

# 320 MBIO

## Microbial Diagnosis

### Lab 2

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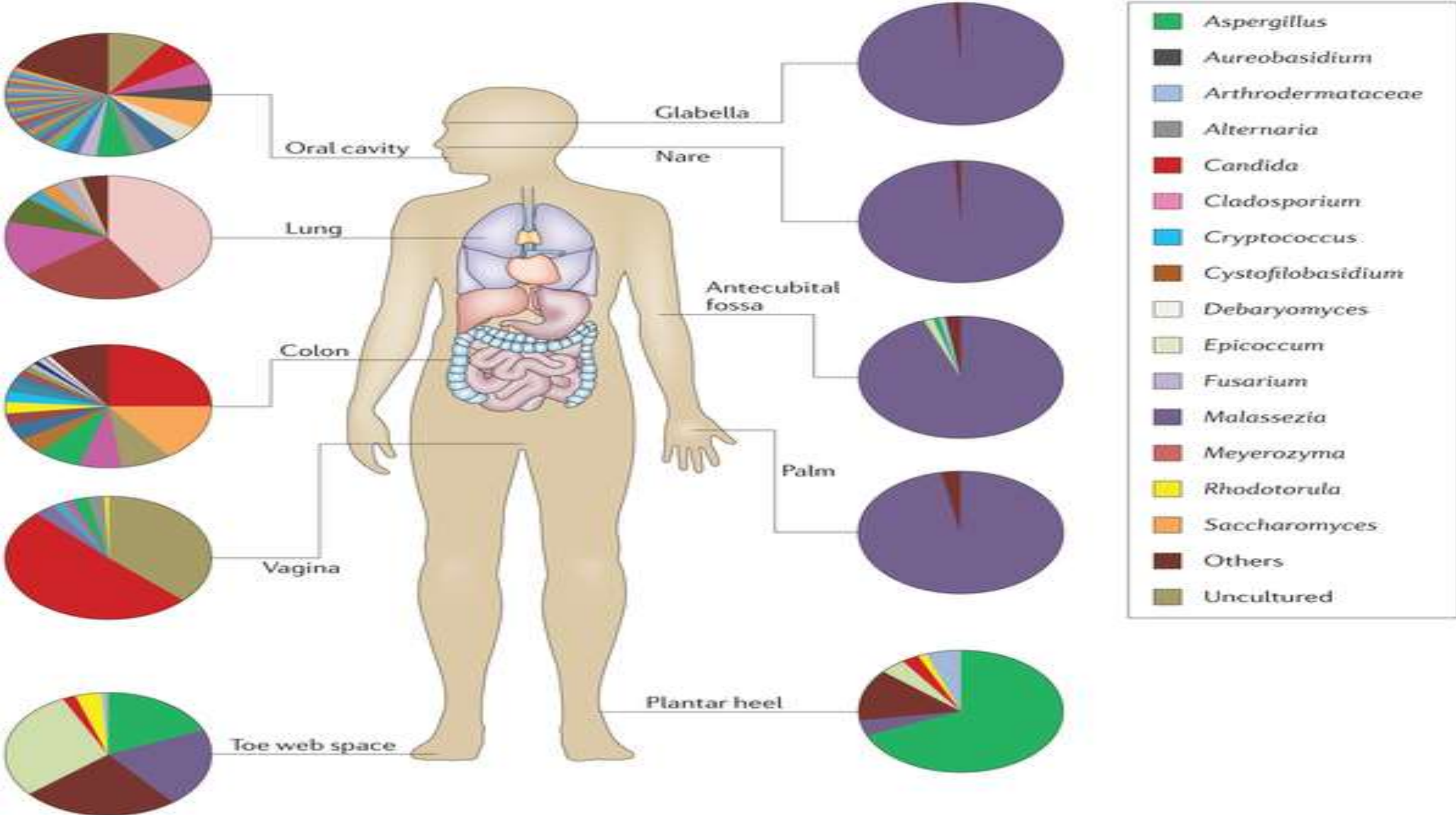
- Microorganisms that inhabit our body make up our normal microbiota also known as normal flora.
- The normal microbiota does not harm us, but also in some cases can actually benefit us.



