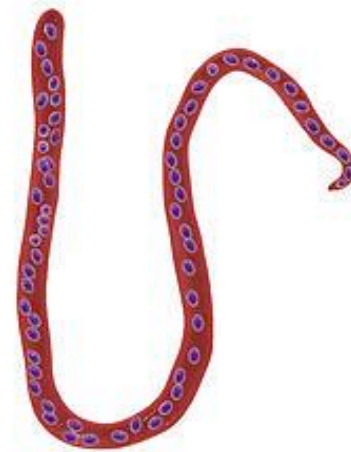
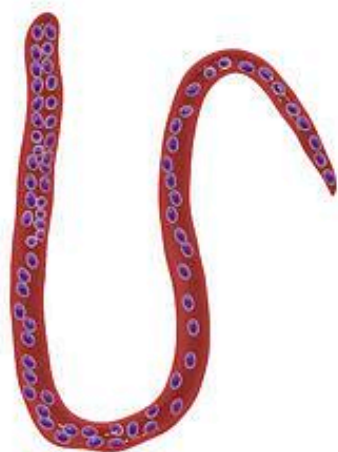
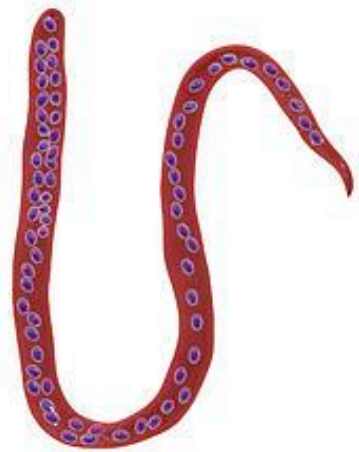
B

L

Wuchereria bancrofti

Brugia malayi

Loa loa



Mansonella ozzardi

Mansonella perstans

Mansonella streptocerca

Onchocerca volvulus



Adult stage of filarial worms responsible for diseases in all of the following except:

→ x skin ✓

skin ✓

- a. Brugia malayi
- ✓ b. Onchocerca volvulus
- c. Mansonella ozzardi
- d. Wuchereria bancrofti

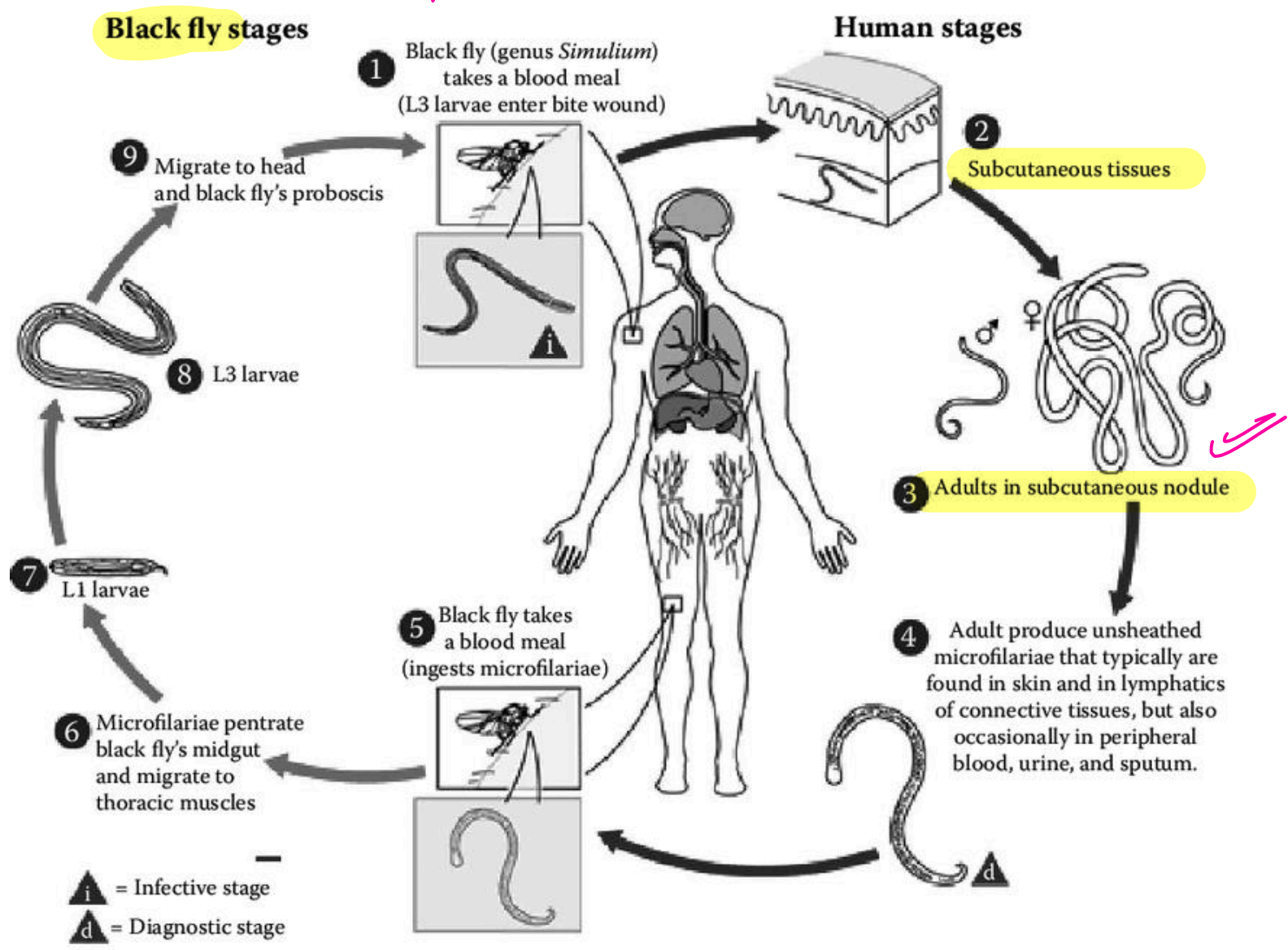
→ • River blindness
• Black fly ✓
• Subcutaneous



