

# 320 MBIO

## Microbial Diagnosis

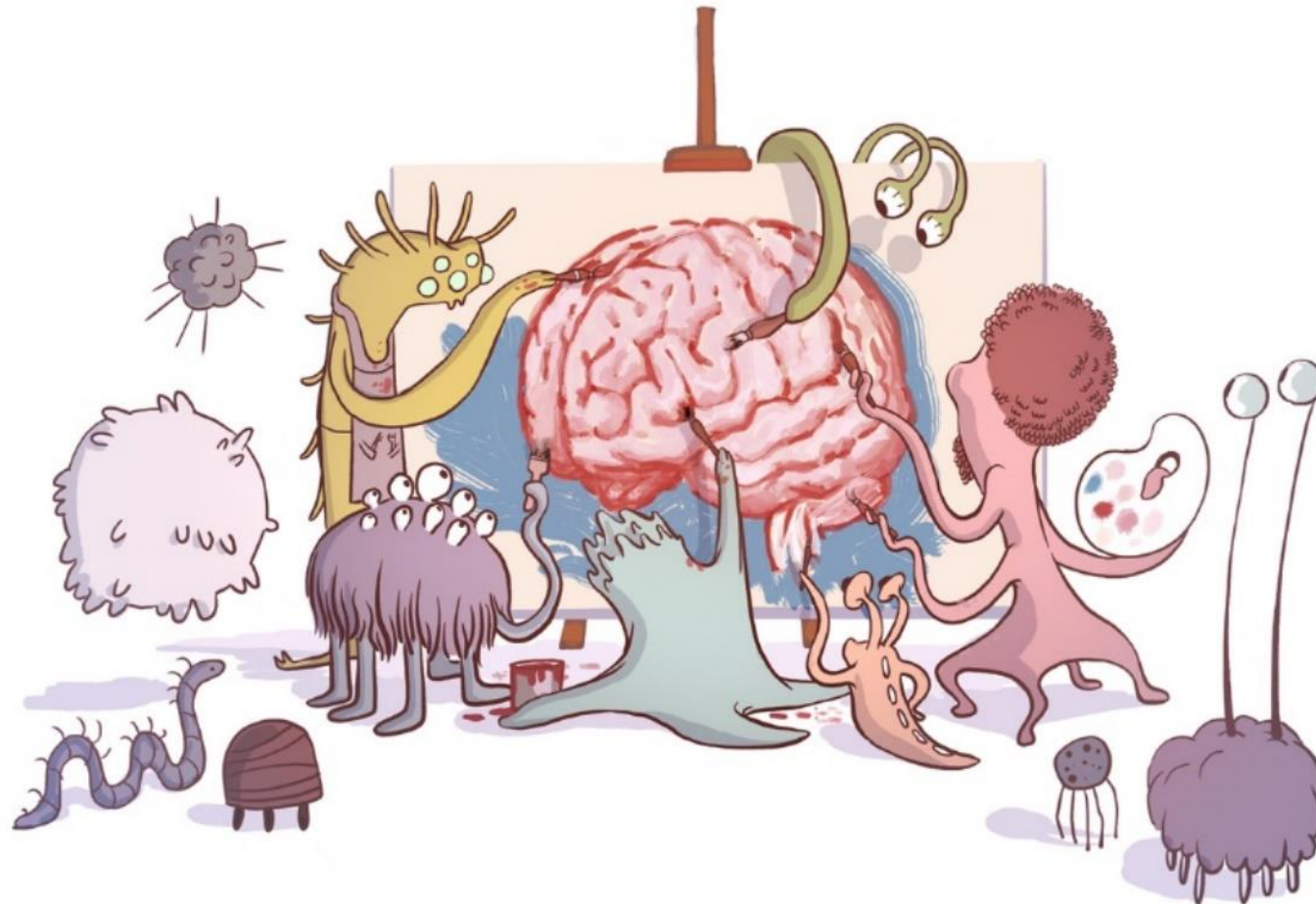
### Lab 2

**Aljawharah F. Alabbad**

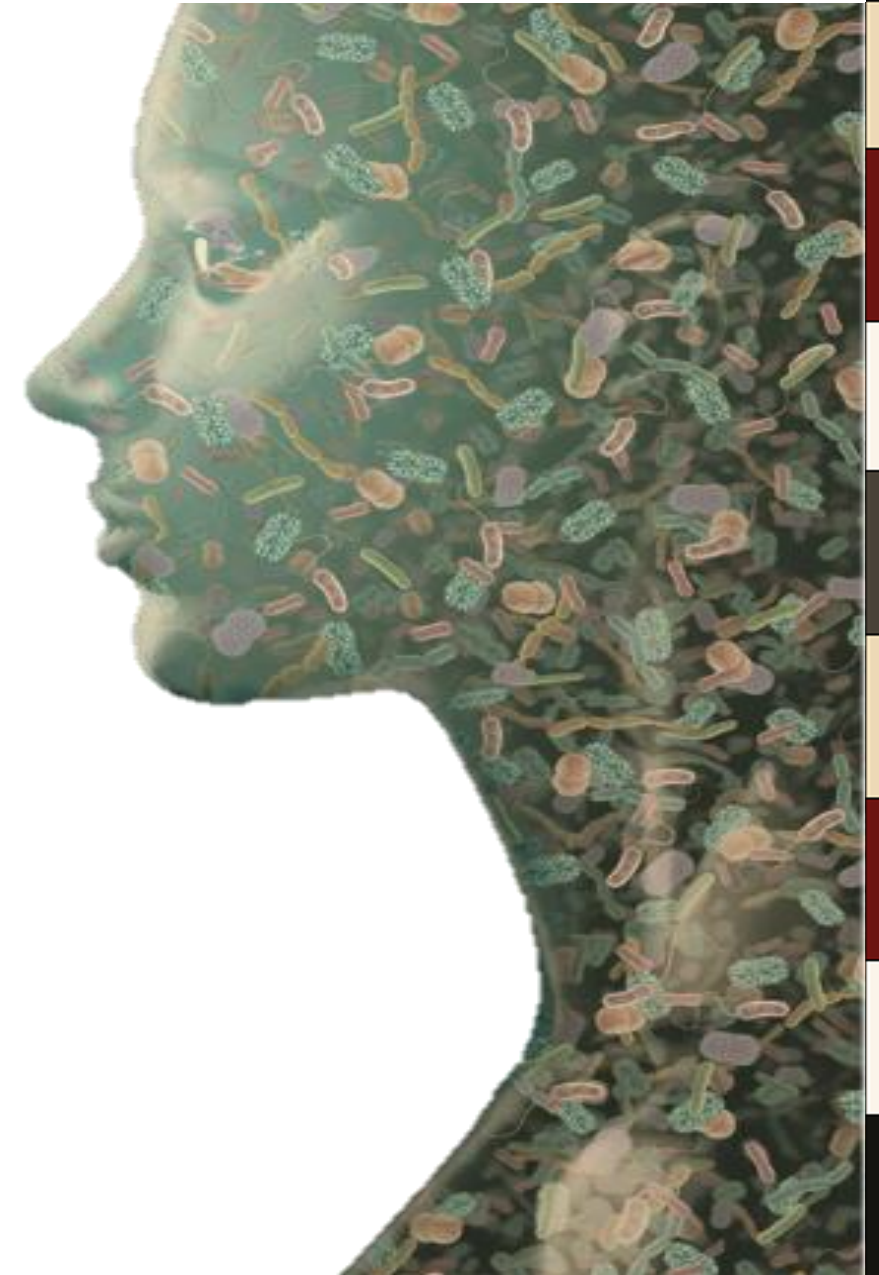
**Noorah A. Alkubaisi**

**2017**

# Human as