SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr M.G.R Medical University, Chennai

DEPARTMENT OF CARDIAC TECHNOLOGY

COURSE NAME: MICROBIOLOGY

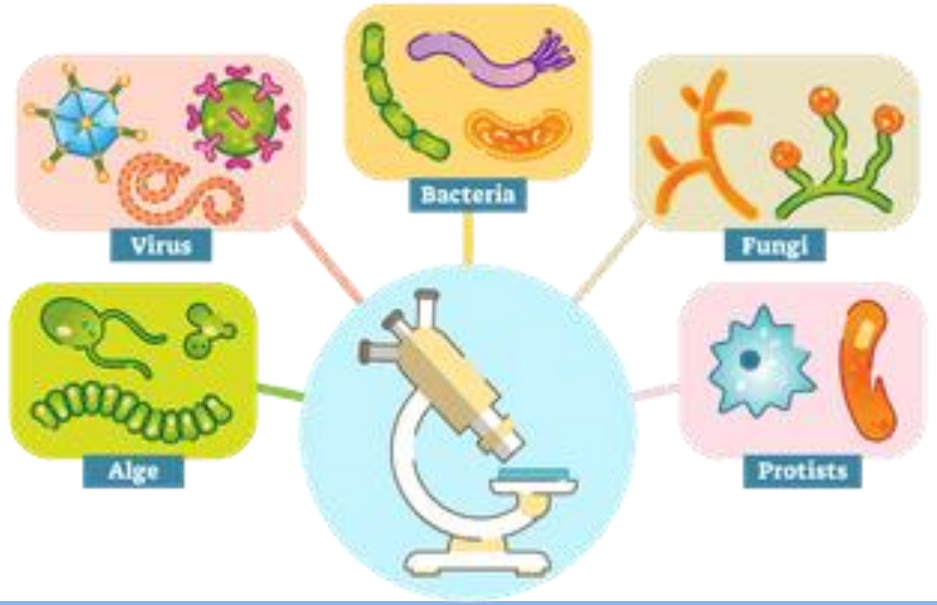
UNIT : 1

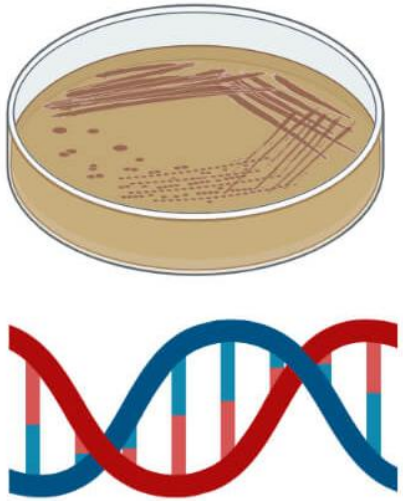
TOPIC : HISTORY OF MICROBIOLOGY

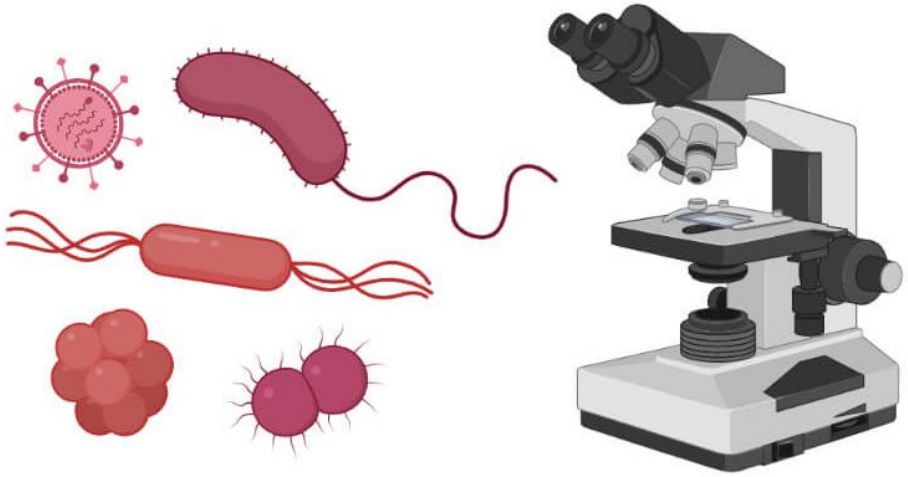
FACULTY NAME: MITHRA V

INTRODUCTION (DEFINE)

