

## **BOX 29–3. Specialized Virulence Factors**

Associated with *Escherichia coli*

### Adhesins

Colonization factor antigens CFA/I, CFA/II, and CFA/III.

Aggregative adherence fimbriae AAF/I and AAF/II.

Bundle-forming protein (Bfp).

Intimin.

P pili.

Ipa protein.

Dr fimbriae.

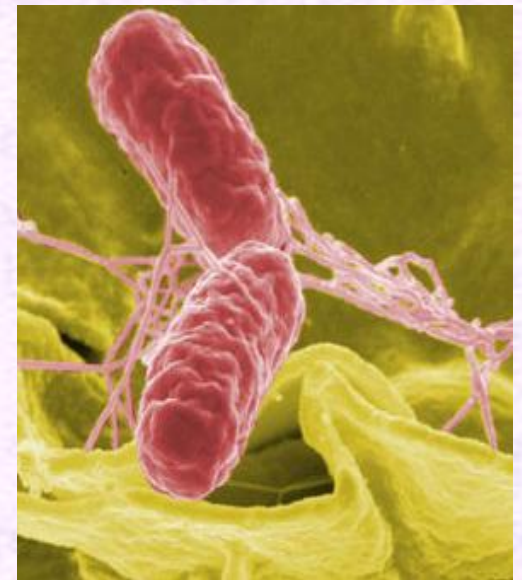
### Exotoxins

Heat-stable toxins STa and STb.

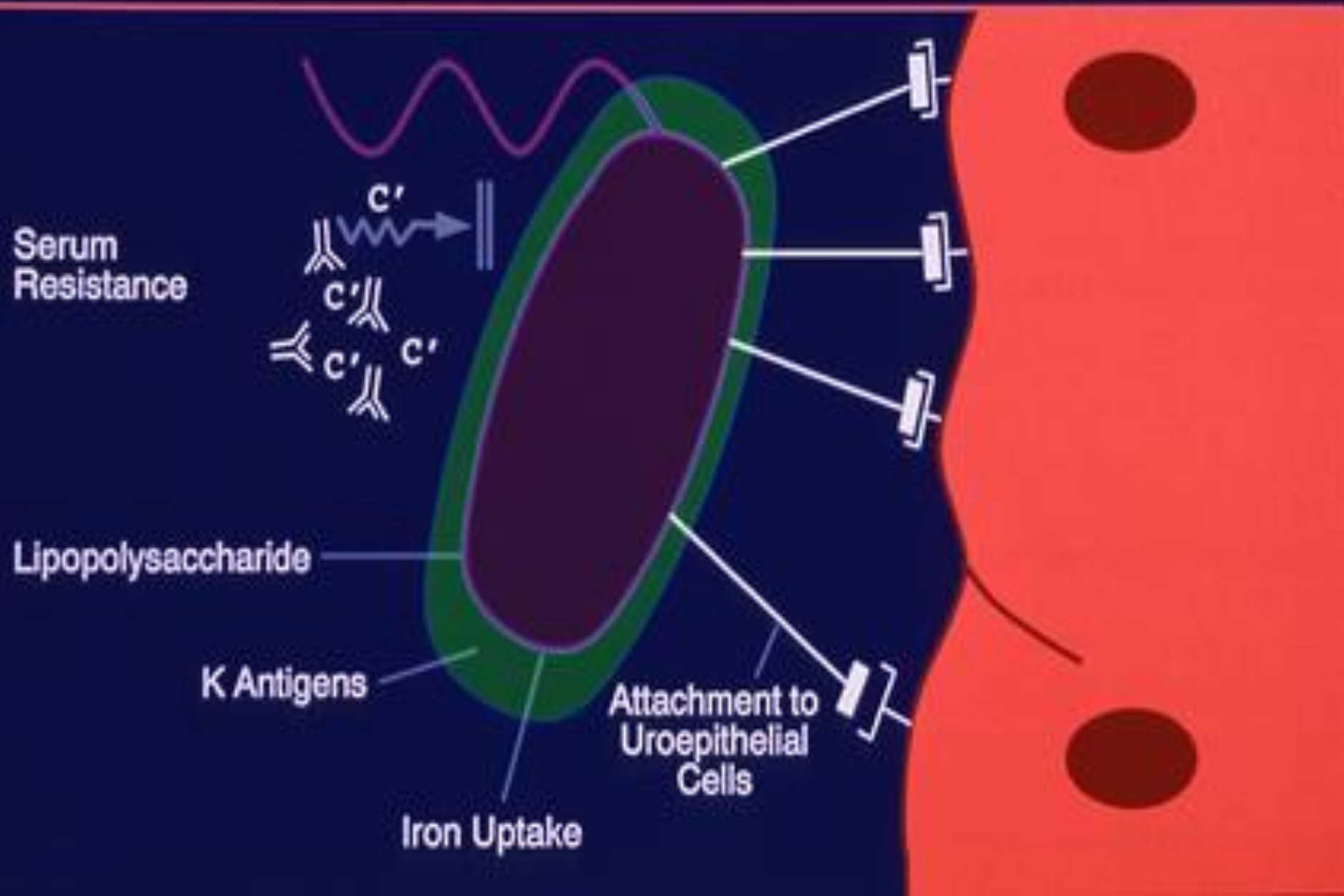
Shiga toxins Stx-1 and Stx-2.

