

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai

Approved by Pharmacy Council of India, New Delhi.

Coimbatore -641035

COURSE NAME : PHARMACEUTICAL MICROBIOLOGY - BP303 T

B.PHARM II YEAR / III SEM

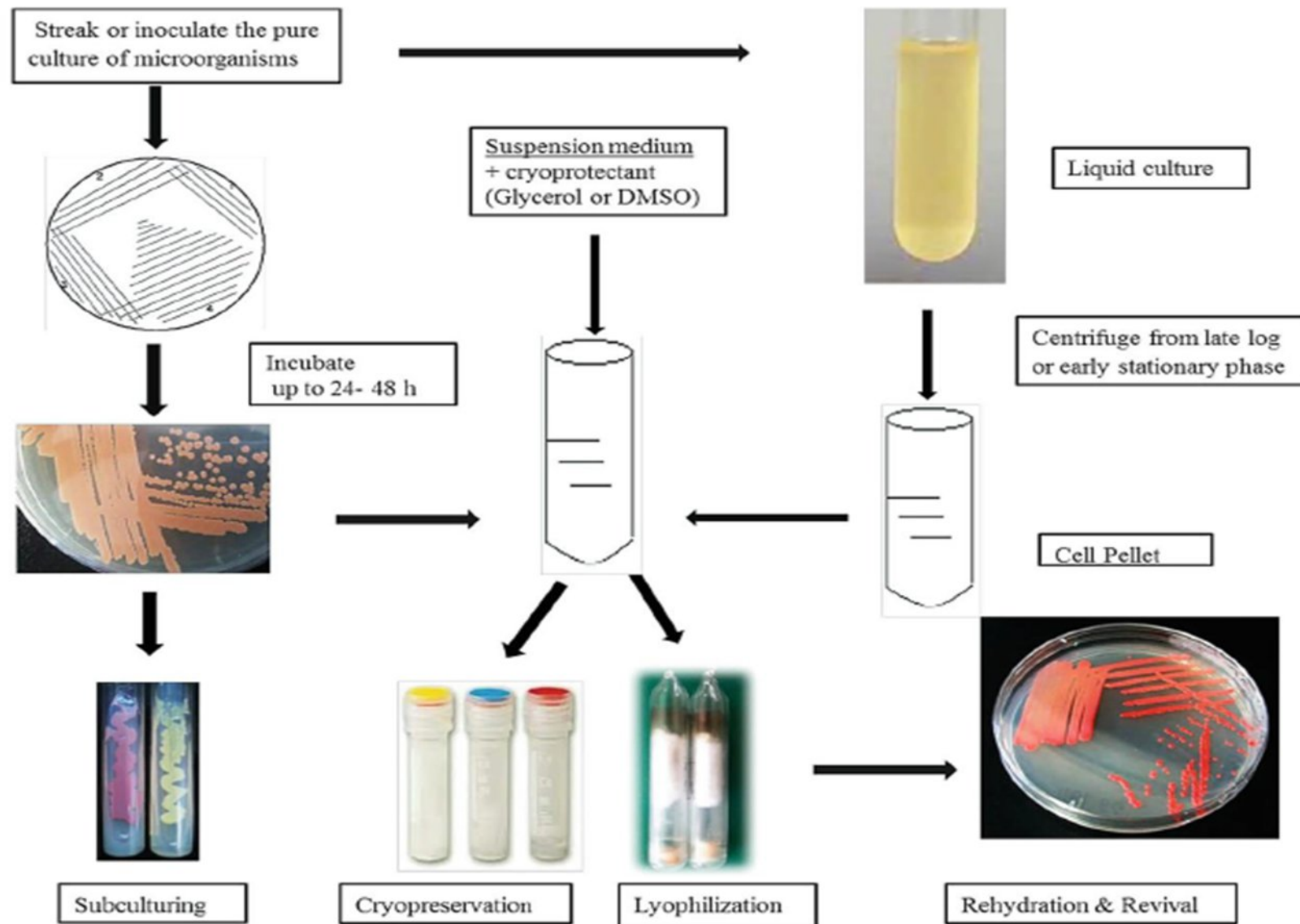
UNIT 1

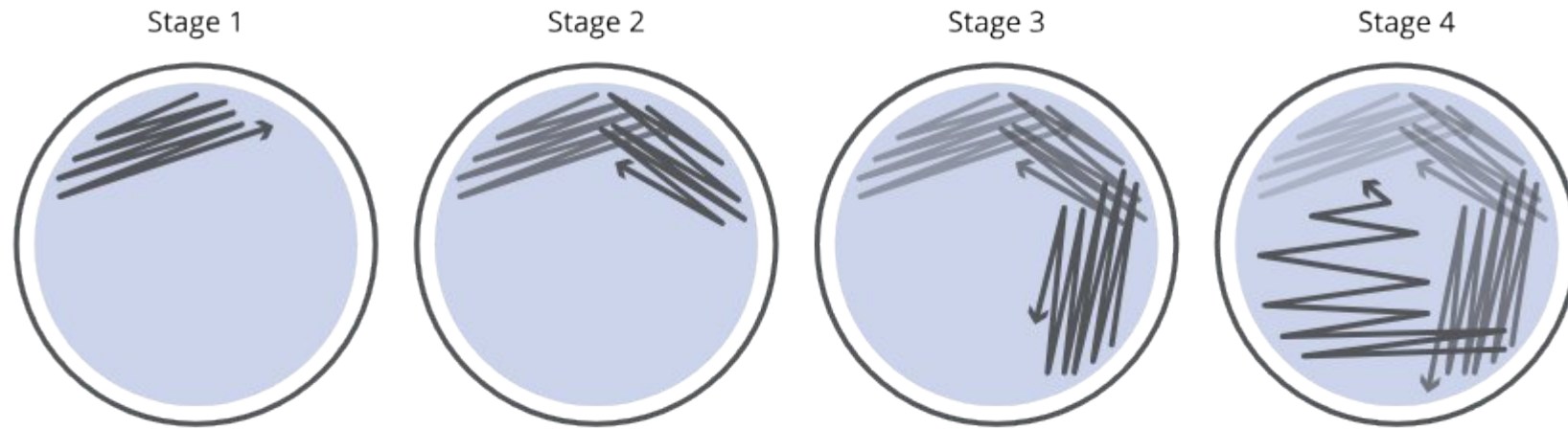
**SUB TOPIC : ISOLATION AND PRESERVATION METHODS FOR PURE CULTURES
AND CULTIVATION OF ANAEROBES**