- **Microbiology:** Study of microorganisms (bacteria, archaea, viruses, fungi, prions, protozoa, algae) Focuses on structure, function, classes, economic importance.
- Key roles in nutrient cycling, biodegradation, food spoilage, disease control, biotechnology.

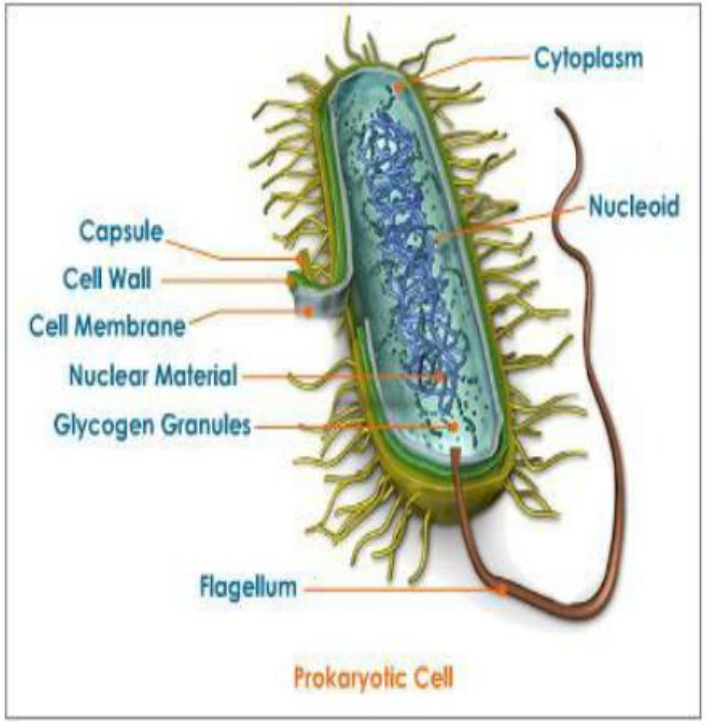


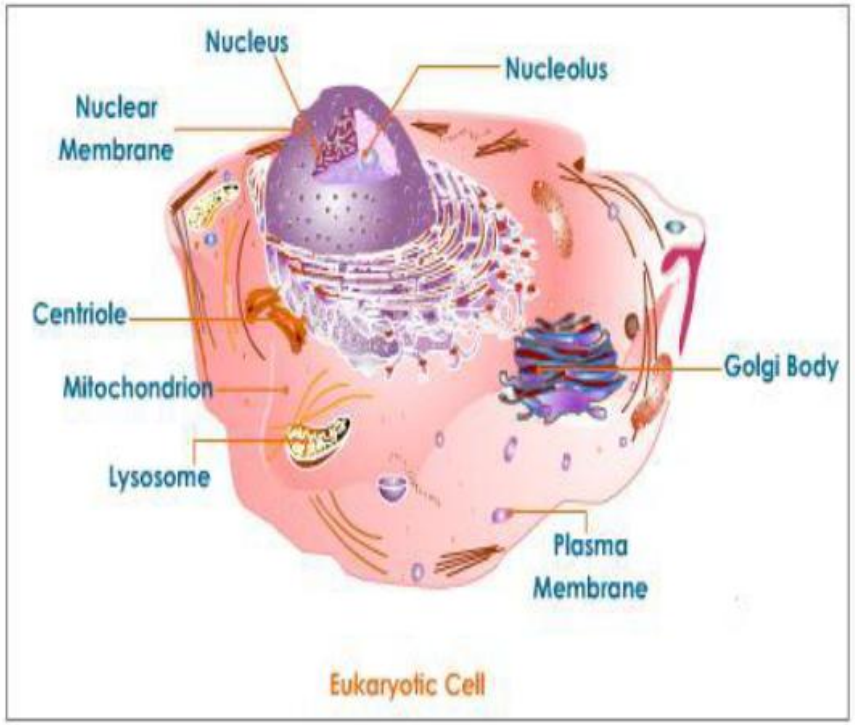




MEMBERS OF THE MICROBIAL WORLD

- Two cell types based on nucleus:
- **i. Prokaryotes:** No true nucleus, simpler morphology, lack organelles (e.g., bacteria, archaea).
