

# Sterilization and disinfection

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# Terminology

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## **Sterilization:**

- Process of **killing or removing all forms of microorganisms** (bacteria, viruses, fungi) **via spors** from an object or surface.
- After sterilization → absolutely no germs left.

## **Examples:**

- **Autoclaving** (steam under pressure) → used in hospitals to sterilize surgical instruments.
- **Dry heat** → hot air oven sterilizes glassware.

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## Bacteriostasis:

Derived from two Greek words:

- **Bacterio** → "bacteria"
- **Stasis** → "a state of standing still / inhibition"

**Bacteriostasis** is a condition in which **bacterial growth** and reproduction are **inhibited** (stopped or slowed down) without necessarily killing the organisms.

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## Bacteriocide:

Derived from two parts:

- **Bacterio** → "bacteria"
- **Cide** (from Latin *caedere*) → "to kill"

**Bacteriocide** is any **substance or agent** that kills bacteria (not just inhibiting their growth, but destroying them).

## Feature

### Word origin

### Definition

### Effect on bacteria

### Reversibility

### Examples

## Bacteriostasis

*Bacterio* (bacteria) + *stasis* (to stand still)

Inhibition of bacterial growth and reproduction without killing them

Growth is **stopped/slowed** but bacteria remain alive

**Reversible** – bacteria can grow again if conditions improve

- Tetracycline (antibiotic) -
- Refrigeration (slows growth)

## Bactericide

*Bacterio* (bacteria) + *cide* (to kill)

Complete destruction or killing of bacteria

Bacteria are **killed/eradicated**

**Irreversible** – bacteria cannot recover

- Penicillin (antibiotic)

## Sepsis:

- serious illness that happens when the **body's response** to an infection goes **out of control**.
- instead of just fighting germs, the immune system causes **widespread inflammation** → damaging tissues and organs.
- Sepsis = infection + harmful body reaction

## Inflammation:

- It's the body's **natural defense reaction** when **something is wrong** (like infection, injury, or irritation).
  - Think of it as the body's **alarm system** telling your immune system:  
“□ □ Something's wrong here, fix it!”
  - Area becomes **red, warm, swollen, painful**.
  - Extra **blood and immune cells** rush in to fight germs or heal injury.

## **Antigen:**

“Anti-” (antibody) + “-gen” (producer/creator).

→ So **antigen** = antibody generator.

**Antigen** is any **substance** (usually a protein) that is **recognized as foreign body** by the immune system and **triggers** the body to make **antibodies** or activate immune cells.

## Antibodies:

“Anti-” (against) + “body” (refers to “foreign body” or invader).

→ Meaning: **substance against foreign bodies**.

- **special proteins** made by the immune system (**B-lymphocytes**) that **recognize and neutralize antigens** (like bacteria, viruses, or toxins). They act like the body’s **“guided missiles”** against germs.

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## Examples:

- **IgG** → most common antibody, protects against infections.
- **IgA** → found in saliva, tears, breast milk .
- **IgE** → involved in **allergies** (e.g., reaction to pollen).
- **IgM** → first antibody made during infection.
- **IgD** → helps activate B cells.

ANY  
QUESTIONS



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# Thank You

Feeling gratitude and not expressing it is like  
wrapping a present and not giving it.