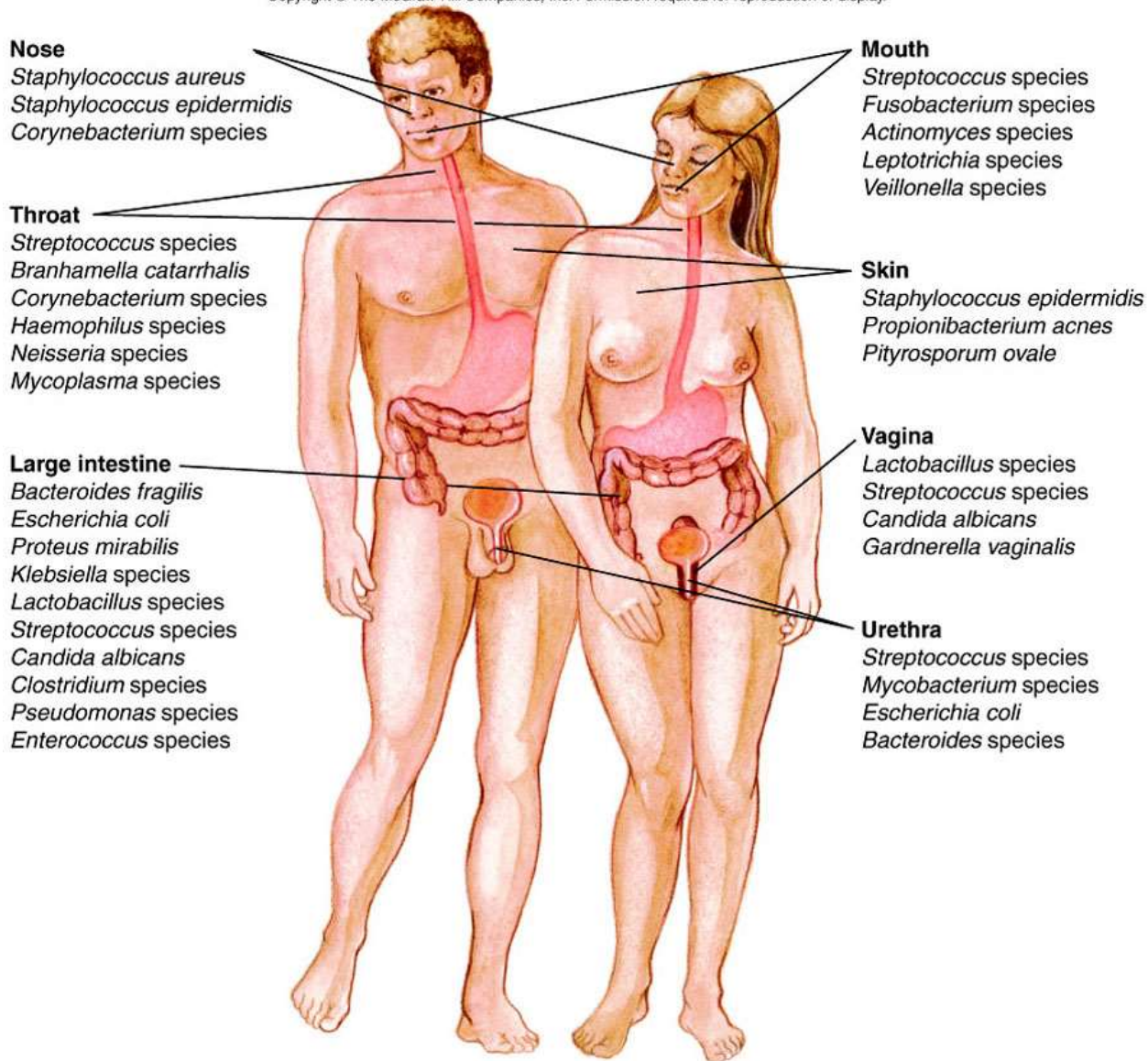


Patogeneza okužb

Normalna flora

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.