- **ii. Eukaryotes:** Membrane-bound nucleus, complex, larger (e.g., algae, fungi, protozoa, plants, animals).





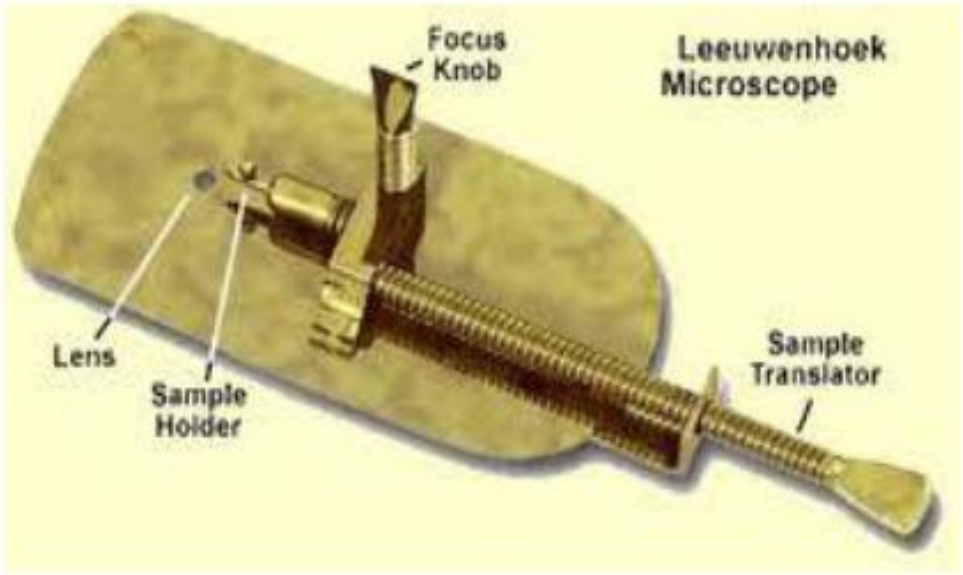
ROBERT HOOKE (1635–1700)

- Discovered cells (honeycomb-like) in cork using 30x magnification microscopes.
- Observed microorganisms.

Robert hooke

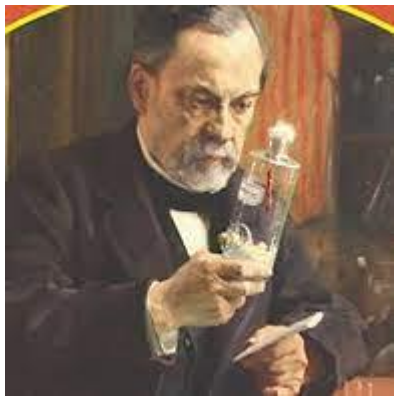
ANTONIE VAN LEEUWENHOEK (1632–1723)

- Father of Microbiology.
- Built simple microscopes (50–300x magnification).
- First to describe protozoa, bacteria, sperm, RBCs, called them “animalcules.”

