

I) Evolution of cells and Different cell types.

A) INTRODUCTION TO CELLULAR EVOLUTION

- 1) evolution of the first prokaryotes
- 2) prokaryotes vs. eukaryotes
- 3) time frame of cellular evolution

B) OVERVIEW OF CELLULAR EVOLUTION

- 1) formation of organic molecules
- 2) formation of macromolecules including RNA
- 3) first cells

4) EVOLUTION OF METABOLISM

- a) use of ATP as an energy source
- b) evolution of 3 major types of metabolism
 - i) glycolysis
 - ii) photosynthesis
 - iii) oxidative metabolism

C) EVOLUTION OF PROKARYOTES

- 1) two groups of prokaryotes
 - a) archaeobacteria
 - b) eubacteria

2) basic characteristics of prokaryotes

- a) different shapes, small in size
- b) DNA content

3) structure of prokaryotes

- a) cell wall
- b) plasma membrane
- c) ribosomes
- d) DNA

D) EVOLUTION OF SINGLE CELL EUKARYOTES

1) first eukaryotes

2) characteristics of eukaryotes

- a) nucleus
- b) chromosomes
- c) cytoskeleton
- d) organelles

3) endosymbiosis

E) UNICELLULAR EUKARYOTES

1) yeast

- a) smaller than the cells of animals or plants

b) more complex than bacteria

2) amoebae

a) large, complex cell

b) 100,000 times the size of bacteria

c) length can exceed 1 mm

d) highly mobile

e) have pseudopodia extensions

3) green algae

- have chloroplasts, photosynthesis

F) EVOLUTION OF MULTICELLULAR EUKARYOTES

1) characteristics of multicellular organisms

2) multicellular aggregates

3) multicellular organisms

G) FIVE MAJOR TISSUE TYPES IN ANIMALS

1) epithelial tissue

2) connective tissue

3) blood

4) nervous tissue

5) muscle