

- 1) What is the role of BMP during gastrulation?
- 2) What is the difference between differentiation and patterning? What role does Shh play in these processes?
- 3) Describe the hallmark symptoms of schizophrenia and ASD. What is different what is similar between the two disorders?
- 4) What is a discrete and a topographic map? Give examples of each.
- 5) What is the role of neurotrophins in sensory nerve circuit formation? Name 2 neurotrophins
- 6) What is the difference between intermediate and final targets? Name an example of an intermediate target. How do axons navigate intermediate targets.
- 7) What is true for the sleep pattern of a 1 year old?
 - a. Majority spent in REM sleep
 - b. Polyphasic sleep pattern
 - c. Clear sleep patterns during 24h
 - d. More SWA than 10yo
 - e.
- 8) How can exocytosis be tested with FM fluorescence? How does the dye roughly work? Do presynaptic clusters release synaptic vesicles?
- 9) What is the origin and migratory path of trunk NCC? What are their derivatives?
- 10) True or false
 - a. Adult neurogenesis is a dynamic process dependent on environmental factors
 - b. Adult neurogenesis persists in a substantial amount in the olf. Bulb throughout life
 - c. In mammalian neural stem cells there exists a diffusion barrier in the ER lumen, which contributes to asymmetric inheritance of proteins
 - d. There is no neurogenesis beyond the embryonic phase of life
- 11) True or false
 - a. Cre ^{ERT2} is induced by tamoxifen
 - b. Cre recombinase binds to repeat elements in the Cas9 sequence
 - c. In vivo fate mapping is dependent on inheritable genomic alterations from the mother cells
 - d. Delaminated NCC are multipotent
 - e. NCC give rise to some smooth muscle cells in our body
- 12) SWA develops parallel with (before 20 years of age)
 - a. Synapse density
 - b. Glucose consumption
 - c. White matter volume
 - d. Total sleep duration
 - e. Rem sleep