Bacterial and Fungal Preservation Methods





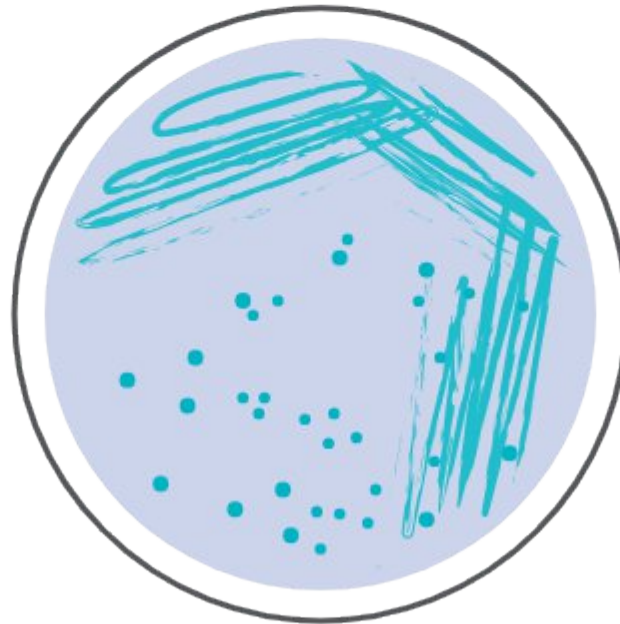


1. Heavy Confluent Growth

2. Less Dense Growth

