

Exercises Biol-480 “Neuroscience I” – Alzheimer’s disease

1) Where in the brain does Alzheimer’s disease (AD) start?

2) “Braak and Braak” staging:

- What is “Braak and Braak” staging?
- What pathology is it based on?
- What is the relationship between “Braak and Braak” staging and the MMSE?

3) Neurofibrillary tangles:

- Explain the deleterious effects of neurofibrillary tangles.
- What are neurofibrillary tangles? What are the biochemical steps that lead to their production?

4) Amyloid pathologies:

- What is the amyloid cascade hypothesis? Explain all steps involved.
- Which genes are mutated that lead to aberrant amyloid processing?
- In relationship to the first detectable cognitive symptoms of AD, when does the amyloid pathology start in the brain?

5) What is the difference between familial and sporadic AD?

6) Name at least three risk factors for sporadic AD.

7) What is the cognitive reserve hypothesis? What evidence is it based on?

8) What is the LEARN model of AD?

9) What is the commonality between AD, PD and ALS? What are the key proteins involved in these diseases?

10) Name at least two problems when using mouse models of Alzheimer’s.