Osnovni pojmi

- OKUŽBA: proces pri katerem mikrobi vdrejo v telo in se tam razmnožujejo

Okvare tjav in organov, razvoj bolezenskih znakov



Izzid: bakterijska patogenost
gostiteljev imunski odziv

- PATOGENOST: sposobnost bakterij, da povzročijo bolezen pri gostitelju
- VIRULENTNOSTI: stopnja patogenosti (št. bakterij potrebnih, da povzročijo bolezen)

- **VIRULENTNI DEJAVNIKI:**
 - Omogočijo naseljevanje in vdiranje
 - Povzročijo okvare tkiv in organov (toksini)

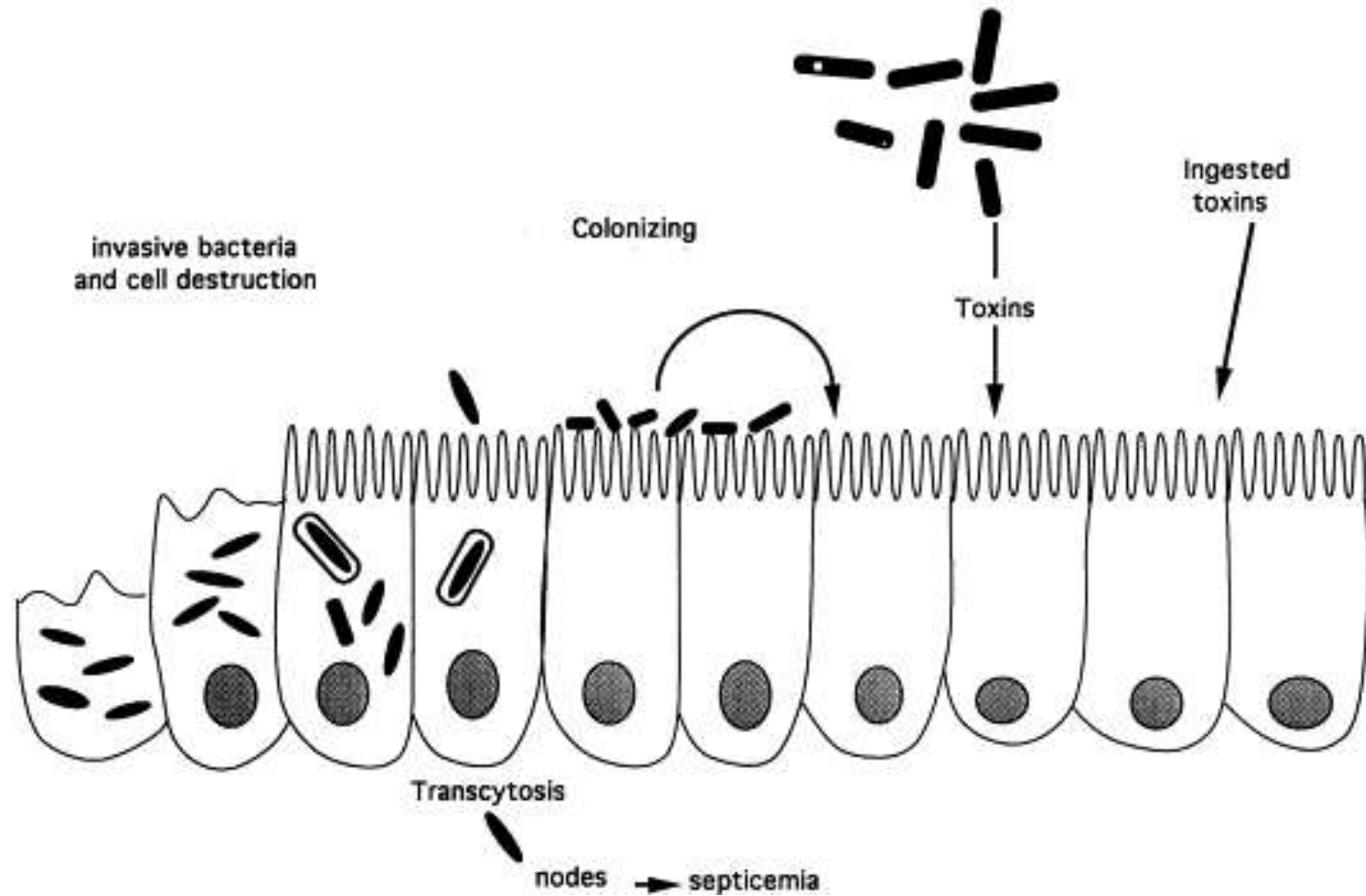
Bolezen

Asimptomatična infekcija

Klicenoštvo

