

"Mesozoa"

100 species

small, worm-like parasites of marine invertebrates

once considered the "missing link" between protozoa and animals

unclear if they are degenerate flatworms or truly primitive animals

recent molecular analysis shows that this group should be classified into two separate phyla

small wormlike animals (.5-.7MM)

most are parasitic; others are free-living

made of only 20-30 cells arranged in 2 layers

but no true tissues or organs

ciliated "epidermis"

only structures resembling organs are gonads

have complex, but poorly understood life cycle

Subphylum Orthonectida

larvae are parasitic in the body spaces of molluscs and polychaete worms, brittle stars and other invertebrates

the larvae reproduce asexually by fragmentation

the larva causes destruction of the hosts gonads

at some point sexual reproduction is triggered and the larval parasites becomes male or female

the males are smaller than the females

the males and females leave the host and mate

each egg develops into a ciliated larva that makes its way to another host

Subphylum Rhombozoa

one group is commensal in kidneys of squid, octopi, and cuttlefish

each species of cephalopod has its own species of mesozoan

only a few millimeters long with 20-30 cells

long central reproductive cell (axial cell)

the axial cell can develop asexually into wormlike juveniles

or it may produce eggs and sperm that self-fertilize to produce a top-shaped, ciliated larva that leaves the host and finds a new host

typically it will reproduce asexually until the hosts kidneys get too crowded then it will reproduce sexually

there are 3 genera in this group

Evolutionary Relationships

controversial,

some possibilities:

1. very primitive metazoans

may be evolutionary intermediates between protozoa and metazoa

but from a different stock than choanoflagellates that are thought to have given rise to animals

2. share ancestry with platyhelminthes

degenerate flatworms due to parasitic lifestyle endoderm may be mesoderm derived

DNA analysis supports this idea