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Where Concepts Meet Mnemonics

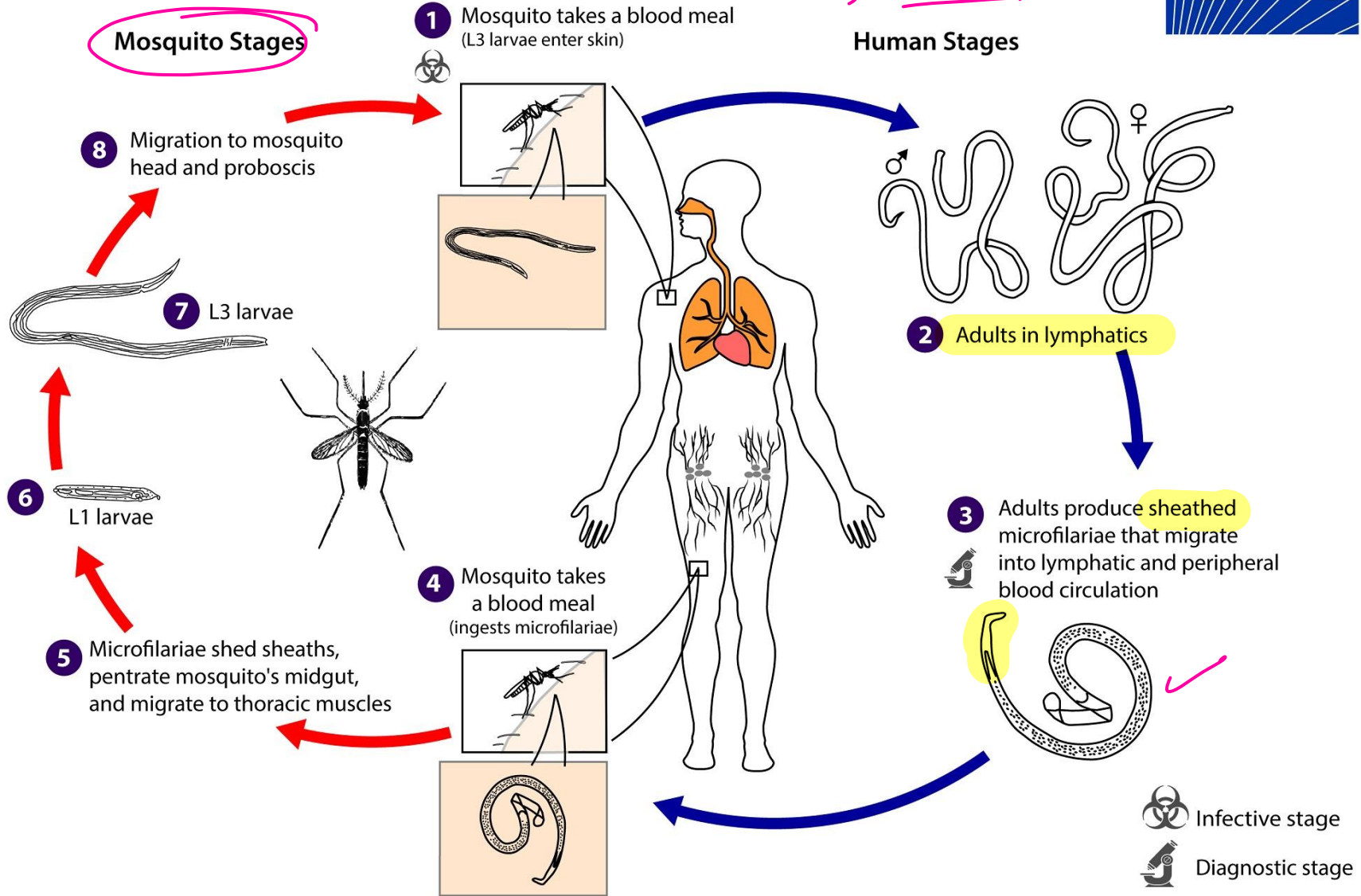


Onchocerca volvulus



Wuchereria bancrofti