Oportunistične infekcije

Mehanizmi patogeneze



Vstop bakterij v telo

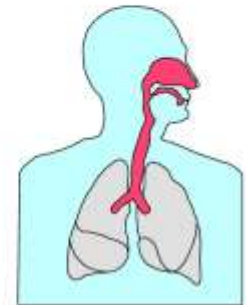
- Koža
 - Zdrava koža/poškodovana koža
- Sluznice
 - Sluznica: izločki, peristaltika, IgA

Vektorji

Biological Hazards Routes of Entry



Skin Absorption



Inhalation



Ingestion



Injection

Cutaneous/Blood

Mucosal

- Vector-borne

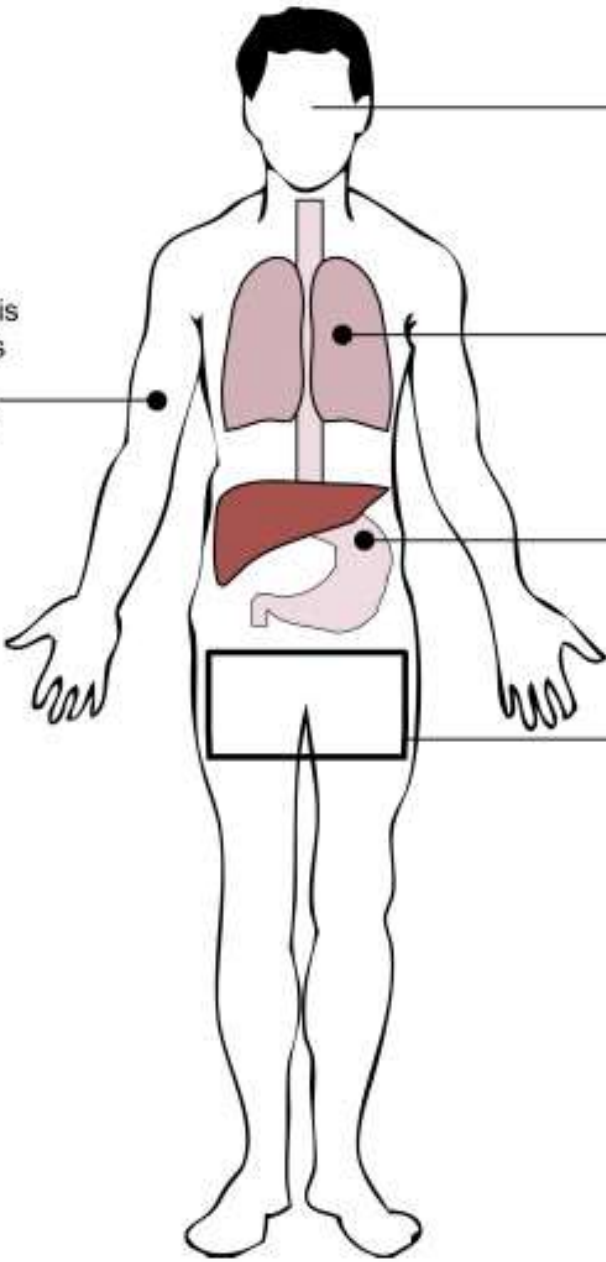
- Contaminated Medical Supplies

- Direct Penetration

- Malaria
- Dengue Fever
- African Trypanosomiasis
- Japanese Encephalitis
- Leishmaniasis
- Lymphatic Filariasis
- Onchocerciasis

