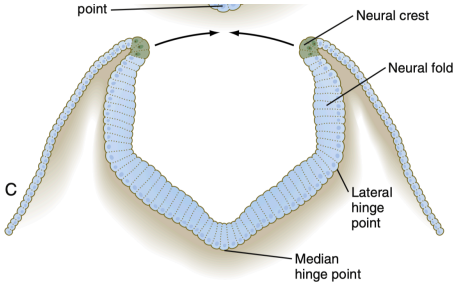
1. What name is used to describe the lateral edges of the neural plate?

答案：neural folds

解析：Elevation of the **neural folds** seems to be accomplished largely by factors extrinsic to the neural epithelium, in particular, pushing forces generated by the expanding surface epithelium **lateral to the neural plate.**

（图文P87-88）

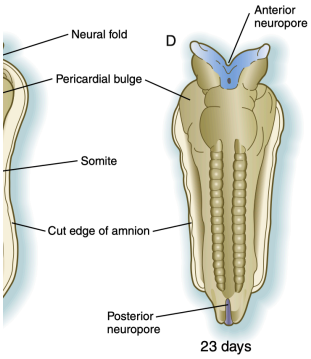


2. On what day of human development does the cranial neuropore close

答案：24days

解析：**Closure of the neural tube first occurs in the region where the earliest somites appear;** closure spreads cranially and caudally. The unfused regions of the neural tube are known as the cranial and caudal neuropores. Even before the closure of the neuropores (**24 days' gestation for the cranial neuropore** and 26 days' gestation for the caudal neuropore), some fundamental subdivisions in the early nervous system are manifest.

（图P88 文P205）



3. In the developing neural tube what name is given to an immature neuron?

答案：neuroblast

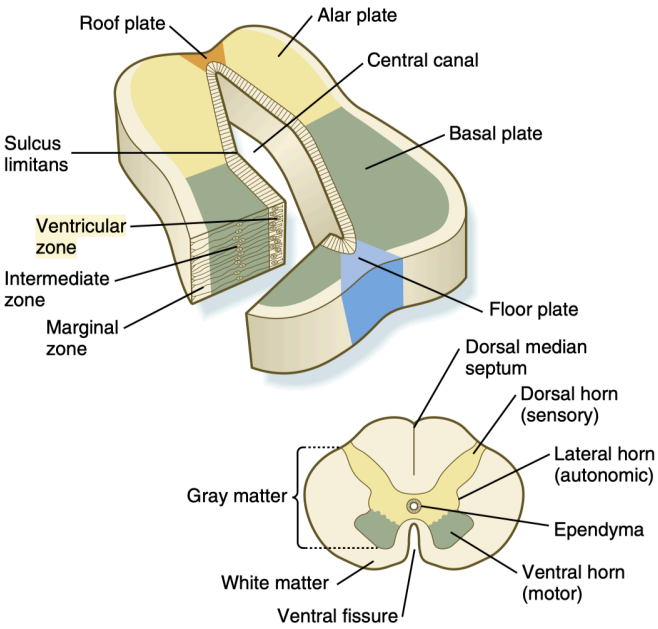
解析：In vertebrates, a **neuroblast** or **primitive nerve cell** is a postmitotic cell that does not divide further, and which will develop into a neuron after a migration phase.

4. In the developing neural tube where would you find neuronal progenitors?

答案：ventricular zone

解析：The layer of cells closest to the lumen (central canal) of the neural tube remains epithelial and is called the ventricular zone (the ependymal zone in older literature). This zone, which still contains mitotic cells, ultimately becomes the ependyma, a columnar epithelium that lines the ventricular system and central canal of the CNS

（图文P207）



5. In the developing neural tube where would you find immature neurons?

答案：mantle zone

解析：Farther from the **ventricular zone is the intermediate (formerly called mantle) zone,** which contains the cell bodies of the differentiating postmitotic **neuroblasts.** 这道题首先要知道mantle zone就是intermediate zone 左边的图这两道题都能用。intermediate zone会产生neuroblasts which are immature neurons 这题要联系第三题的解析（moodle的解析完全复制的上一道题的解析 跟答辩一样我无语了） P207

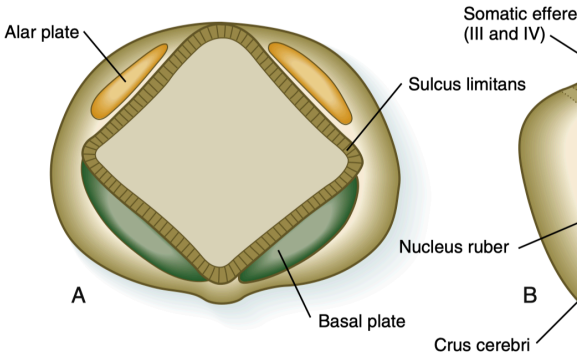
6. Neurogenic phase progenitor cells divide asymmetrically. What do they form?
答案：one dividing cell and one immature neuron or glia
解析：Initially, the radial precursor cells divide symmetrically to produce two cells of the same type to expand the pool of precursor cells. With the advent of asymmetric divisions of the radial precursor cells, neurogenesis, the first major phase of histogenesis in the CNS begins. **One daughter cell remains a radial precursor cell,** but the other follows one of two courses—directly differentiating into a neuroblast and ultimately a neuron or forming an intermediate progenitor cell, which **will divide to produce two neuroblasts**. 这题在最后说一个细胞保持不变 另一个细胞会分化成两种neuroblasts 在后文有提到是glia 大家感兴趣可以去看207页 文字太多就不放了

