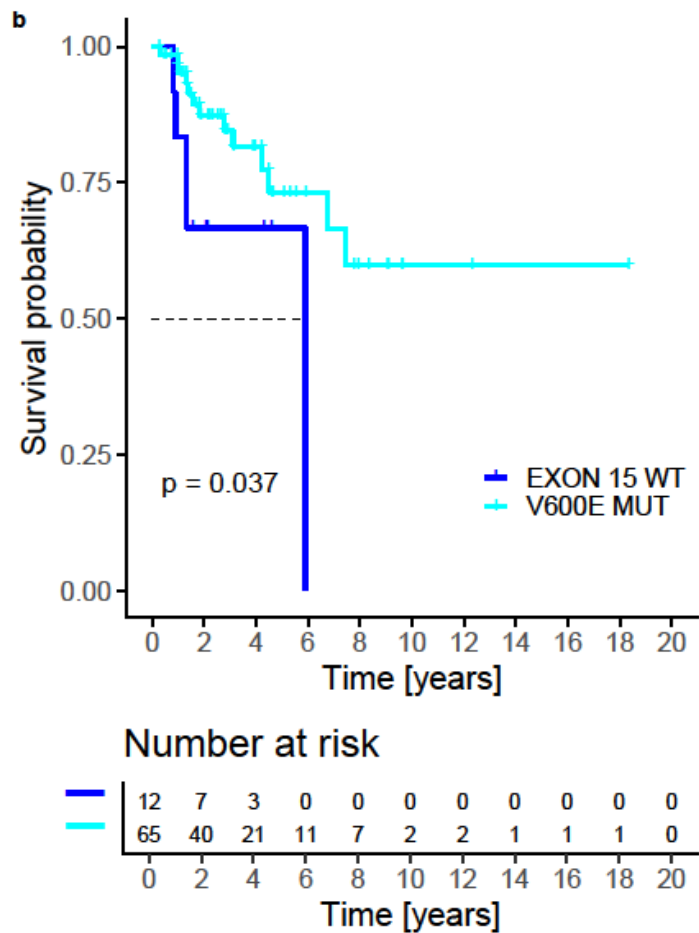
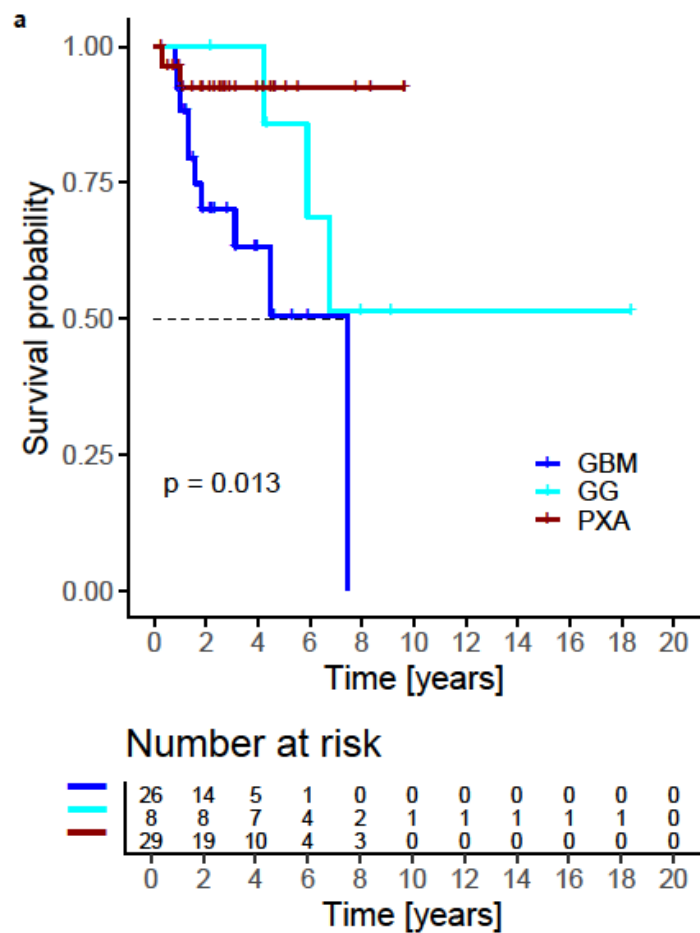
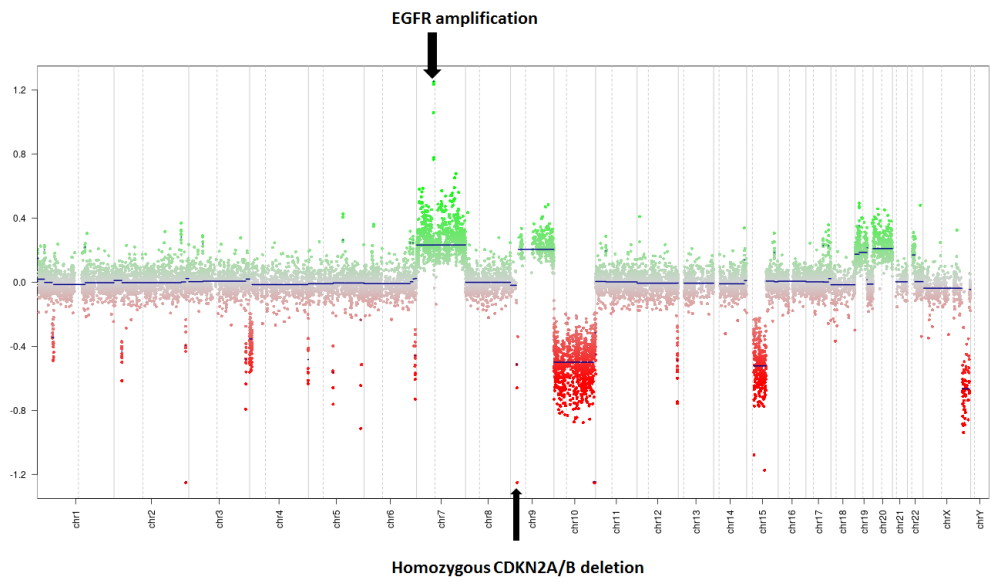
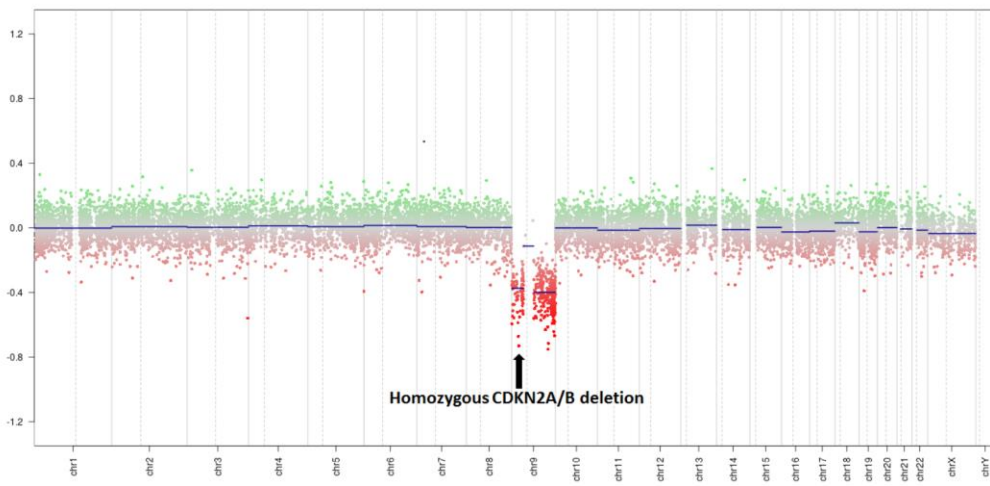


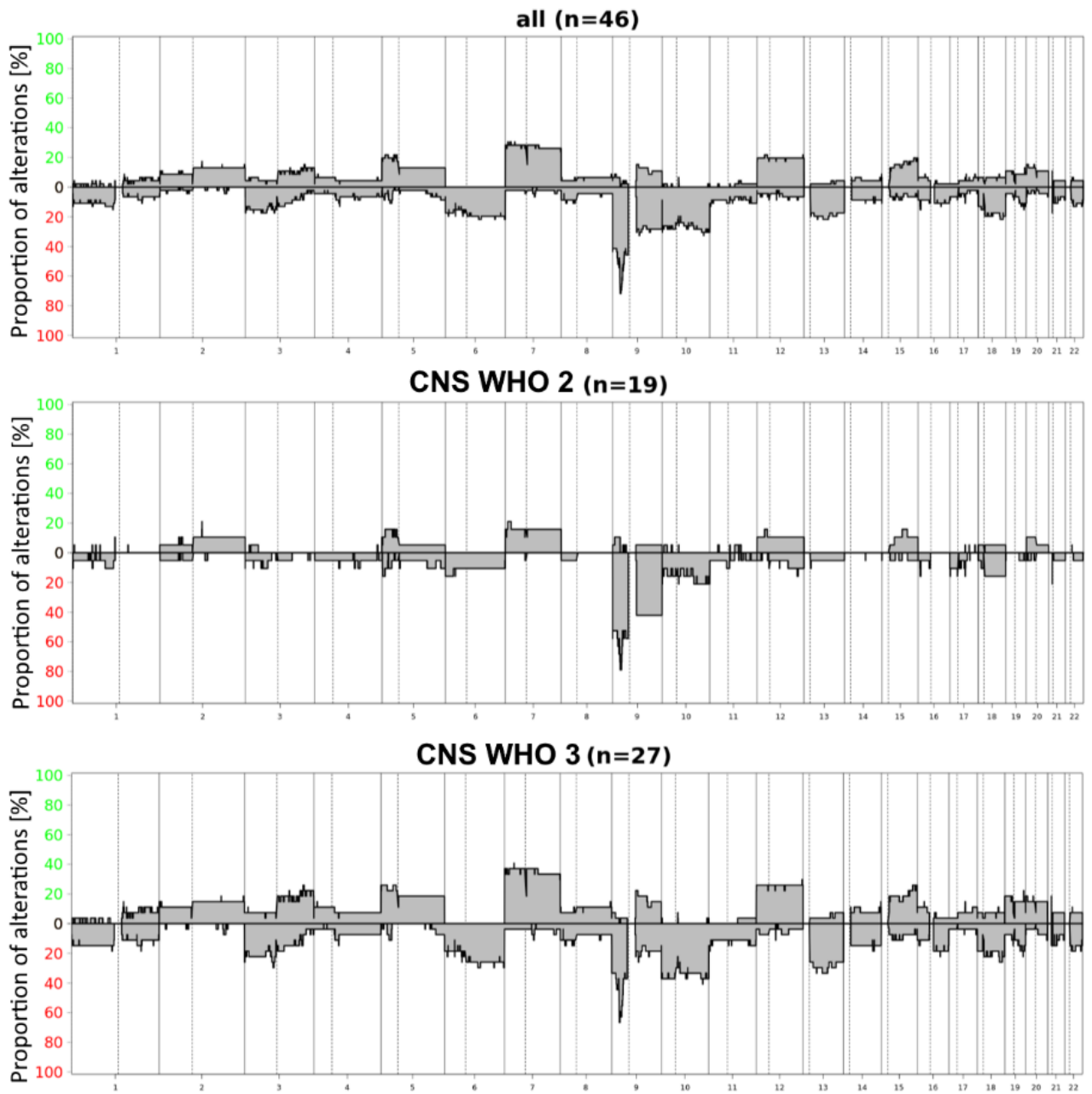
**Supplementary figure 1** Histological features observed in pleomorphic xanthoastrocytomas, **(a)** classical giant pleomorphic cells with multiple nuclei and prominent