Hemolysin HlyA.

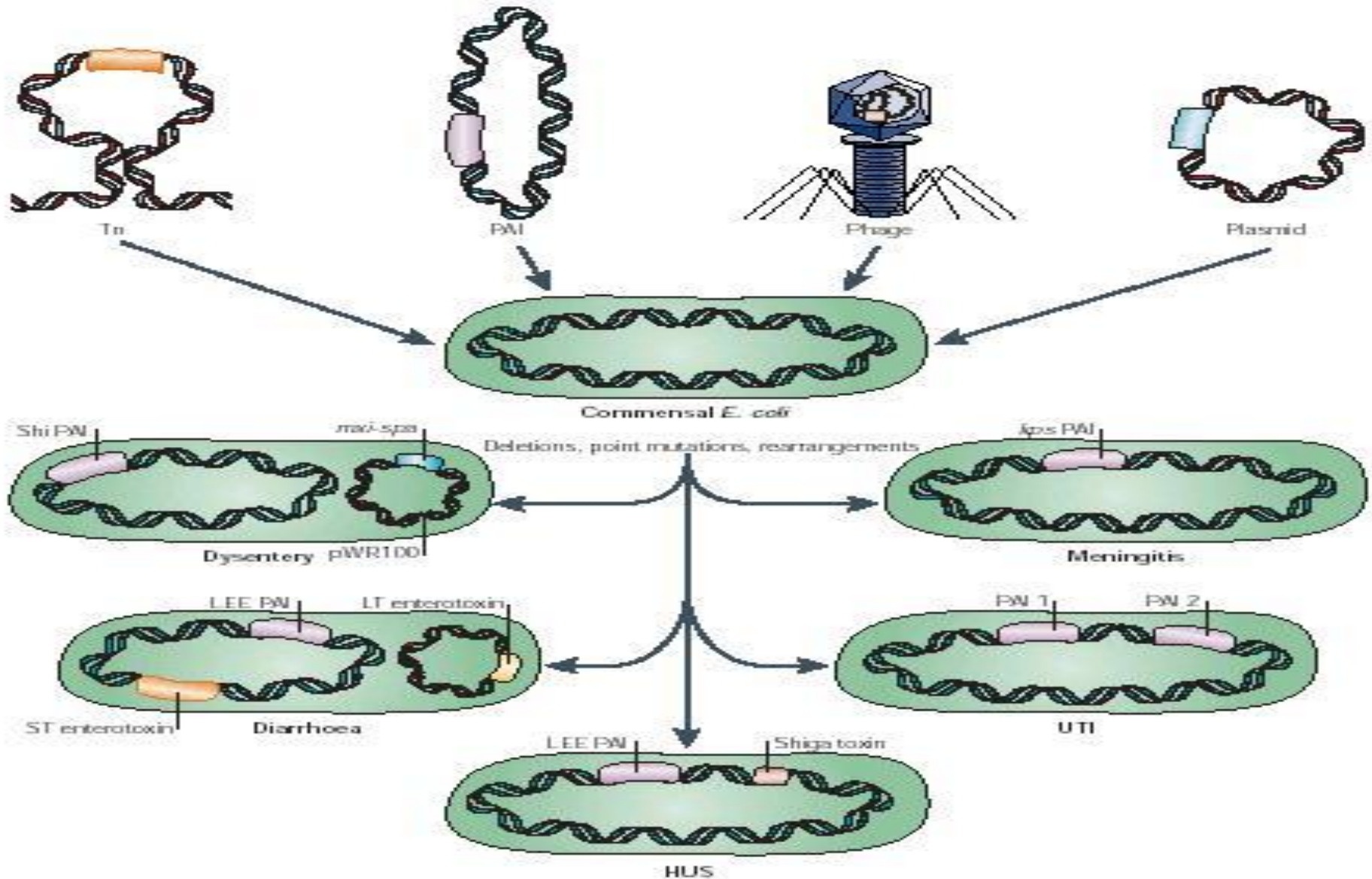
Heat-labile toxins LT-I and LT-II.