habitats



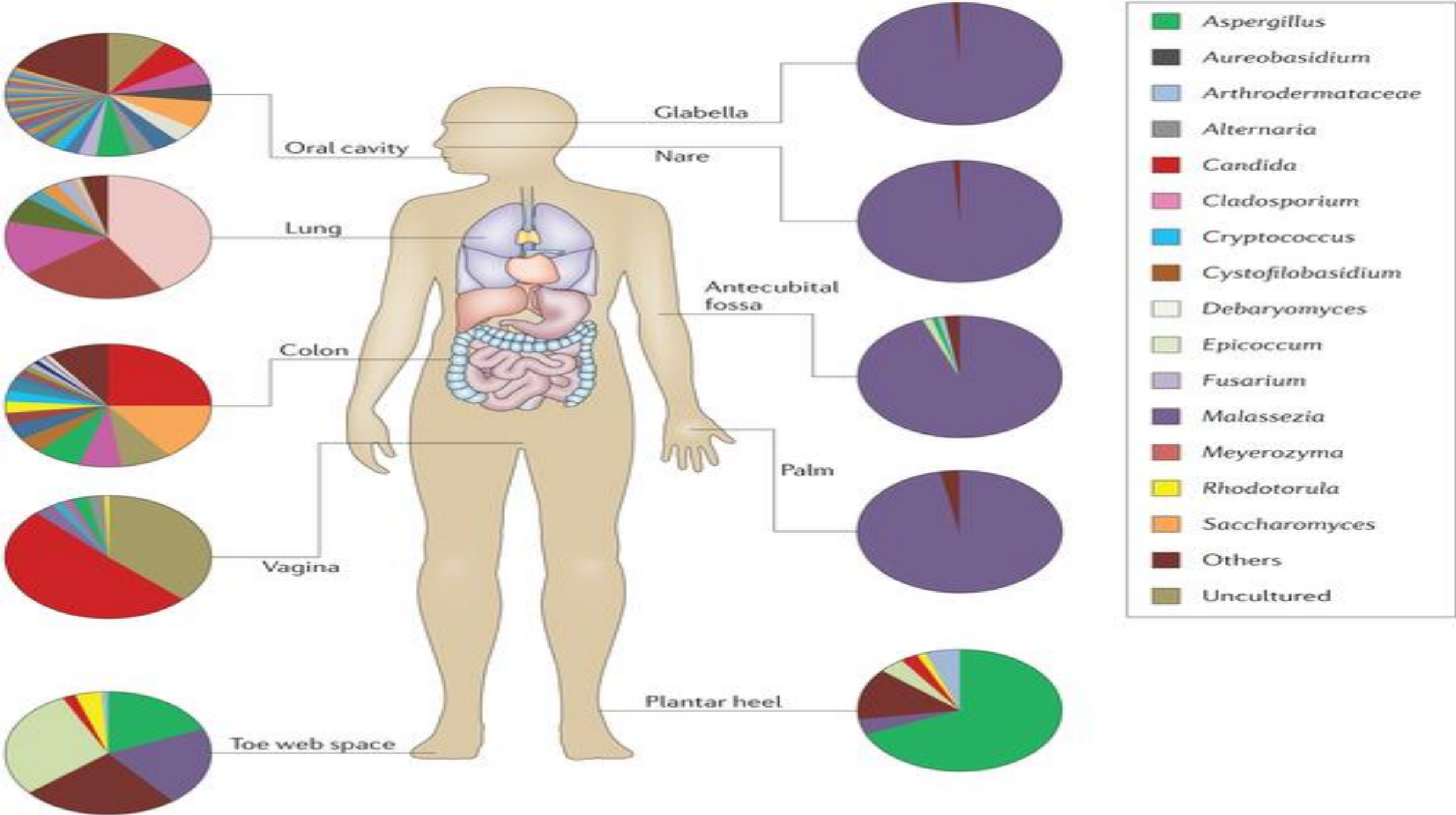
- Microorganisms that inhabits our body make up our normal microbiota also known as normal flora.
- The normal microbiota does not harm us, but also in some cases can actually benefit us.



- 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

## frequency

<10%



10–25%



25–75%



100%



## density

very low ( $10^3$ – $10^5$ /g)



low ( $10^5$ – $10^8$ /g)