- HIV
- Hepatitis B & C

- Schistosomiasis
- Hookworm



- Ocular
Chlamydia trachomatis

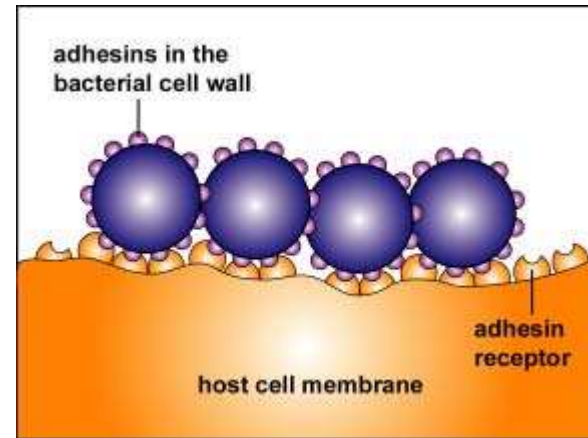
- Respiratory
Tuberculosis
Influenza A & B

- Oral
Cholera
Rotavirus
Salmonella
Enterotoxigenic *E. coli*
Shigella
Ascariasis
Trichuriasis

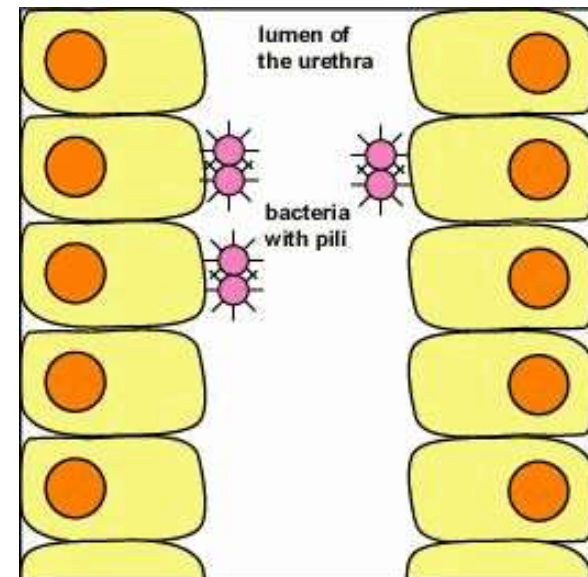
- Urogenital/Rectal
HIV
HPV
HSV-2
Hepatitis B & C