- Some normal biota protects us against the disease by preventing the over growth of harmful microbes, while other produce useful substance such as vitamin K and some B vitamins.



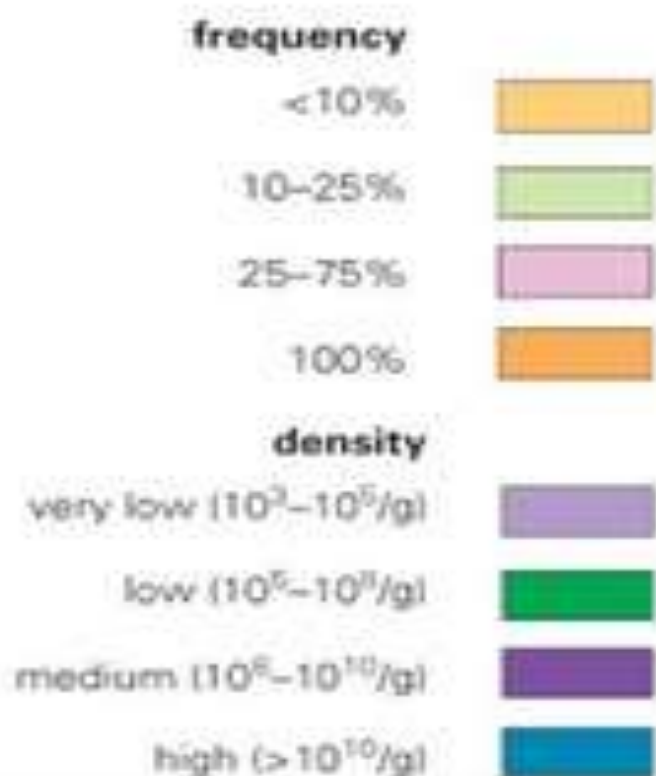






# GI flora

Density in microorganisms increases from stomach to large intestine



density	frequency of occurrence in population				
esophagus stomach	lactobacilli				
small bowel duodenum jejunum ileum	lactobacilli streptococci enterobacteria Bacteroides spp.				
large bowel	<table border="1"> <tr> <td> <i>Bacteroides</i> spp.  <i>Fusobacterium</i> spp.  <i>Strep. faecalis</i>  <i>Escherichia coli</i> </td> <td>           enterobacteria  <i>Klebsiella</i> spp.            eubacteria            bifidobacteria         </td> </tr> <tr> <td>           lactobacillus  <i>Staph. aureus</i>  <i>Clostridium</i> spp.         </td> <td>           streptococci  <i>Pseudomonas</i>  <i>Salmonella</i> </td> </tr> </table>	<i>Bacteroides</i> spp. <i>Fusobacterium</i> spp. <i>Strep. faecalis</i> <i>Escherichia coli</i>	enterobacteria <i>Klebsiella</i> spp. eubacteria bifidobacteria	lactobacillus <i>Staph. aureus</i> <i>Clostridium</i> spp.	streptococci <i>Pseudomonas</i> <i>Salmonella</i>
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fecal material	<table border="1"> <tr> <td> <i>Bacteroides</i> spp.            bifidobacteria            eubacteria         </td> <td>           coliforms  <i>Strep. faecalis</i> </td> </tr> </table>	<i>Bacteroides</i> spp. bifidobacteria eubacteria	coliforms <i>Strep. faecalis</i>		
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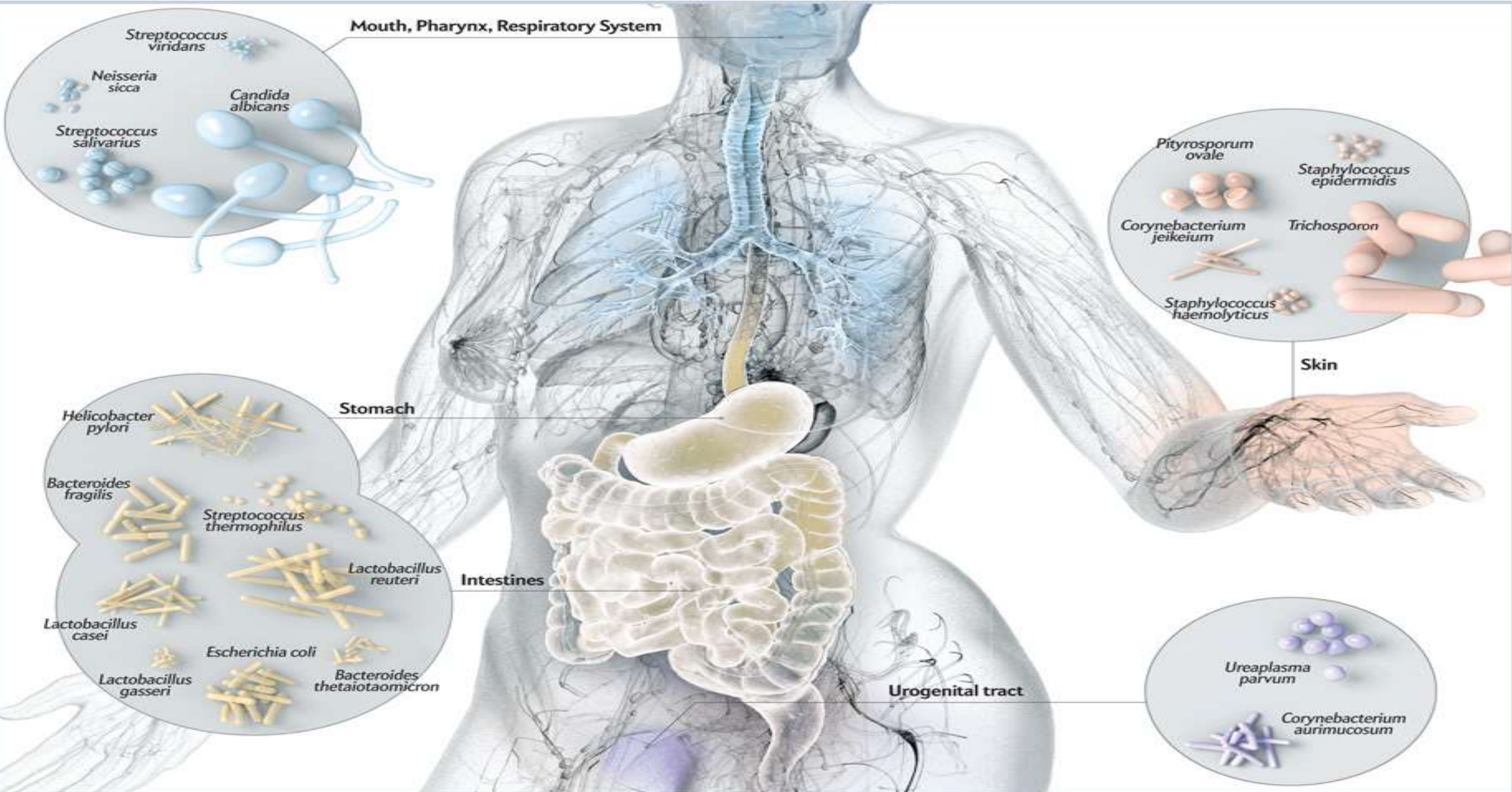
- Under some circumstances normal microbiota can make us sick or infect people we contact.
- For example, when some normal microbiota leaves their habitat they can cause disease.



