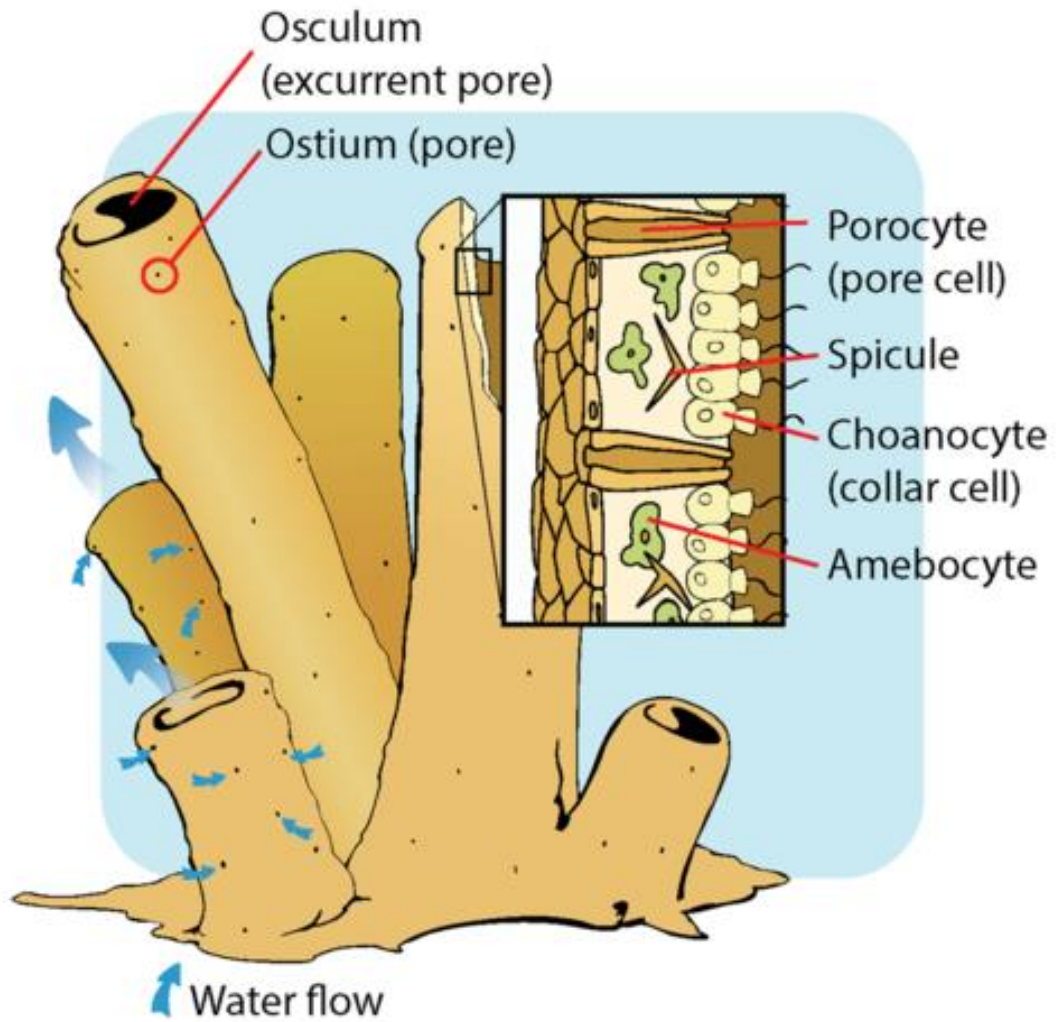




Phylum Porifera (sponge)

# Introduction

- 5000 species
- „**pore-bearers**“ – *poros* is pore in Greek
  - sponges have tiny openings all over the body
- most **ancient and primitive of all animals**
- most are **marine**, but some live in **fresh water**
- **sessile multicellular animal** (with no tissue or organ system)
- evolved from single-celled ancestors through evolutionary line that produced only sponge – **dead ended line**



