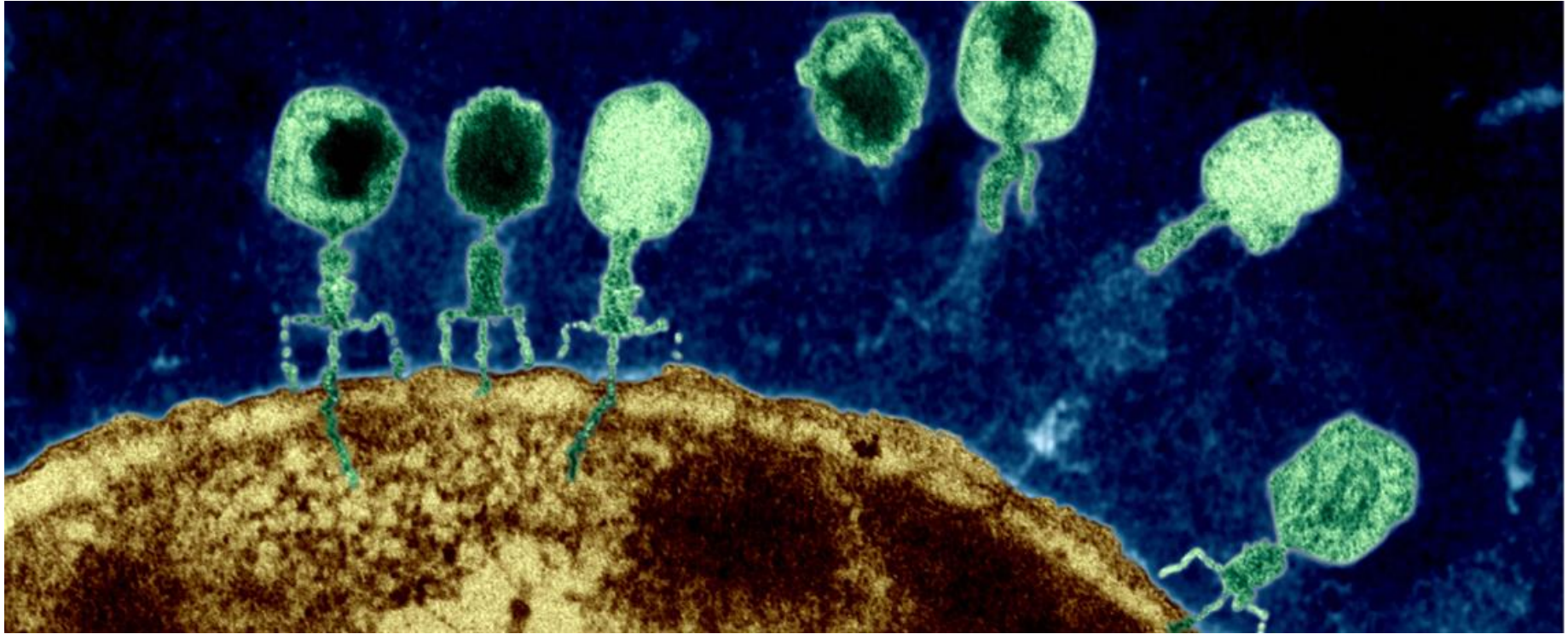


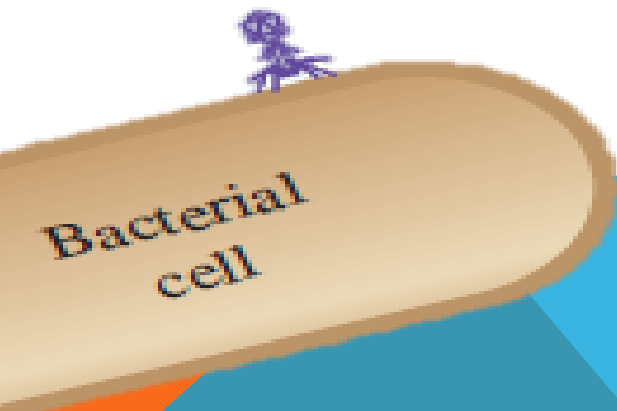
ISOLATION OF BACTERIOPHAGE FROM SEWAGE

Background

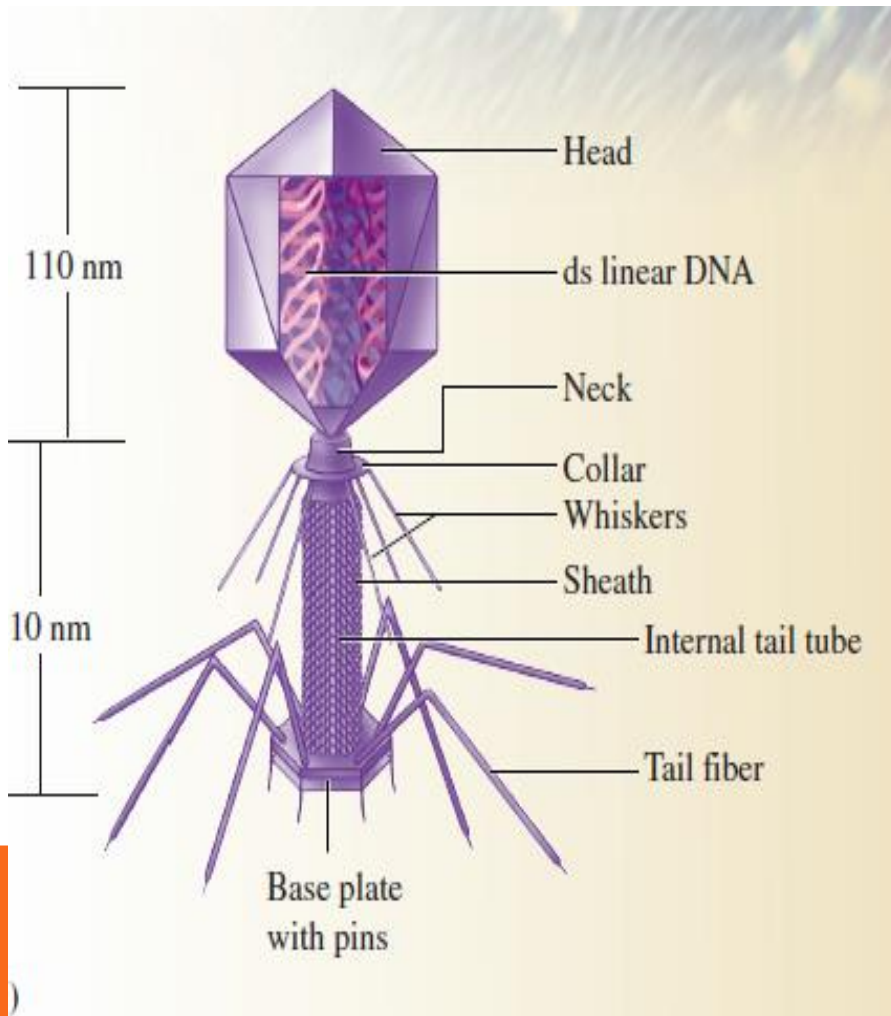


Definition :

Bacteriophage (**phage**) are obligate intracellular **parasites** that multiply **inside bacteria** by making use of some or all of the host biosynthetic machinery (i.e., **viruses that infect bacteria**).