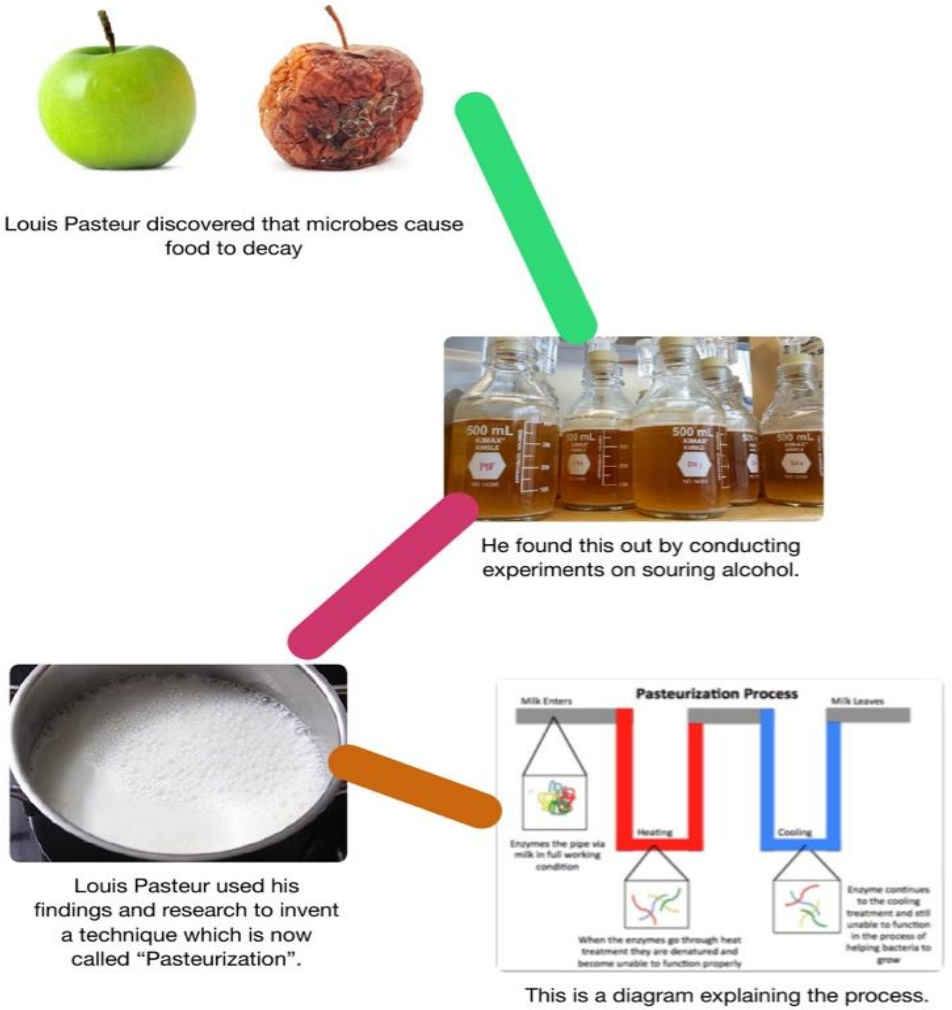


Leeuwenhoek and his microscope that was developed first

LOUIS PASTEUR (1822–1895)

