

NEUROSCIENCE MSc EXAMINATION

For Students of the
INSTITUTE OF PSYCHIATRY
King's College London

14th March 2011 14.00 – 16.30

Neurodegeneration

PAPER B4

Answer **FOUR** questions only

1. Describe the key molecular events and their neuropathological correlates in Alzheimer's disease.
2. Discuss the key evidence leading to the hypothesis that hippocampal long-term potentiation (LTP) is impaired in the early stages of Alzheimer's disease. Are such LTP impairments relevant for learning abilities?
3. Cell transplantation is efficacious in animal models of neurodegeneration. What evidence suggests that it might also work in patients?
4. How could the process of autophagy be manipulated to treat neurodegenerative diseases?
5. Briefly summarise the genetic evidence for the amyloid cascade hypothesis in Alzheimer's disease.
6. Give two examples of neurodegenerative diseases that involve defects in axonal transport and describe the defect in each case.
7. Several RNA-binding proteins have been linked to motor neuron disorders. Review the hypotheses on their pathogenic role in disease.
8. How can assessing gene expression levels in brain help us to understand neurodegenerative disease?