“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)
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 Orthonecida**

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