Composition and structure of bacteriophage



❑ Composition

nucleic acid + protein

❑ Structure

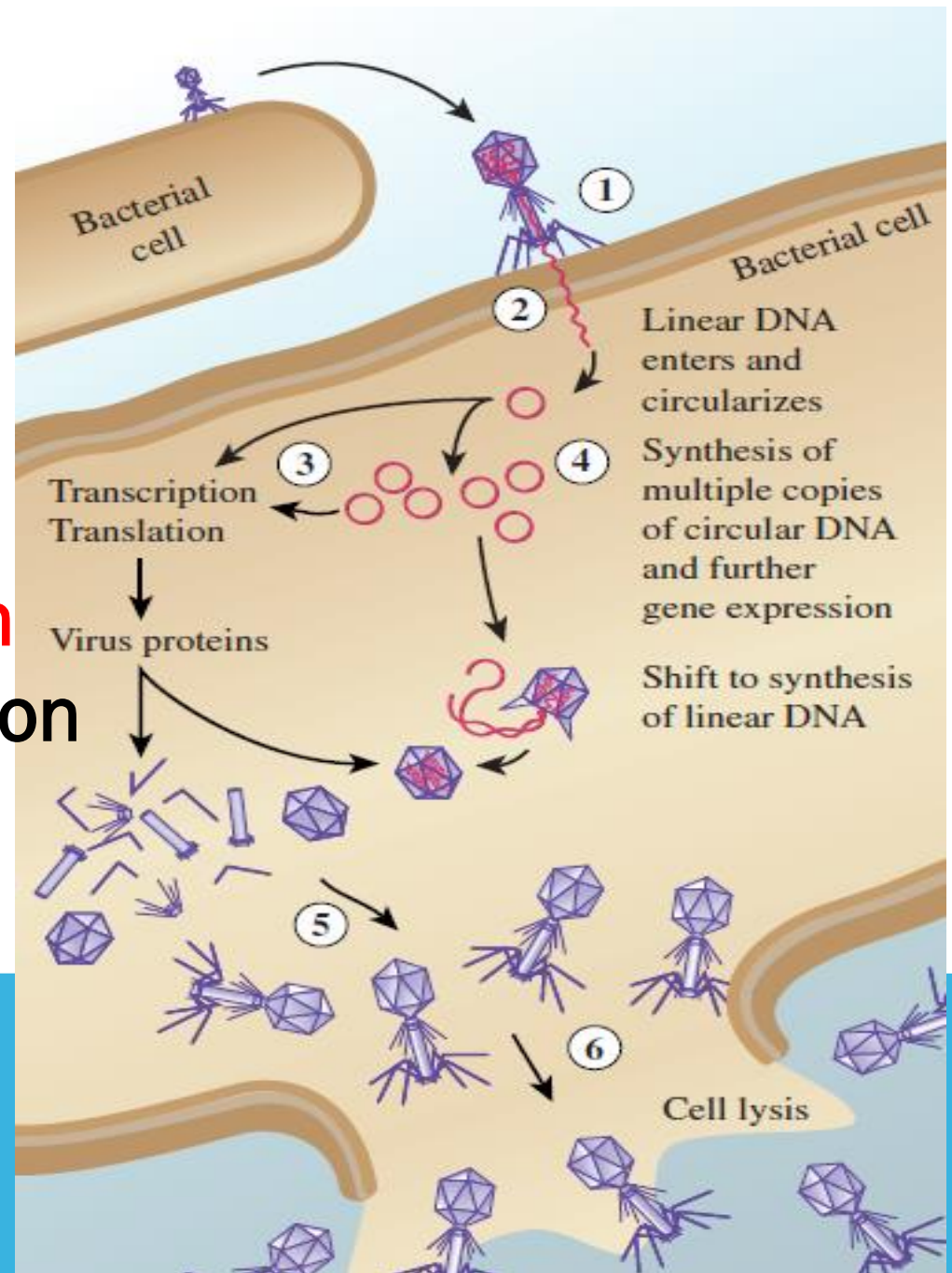
Size

Head or Capsid

Tail

INFECTION OF HOST CELLS

1. Adsorption
2. Irreversible attachment
3. Sheath Contraction
4. Nucleic Acid Injection



MATERIALS

1. Overnight **culture of *E. coli*** and 40 ml of raw sewage

2. N.B

3. N.A plates

—————> for each plate tube containing 3 ml
agarose

4. 37 °C **incubator** with shaker + Water bath at 37 °C 45 °C

5. Phosphate-buffered saline (PBS)

6. **pipettes** , centrifuge tube , **phage filtrate** , microfuge tubes ,
micropipettor , syringe without needle

PROCEDURE



First : Amplification

1. 5 ml nutrient broth into the flask
+ 40 ml of raw sewage.