nucleolus, **(b)** extensive perivascular inflammatory infiltrates, **(c)** endothelial proliferations, **(d)** extensive myxoid matrix, **(e)** pseudopalisading necrosis, **(f)** pseudopapillary growth pattern, **(g)** biphasic pattern with spindle cell component and giant pleomorphic cell component, **(h)** extensive calcification, **(i)** small round blue cell morphology, **(j)** a thrombosed vessel; all depicted tumors had a maximum calibrated score above 0.9 for mcPXA



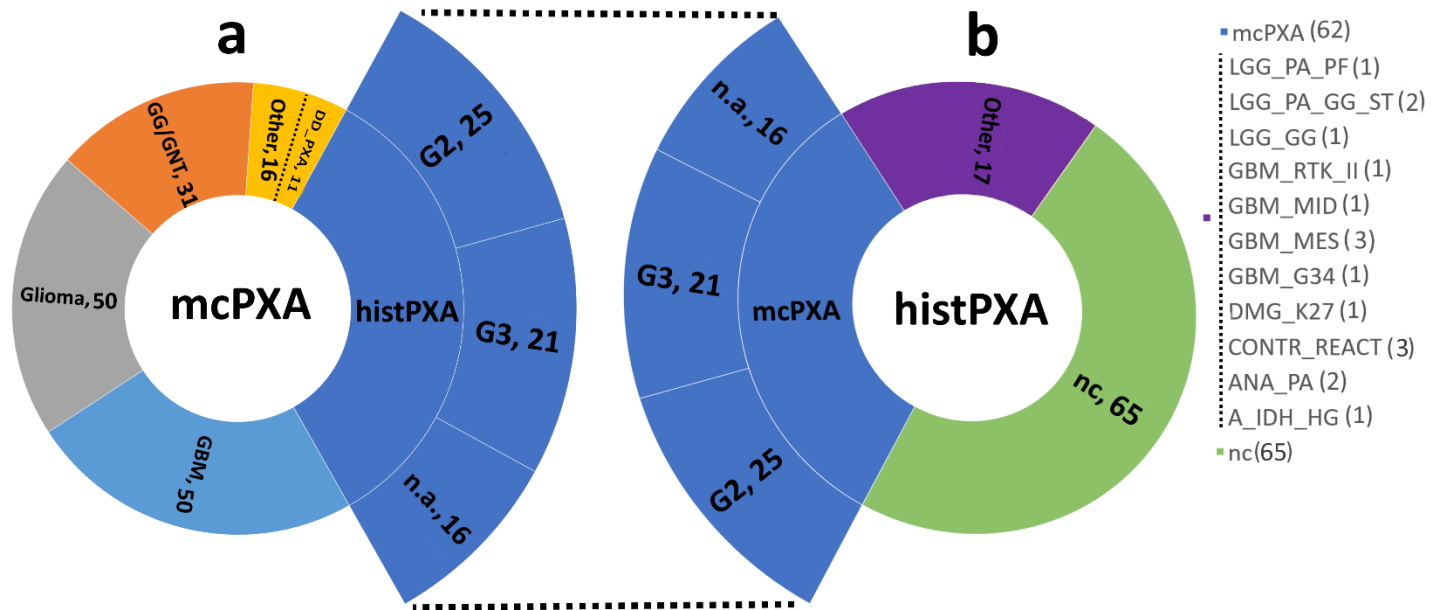
**Supplementary figure 2** Overall survival (Kaplan-Meier curve) of patients in cohort mcPXA stratified after initial histological diagnosis (a) and BRAF V600E status (b)



**Supplementary figure 3** Typical copy number profile of mcPXA (upper panel) compared to that of mcGBM (lower panel)



**Supplementary figure 4** Copy number summary of cohort mcPXA altogether and stratified after CNS WHO grade



**Supplementary figure 5:** The composition of cohorts histPXA and mcPXA, (a) 220 mcPXA cases with their histological composition, (b) 144 histPXA cases with their DNA methylation class assignments (v11b4)