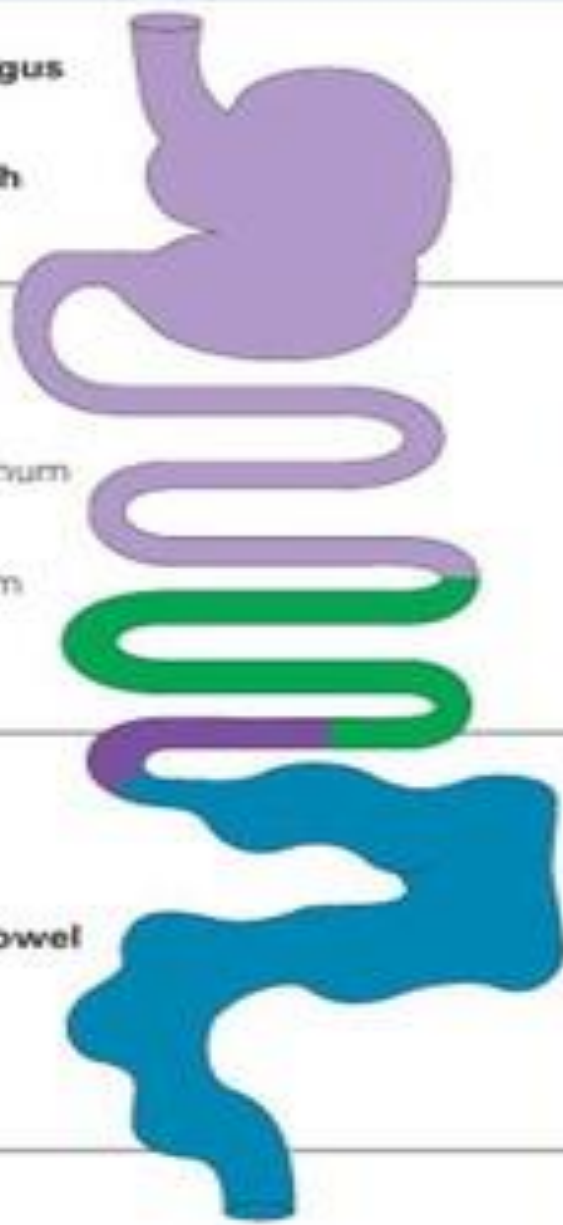
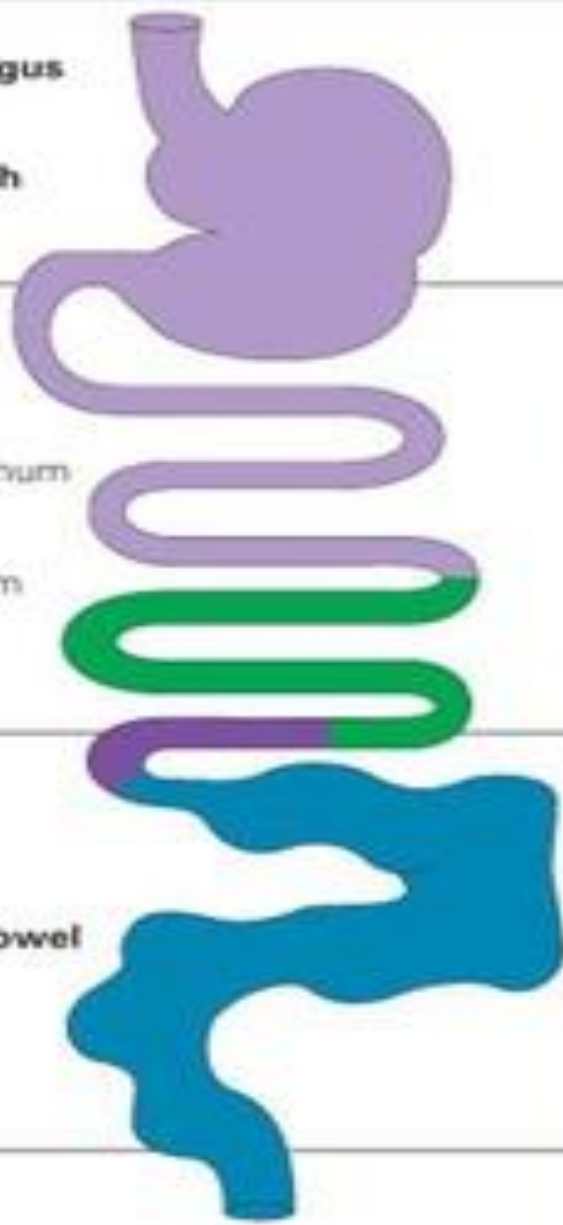