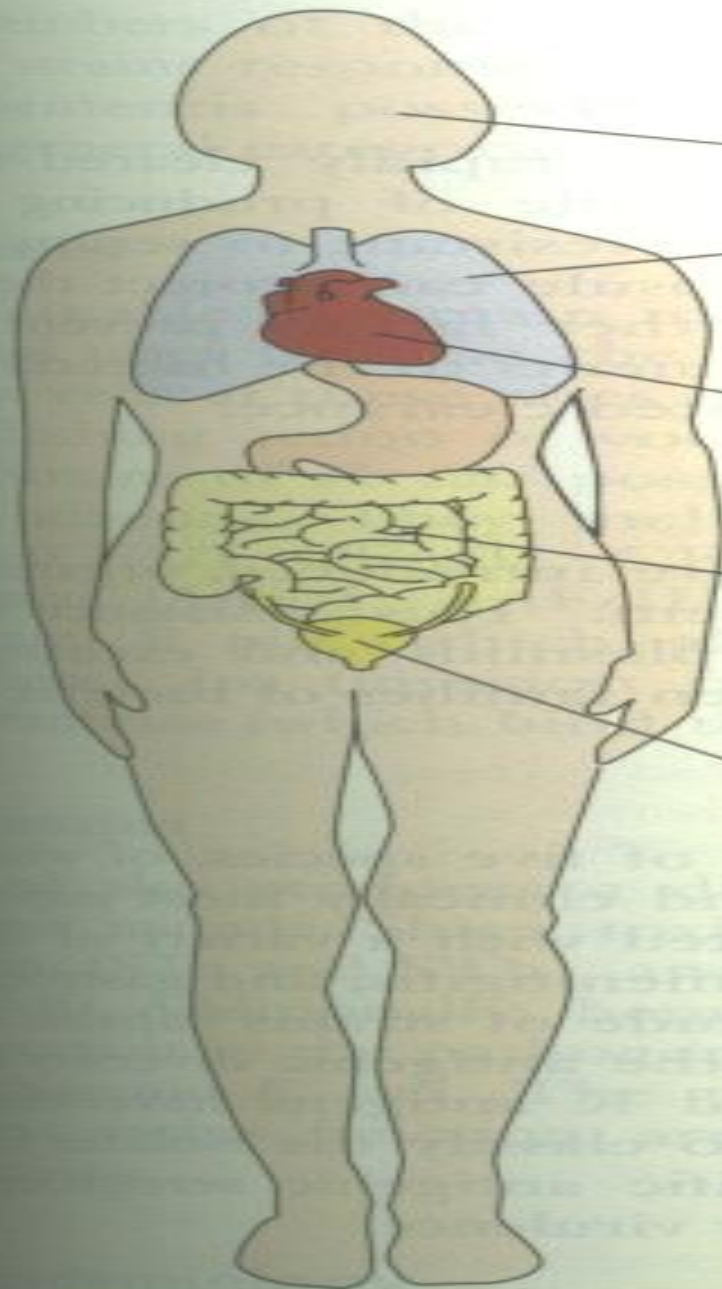


# Bacterial Virulence Factors



# Mobile genetic elements





Central nervous system  
*Escherichia*

Lower respiratory tract  
*Klebsiella*  
*Enterobacter*  
*Escherichia*

Bloodstream  
