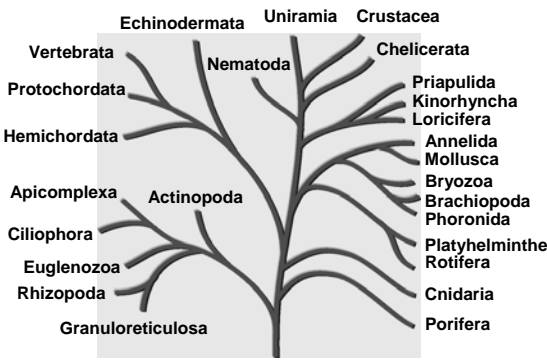




Phylum Porifera

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Echinodermata Uniramia Crustacea

Vertebrata Nematoda Chelicerata

Protochordata Priapulida

Hemichordata Kinorhyncha

Apicomplexa Actinopoda Loricifera

Ciliophora Annelida

Euglenozoa Mollusca

Rhizopoda Brachyopoda

Granuloreticulosa Phoronida

Platyhelminthes


Rotifera

Cnidaria

Porifera


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Poriferan diversity



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Poriferan diversity



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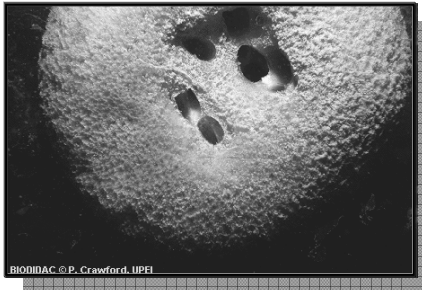
Poriferan diversity



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Poriferan diversity



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Poriferan characteristics

- 98% marine, 2% freshwater
- Among the first of multicellular (Metazoan) animals
- Individual cells subordinate to the "organism"
- Differentiation of cell types for division of labor
 - Choanocytes (food collection, reproduction)
 - Pinacocytes (outer protection)
 - Porocytes (regulate water inflow, guard against intruders)
 - Amoebocytes or Archeocytes (food digestion, storage, waste disposal, sundry other functions)
 - Sclerocytes (secrete spicules)
 - Spongocytes (secrete spongin)
- Non-cellular matrix uniting organism:
 - Spongin protein
 - Spicules (Ca, Si)

Porifera and Placozoa

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Things sponges do not have

- Tissues (nor organs, etc)
- Regular symmetry
- Extracellular digestion
- Sense organs (or nervous system)
- Mobility

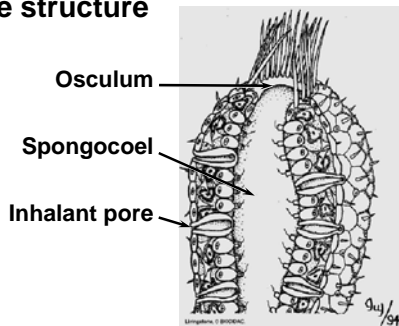
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Sponge structure



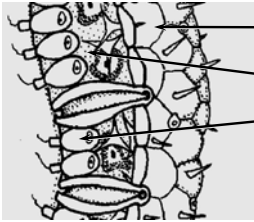
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Cells organised into layers
(not yet "tissues")



Pinacoderm
Mesohyl (non-cellular)
Choanoderm

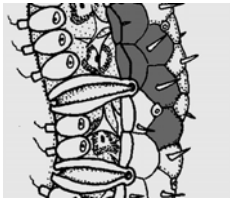
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Pinacocyte (form pinacoderm)



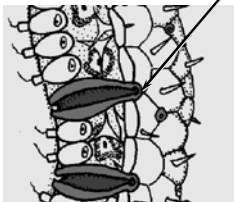
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Porocyte



Dermal ostia

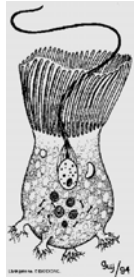
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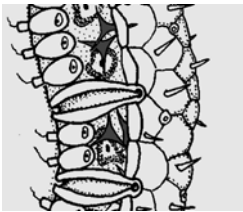
Choanocytes



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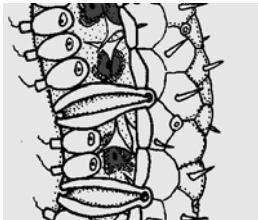
Sclerocytes



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Amebocytes



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Internal organisation

- 3 basic types
 - Asconoid
 - Syconoid
 - Leuconoid

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Asconoid sponges

Osculum
Spongocoel
Ostium
Porocyte
Water flow

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Syconoid sponge

Osculum
Spongocoel
Choanocyte

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Leuconoid sponge

Osculum
Excurrent canal
Choanocyte chamber

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Feeding and Digestion

Choanocyte flagellum
Microvillar collar
Food vacuole
Amebocyte in the mesohyl

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Poriferan reproduction

Micropyle
Spicule

Asexual
Budding
Fragmentation
Gemmule formation

Sexual
Many hermaphroditic

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