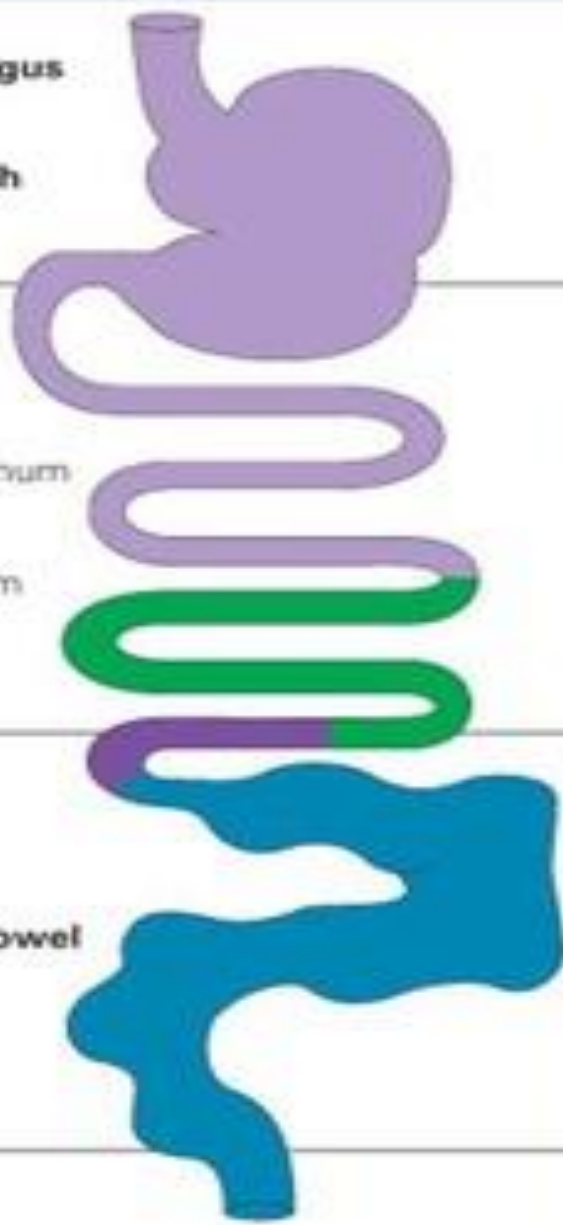