7. Late phase progenitor cells divide asymmetrically. What do they form?
答案：one immature neuron and one immature glia （这题解析也在207页 很长一段 就不放了）

8. In the brain, what type of glial cells are dominant in the white matter?
9. Which cells wrap axons of the central nervous system in a myelin sheath?
答案：oligodendrocytes 两题答案都是这个
解析：Schwann cells are not present in the CNS; instead, myelination is accomplished by oligodendrocytes. 记住schwann只出现在PNS 在CNS是oligodendrocytes（P217）

10. What is the main function of the myelin sheath that surrounds many axons?
答案：To increase the conduction velocity of axons（高中难度的题没解析）

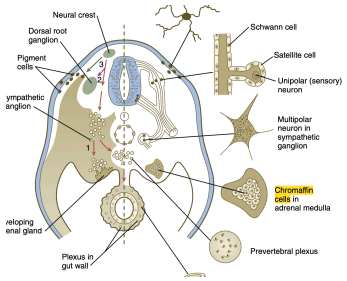
11. In the developing spinal cord, what neurons are formed by the alar plates?
答案：alar base
解析：The mesencephalon, or midbrain, is structurally a relatively simple part of the brain in which the fundamental relationships between the basal and alar plates are preserved. The alar plates form the sensory part to the midbrain (tectum), which subserves the functions of vision and hearing. （文字P228 图P329）



12. In the spinal cord, where would you find the nuclei of sensory neurons?
答案：dorsal root ganglia （看ppt development of NS P4)

13. Which of these animals does not possess a neural crest during embryogenesis?
答案：Amphioxus lanceolatum
解析：这个答案的意思是文昌鱼 在动物学中有介绍文昌鱼是有脊索没有脊椎的 是脊椎动物的祖先 所以不posses neural crest。（之前我学竞赛看到的 在动物学上脊索动物门头索纲章节有写）

14. What hormone is secreted by Chromaffin cells?
答案：adrenalin
解析：This progenitor cell gives rise to four types of cellular progenies: (1) adrenal chromaffin cells; (2) small, intensely fluorescent cells found in the sympathetic ganglia; (3) adrenergic sympathetic neurons; and (4) a small population of cholinergic sympathetic neurons.（图文P246 ）



15. Which part of the neural tube do most enteric neurons derive?

答案：rhombencephalon

解析：The **enteric nervous system** (**ENS**) or **intrinsic nervous system** is one of the main divisions of the autonomic nervous system (ANS) and consists of a mesh-like system of neurons that governs the function of the gastrointestinal tract. It is capable of acting independently of the sympathetic and parasympathetic nervous systems, although it may be influenced by them. The ENS is also called the second brain. It is mostly derived from neural crest cells of the rhombencephalon.

16. Which of the three CNS meningeal layers are formed by the neural crest?

答案：Arachnoid, Pia Mater

解析：In the early fetal period, two layers of mesenchyme appear around the brain and spinal cord. The thick outer layer, which is of mesodermal origin, forms the tough dura mater and some of the membrane bones of the calvarium. A thin inner layer of neural crest origin later subdivides into a thin **pia mater**, which is closely apposed to the neural tissue, and a middle arachnoid layer. Spaces that form within the pia-arachnoid layer fill with cerebrospinal fluid. （文p234）

17. What do Rhombencephalic neural crest cells form in the pharyngeal arches?

答案：cartilage mesenchyme

解析：The external ear (pinna) is derived from mesenchymal tissue of the first and second pharyngeal arches that flank the first (hyomandibular) pharyngeal cleft. During the second month, three nodular masses of mesenchyme （P275）

18. Which gut congenital malformation is a defect of neural crest migration

答案：Hirschsprug's disease

解析：Congenital Aganglionic Megacolon (Hirschsprung's Disease)

If a newborn exhibits symptoms of complete constipation in the absence of any demonstrable physical obstruction, the cause is usually an absence of parasympathetic ganglia from the lower (sigmoid) colon and rectum. This condition, commonly called aganglionic megacolon or Hirschsprung's disease (see p. 333), is normally attributed to the absence of colonization of the wall of the lower colon by neural crest–derived parasympathetic neuronal precursors, probably of cranial origin. In rare cases, greater parts of the colon lack ganglia. （P222）