Bakterijska aderenza

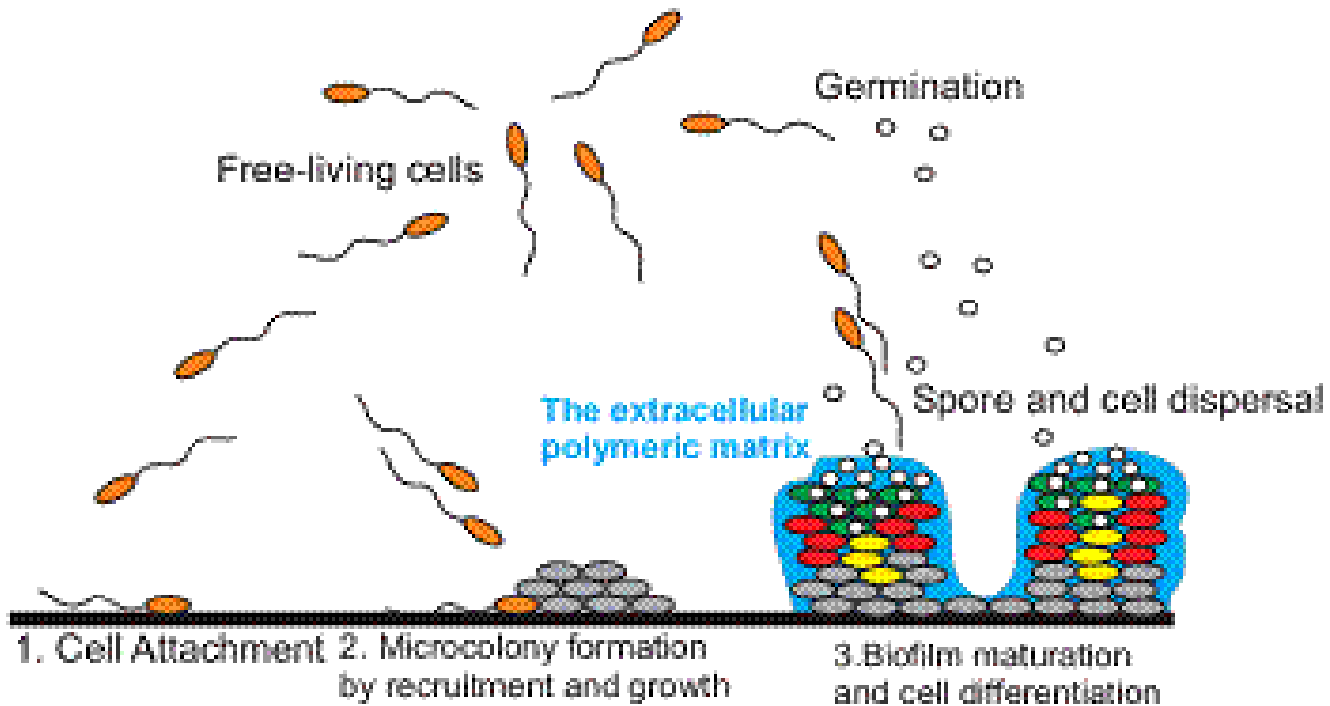
- ADHEZINI



- PILUSI

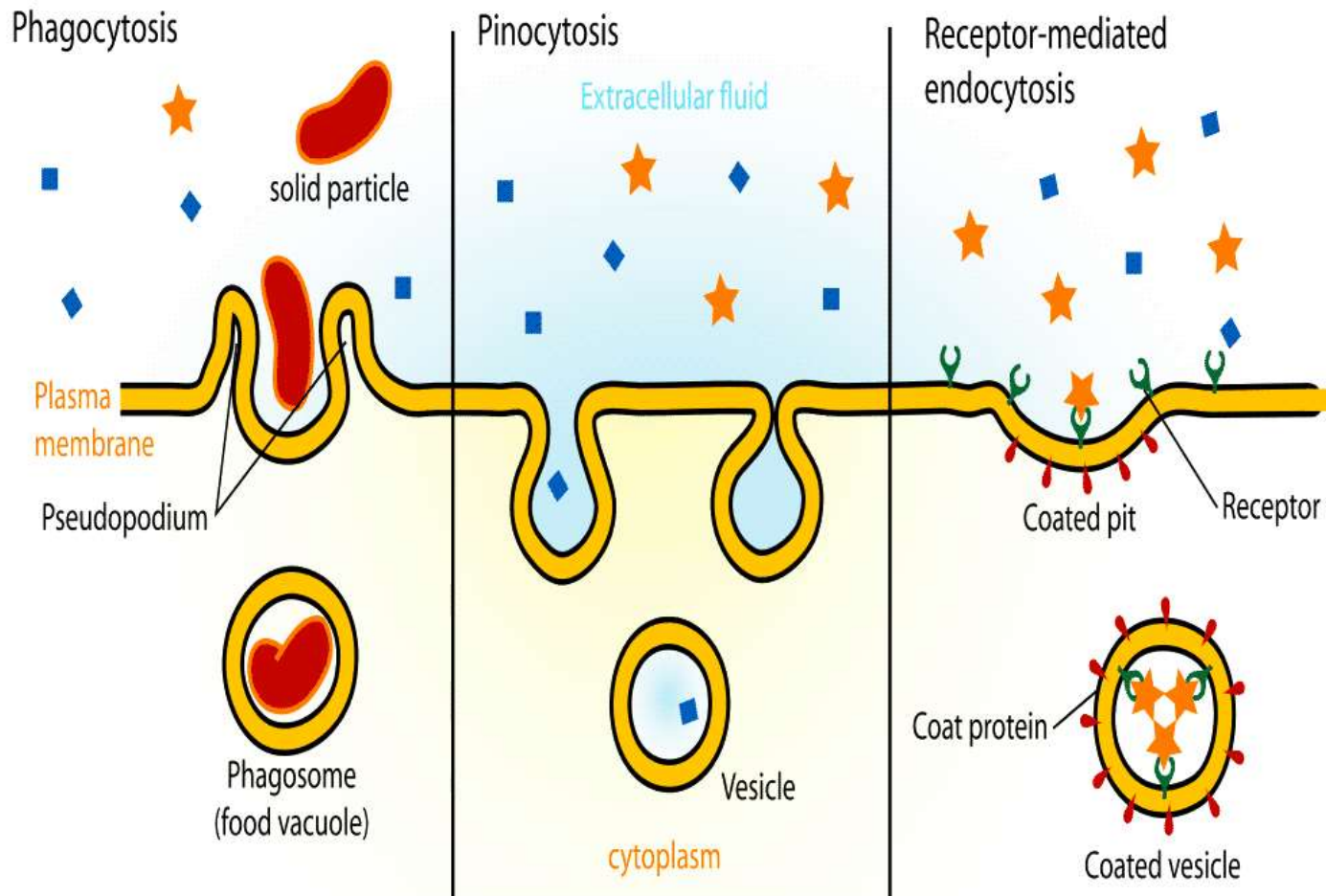


Biofilmi



Invazivnost bakterij

Endocytosis



Virulentni dejavniki

- Gibljivost bakterij
- Utekočinjenje sluzi, encimi
- Privzemanje železa
- Toksini

Toksini

Disease	Organism	Toxin	Effects <i>in vivo</i>
Tetanus	<i>Clostridium tetani</i>	Tetanus toxin	Blocks inhibitory neuron action, leading to chronic muscle contraction
Diphtheria	<i>Corynebacterium diphtheriae</i>	Diphtheria toxin	Inhibits protein synthesis, leading to epithelial cell damage and myocarditis
Gas gangrene	<i>Clostridium perfringens</i>	Clostridial- α toxin	Phospholipase activation, leading to cell death
Cholera	<i>Vibrio cholerae</i>	Cholera toxin	Activates adenylate cyclase, elevates cAMP in cells, leading to changes in intestinal epithelial cells that cause loss of water and electrolytes
Anthrax	<i>Bacillus anthracis</i>	Anthrax toxic complex	Increases vascular permeability, leading to edema, hemorrhage, and circulatory collapse
Botulism	<i>Clostridium botulinum</i>	Botulinum toxin	Blocks release of acetylcholine, leading to paralysis