*Escherichia*  
*Klebsiella*  
*Enterobacter*

Gastrointestinal tract  
*Salmonella*  
*Shigella*  
*Escherichia*  
*Yersinia*

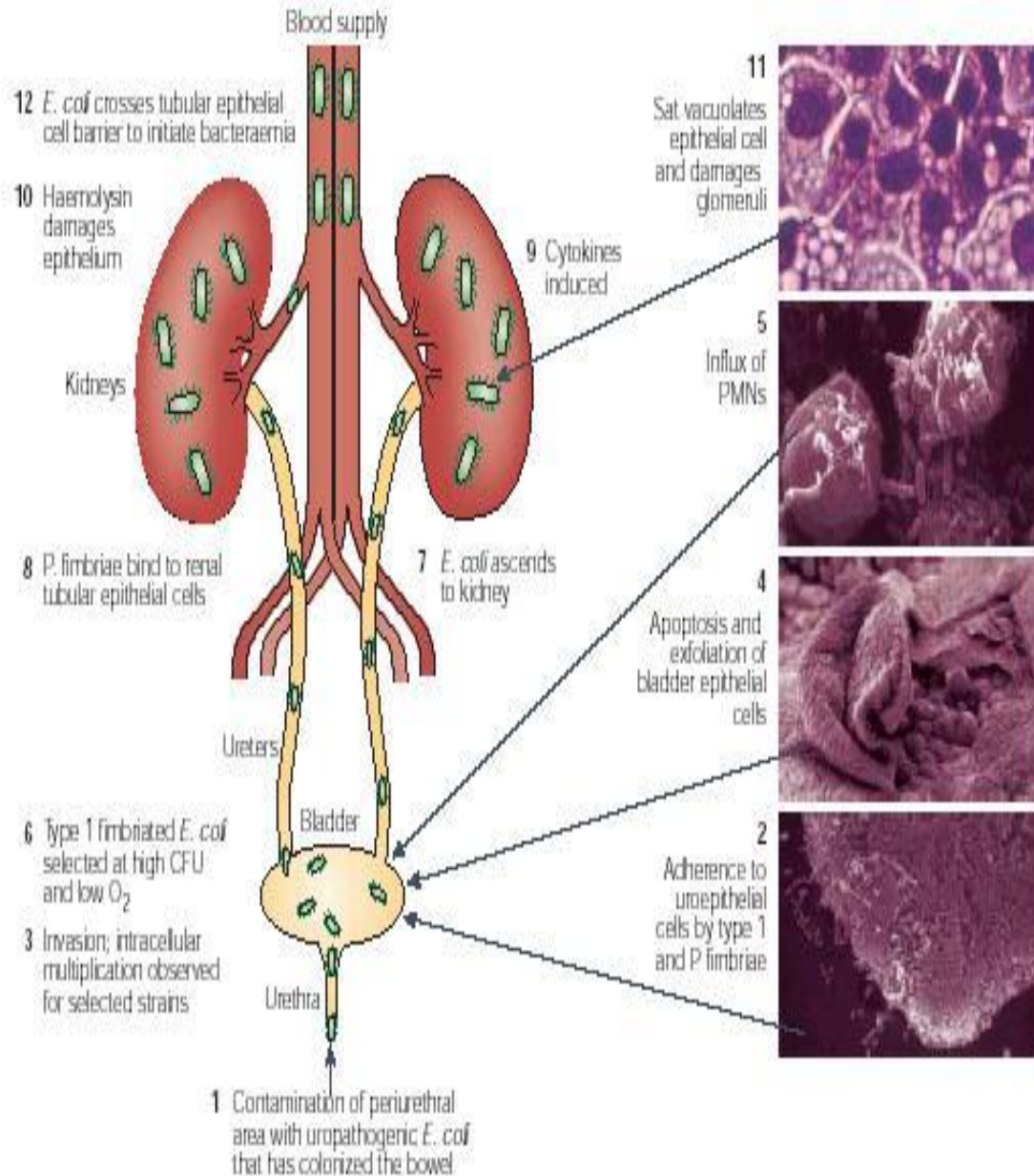
Urinary tract  
*Escherichia*  
*Proteus*  
*Klebsiella*  
*Morganella*