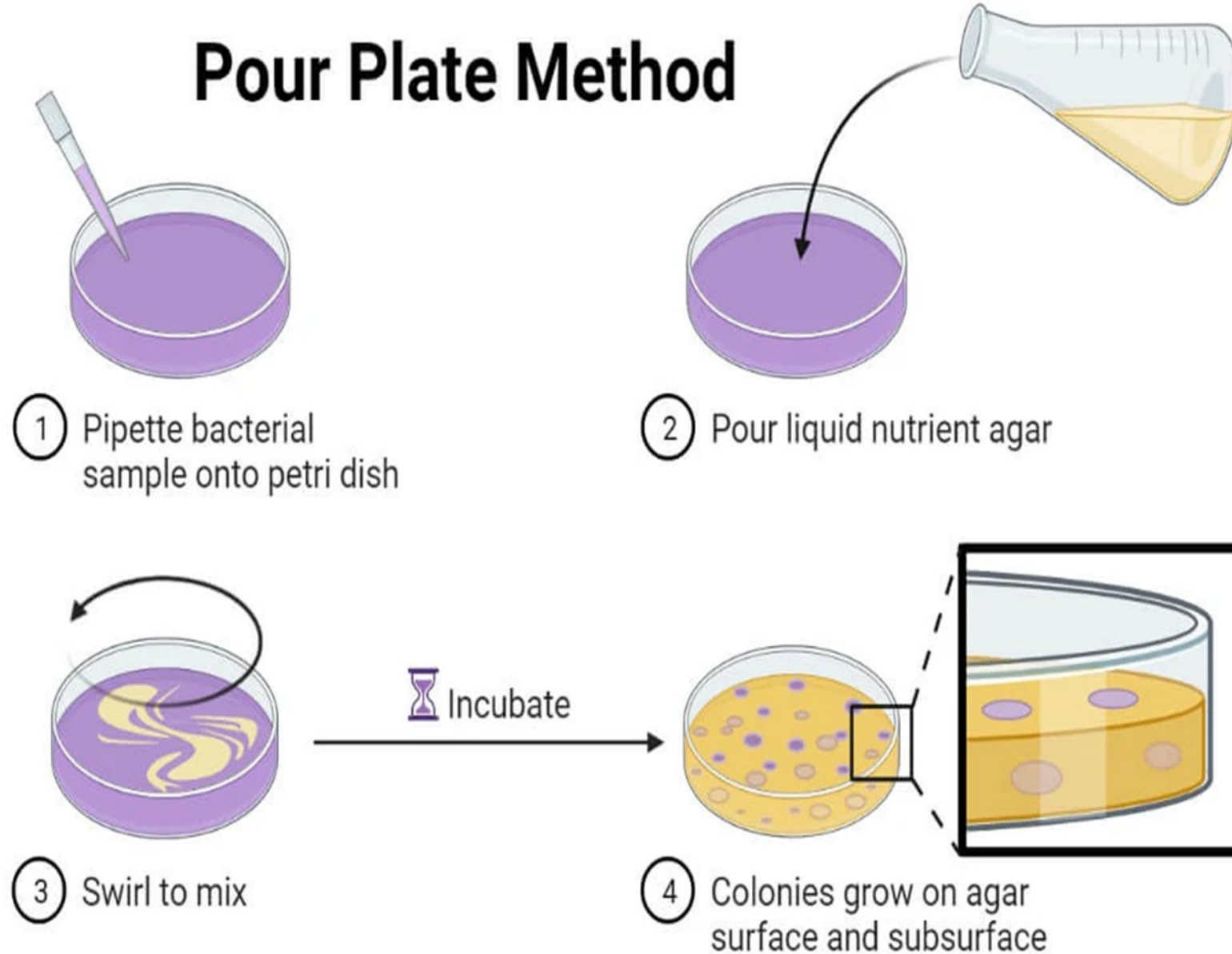
4. Isolated Single Colonies

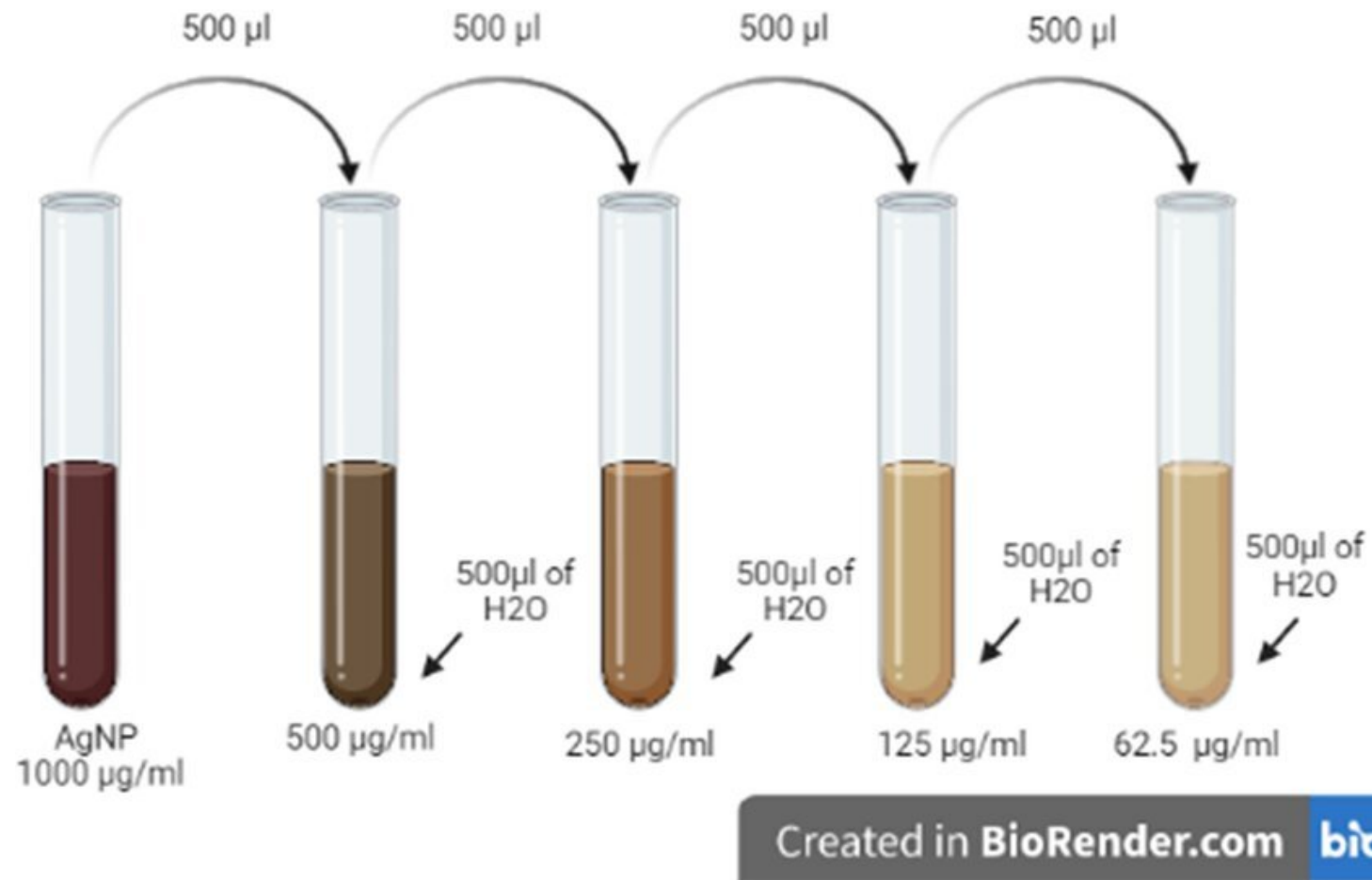
3. Weak Growth



