

**UNIVERSITY OF LONDON**  
**MSc NEUROSCIENCE EXAMINATION**  
**INSTITUTE OF PSYCHIATRY**  
**King's College London**  
**4<sup>th</sup> March 2013 at 13.30-16.00pm**  
**Neurodegeneration**  
**B4 WRITTEN EXAMINATION**

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**Answer FOUR questions only:**

1. What is the evidence that glia contribute to the pathogenesis of juvenile neuronal ceroid lipofuscinosis (NCL)?
2. Describe and compare the main biochemical and morphological characteristics of TDP-43 expression in the brains of (a) healthy control subjects and (b) motor neurone disease with frontotemporal dementia patients.
3. Has investigating cell signalling helped our understanding of mechanisms underlying Alzheimer's disease?
4. Describe, using examples, THREE disease-associated mechanisms that lead to transcriptional dysregulation in any of the neurodegenerative diseases.
5. Describe the advantages and limitations of mouse models of Alzheimer's disease.
6. What are the functions of tau in neurons? In your answer, explain how these functions might be affected by neurodegenerative changes in the brain.
7. Outline the contribution that studies of the rare familial forms of EITHER Parkinson's disease OR Alzheimer's disease have made to our understanding of the much more common sporadic forms of these diseases.
8. Describe our current understanding of infectious mammalian prions.