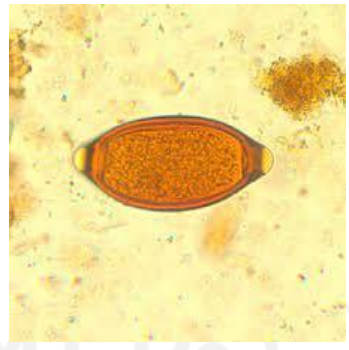
Culex





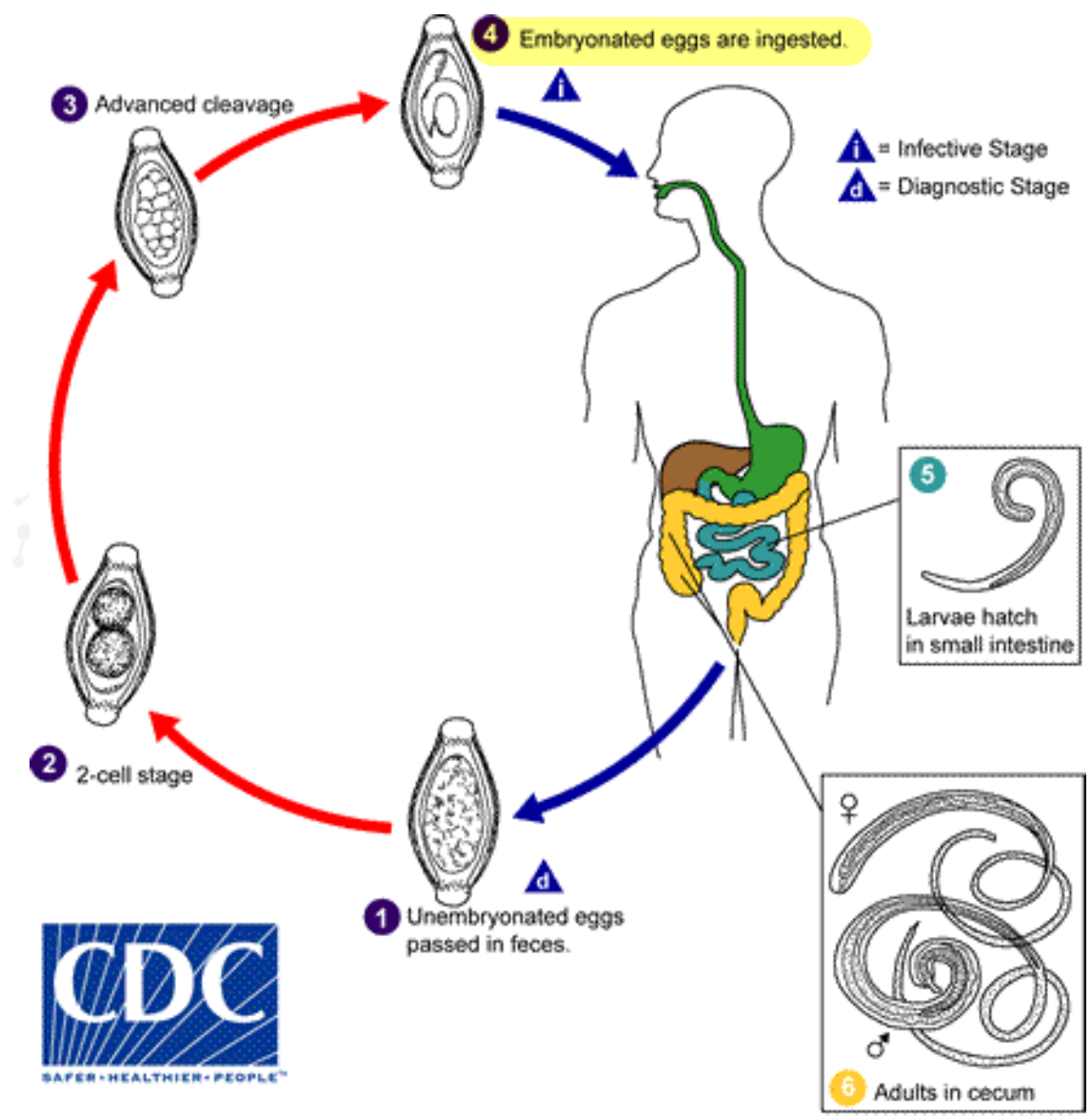
Stool examination in a patient reveals the following finding. What is the likely route of infection of this parasite?