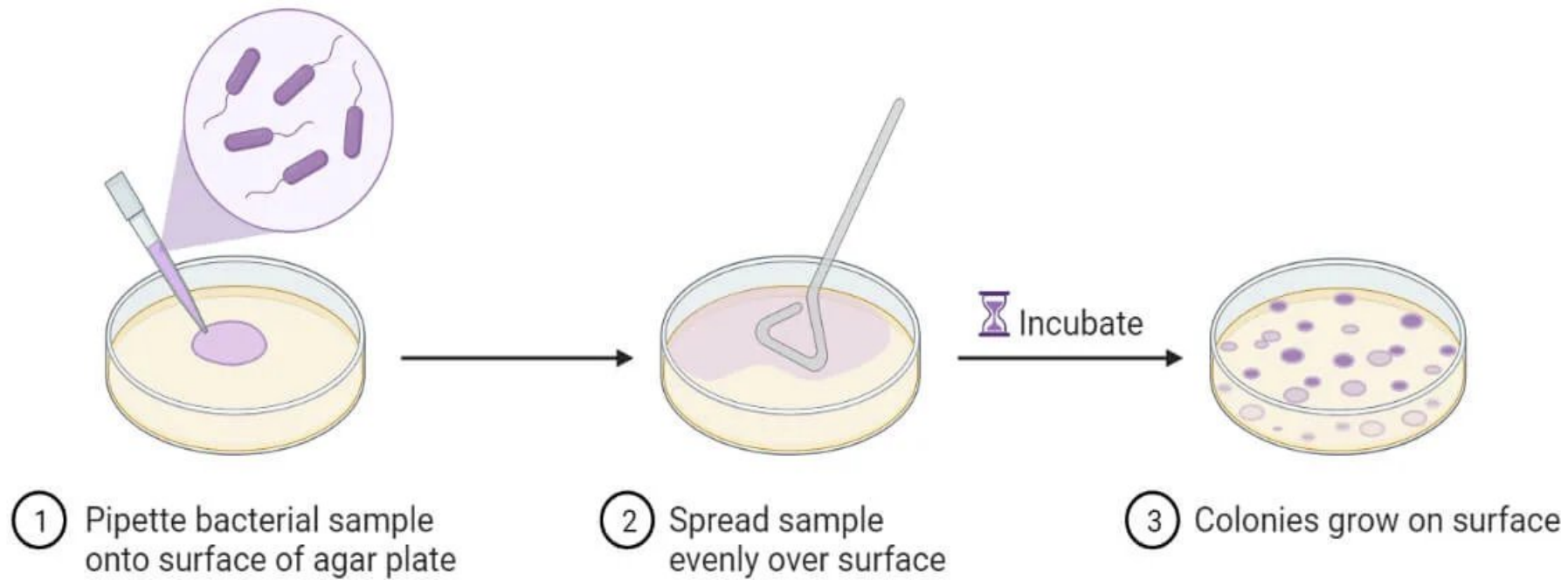
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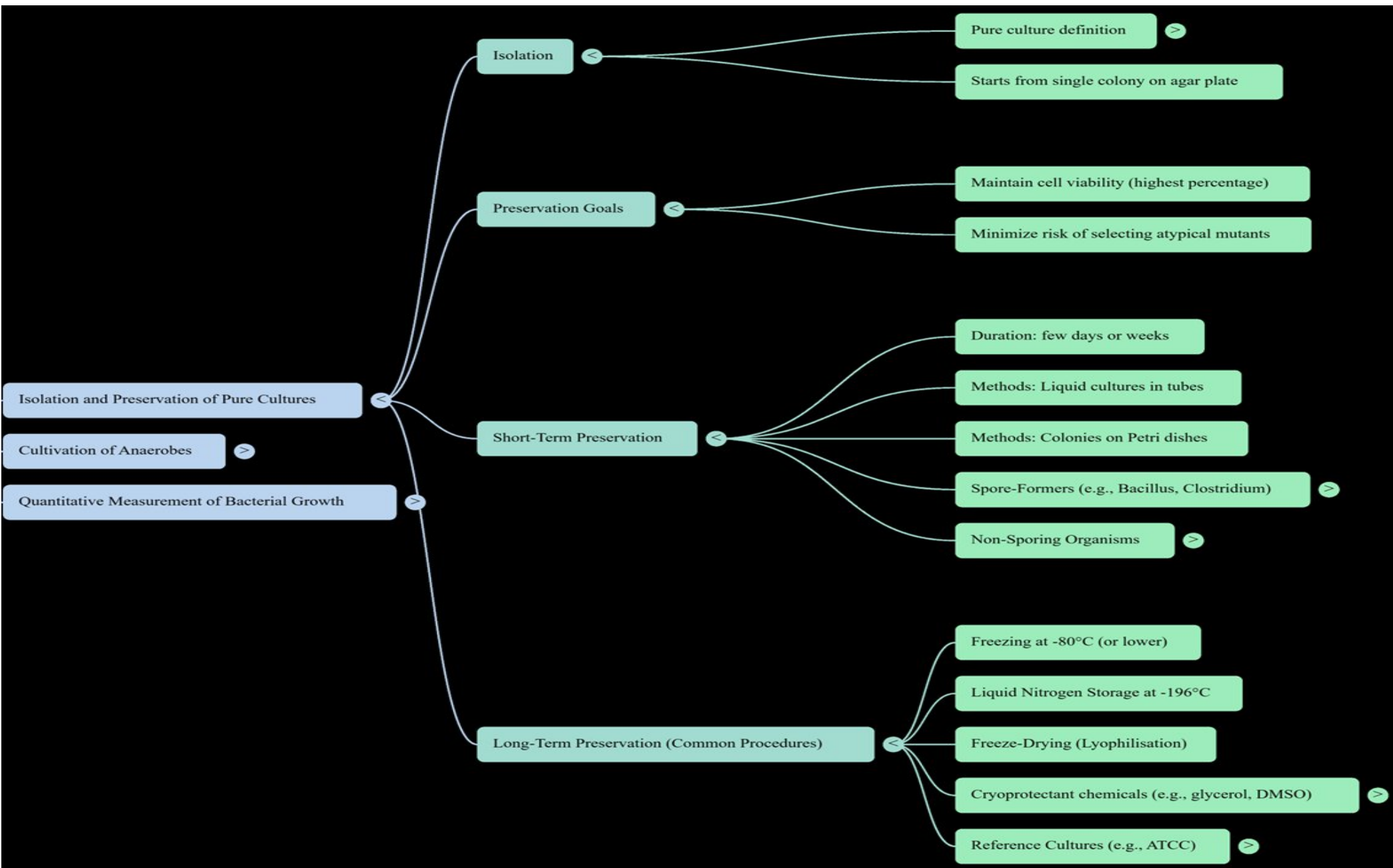
Pour Plate Method

