

<- Neural Crest Cells ->

"As the neural folds elevate and fuse, cells at the lateral border or crest of the neuroectoderm begin to dissociate from their neighbors and this cell population is called the neural crest cells"

- Preferred to as "4th germ layer"
 - Involved in 1/3rd of birth defects and cancers such as melanomas and neuroblastomas
 - Enter the underlying mesoderm
 - Undergo epithelial-to-mesenchymal transition
- » Mesoderm refers to cells derived from the epiblast and extraembryonic tissues
- » Mesenchyme refers to loosely organized embryonic connective tissue regardless of origin

<- Migration of NCCs ->

- Neural crest cells which leave the neuroectoderm after the closure of neural tube:

- These ones migrate along one of the two Pathways:

1) Dorsal Pathway (through dermis)

- Enter ectoderm through holes in the basal lamina

- Form melanocytes in the skin and hair follicles

2) Ventral Pathway (through anterior half of each somite)

» Form:

- Schwann cells

- Sensory ganglia

- Sympathetic neurons
- Enteric neurons
- Adrenal Medulla

(Mnemonic: Super Salty SEA)

- Neural crest cells which leave the neuroectoderm before the closure of neural tube:

» Form

- Craniofacial skeleton
- Cranial Ganglia
- Glial Cells
- Melanocytes

(Mnemonic Cry Cry and Get Me)

<- Complete Derivatives Of NCCs ->

» 4S's

- Spinal Ganglia
- Sympathetic Ganglia
- Schwann's Cells
- Smooth Muscles of Face

» 4C's

- Cranial Ganglia
- Connective tissue
- C-cells of Thyroid
- Conotruncal septum of Heart

» MAnGO

- Melanocytes
- Adrenal Gland
- Meninges
- Glial Cells
- Odontoblasts