**FIGURE 29-1.** Sites of infections with common members of the Enterobacteriaceae listed in order of prevalence.

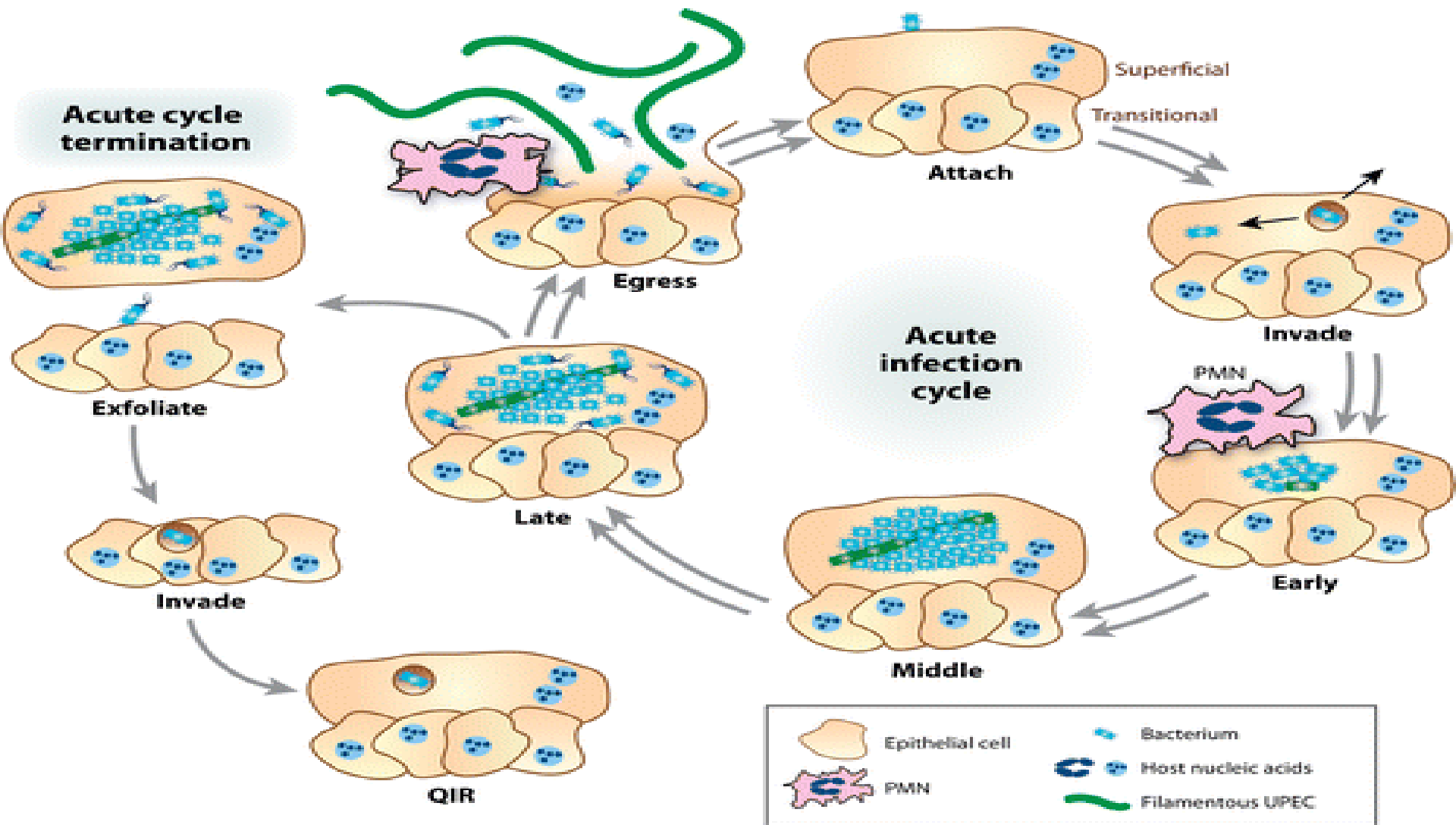
# Diseases caused by *E. coli*

## ■ Urinary tract infection

Most common cause of UTI in young women (90%)