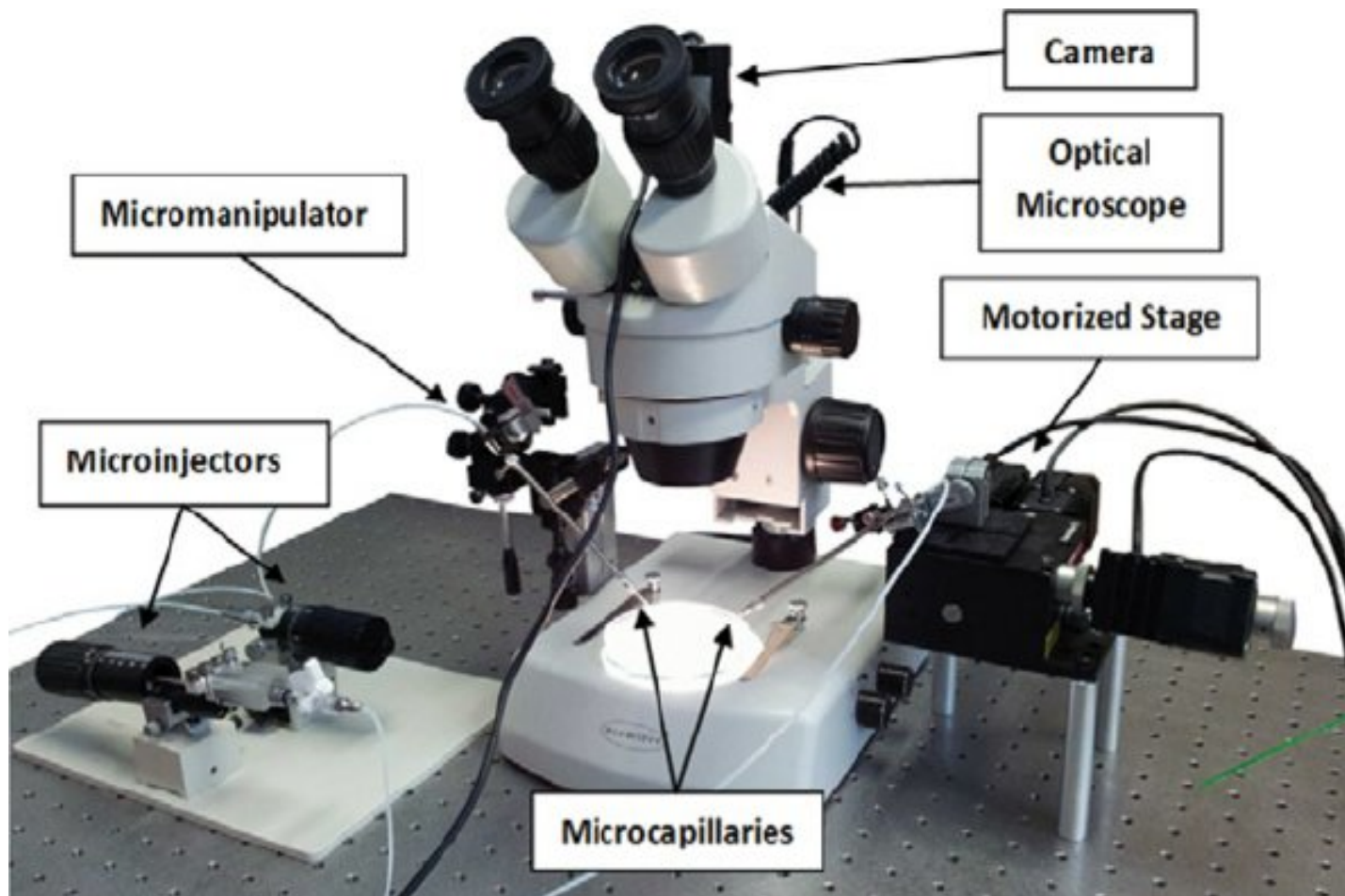




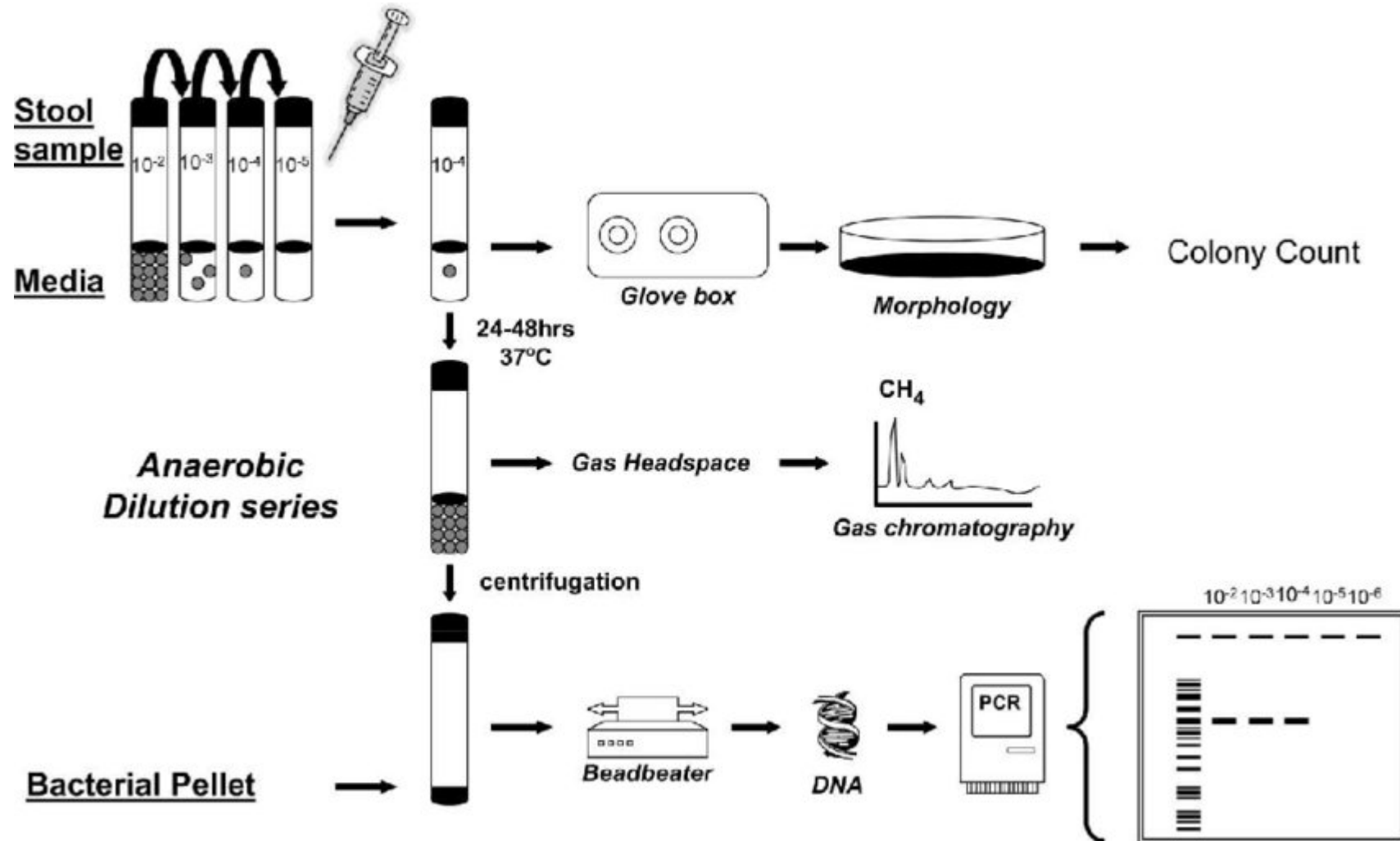
Spread Plate Method







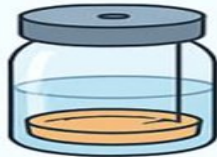
Roll Tube Method



Cultivating Anaerobic Bacteria

Several methods are used to create an oxygen-free environment for anaerobic bacteria, which cannot survive in oxygen-rich environments.