medium ( $10^8$ – $10^{10}$ /g)



high ( $>10^{10}$ /g)



density	frequency of occurrence in population	
esophagus		
stomach		
small bowel		
duodenum		
jejunum		
ileum		
large bowel	<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>
	<i>Bacteroides</i> spp. bifidobacteria eubacteria	coliforms <i>Strep. faecalis</i>
fecal material		

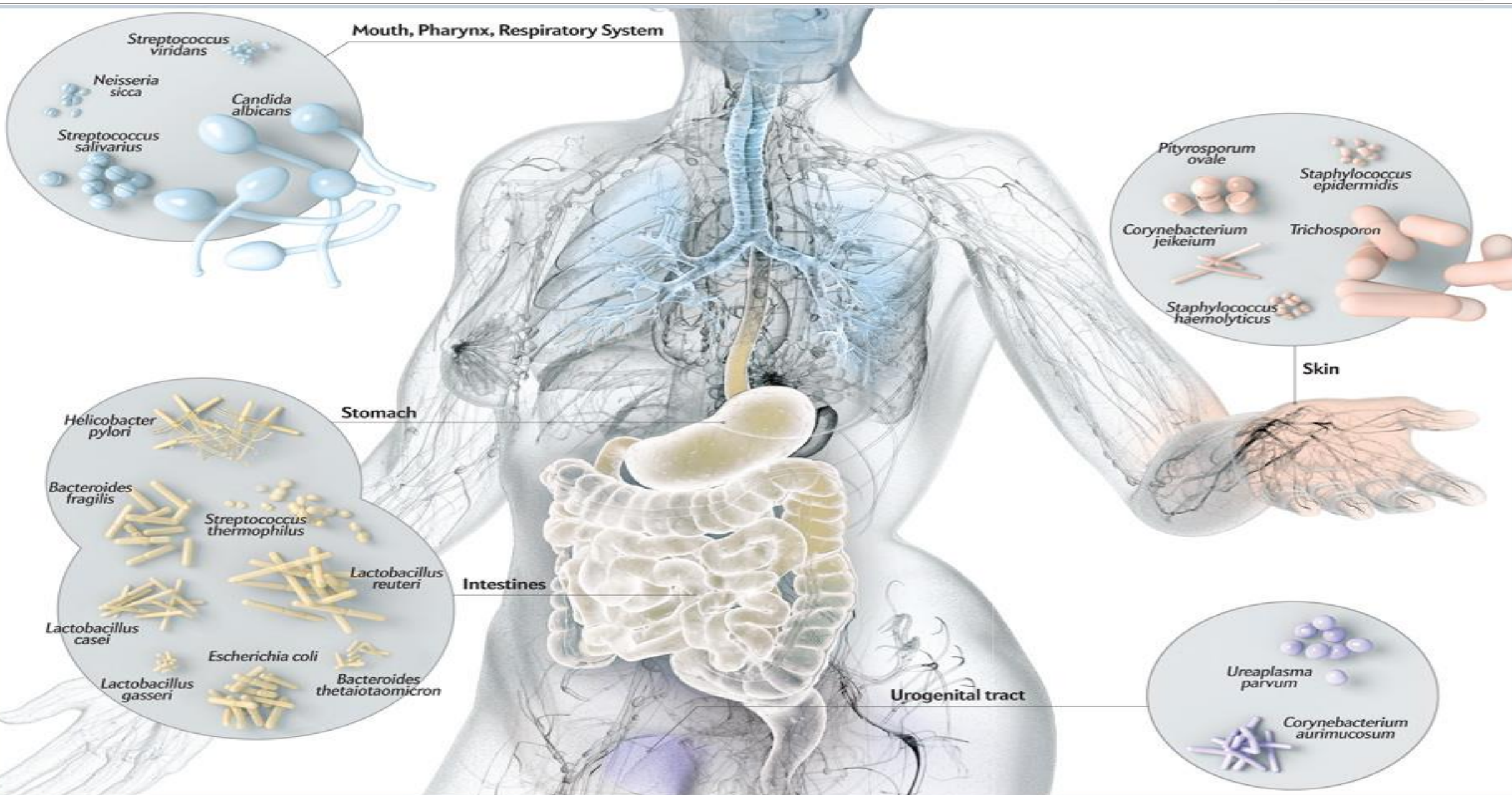
- Under some circumstances normal microbiota can make us sick or infect people we contact.
- For example, when some normal microbiota leaves their habitat they can cause disease.



