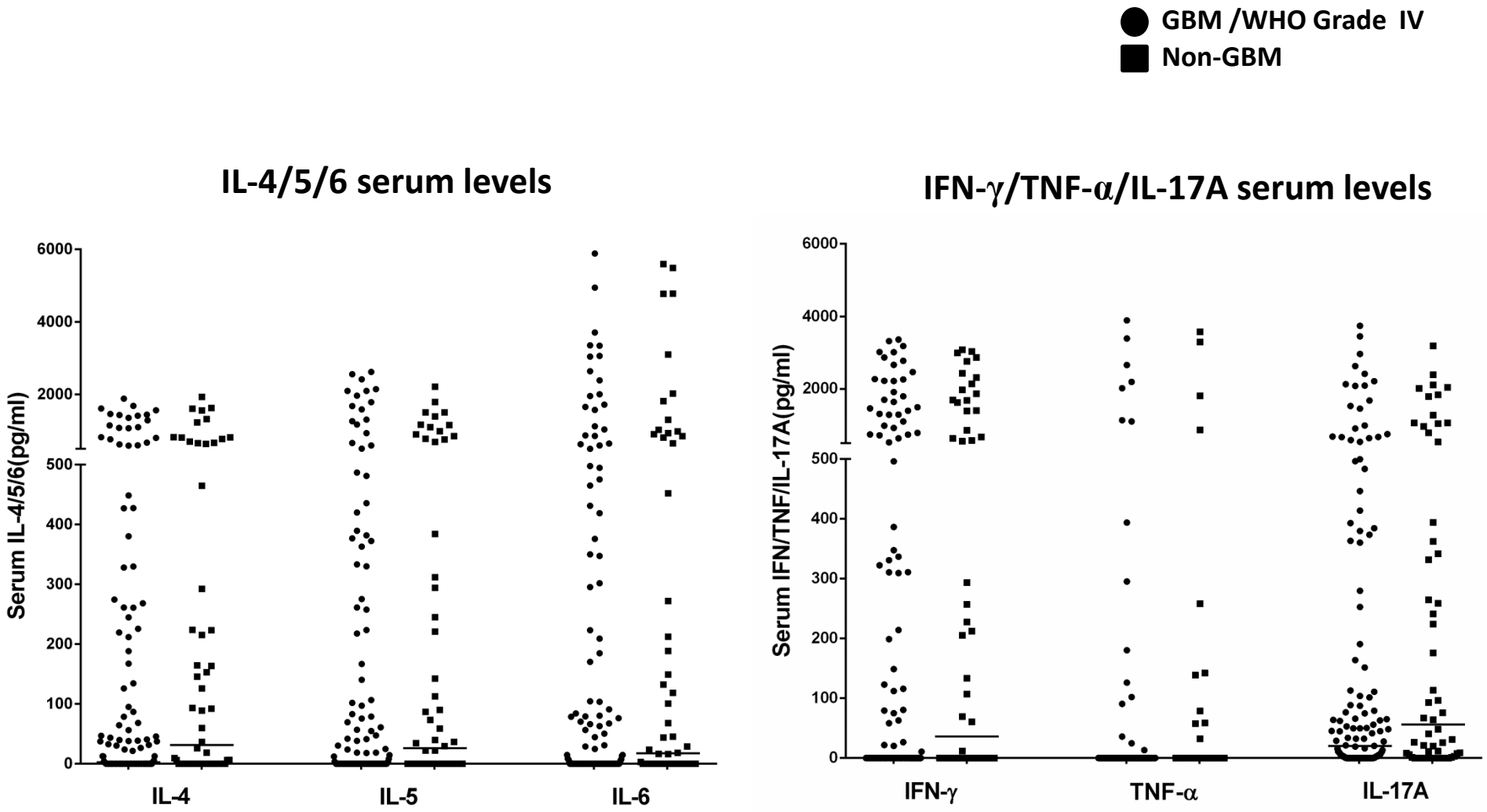
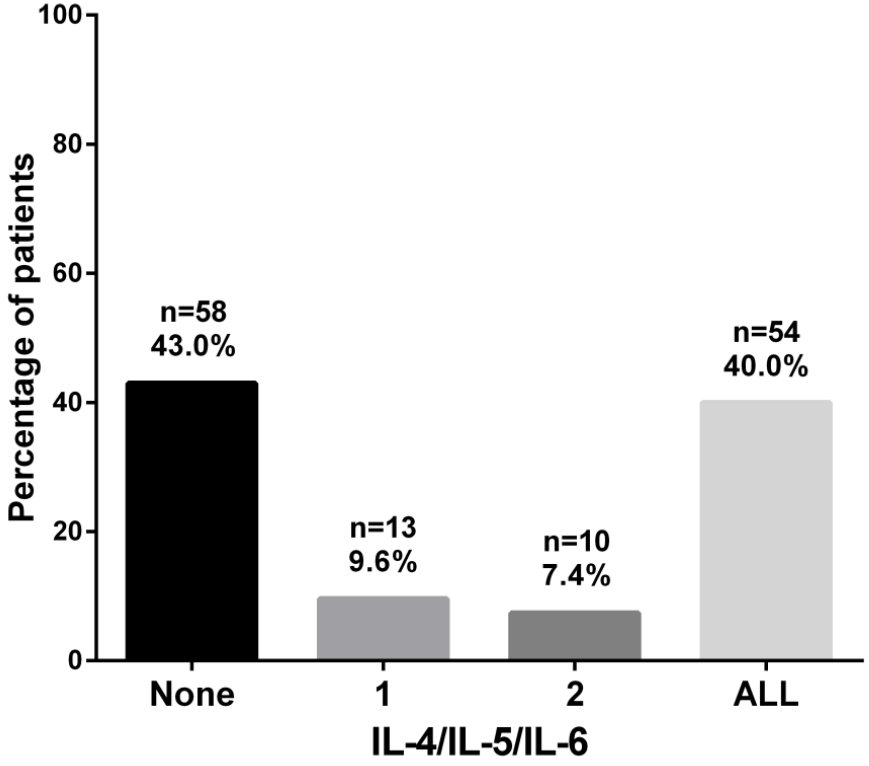
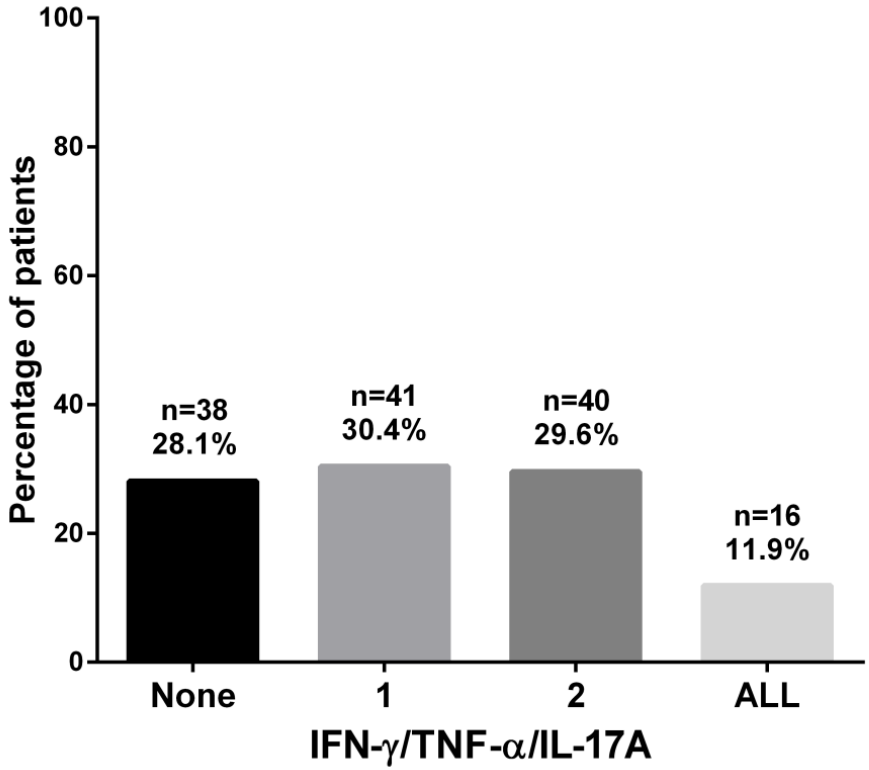
Supplementary Figure S1



Supplementary Figure S1. Anti-inflammatory/pleiotropic as well as pro-inflammatory/Th1 cytokine levels in sera of patients with malignant glioma. Serum levels of IL-4, IL-5, IL-6, IFN-γ, TNF-α and IL-17A were measured by sandwich ELISA, and individual concentrations of cytokine levels (pg/ml) among patients with GBM vs non-GBM are shown. As depicted in the figure, the medians between the two patient groups across all the cytokines tested did not differ significantly, although there appears to be a trend toward meagerly higher levels among patients with non-GBM malignant glioma (except for TNF-α).