* Bile stained, floats
↳ Feather like
Trichuris



Trichuris trichura
Bipolar filaments
H. nana

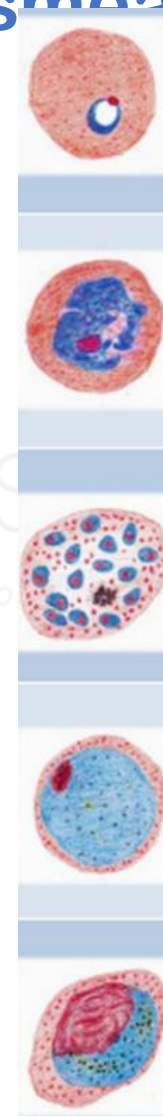
- a) Ingestion of food contaminated with the egg of larva
- b) Insect bite
- c) Improperly cooked beef
- d) Swimming in dirty water pool



The following diagram depicts blood smear of which species?



- ✓ a. Plasmodium vivax → ↑ RBC size
- b. Plasmodium ovale → ovale
- c. Plasmodium falciparum → Banana
- d. Plasmodium malariae → Band form





	<i>P. falciparum</i>	<i>P. vivax</i>	<i>P. ovale</i>	<i>P. malariae</i>
Ring stage				
Late trophozoite				
Schizont				
Female gametocyte				
Male gametocyte				

