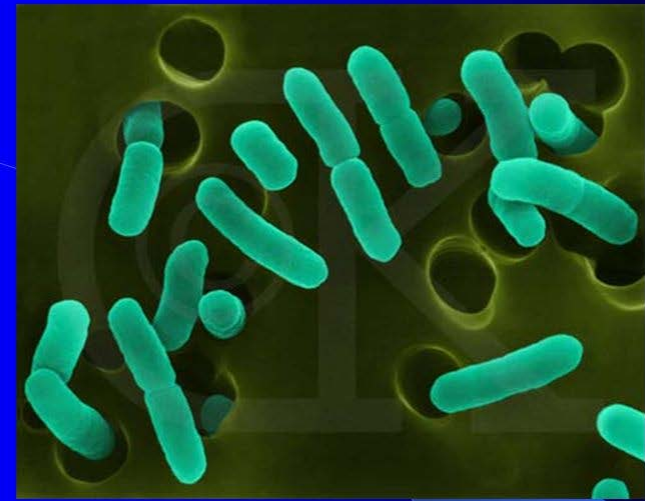


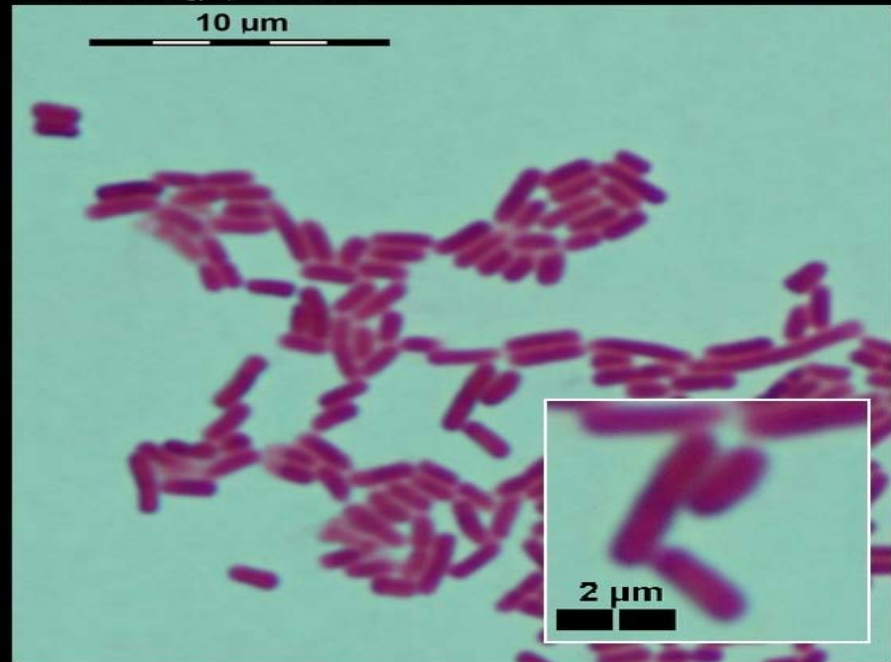
Enterobacteriaceae (Microbiological Properties)

- Gram-negative and rod shaped (bacilli)
- Ferment rather than oxidize D-glucose with acid and (often) gas production
- Reduce nitrate to nitrite
- Grow readily on 5% sheep blood or chocolate agar in carbon dioxide or ambient air
- Grow anaerobically (facultative anaerobes)
- Catalase positive and cytochrome oxidase negative
- Grow readily on MacConkey (MAC) and eosin methylene blue (EMB) agars
- Grow readily at 35°C except *Yersinia* (25°–30°C)
- Motile by peritrichous flagella except *Shigella* and *Klebsiella* which are non-motile
- Do not form spores



ENTEROBACTERIACEAE

www.microbiologyinpictures.com



Enterobacter cloacae

***Enterobacteriaceae*: Natural Habitats**

- Environmental sites (soil, water, and plants)
- Intestines of humans and animals

***Enterobacteriaceae*: Modes of Infection**

- Contaminated food and water (*Salmonella* spp., *Shigella* spp., *Yersinia enterocolitica*, *Escherichia coli* O157:H7)

***Enterobacteriaceae*: Types of Infectious Disease**

- Intestinal (diarrheal) infection
- Extraintestinal infection
 - Urinary tract (primarily cystitis) .
 - Respiratory (nosocomial pneumonia).
 - Wound (surgical wound infection).
 - Bloodstream (gram-negative bacteremia).
 - Central nervous system (neonatal meningitis).



