

Comparison of EC and PC cells

A. Types of cells

1. Differences in prokaryotic and eukaryotic cell structure:

<u>Prokaryotic cell</u>	<u>Eukaryotic cell</u>
a. <u>DNA</u> in a nucleoid in direct contact with the cytoplasm	<u>DNA</u> is located within a membrane-enclosed <u>nucleus</u>
b. <u>Asexual reproduction</u> only	Both <u>asexual</u> and <u>sexual reproduction</u> occurs
c. <u>DNA replication & binary fission</u> (mitosis and meiosis does not occur)	Nuclear division during normal cell division (<u>mitosis</u>) and <u>meiosis</u> (forming sex cells) occurs
d. <u>single circular chromosome, haploid, generally no introns,</u>	<u>>1 chromosome, generally diploid,</u>
e. <u>Cell membranes do not contain sterols (except Mycoplasma)</u>	<u>Cell membranes contain sterols</u>
f. <u>Cell walls contain peptidoglycan (except for Archaea)</u>	<u>Cell walls do not contain peptidoglycan</u>
g. <u>Membrane-bound organelles do not occur</u>	<u>Mitochondria, chloroplasts, endoplasmic reticulum, etc. are found</u>

2. Groups of microorganisms:

<u>Prokaryotes</u>	<u>Eukaryotes</u>
Bacteria: mostly unicellular, asexual reproduction, some photosynthetic	fungi: nonphotosynthetic, unicellular or filamentous; have cell walls that contain chitin
Archaea: same as for Bacteria; adapted to exist in extreme environments	algae: photosynthetic, have cell walls that contain cellulose
	protozoa: mostly nonphotosynthetic, unicellular