**List of Supporting Information**

**Supplementary Figure.** 1A Multivariate analysis for GBM clinical factors in resection group. COX regression result showed that the factors of age at diagnosis, tumor location, tumor size, resection range, radiotherapy and chemotherapy or not were prognostic risk factors for GBM in the resection group and the factor of age at diagnosis contributed the most to the COX regression model, HR= 2.580 (95% CI 2.256-2.951). 1B Nomogram for predicting the 1-, 2-, and 3-year overall survival in resection group.

**Supplementary Figure. 2** The best cutoff of TAFs for prognosis. The cutoff was 6.32.

**Supplementary Figure. 3**A-G The best cutoff of DEGs for prognosis. The cutoff of CBR1, EFEMP2, EMP3, LGALS3, PDGFA, TIMP1 and STEAP3 were 7.15,6.17,6.61,9.51,5.94,9.75 and 5.89, respectively.

**Supplementary Figure. 4** The best cutoff of EMTs for prognosis. The cutoff was 0.5.

**Supplementary table 1** Proportions of sex and lobes in different age groups.

**Supplementary table 2** Differentially expressed genes.