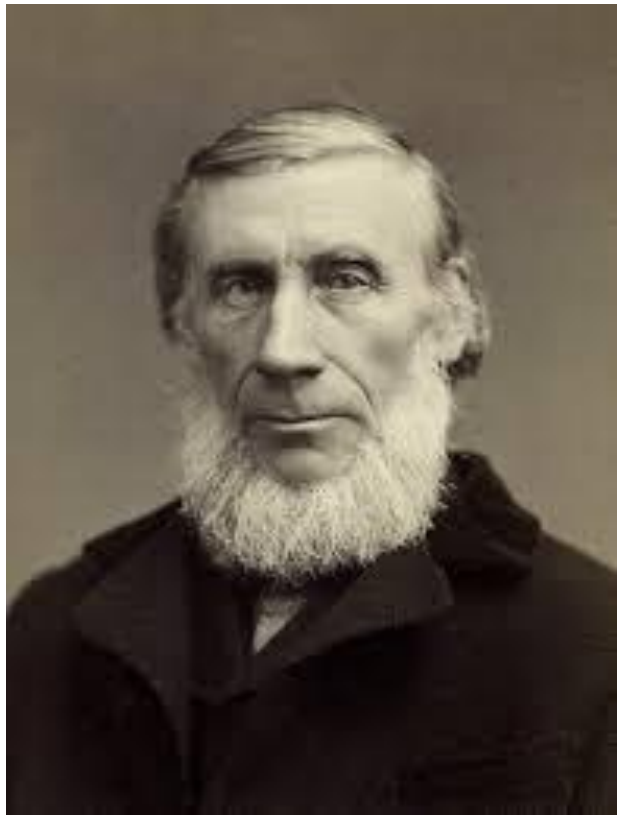


- Proved biogenesis.
- Disproved spontaneous generation.
- Founded germ theory of disease.
- Developed rabies vaccine, coined “vaccine”
- Introduced sterilization
- Discovered fermentation causes alcohol production
- Developed pasteurization (heating to 50–60°C) to kill pathogens in milk.



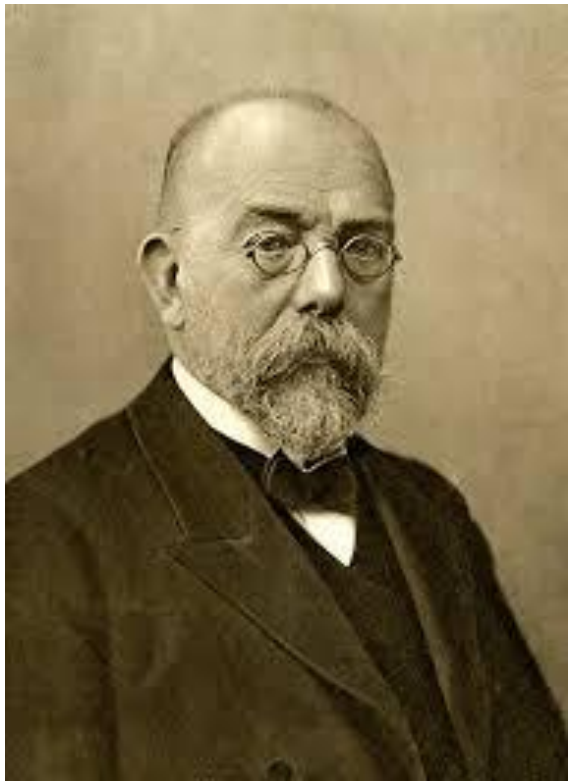
JOHN TYNDALL (1820–1893)

- Developed tyndallization (intermittent sterilization).
- Used dust-free chamber to prove sterile broth remains uncontaminated.
- Killed vegetative cells at 100°C, spores upon germination.



ROBERT KOCH (1843–1912)

- Father of Practical Bacteriology.
- Perfected bacteriological techniques, introduced staining.
- Discovered Mycobacterium tuberculosis (Koch's bacillus) and Vibrio cholerae.
- Formulated Koch's postulates for proving disease causation.

