

A living cell/organism can:

1. regulate its internal environment
2. take in and use energy
3. respond to its environment
4. develop and maintain its complex organization
5. give rise to new cells (reproduce)

Prokaryotes	Eukaryotes
<ol style="list-style-type: none">1. bacteria2. archaea	<ol style="list-style-type: none">1. protists [protozoa & algae]2. fungi3. plants4. animals

Which is a correctly typed specific name?

- a. Baker's yeast
- b. *Saccharomyces cerevisiae*
- c. *Saccharomyces cerevisiae*
- d. *S. cerevisiae*

Spontaneous generation:

the hypothesis that living organisms arise from nonliving matter
there is a "vital force" that forms life

Biogenesis:

the hypothesis that living organisms arise from preexisting life
(aligns with cell theory)

Resolution is the ability of the lenses to distinguish two points a specified distance apart.

Refractive index is a measure of the light-bending ability of a medium.

<u>D</u> electron microscopy	A. Dark objects are visible against a bright background
<u>B</u> darkfield illumination	B. Light objects are visible against a dark background
<u>C</u> fluorescence microscopy	C. Uses UV light and fluorochromes
<u>A</u> brightfield illumination	D. Uses electrons instead of light

← cationic

Basic dyes are used in what type of staining?

positive staining → stains the cell

← anionic

Acidic dyes are used in what type of staining?

Negative staining → stain the background,
not the cell

A mordant may be used to hold and improve bonding between the stain and the specimen.

Gram-negative bacteria tend to be killed easily by penicillins, cephalosporins, and detergents.

a. True

(b.) False

What type of bacteria undergo acid-fast stains?

those with mycolic acid in their cell walls

- mycobacterium
 - nocardia
- ↑ waxy lipid material

Types of stains:

1. Simple stains → one dye is used

2. differential stains → uses primary stain & counter stain

a. gram stain

b. acid-fast stain

c. endospore stain

3. Structural stains → capsule stains & flagella stains