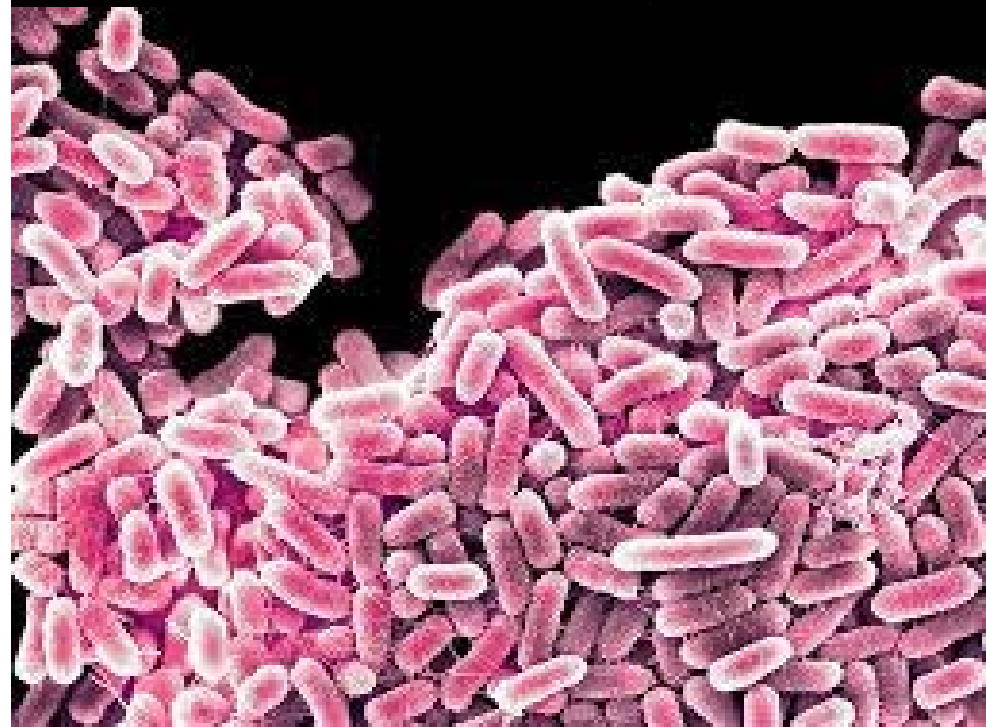
Salmonella

Physiology and Structure

- Gram-negative, facultative anaerobic rods
- Fermenter; oxidase negative
- Outer membrane makes the organisms susceptible to drying
- Lipopolysaccharide consists of outer somatic O polysaccharide, core polysaccharide (common antigen), and lipid A (endotoxin)
- More than 2500 O serotypes (commonly referred to as individual *Salmonella* species)
- Enrichment broth: Tetrathionat, GN, selenit broth



Salmonella enterica
on blood agar



- Selective media: Mac Conkey, SS agar, Hektoen Enteric Agar, Bismuth sulfide agar .

The type of salmonella :

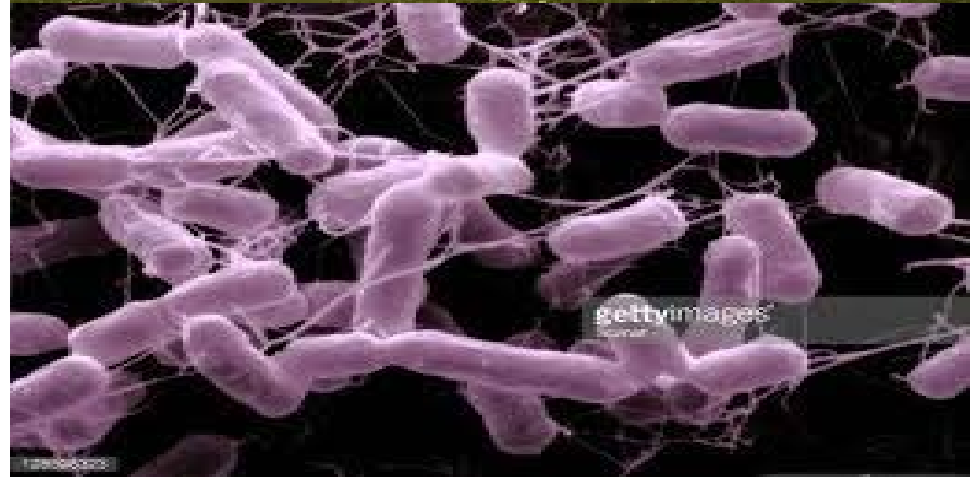
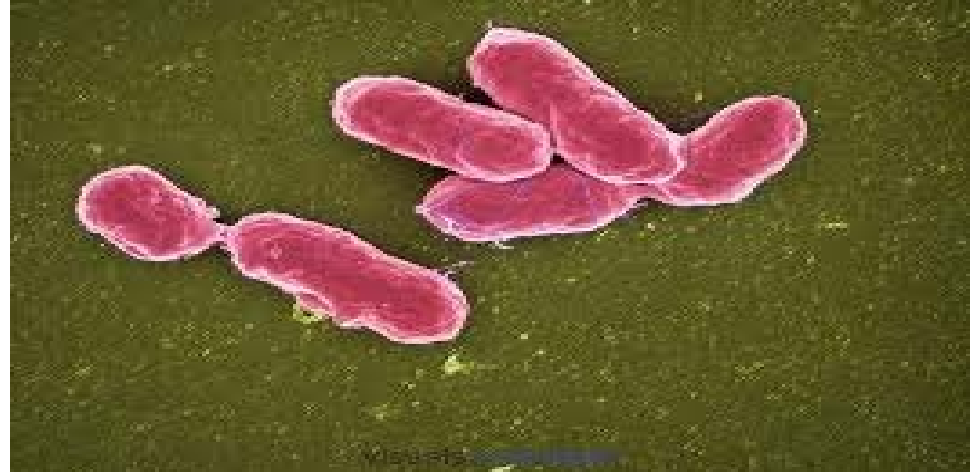
Salmonella typhi , Salmonella paratyphi , salmonella typhimurium

***Salmonella*–Diseases**

- Enteric fever (also called typhoid fever, *S. typhi* or paratyphoid fever [*S. paratyphi*])
- Incubation 5–21 days

Diagnosis : Gruber Widal

Anti-O Ab , Anti-H Ab , Anti-Vi Ab (Long term carriers) .



Thank You

Questions?

Comments and opinions would be appreciated.