# Structure

## 4 cell types

**Epidermal cells** - flat cells from outer cover

**Pore cells** - water and other substances enter through these cylindrical cells

**Collar cells** - make up inner layer

- have collar of microvilli

- have flagellum

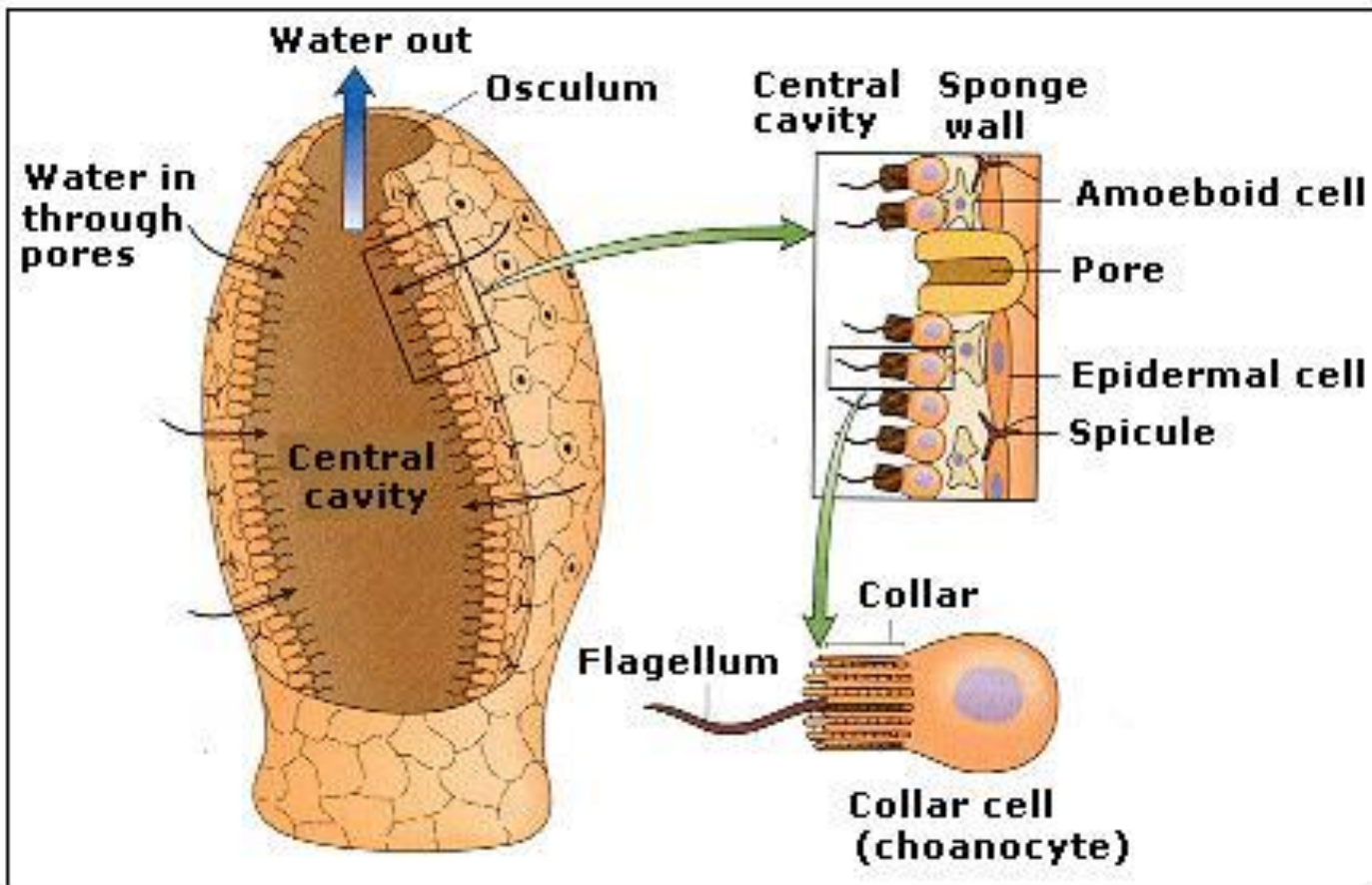
- have these to maintain a steady current that draws water into pores

