

COMPARATIVE VERTEBRATE HISTOLOGY

ANATOMY 3421

BIOLOGY 3421

What is a vertebrate?

-subphylum of Chordata (in Metazoa)

Phylum Chordata

Subphyla:

Urochordata (ie sea squirts)

Cephalochordata (Amphioxus)

Vertebrata

Main Chordate features:

-notochord

-muscular tail, post-anal

-dorsal hollow nerve cord

(→ vertebrate spinal cord)

-pharyngeal pouches or slits

What is a vertebrate?

a chordate with:

- vertebrae: hard tissue around notochord
(but not all vertebrates have vertebrae!)
- cranium: skull around brain
- neural crest: embryonic stem cells for
new structures

Classifying the vertebrates:

Anamniotes

Fishes

Agnathans (jawless)

hagfish, lamprey

Gnathostomes (jawed)

Chondrichthyes, Osteichthyes

(elasmobranchs) (teleosts)

Tetrapods

Amphibians

Amniotes (all are tetrapods)

Reptiles

Birds

Mammals

Morphological terminology

Homologous: structures with a common ancestry

-may or may not have a common function

bird wing - mammalian forelimb

Analogous: similar function but not common ancestry

fish fin - pinniped flipper

Homoplastous: structures that look alike

-may or may not have common ancestry and/or function

fish fin - pinniped flipper

Convergence: structures in different lineages evolve to meet

similar functional requirements; tend to look similar