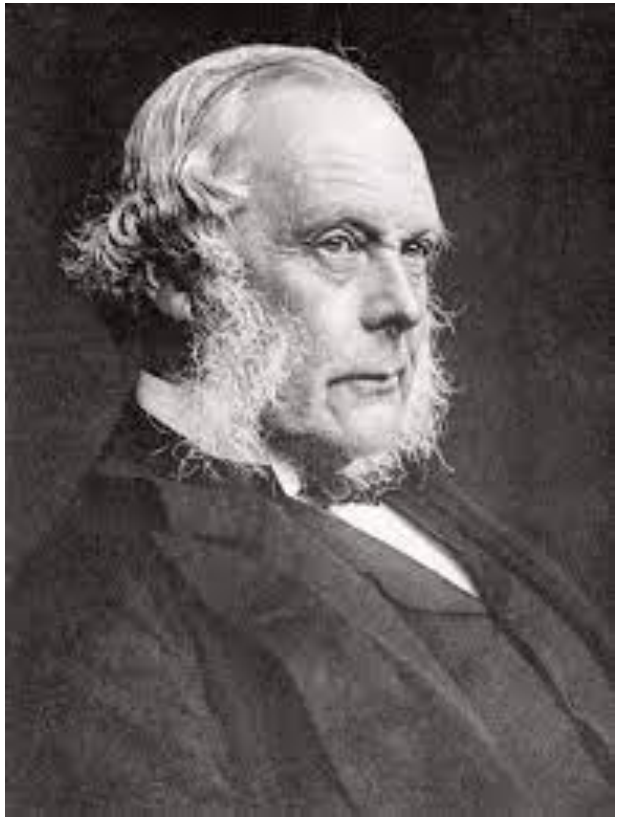


EDWARD JENNER (1749–1823)

- Developed smallpox vaccine (1796) using cowpox (Vaccinia).
- Observed dairy workers' immunity to smallpox from cowpox exposure.

JOSEPH LISTER (1827–1912)

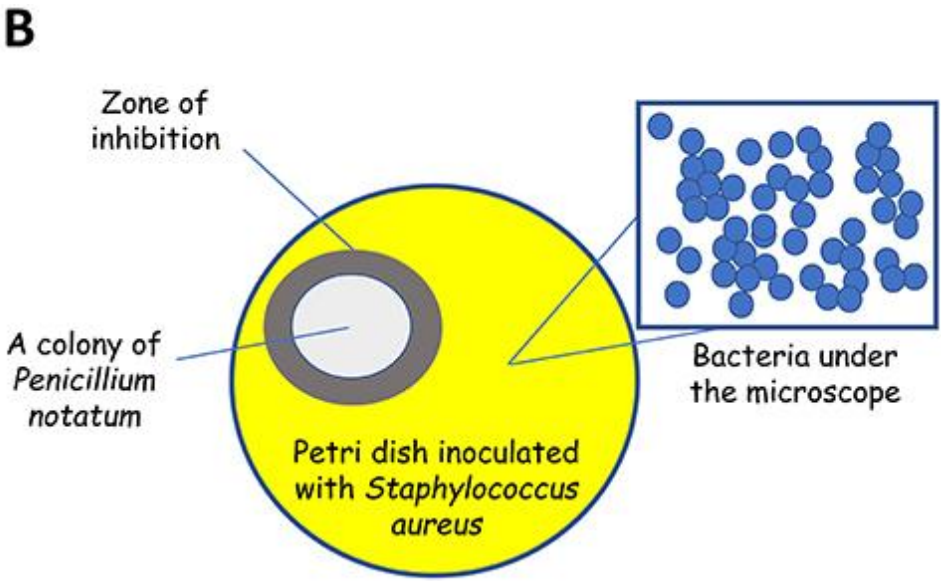
- Father of Antiseptic Surgery.
- Applied Pasteur's germ theory to prevent post-operative sepsis.
- Linked wound infections to atmospheric microbes.