1. 45 ml N.B Inoculate 5 ml *E. coli*



Incubate both cultures at 37 °C, shaking for 24 hours.

SECOND : Isolation and plating

- Overnight growth **OF** *E. coli* “ *N.B* “
 - **Transfer** 10 ml of
the sewage-bacteria-bacteriophage culture

—————> centrifuge tube

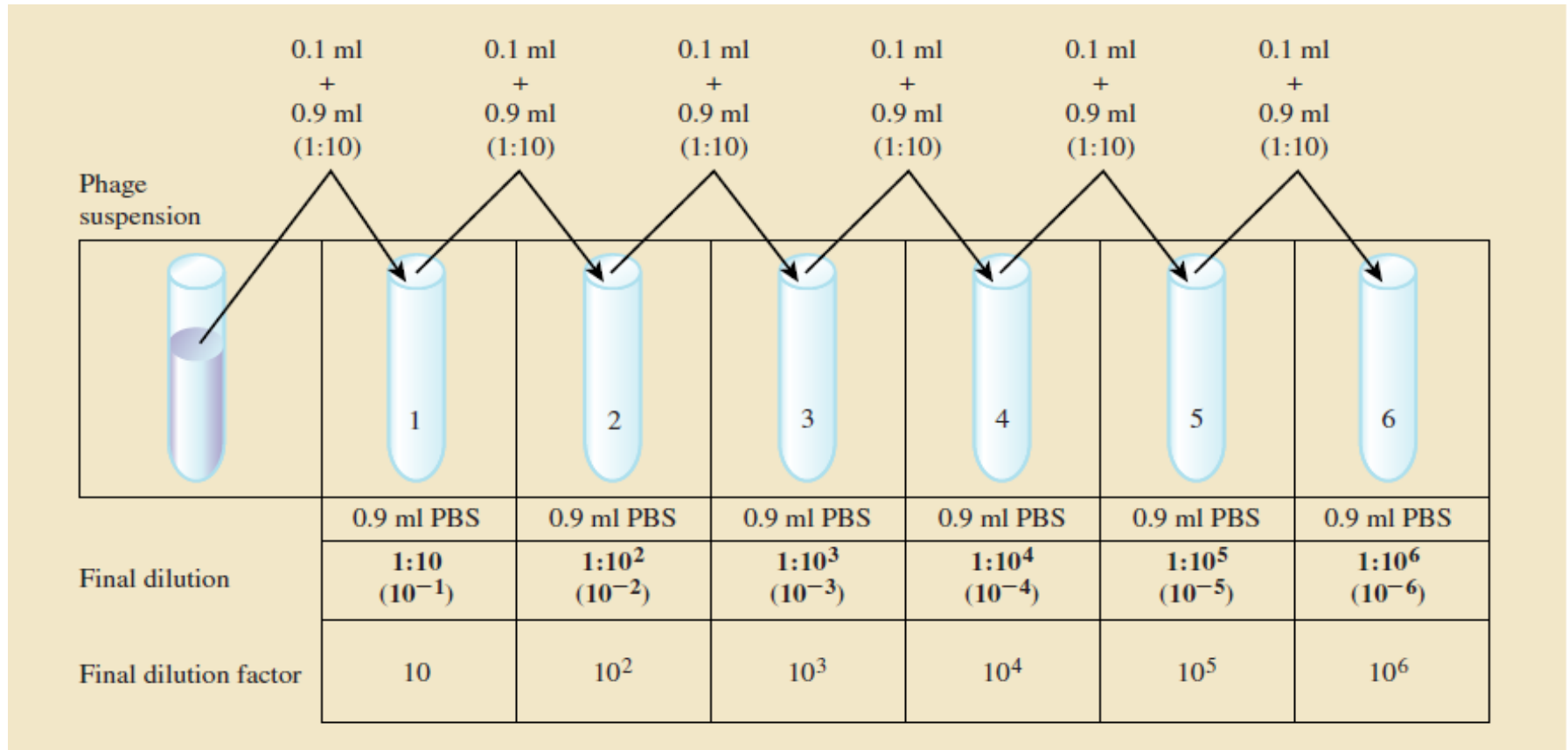
2,000 RPM for 5 min

Take 10 ml of supernatant by **syringe**

—————> storage tube

at 4 °C

