NAME: OKOLO AWELE CHRISTABEL

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DEPARTMENT: MEDICINE & SURGERY

COURSE CODE: ANA 305(NEUROHISTOLOGY)

ASSIGNMENT TITLE: HISTOLOGY OF EAR

With the aid of a diagram, write an essay on the histology of an organ of Corti.

The floor of scala media (basilar membrane) is thickened inwards, bulging into endolymph as a sensory ridge called the organ of Corti. Organ of Corti is associated with hearing. The organ of Corti is a specialized sensory epithelium that allows for the transduction of sound vibrations into neural signals. The organ of Corti itself is located on the basilar membrane. Organ of Corti consists of different types of cells:

A. Inner Hair Cell

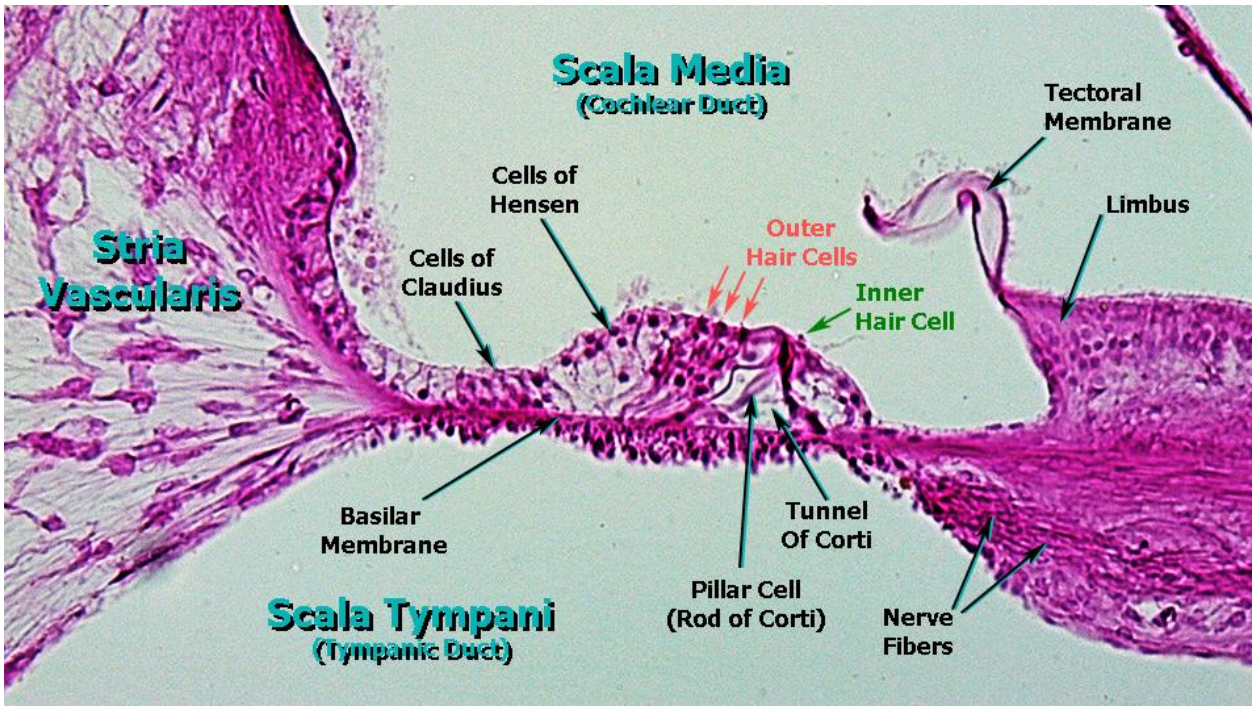
These cells are specialized in the mechanoelectrical transduction. There are almost 3500 cells disposed in one line along all the basilar membrane. They are connected to type I neuron peripheral fibers of spiral ganglion, these connection are very divergent (10/1). The luminal part of the cell is immerged in endolymph, the basal one is immerged in normal extracellular fluid. The luminal portion is formed by bundles of stereocilia(inner_ear), whose tips are connected by filamentous structures called tip-links.

B. Outer Hair Cell

These cells are acoustical pre-amplifiers. They are almost 12000, disposed in three parallel lines. These cells are connected to type II amyelinic neurons, the connections are very convergent. They have also an afference from superior olivary nucleus. They have contractile activity.

C. Supporting Cells

These cells are of four different types: Corti pillars, Hensen cells, Deiters cells and Claudius cells.


Scala Media
(Cochlear Duct)
Tectoral Membrane
Cells of Hensen
Limbus
Stria Vascularis
Outer Hair Cells
Cells of Claudius
Inner Hair Cell
Basilar Membrane
Tunnel Of Corti
Pillar Cell (Rod of Corti)
Nerve Fibers
Scala Tympani
(Tympanic Duct)