

Lectures Note 1: Mammals:

TERMS

Alveoli, Anterior vena cava, Apocrine gland, Canines, Carotid arteries, Caudal arteries and veins, Coelic artery, Deciduous teeth, Dentary, Diaphragm, Diphyodont teeth, Dorsal aorta, Ductus arteriosus, Eccrine sweat gland, Erector muscle, Foreman ovale, Gonadal arteries and veins, Guard hairs, Hair, Hepatic portal system, Hepatic vein, Heterodont teeth, Homodont teeth, Iliac arteries and veins, Integument, Keratin, Keratinized, Left systemic arch, Mammary gland, Marsupials, Mesenteric arteries, Metanephros, Molars incisors, Monotremes, Ovoparous, Placental mammals, Premolars, Pulmonary artery and vein, Renal arteries and veins, Ruminant stomach, Sebaceous gland, Secondary palette, Subclavian arteries and veins, Tidal ventilation, Umbilical arteries and veins, Umbilical cord, Vibrissae, Viviparous.

That's us

- As the age of reptiles ended endothermic homeotherms (why don't we use the term warm blooded?), mammals and birds, expanded into the niches that had become available.
- Like the birds who found having feathers suddenly advantageous for homeothermy the same was true for mammalian hair which initially was probably mechanoreceptive and help mammals while they fed at night on insects.
 - But, as time passed this part of the integument became advantageous for nocturnal organisms feeding in the cooler nights.
 - Hair is only one part of a complex integument the covers mammals and a variety of different glands in the skin provide protection as the body covering, thermoregulation, chemical communication, and even nutrition.
 - Homeothermy requires a mechanism to prevent heat loss, insulative hair, as well as cooling which is accomplished by the sweat glands. Sebaceous glands keep the

hairs soft, pliable or waterproof and secretions of the apocrine glands produce distinctive scents that are used to mark territory and permit communication between animals.

- At some point secretions of the skin glands were also nutritive and developing young lapped up their secretions from what were to ultimately form the mammary glands that give this class of animals their name.
- Mammals also adopt a strategy for their developing young that involves increased parental care.
- Young are nourished from the mammary glands and protected by the parent for the early part of their lives. The strategy of investing parental effort and time into only a few young goes one step further by maintaining the embryo internally and the transition from the egg laying monotreme, to the marsupial and finally placental mammals exemplifies this transition.
- Only in the placental mammals is the developing embryo no longer seen as an invading parasite.
- Mammal taxonomy is based on teeth and often fossil mammals can be identified to the level of species by only a jaw and a few teeth. The reason for this is that the shapes of the teeth are closely related to the diet that the animal feeds on.
- Some of the biggest differences can be seen in the incisors, canines, premolars and molars. The teeth are often heterodont, with different types found in the same animal, and in some cases two sets appear during the life of the animal.

More Terms:

Chordata: Subphyla Vertebrata - Synapsids

Nested symplesiomorphies

Eumetazoa - True tissues with gap junctions, Diploblastic, and Oral aboral symmetry

Bilateria - (no DigiDiv content - I'll try and add this)

Deuterostomia - Tripartite coelom, Deuterostome development, and Dipleurula larva

Shared with Hemichordata - Stomochord proboscis complex and Glomerulus

Shared with Chordata - Pharyngeal gill slits and Dorsal hollow nerve cord

Autapomorphies Vertebrata - Placodes, tripartite brain, and cranium; Neural crest cells; and Axial skeleton with vertebrae

Autapomorphies Gnathostomata - Genome duplication, Origins of the jaw, and Paired fins.

Taxon information - Classes: Mammalia

Interactive Crosswords - Mammalia

Cladograms - Vertebrata (Crainiata)