Prepare serial dilutions of the bacteriophage suspension

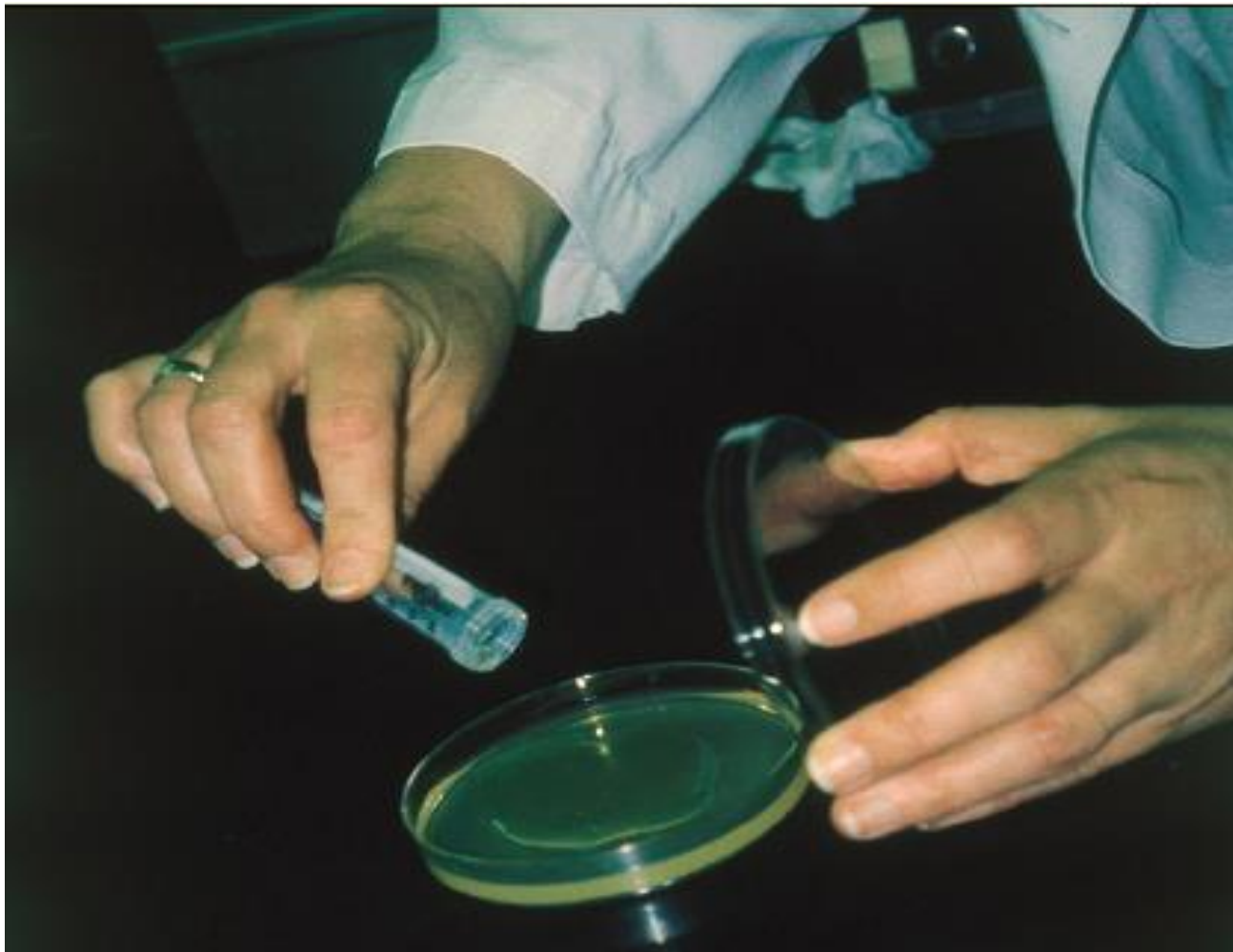


Distribute 0.5 ml of log-phase *E. coli* into each of six microfuge

Then Transfer 0.1 ml of phage

Suspension **dilutions** to each microfuge tubes, **cell-phage mix.**

Incubate at 37 °C for 10 minutes



Add cell-phage tube 1 to a vial containing 3 ml of top agarose
(**molten**, at 45° C).