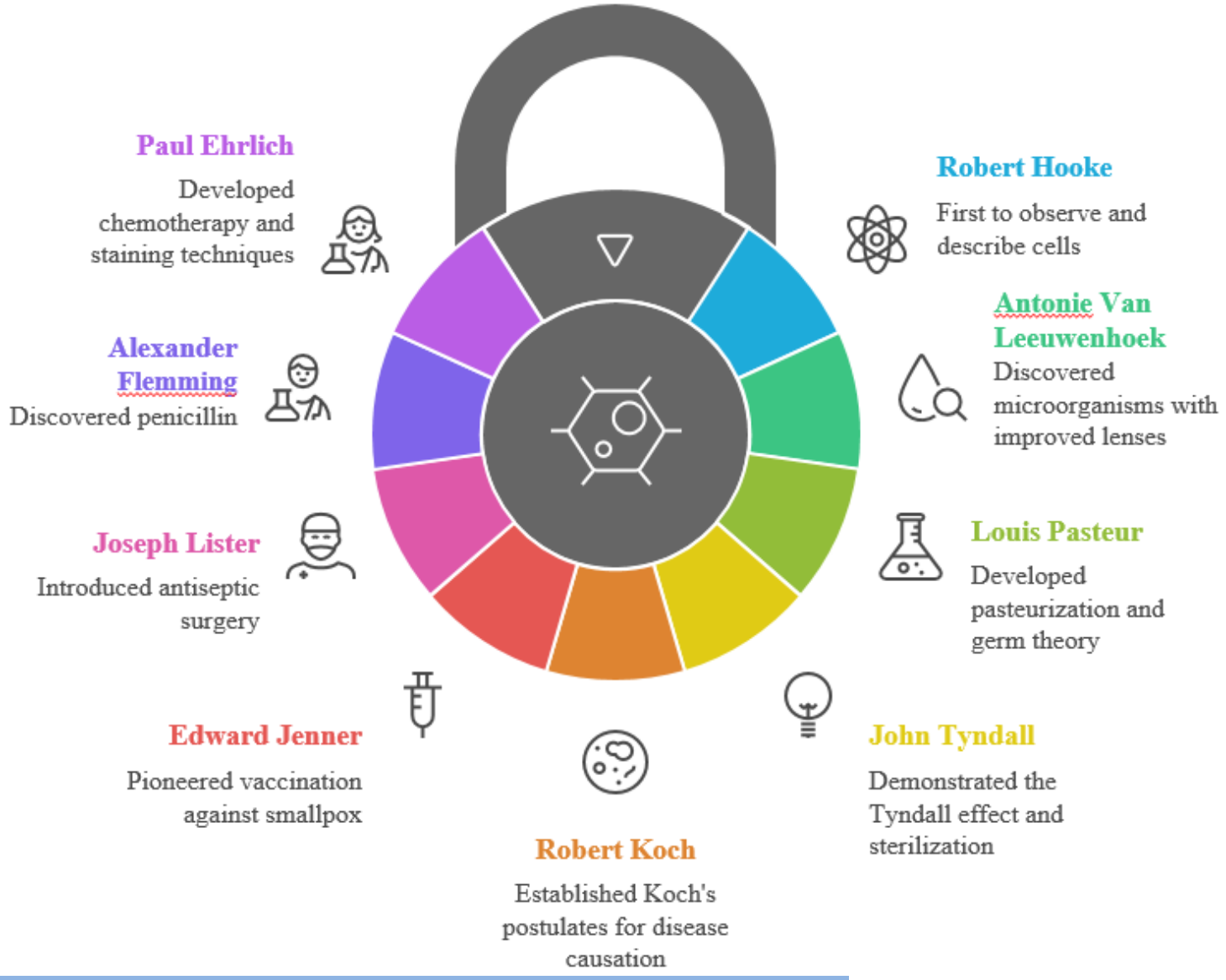
ALEXANDER FLEMING (1881–1955)

- Discovered lysozyme and penicillin.
- Found Penicillium notatum mold produced antibacterial penicillin (1929).

Alexander Fleming in his laboratory



SUMMARY


Paul Ehrlich
Developed chemotherapy and staining techniques
Alexander Flemming
Discovered penicillin
Joseph Lister
Introduced antiseptic surgery
Edward Jenner
Pioneered vaccination against smallpox
Robert Koch
Established Koch's postulates for disease causation
John Tyndall
Demonstrated the Tyndall effect and sterilization
Louis Pasteur
Developed pasteurization and germ theory
Antonie Van Leeuwenhoek
Discovered microorganisms with improved lenses
Robert Hooke
First to observe and describe cells

REFERENCES

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- Medical Microbiology by Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller (Elsevier, 9th Edition, 2020)
- Microbe Notes: https://microbenotes.com/
- American Society for Microbiology (ASM): https://asm.org/
- Todar's Online Book of Bacteriology: https://textbookofbacteriology.net/

THANK YOU