Mechanisms of Seizure Generation in a Mouse Model of Tumour-Associated Epilepsy

Lucy May Gee : l.m.gee@ncl.ac.uk 130217055 MSci Biomedical Sciences

Introduction
Glioma is the most common form of adult brain cancer, representing 81% of all cases.

29-75% of glioma patients suffer seizures which greatly affect their daily lives. Despite this there is little known about the mechanism behind the seizure onset.

Figure A. The project used a mouse model of the tumour which allowed us to explore the potential mechanisms of seizure generation. I investigated changes in the cell populations present around the tumour and whether or not these were different in seizure and non-seizure groups.

Aims
• To investigate and image cell populations present around the tumour and in the normal hemisphere
• To analyse cell populations present in the seizure vs non-seizure groups
• To analyse cell populations present around the tumour vs in the ‘normal’ cortex

Results
The results show that there were no significant differences between seizure and non seizure groups in the following areas: microglia levels (Iba1 figure D), astrocyte levels (GFAP figure E), neuron count (NeuN figure F).

Discussion
These results provide valuable insight into the potential mechanism of tumour-associated epilepsy. While they show that there is no significant difference between these cell populations in seizure and non-seizure mice, it brings the scientific community a step closer to understanding the basis of these seizures.

Acknowledgements: Thanks to Dr Beth Stoll for invaluable advice and guidance, Val Affleck for the behavioural data, Jonathan Stockton for cryosectioning and interneuron population analysis, Hannah Woodward for cryosectioning and tumour size analysis, Carolina Gandara de Souza for histological advice, and Mark Cunningham for helpful discussions.