←

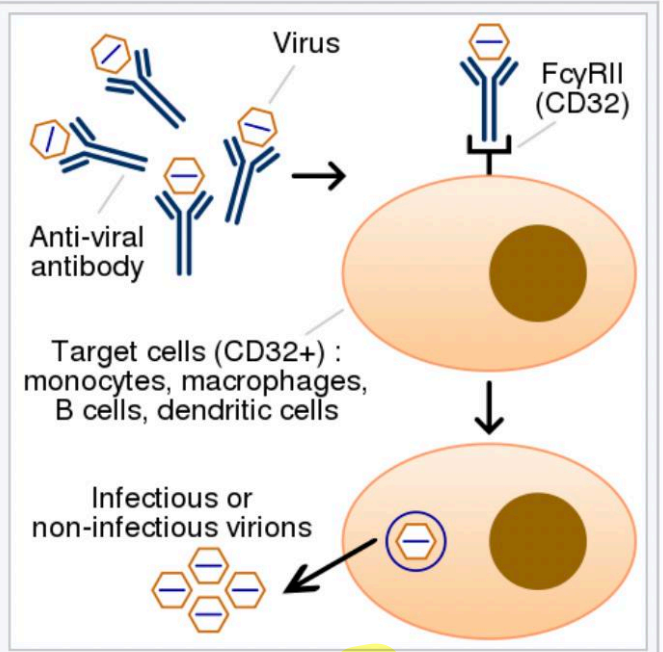
↓ ovale

Band form

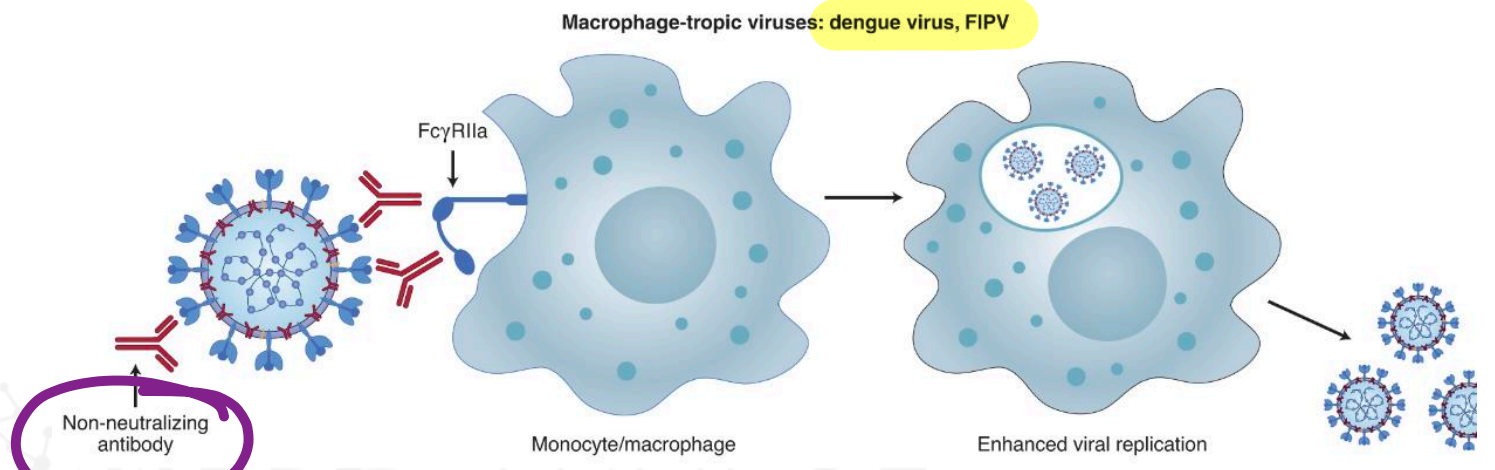
P. falciparum → Banana gametocyte

✓ falcipari

PSE
mnemonics



In antibody-dependent enhancement, sub-optimal antibodies (the blue Y-shaped structures in the graphic) bind to both viruses and Fc gamma receptors (labeled FcyRII) expressed on immune cells, promoting infection of these cells.



Where Concepts Meet Mnemonics

n

- RSV
- Dengue
- HIV
- COVID-19



Antibody-dependent enhancement is implicated in the immunopathogenesis of which disease?

- a. Influenza
- b. Staphylococcal toxic shock syndrome
- c. Waterhouse-Friderichsen syndrome
- d. Dengue hemorrhagic fever



MEDSYNAPSE

Where Concepts Meet Mnemonics



Antibody-dependent enhancement (ADE), sometimes less precisely called **immune enhancement** or **disease enhancement**, is a phenomenon in which binding of a virus to **suboptimal antibodies** enhances its entry into host cells, followed by its replication. [The suboptimal antibodies can result from natural infection or from vaccination. ADE may **cause enhanced respiratory disease**, but is not limited to respiratory disease. It has been observed in **HIV, RSV** virus and **Dengue virus** and is monitored for in vaccine development.



A patient comes to your clinic with a complaint of multiple episodes of loose watery stool for 3 days. On probing, you discover that these episodes start after he had ingested **shellfish** at a local restaurant 3 days back and other people who had food from that restaurant had similar symptoms. What is the most common cause of viral diarrhoea in adults?

- a. Picornavirus
- b. Rotavirus
- c. Adenovirus

d. Norovirus →

AGE





Reverse transcriptase is a RNA dependent DNA polymerase. Which of the following **uses reverse transcriptase?**

- a. Hepatitis A virus
- b. Hepatitis B virus**
- c. Hepatitis C virus
- d. Hepatitis E virus

A & E
abst envelope

P gene
polymerase

MEDSYNAPSE
Where Concepts Meet

- Hepadna
- DNA ⊕
- capsulated

/ HIV.