

## **Lay Summary**

**BRAIN UK Ref: 22/002**

**ATR drives glioma cell invasion via macropinocytic integrin recycling**

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Glioblastoma is an incurable brain tumour which has few effective treatments. Glioblastoma cancer cells invade and travel widely into the surrounding normal brain, making it impossible to surgically remove tumours completely. Radiotherapy is used to control the growth of these tumours for a short period, however glioblastoma cells appear to increase their potential to invade into the brain after radiotherapy treatment. We have found a new mechanism which accounts for the invasion of glioblastoma cancer cells involving a protein called 'ATR'. ATR is not known to provoke cancer cell invasion, however we can show that it controls the way in which glioblastoma cells attach via proteins called 'integrins' to pull themselves along to invade into the brain. Furthermore we can use a drug called BAY1895344 to inhibit ATR, which stops glioblastoma cancer cells invading in the lab.

We think that BAY189344 could be a treatment for glioblastoma, however we need to get evidence that ATR causes invasion in human glioblastoma specimens. We want to use tissue from around 5-10 patients from the biobank to measure if glioblastoma cells at the invading edge of a tumour have more ATR protein than glioblastoma cells in the middle of the tumours.