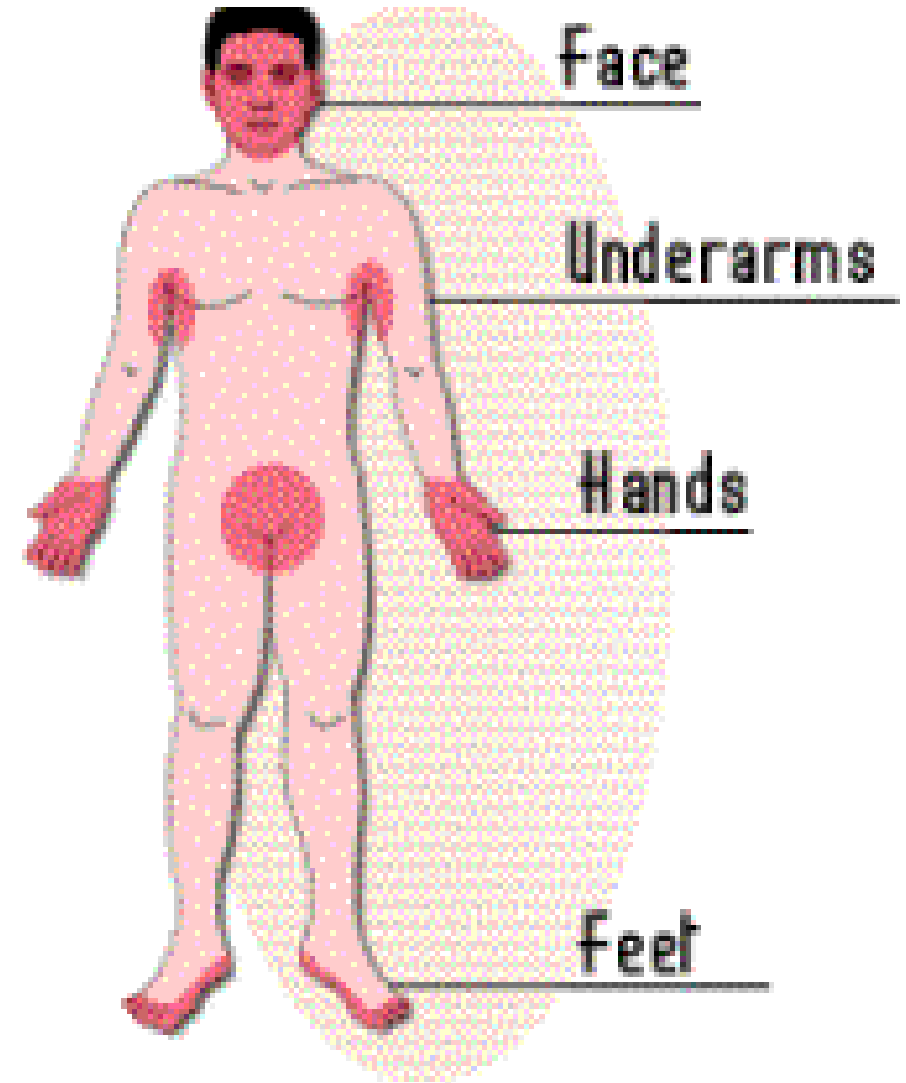
## ❖ Distribution factors

- 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

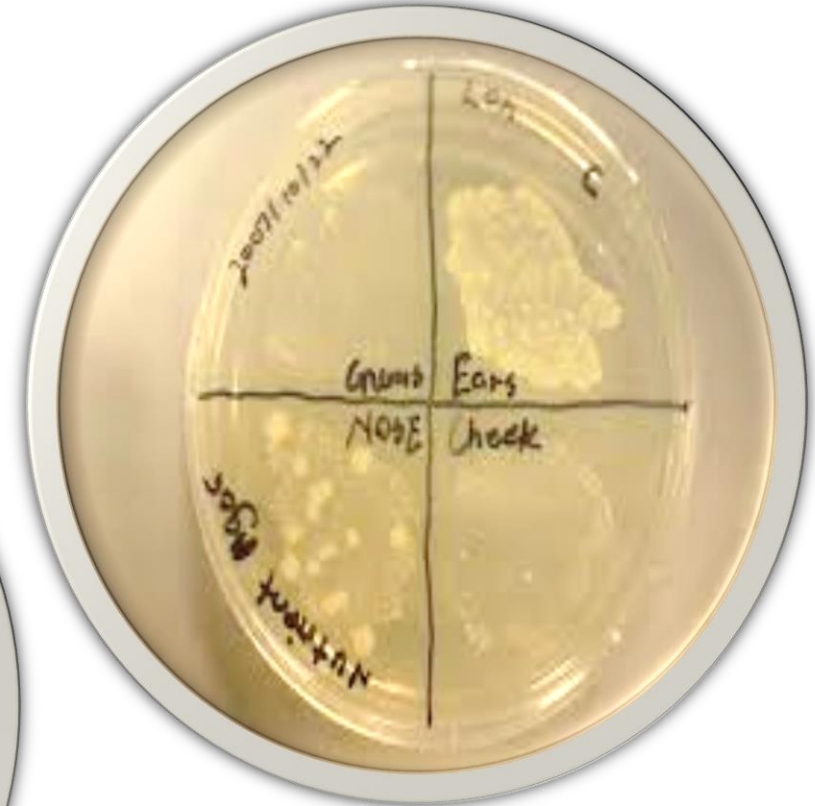
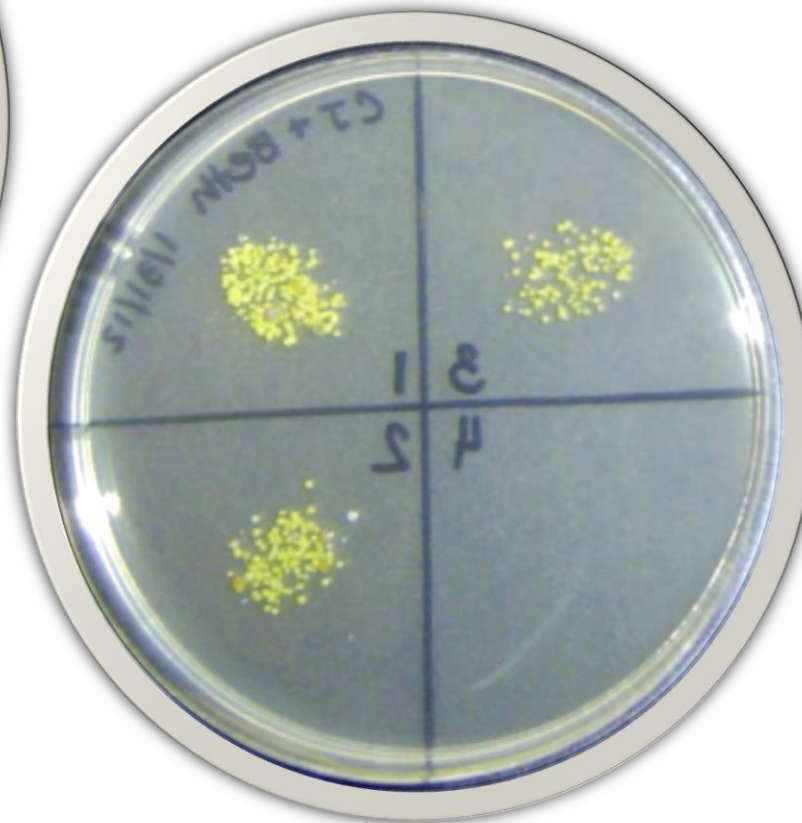
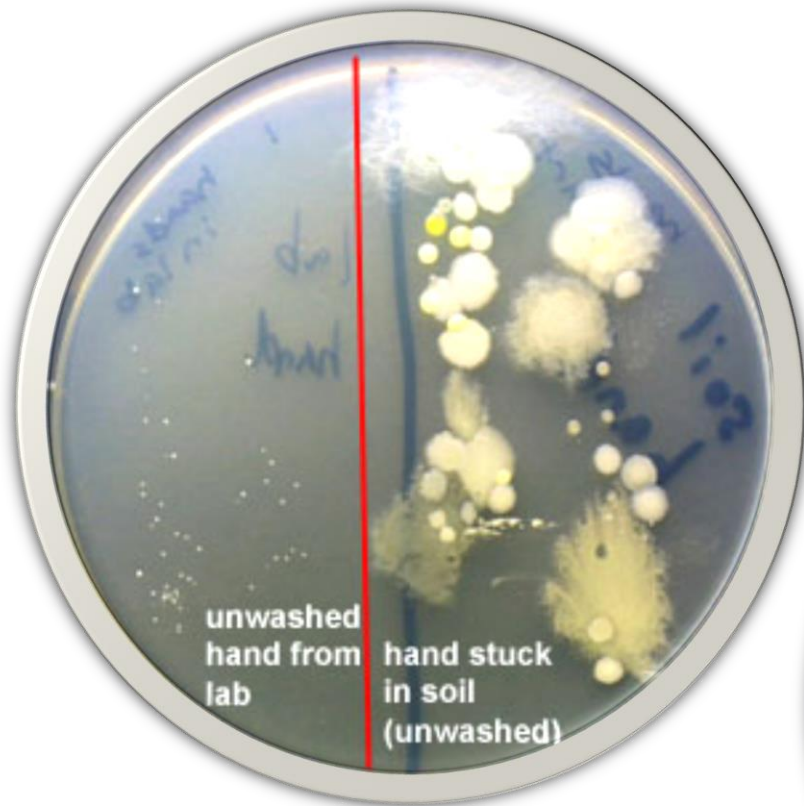
- Sterile swabs
- Tubes with sterile water
- Nutrient agar plates
- Incubators at 37°C.



## ■ 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**

[alalabbad@ksu.edu.sa](mailto:alalabbad@ksu.edu.sa)

[nalkubaisi@ksu.edu.sa](mailto:nalkubaisi@ksu.edu.sa)

