

Phylum PORIFERA (4,300 spp)

Radial Symmetry (can be asymmetric)

Sessile, filter feeders (marine & freshwater)

No head, mouth, or gut cavity

No Germ Layers (i.e., ectoderm, endoderm, mesoderm)

Mesohyl

No tissues

No organs

Metazoan or complex colony – not clear

**Choanocytes (collar cells) very similar to a
flagellated protozoan**

Archeocytes very similar to amebas

What substitutes for tissues?

Skin/Exoskeleton - Pinacocytes/porocytes (pinacoderm)

**Endoskeleton - Calcareous/siliceous spicules & spongin
fibers**

Muscular - Collar cells & myocytes about Osculum

Digestive - Choanocytes → archeocytes (ameboid cells)

Pinacocytes in spongocoel (pinacoderm)

Respiration - simple diffusion

Excretory - Archeocytes & simple diffusion

Circulatory - simple diffusion

Reproduction -

Sexual – Monoecious (most species) or Dioecious

**In many species, choanocytes produce oocytes
(eggs)**

Archeocytes usually produce spermatocytes

Asexual – gemmules - archeocytes

Archeocytes are TOTIPOTENT

Nervous System - absent

Sensory System - no special structures

→ **PINACODERM (pinacocytes & porocytes)**

→ **myocytes (contraction)**

3 Layers → **Archeocytes** → **spongocytes (support)**

→ **archeocytes (repair)**

→ **sclerocytes (support)**

→ **CHOANODERM (choanocytes & pinacocytes)**

**Body Form - Asonoid (simple), Syconoid (infolded
asconoid), and Leuconoid (complex of clusters)**

→ **ECTODERM**

ZYGOTE → BLASTULA → GASTRULA → MESODERM

→ **ENDODERM**

ECTODERM → Epidermis (skin glans, claws, feathers, hair, scales)

Brain, spinal cord, peripheral N.S., & sensory organs

MESODERM → Bone (including vertebral column & limb bones)

Muscle (including heart)

**Connective tissue (including dermis, ligaments, & tendons and
circulatory system (blood cells & vessels)**

Kidneys and Gonads

ENDODERM → Gut (including esophagus, stomach, & intestines)

Lungs, Thyroid, Pancreas, & Liver

Primordial Germ Cells (for gonads)