Key Methods for Cultivating Anaerobes



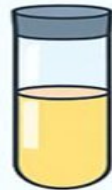
Anaerobic Jars

Use a palladium catalyst and a hydrogen + carbon dioxide gas mix to remove oxygen inside a sealed jar



Anaerobic Chambers

Fully enclosed workstations with a controlled, oxygen-free atmosphere for manipulation and incubation



Hungate Technique

Roll tube method for culturing strict anaerobes, using specialized media developed for previously “uncultivable” microbes

Other Techniques

- Thioglycollate Broth
- Candle Jar
- Pyrogalllic Acid Method
- Biological Method

Key Considerations



Specialized Media
Nutrients + reducing agents tailored for anaerobes

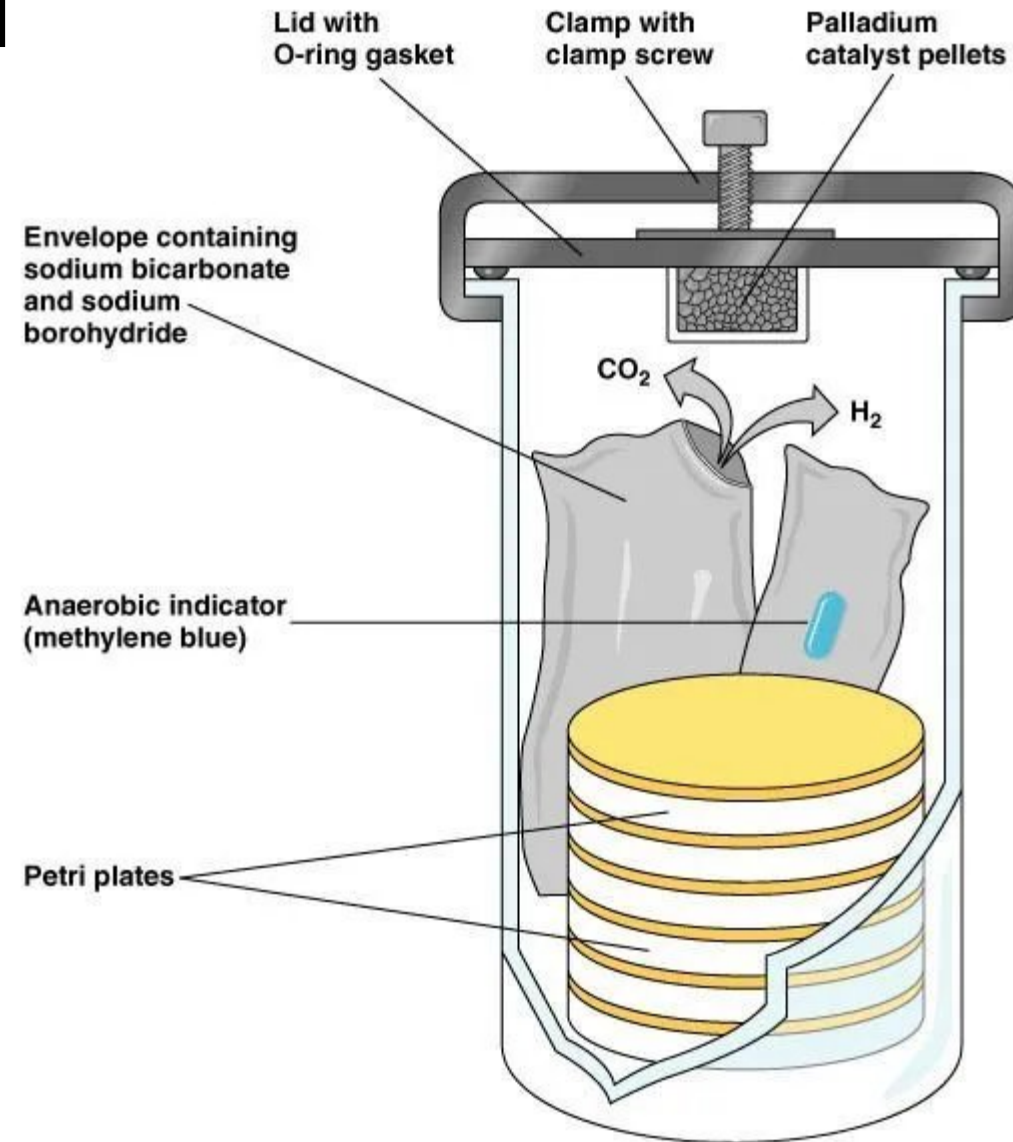


Temperature
Usually 37°C. depending on species

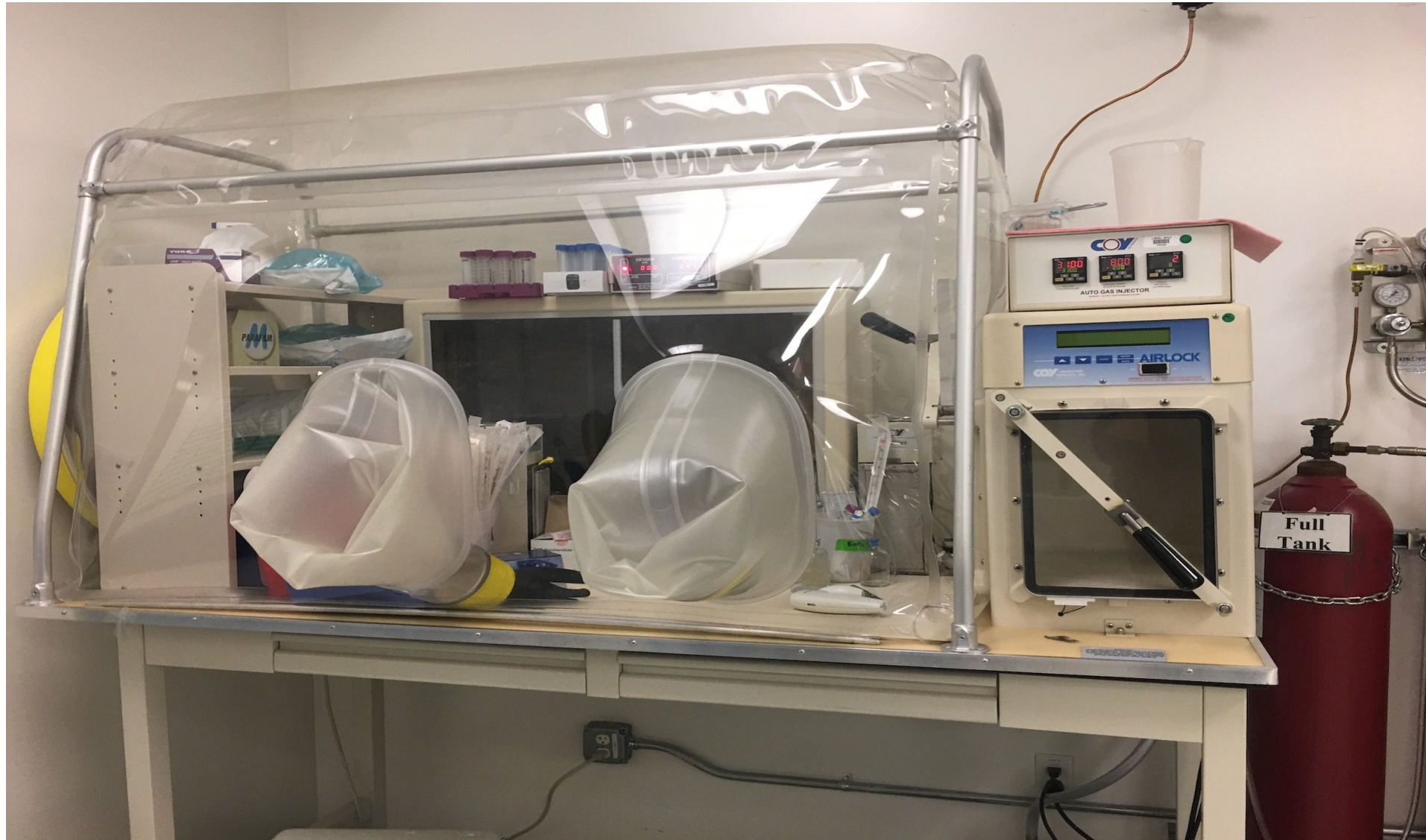