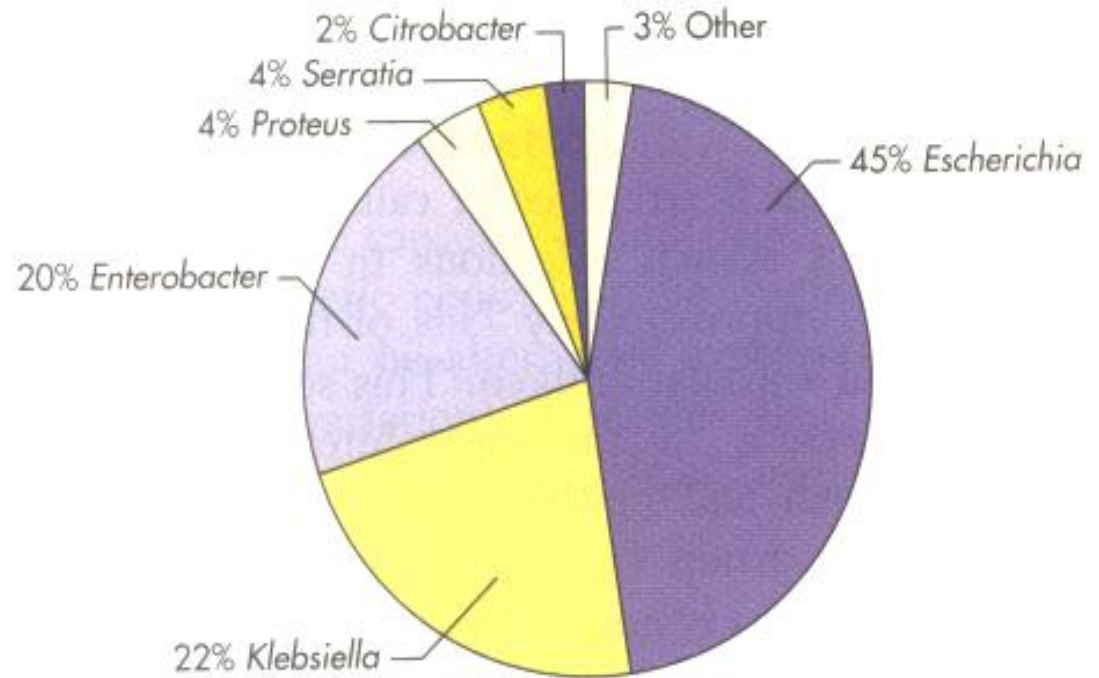


# E.Coli (Urinary tract infection)



# Diseases caused by E. coli

- Sepsis



**FIGURE 29-4.** Incidence of Enterobacteriaceae associated with bacteremia. (Data courtesy Barnes-Jewish Hospital, St. Louis.)

