Ligand-activated transcription factors PPAR-γ and PPAR-α expression in human glioma

**Objective:** Agonists of the ligand-activated transcription factors PPAR-γ and PPAR-α are in routine clinical use for Type 2 diabetes and lipid control. In vitro studies suggest that PPAR-γ and PPAR-α exert antiproliferative and anti-invasive effects on gliomas. PPAR may therefore have a role as a diagnostic and prognostic biomarker or drug target in human gliomas.

**Method:** 52 glioma samples diagnosed 2011-2013 banked at the Brain Tumour Bank Southwest UK were analysed for PPAR-γ and PPAR-α expression using dot and western blot techniques. mRNA expression was quantified using rt-PCR. The expression of PPAR-γ and PPAR-α was compared with survival data and stratified by WHO tumour grade.

**Results:** In our study PPAR-γ and PPAR-α protein expression differs with WHO glioma grade. WHO grade III gliomas show a higher expression of both PPAR-γ and PPAR-α when compared with WHO grade IV gliomas.

**Conclusion:** Our results show for the first time that both PPAR-γ and PPAR-α protein expression is significantly increased in WHO grade III gliomas compared to WHO grade IV gliomas. PPAR-γ and PPAR-α agonists are in current clinical use and future trials stratified by PPAR-γ and PPAR-α expression may reveal a patient cohort with optimum clinical response to these agents.