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- Passive immunization is the transfer of ready made antibodies from one individual to another. Example “naturally acquired passive immunization”: Maternal passive immunity: Maternal antibodies IgG are passed through the placenta for the protection of the fetus against infections.
- Examples “artificially acquired passive immunization”: (historical) anti-serum against diphtheria toxin, anti-serum against cholera toxin; (modern) Human tetanus immunoglobulin, Human hepatitis B immunoglobulin

Antibiotics attack which main bacterial targets?

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- **Cell wall synthesis:** (examples: Beta lactam antibiotics Penicillin/Ampicillin)

- **Protein synthesis**: (Inhibitor of 30S ribosome subunit: Tetracycline; Inhibitor of 50S ribosome subunit: Chloramphenicol)

- **Nucleic acid synthesis:** (RNA synthesis inhibitor: Rifampicin; DNA synthesis inhibitor: Fluoroquinolones)

How do bacteria become resistant to antibiotics?

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- (1) by genetic mutations
- (2) acquiring resistance from another bacterium (horizontal gene transfer)

Bacteria use which antibiotic resistance strategies?

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- Enzymes that **destroy antibiotics** (example: beta-lactamase). **Inactivation of antibiotics** by modification: enzymes adding different chemical groups to antibiotics.
- **Increased efflux** (pumps in bacterial membrane/cell wall)
- **Decreased permeability**
- **Modify or bypass the antibiotic target**

Antibiotic resistance strategies in bacteria

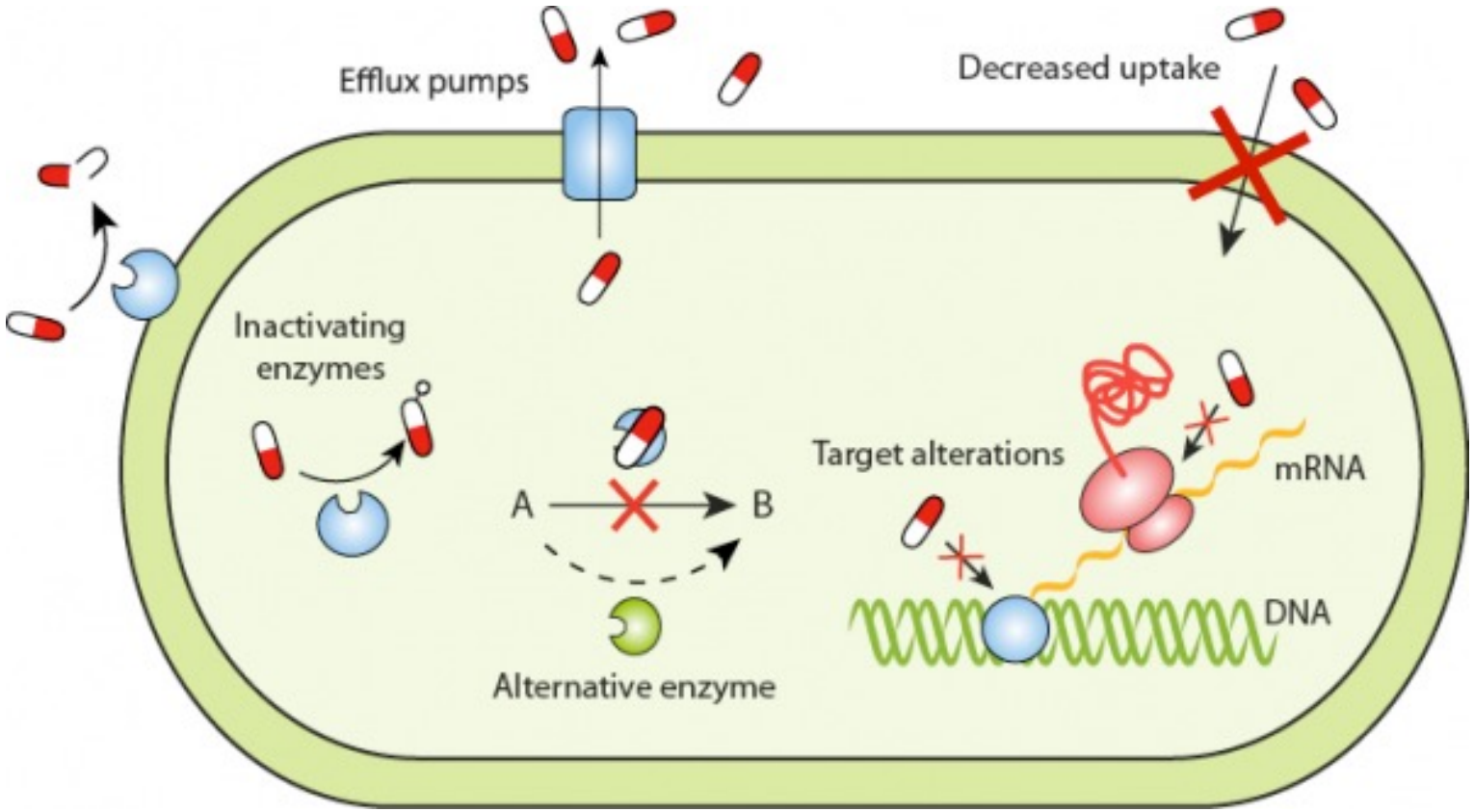

Figure 1. Antibiotic resistance strategies in bacteria. Courtesy of E. Gullberg.