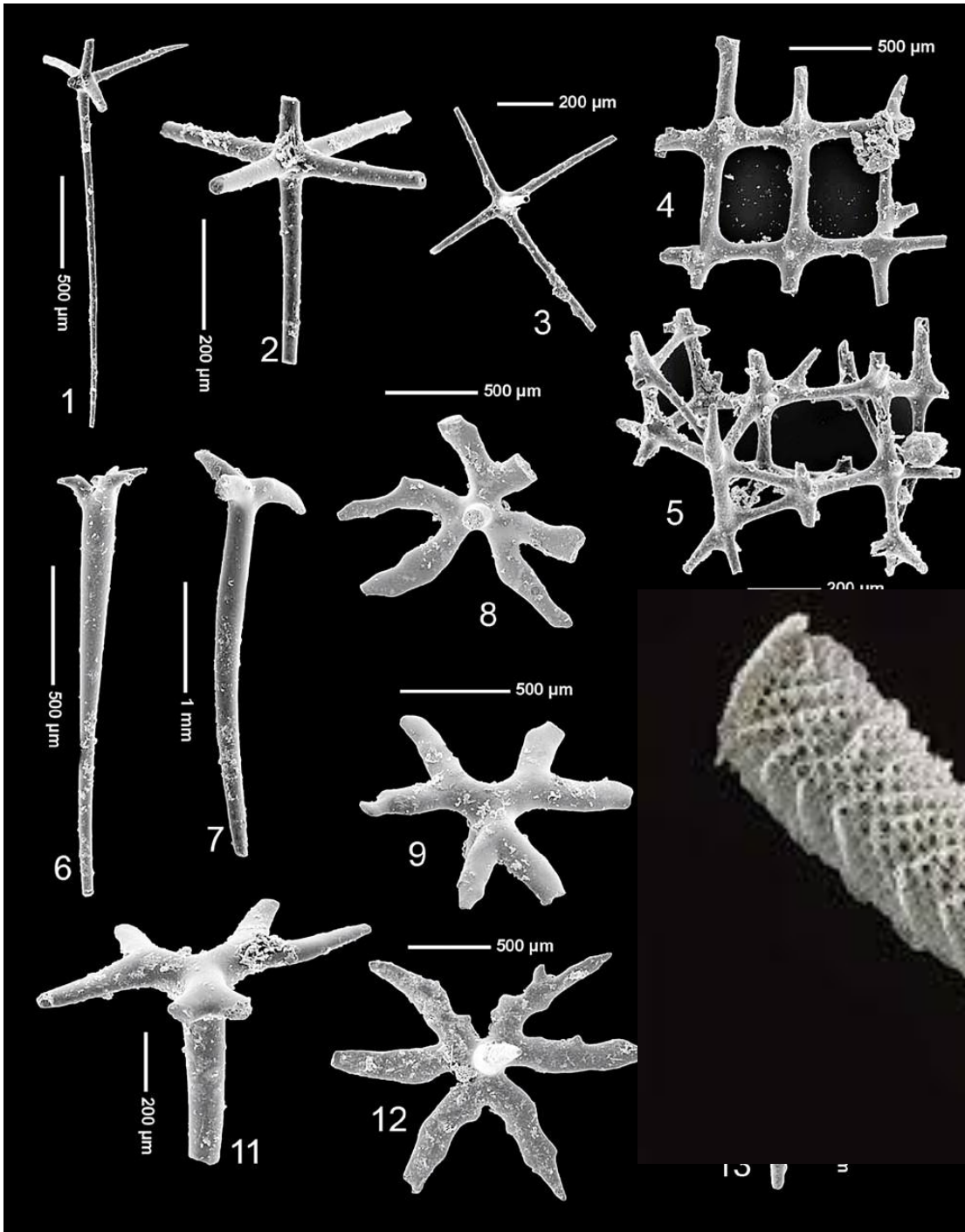
## **Amoebocytes**

- amoeba-like cells that absorb nutrients and remove waste

- deliver O<sub>2</sub> to other cells

- make **spicules** → create sponge skeleton





Spiculi are made of **calcium carbonate or glasslike silica.**

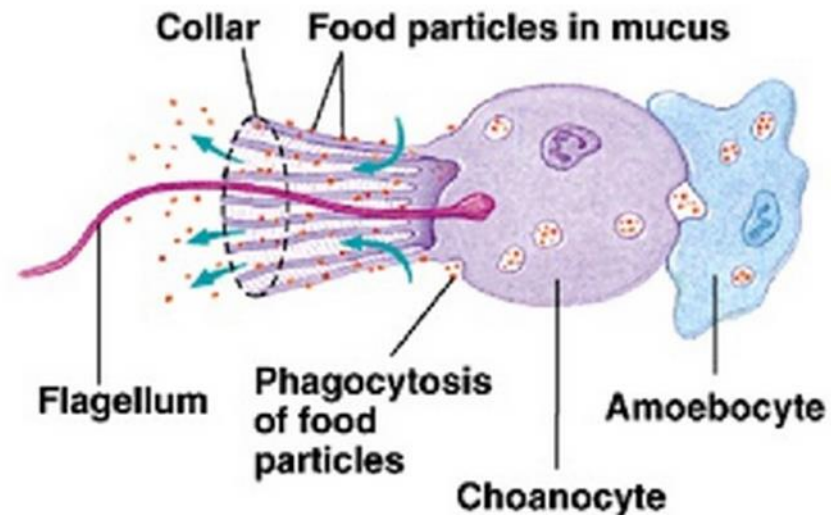
Softer sponge consist of flexible protein called **spongin.**