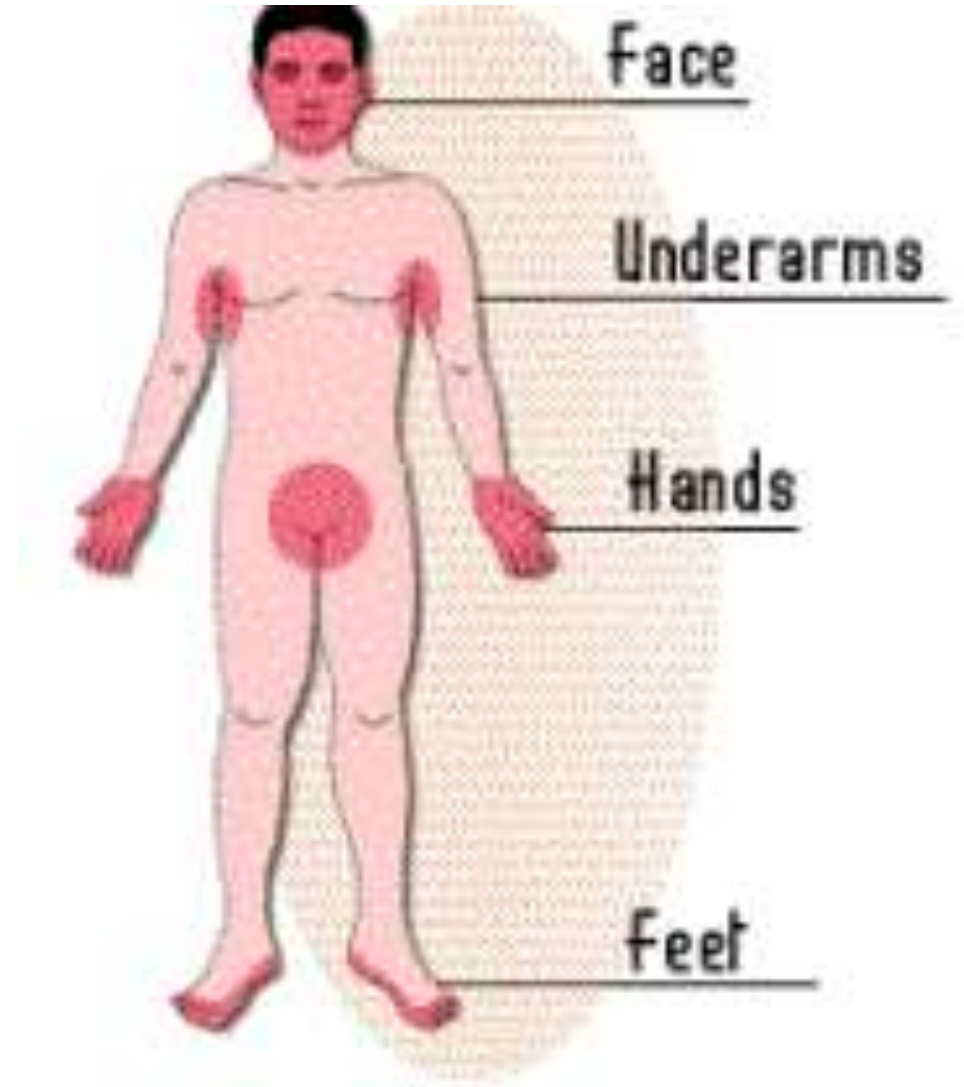
## ❖ Distribution factors

- Any sites in the body that is accessible to microbes as long as the site has enough **moisture**, and **provides nutrients** can serve as an excellent habitat for a wide variety of microorganisms.
- The **skin** is a prime example and it has a several distinctive habitats for microorganisms. The outer layers of the skin, the epidermis, is too dry for most microorganism.





- Microorganisms are commonly found associated with **apocrine glands** (in underarms, genital regions, nipples, and umbilicus) and **sebaceous glands** (hair follicles). These areas of our body provide plenty of **moisture and nutrients**.



- Another factor that affected the niche occupied by microbes indigenous to human is their **oxygen requirement**.
- It is clear that **the large intestine** is the home to a large number of anaerobic microbes, but anaerobes are also important members of the normal microbiota of the mouth and skin.
- One must not forget that certain areas in the mouth and skin are anaerobic.



## ❖ The Experiment

- In this exercise, you will characterize an isolate from the skin in terms of its cellular morphology and tolerance of certain environmental conditions.





## ■ Objective

- To learn about and observe microorganisms that make up our normal biota
- To isolate and characterize bacteria from different place on our skin



## ■ Materials

- Sterile swabs
- Tubes with sterile water
- Nutrient agar plates
- Incubators at 37°C.

