

1-Antony van Leeuwenhoek: **first** to observe microorganisms in **water mud and saliva**



3-Edward Jenner: physician and scientist who pioneered the concept of vaccines including creating the **smallpox vaccine**, **the world's first vaccine**.



2-John Hunter: the leading authority on **venereal diseases**, and believed that **Syphilis** and **Gonorrhea** were caused by a single pathogen



4-John Snow: physician, locating source of **cholera** outbreak in London (thus establishing the disease as **water-borne**), also he is one of the **founders of modern epidemiology**.



5-Ignaz Semmelweis: physician and scientist, known as early pioneer of antiseptic procedures . Described as the "**savior of mothers**", he discovered that the incidence of **Puerperal sepsis** can be prevented if the attending nurses apply **hygienic** measures.(Hand washing stops infections)



6-Louis Pasteur: biologist, microbiologist, and chemist.

1. Discovered the principle of **Fermentation of alcohol by microorganisms**.
2. Invent a technique of treating milk and wine to stop bacterial contamination, a process called **pasteurization**.
3. Created the first **Vaccines of rabies, Bacillus anthrax**  
He performed numerous experiments to discover why wine and dairy products became sour, and he found that bacteria were to blame.  
Pasteur's attempts to prove the **germ theory were unsuccessful**

**bacillus anthrax**



**rabies**



7- Robert Koch provided the proof by **cultivating anthrax bacteria** apart from any other type of organism.

Robert Koch: Developed microbiological media & streak plates for pure culture.

Germ theory (Koch's postulates):

- Microorganism must be present in every case of the disease.
- Organism must be grown in pure culture from the diseased host.
- Inoculation of above into host must give same disease.
- Organism must be recovered from experimentally infected host.



Alexander Fleming – 1928 – physician and microbiologist, his best known discovery the world's first broadly effective **antibiotic (Penicillin G)** from the mould **Penicillium rubens** in 1928.

Kary Mullis 1986: An American biochemist , invent **Polymerase Chain Reaction (PCR)** technique.



Zur Hausen: A German **virologist**, He has done research on **cancer of the cervix**, where he discovered the role of **Papilloma viruses**, This research directly made possible the development of **a vaccine HPV**.