

HISTOLOGY OF THE INNER EAR

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David B. Fankhauser, PhD

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http://biology.clc.uc.edu/fankhauser/Labs/Anatomy_&_Physiology/A&P202/Special_Senses/Histology_Ear.htm

Examine the following two slides first with the naked eye to see which features can be seen without magnification. Then draw a full paged illustration of the organ's histology for each of these three subjects at the power stated. As you illustrate, note the features in common versus those that differentiate. Compare what you see and draw with the illustrations in di Fiore's *Atlas of Normal Human Histology*, 9th Ed.

Slide 9: **Ear**, cochlea., guinea pig, (71571)

I. Cochlea cross section, overview, 40x:

(see MF 9th, page 347, fig. 19-7 & fig 19-9)

helicotrema	at end: vestib & tymp meet
scala vestibuli	from oval window
vestibular membrane	fragile, often missing
scala tympani	to round window
basilar membrane	tuned to specific hertz
cochlear duct	filled with endolymph
organ of Corti	where transduction occurs
osseus labyrinth	bony case within temporal bn
spiral lamina	bony core
spiral ganglion	
cochlear nerve	visible only in some slides

II. Cochlear duct detail, 100x:

(MF 9th, page 347, fig 19-8.)

organ of Corti	
tectorial membrane	lies over hair cells
hair cells	orange at tips
internal spiral sulcus	under "cresting wave"
basilar membrane	stretched and "tuned"
spiral ligament	stretches basilar membrane
cochlear duct	between vestibular & basilar
endolymph	fills cochlear duct
vestibular membrane	very fragile, often missing
scala vestibuli	carries vibrations fr stapes
scala tympani	returns vibrations: round w.
perilymph	fills vestib. And tymp. scalae
osseus spiral lamina	bony core
spiral ganglion	embedded in spiral lamina

Slide 11. Crista ampullaris, (H 1697)

III. Crista ampullaris, 100x

(There is no illustration in di Fiore.)

The semicircular canals detect angular or rotational acceleration. This is a cross section through an ampulla of a semicircular duct. 100x:

crista ampullaris (ridge-like structure)
receptor epithelium (hair cells on crista)
cupola (gelatinous mass on top of the crista)
ampulla of semicircular duct
endolymph (fills the chamber)
membranous labyrinth