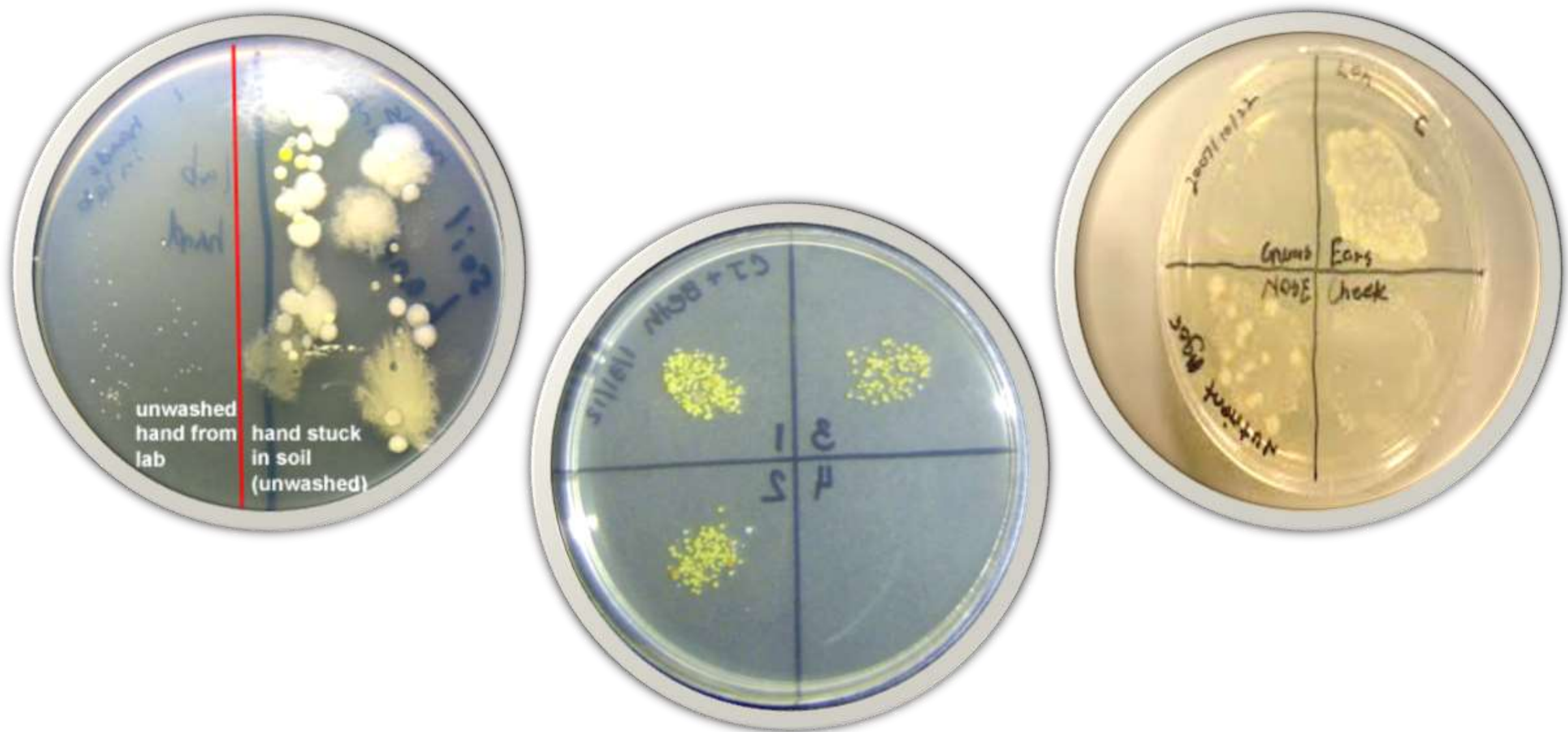


## ■ Procedure

- Choose two areas of the skin that differ in terms of moisture and degree of exposure to the outside environment.
- Swab these areas and isolate microorganisms from each site by streaking onto nutrient agar plates. Note: The swabs can be moistened in sterile water.
- Incubate the plates in incubator at 30°C for 24 hours.
- After 24 hours, Stain the bacteria, inoculate the bacterial colony on to nutrient agar with various salt concentration, then incubator at 30°C for 24 hours.
- Observe the characteristic of the bacteria: morphology, gram stain, environmental influences (pH and temperature level) to bacterial growth.



# Result





*Any Questions*