Oxygen Sensitivity
Match your method to the

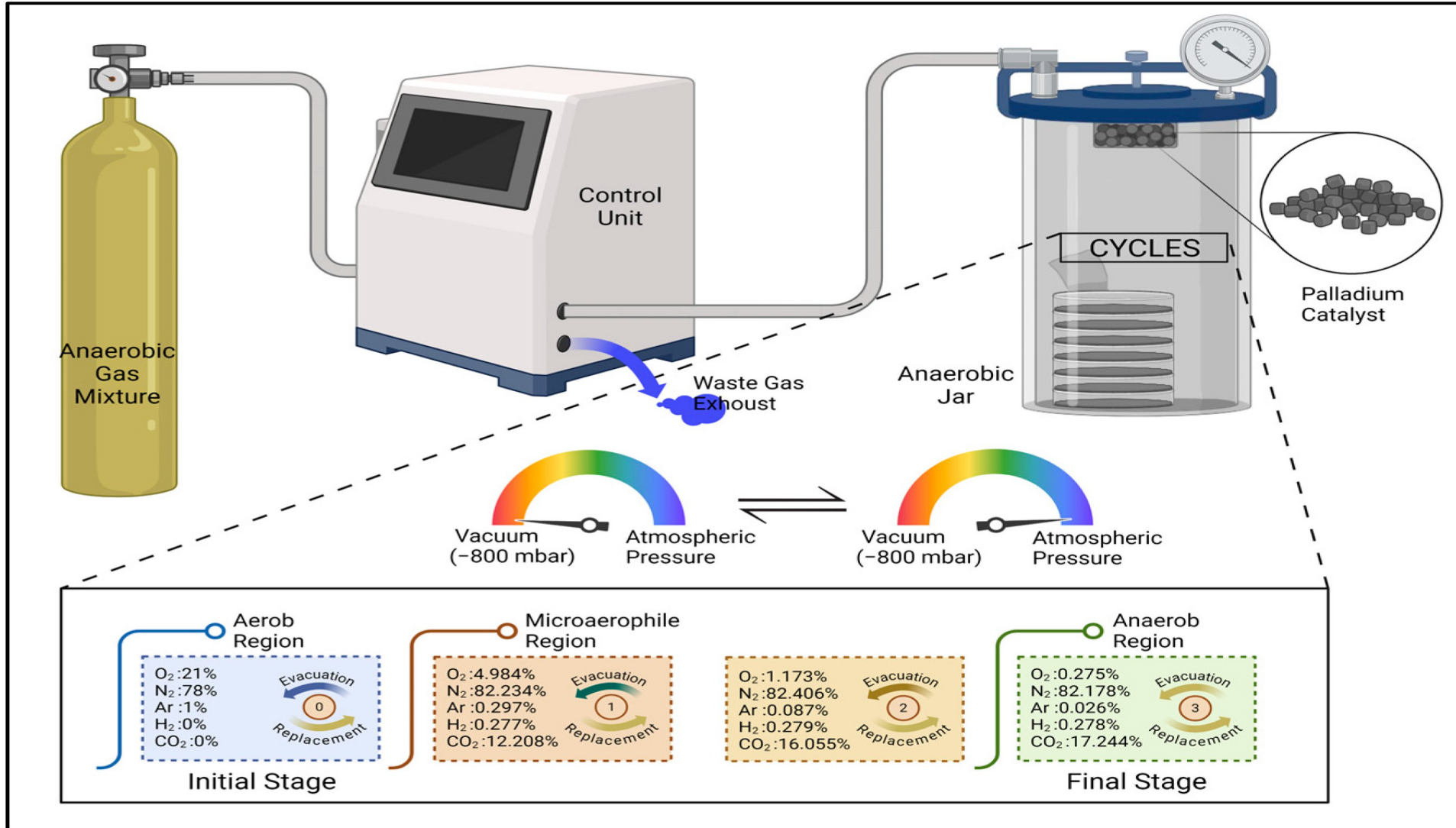
ANAEROBIC JAR



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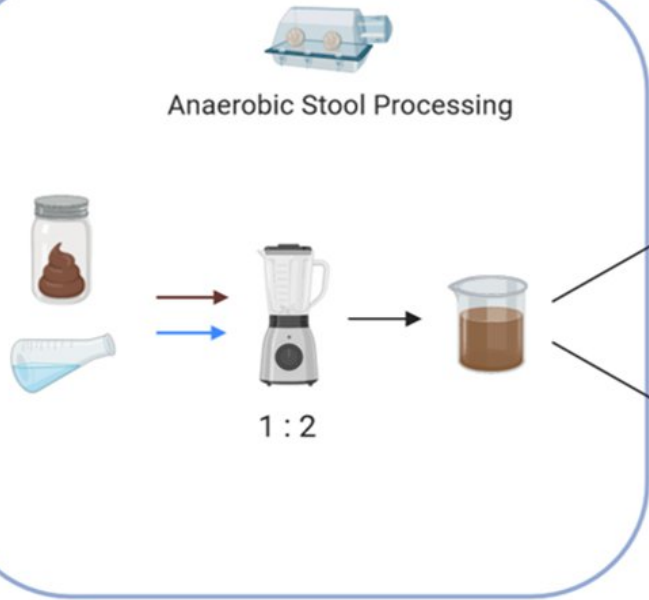


INDUSTRY SET UP ANAEROBIC CULTIVATION

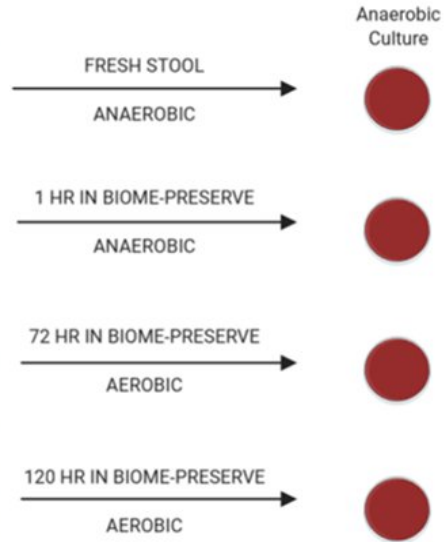


3 Donors

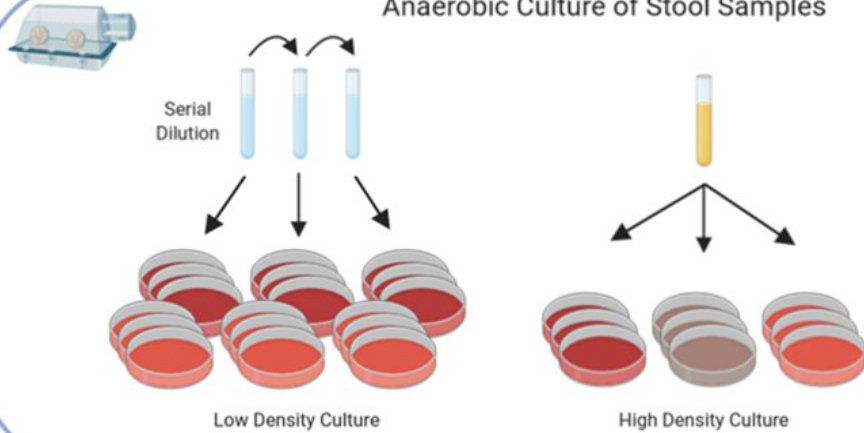
Anaerobic Stool Processing



Storage Condition

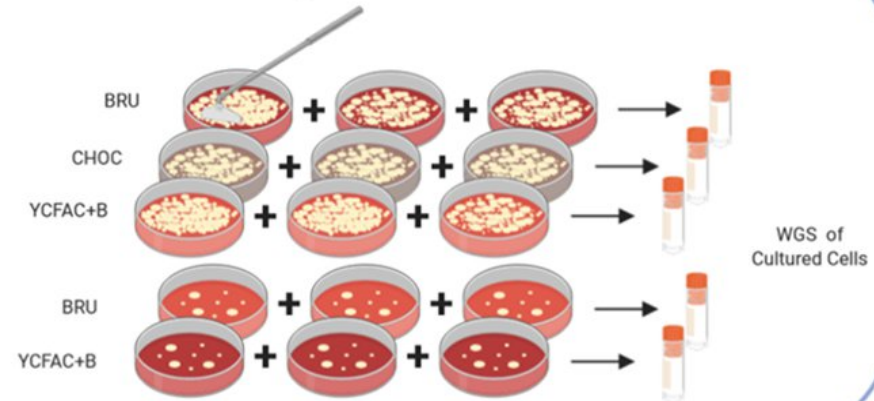


Anaerobic Culture of Stool Samples



120h
Anaerobic
Incubation

Analysis of Cultured Cells



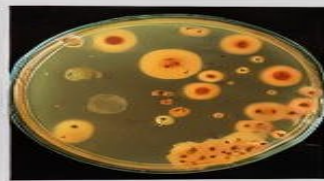
Isolation

Design



Understanding
microbial
diversity

Empathize



Identifying
microbial
needs

Ideate



Preservation

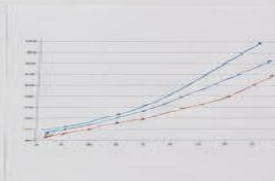
Developing
preservation
techniques

Prototype



Testing
storage
methods

Test



Evaluating
microbial
growth

Cultivation of Microbes



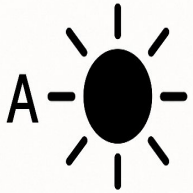
Which super move helps you get just one type of colony?



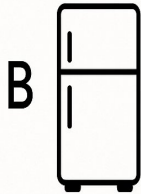
Make a safe oxygen-free home for Anaerobic bacteria

ASSESSMENTS

To keep your favorite bacterial strain alive for months, what should you do?



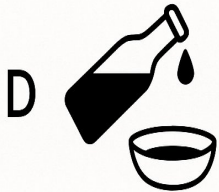
Put it under sunlight



Keep it in refrigerator/freezer



Leave it on bench



Add sugar syrup

Identify the technique



REFERENCES

- 1.W.B. Hugo and A.D. Russel: Pharmaceutical Microbiology, Blackwell Scientific publications, Oxford London.
2. Prescott and Dunn., Industrial Microbiology, 4th edition, CBS Publishers & Distributors, Delhi.
3. Ananthanarayan : Text Book of Microbiology, Orient-Longman, Chennai

