

## **Lay Summary**

**BRAIN UK Ref: 14/004**

**Pilot study: Expression analysis of candidate transcripts potentially involved in human brain tumourigenesis**

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Within a brain tumour, only a restricted number of cells is able to re-form the whole tumour mass. These so-called brain tumour stem cells (BTSCs) are thought to originate via transformation or de-differentiation from cells of the normal neural stem lineage. Conventional cancer therapies do not effectively destroy BTSCs. The survival of BTSCs may explain the frequent relapse of tumours even after a severe reduction in tumour mass. Therefore, the development of more effective therapies and early diagnostics depend on increased understanding of BTSC properties and mechanisms leading to their development. Using the well-established fruit fly central nervous system as a model, we identified novel potential candidate genes involved in the process of development of BTSCs *in vivo*. About 70% of our candidates have highly conserved matches in humans. Using human tissue requested from the Brain Bank, we are investigating how these newly identified human gene orthologues are expressed in brain tumours compared to normal brain tissue. Out of 24 candidates analysed to date, 21 have been found significantly differentially expressed in tumour versus control samples. This work is an essential stepping-stone to define research directions towards improved characterization of BTSCs and causes of brain tumour formation.