# Function

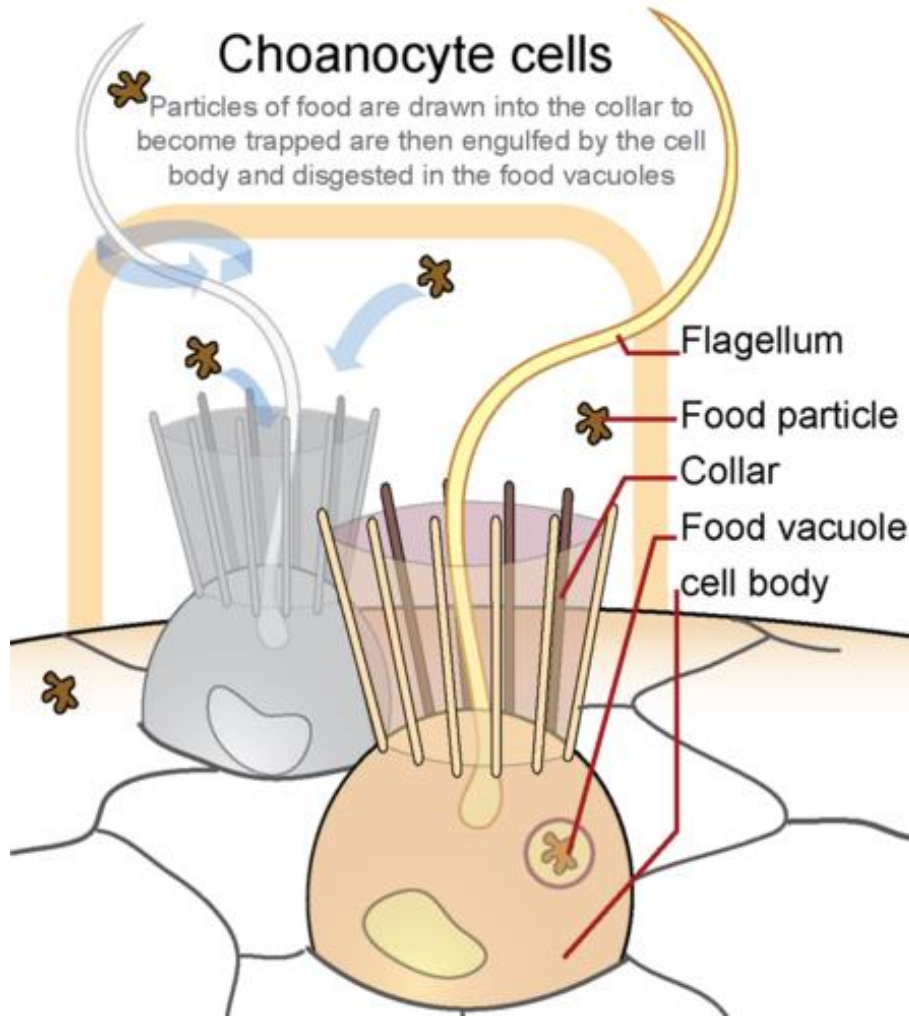
Sponges are **filter feeders**

- they catch microscopic particles from the water that pass through them
- all the digestion in sponges is intracellular (takes place inside the cell)



## Choanocyte cells

Particles of food are drawn into the collar to become trapped and then engulfed by the cell body and digested in the food vacuoles





## Function

The water flowing through the body of sponge serves as **circularory, excretion and respiration system**.

<https://www.youtube.com/watch?v=T7E1rq7zHLc>

# Reproduction

## Asexual reproduction

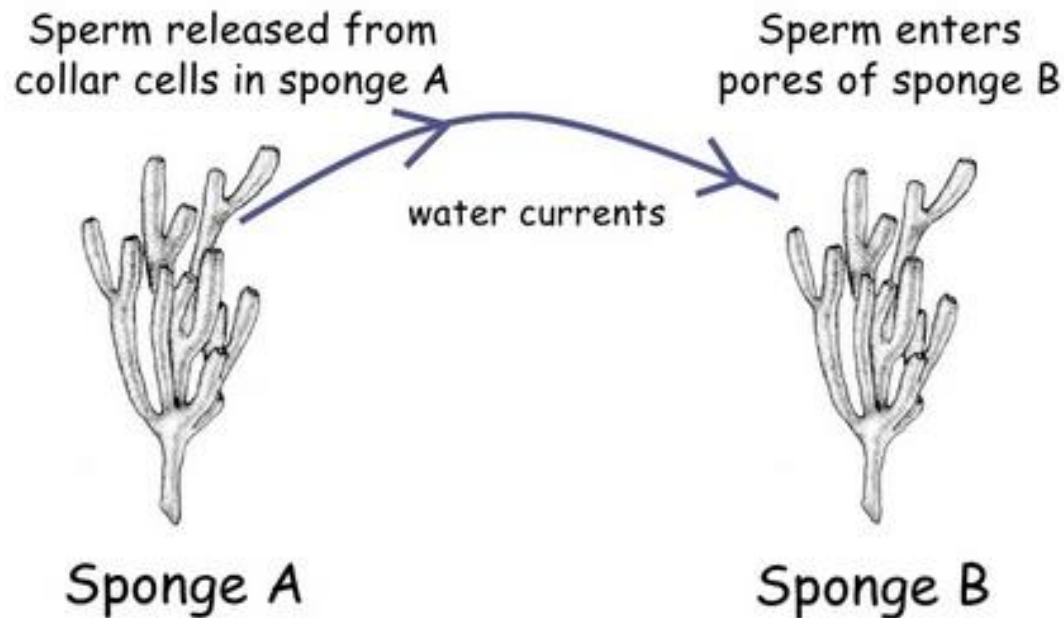
**Budding** – small growth falls off sponge and grows a new sponge

**Gemmules** – sphere-shaped collection of amoebocytes surrounded by spicules – leave sponge, settle and wait for better condition

# Reproduction

## Sexual reproduction

sponges are **hermaphrodite** (they have both male and female reproductive parts)



## Ecology

- live in **dark places**
- provide **shelter and food for other organism**
- can be involved in **symbiotic relationship with bacteria**
- can produce **toxic chemicals** to prevent muching

## Uses

- bath sponge
- loofhas
- antiviral and antibacterial chemicals



# Variability