cap the tube, and **mix** pour the mixture onto plate

10 min

THIRD : Examination of bacteriophage plates

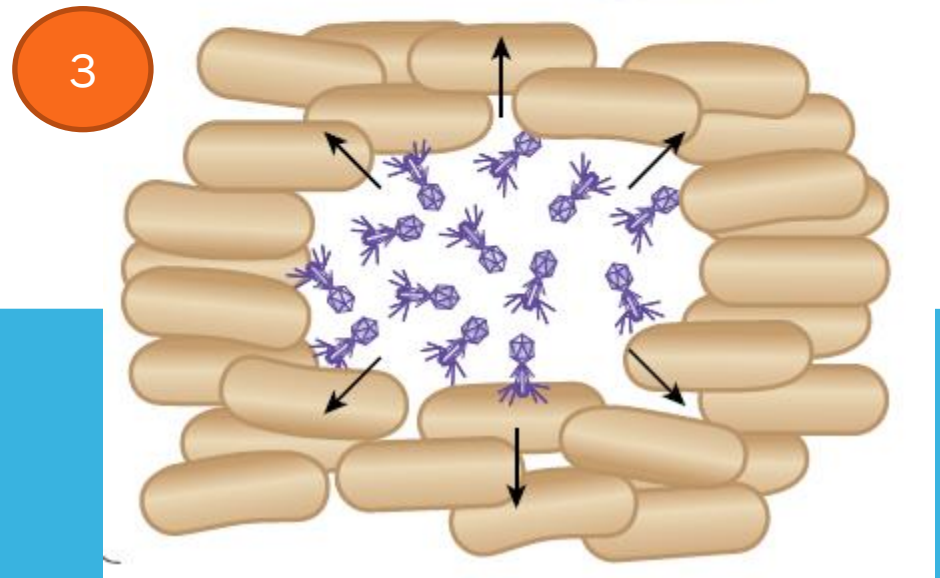
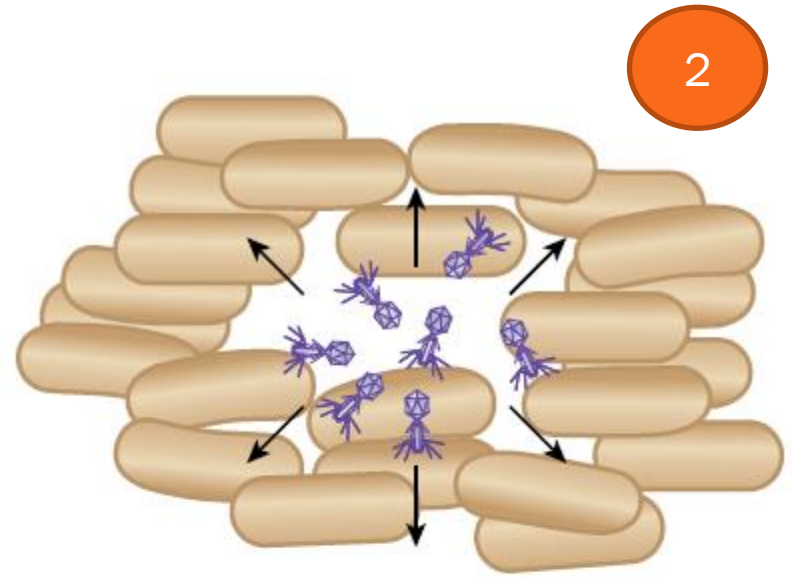
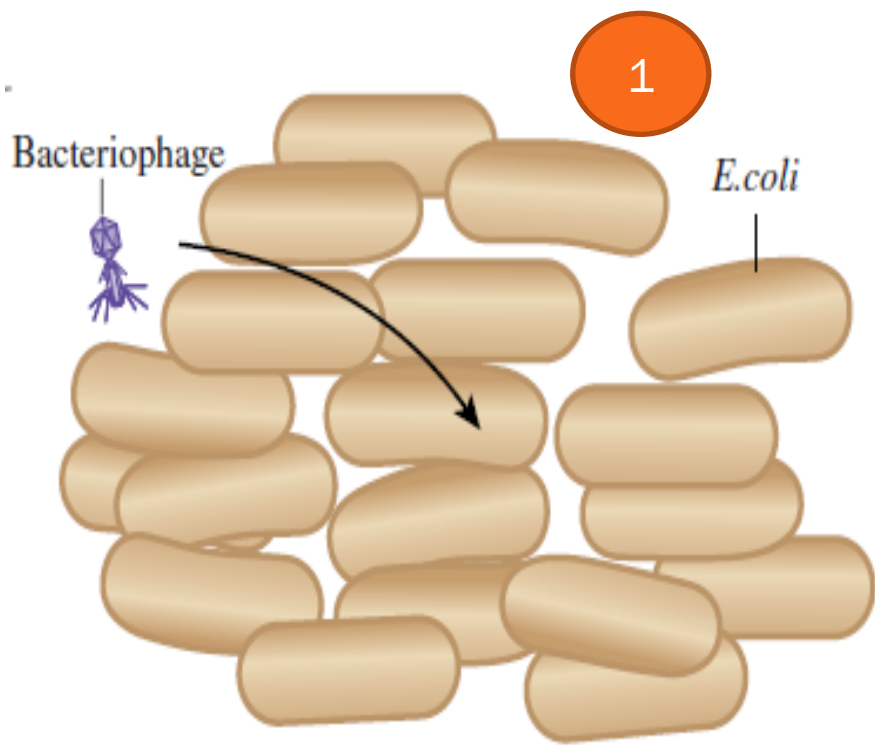
1. Record **the number of plaques**
2. Storage “ **chloroform** , **PBS** , (**4-10°C**) ”





