ENTEROBACTERIACEAE

Gram staining & Morphology	Gram-negative non-sporing bacilli
Motile or non-motile	
Flagella	Peritrichous or Monotrichous
Well-defined capsule	Negatively stained
Attachment	Fimbrae or Pili
Complex cell wall	Outer Membrane and Thick Peptidoglycan

Classification

Family	Enterobacteriaceae
Genus	Escherichia, Shigella, Salmonella, Citrobacter, Klebsiella, Enterobacter, Erwinia, Serratia, Hafnia, Edwardsiella, Proteus, Providencia, Morganella, Yersinia

Determinants of Pathogenicity

ENDOTOXIN	Lipopolysaccharide
	- O polysaccharide
	- Lipid A (toxic)
EXOTOXIN	1. ENTEROTOXIN
	Subunit A induces cAMP formation
	- Normal contractions -> severe diarrhea
	Subunit B attaches to plasma membrane of epithelial cells in small intestine
	2. SHIGA TOXIN
	Subunit A modifies RNA to inactivate it
	- Inhibits protein synthesis by inactivation of 60S ribosomes
	Subunit B binds to globotriaosylceramide (GB3)
	3. VEROTOXIN (Shiga-like)

Biochemical Properties

Facultative Anaerobes	
Ferments Glucose to Acid	
Lactose Fermenters or Non-Lactose Fermenters	
No Cytochrome Oxidase	
Oxidase Test	Oxidase negative (colorless)
	tetramethyl-p-phenylenediamine dihydrochloride -> bacterial colonies -> colorless (-)
	positive reaction = formation of purple ring
Reduces Nitrate to Nitrite	Red color (+)