Whooping cough	<i>Bordetella pertussis</i>	Pertussis toxin	ADP-ribosylation of G proteins, leading to lymphocytosis
		Tracheal cytotoxin	Inhibits ciliar movement and causes epithelial cell loss
Scarlet fever	<i>Streptococcus pyogenes</i>	Erythrogenic toxin	Causes vasodilation, leading to scarlet fever rash
		Leukocidin Streptolysins	Kill phagocytes, enabling bacteria to survive
Food poisoning	<i>Staphylococcus aureus</i>	Staphylococcal enterotoxin	Acts on intestinal neurons to induce vomiting. Also a potent T-cell mitogen (SE superantigen)
Toxic-shock syndrome	<i>Staphylococcus aureus</i>	Toxic-shock syndrome toxin	Causes hypotension and skin loss. Also a potent T-cell mitogen (TSST-1 superantigen)

Figure 9.27 The Immune System, 3ed. (© Garland Science 2009)

Kochovi postulati

- Mikroorganizem se mora nahajati v vseh obolelih živali, ne pa v zdravih.
- Mikroorganizem moramo vzgojiti v čisti kulturi izven (ločeno) od telesa živali.
- Mikroorganizem iz čiste kulture mora v poskusni živali, ki smo jo okužili, povzročiti značilne znake preiskovane bolezni.
- Mikroorganizem moramo iz okužene poskusne živali ponovno vzgojiti v čisti kulturi, pri čemer mora biti še vedno enak kot prvotni mikroorganizem.