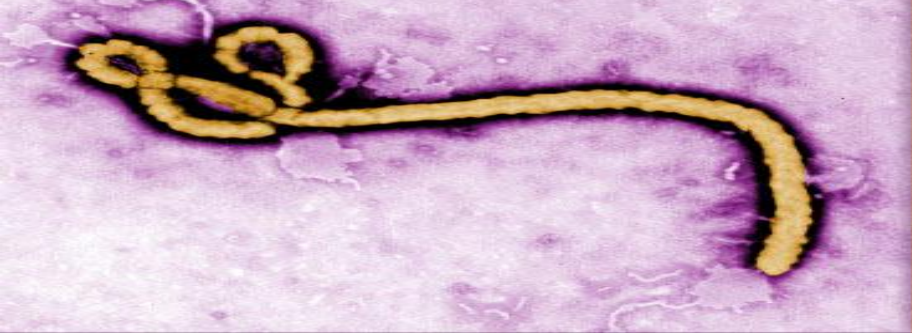
Result and Discussion





EBOLA VIRUS DISEASE





Ebola Update

CDC Response to 2014 Ebola
in United States and West Africa

Ebola virus disease (EVD) :

- ❑ **transmitted** from wild animals and spreads in the human population
- ❑ fatality rate is around **50%** .
- ❑ occurred in remote villages in **Central Africa** .



TRANSMISSION:

- * contact with the **blood**, - **fluids** of infected animals.
- * spreads through **human-to-human** transmission **via direct** contact



SYMPTOMS

1. fever fatigue.
2. muscle pain
3. headache
4. sore throat
5. vomiting
6. rash



Treatment and vaccines:

no proven treatment available for EVD.

Prevention:

- Animals should be handled with gloves
- Animal products should be thoroughly cooked
 - hand washing .

REFERENCE

1. <http://highered.mheducation.com/sites/dl/free/0072487445/92720/Exercise37.pdf>
2. **Return to the Bacteriology Section of the Microbiology and Immunology On-line Textbook**
3. <http://www.who.int/mediacentre/factsheets/fs103/en/>

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