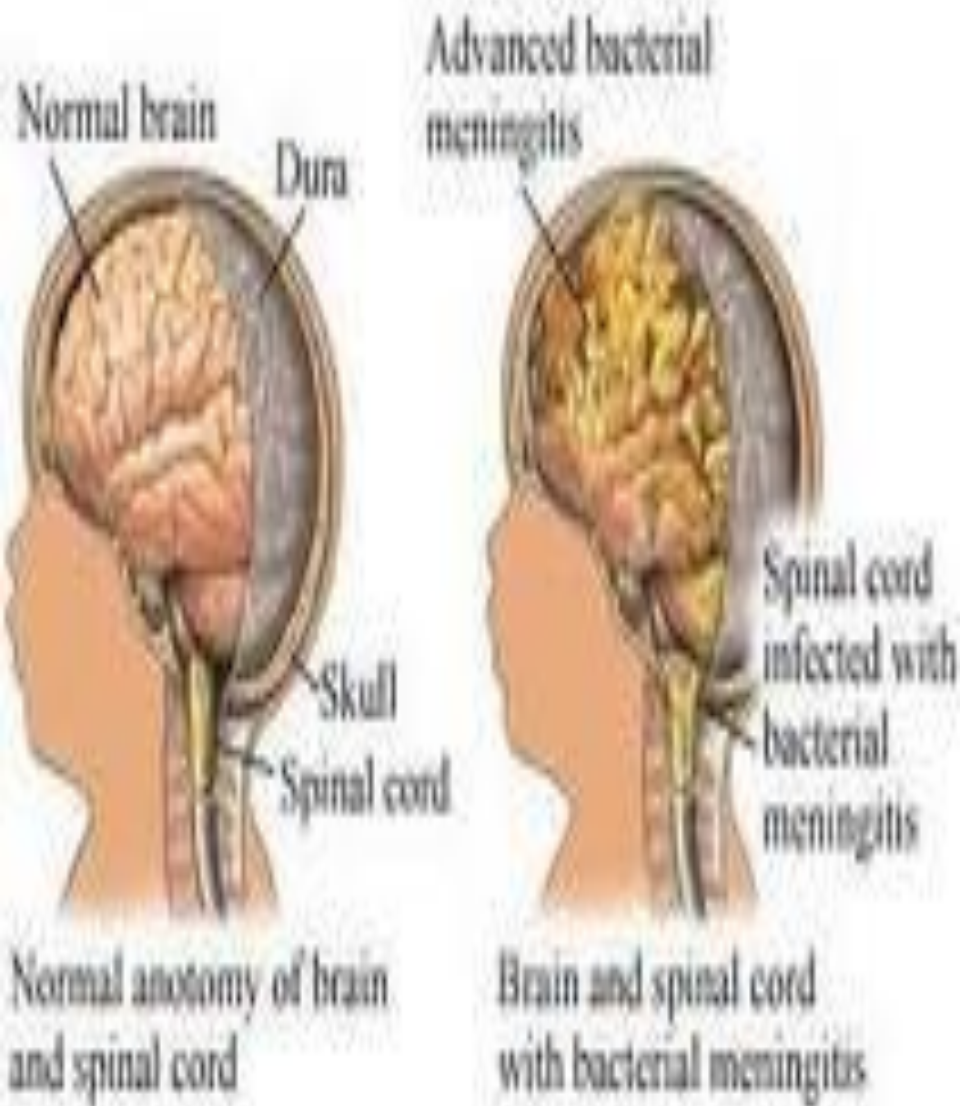
# Diseases caused by E. coli

- **Meningitis**  
cause of meningitis  
in infants.  
(K<sub>1</sub> antigen)





# Meningitis



# Enteropathogenic E.coli(EPEC)

Site of action:

small intestine

Diseases:

Infant diarrhea (watery diarrhea, vomiting, cramp, nausea, fever)

Pathogenesis:

plasmid mediated A/E histopathology with disruption of microvillus structure resulting in malabsorption and diarrhea