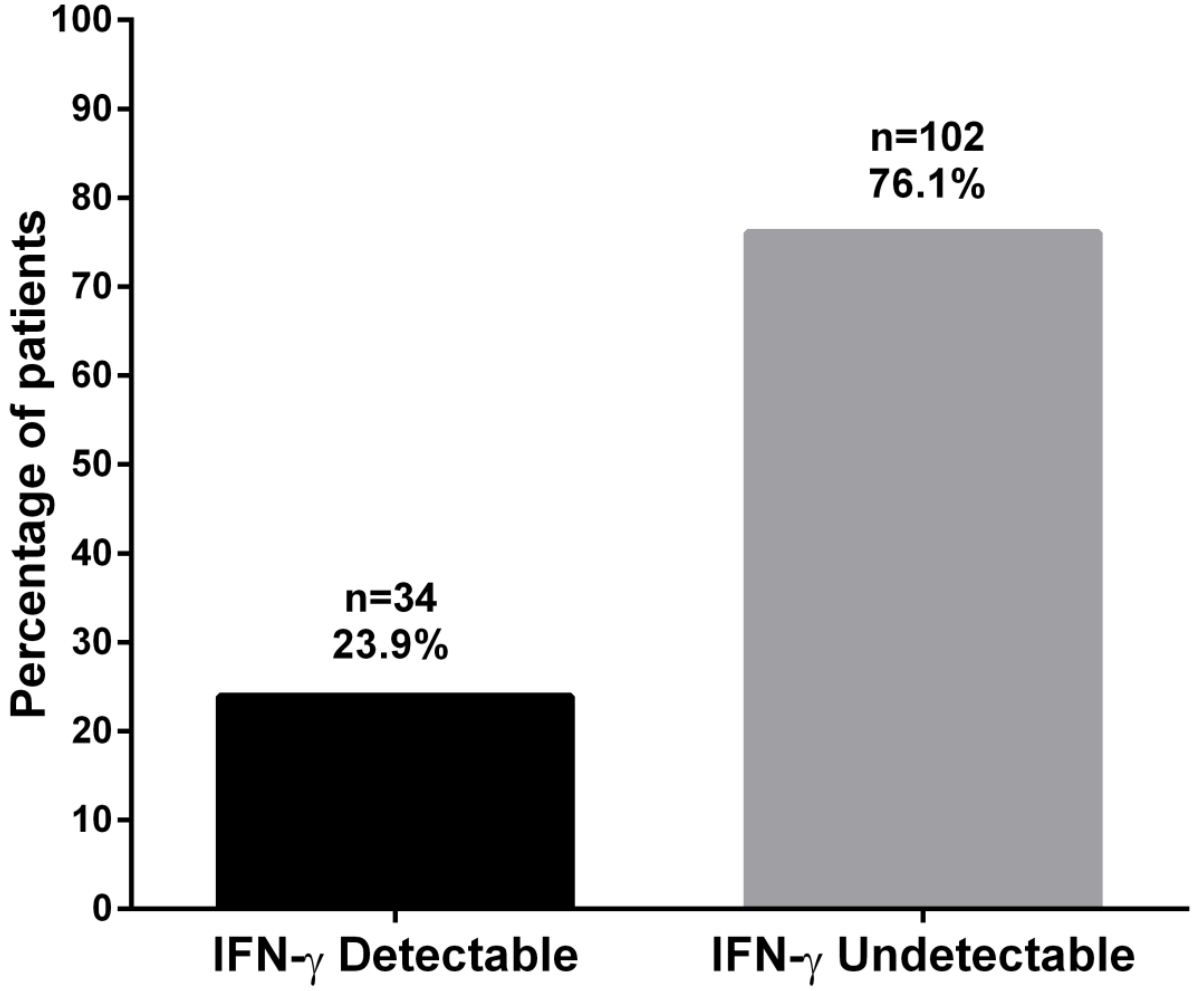
Supplementary Figure S2





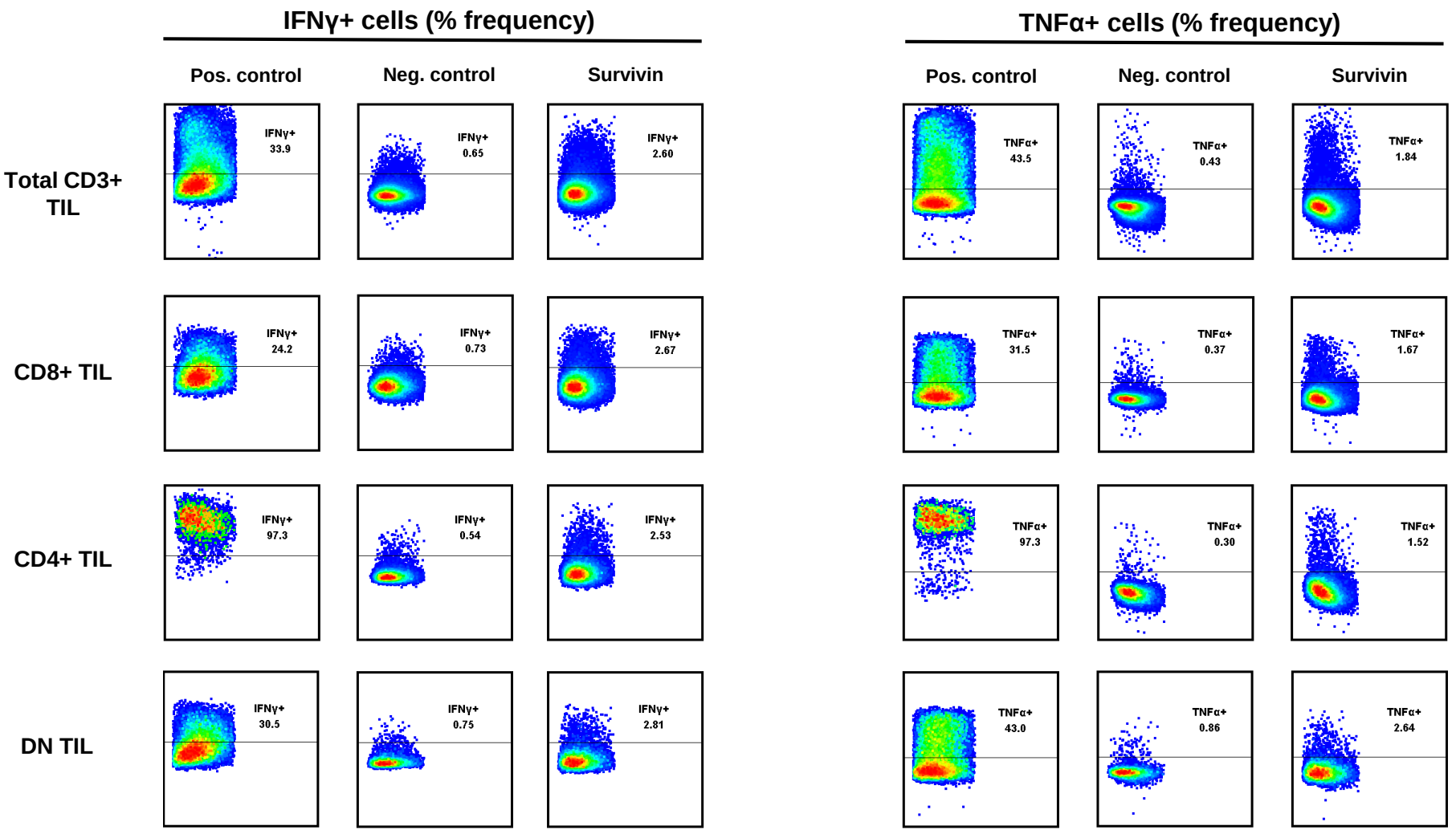
Supplementary Figure S2. Serum cytokine profiles in patients with GBM. Based on the actual concentration of cytokines measured by ELISA, patients were categorized for the survival analysis based on the detection of none, one, two or three cytokines (belonging to the ‘anti-inflammatory/pleiotropic’ or ‘pro-inflammatory/Th1’ grouping system) in serum. The number of patients ascribed to each category as well as the relative proportion to the total number of patients with GBM (%) is shown. Left panel, IL-4/IL-5IL-6; right panel, IFN-γ/TNF-α/IL-17A.

Supplementary Figure S3



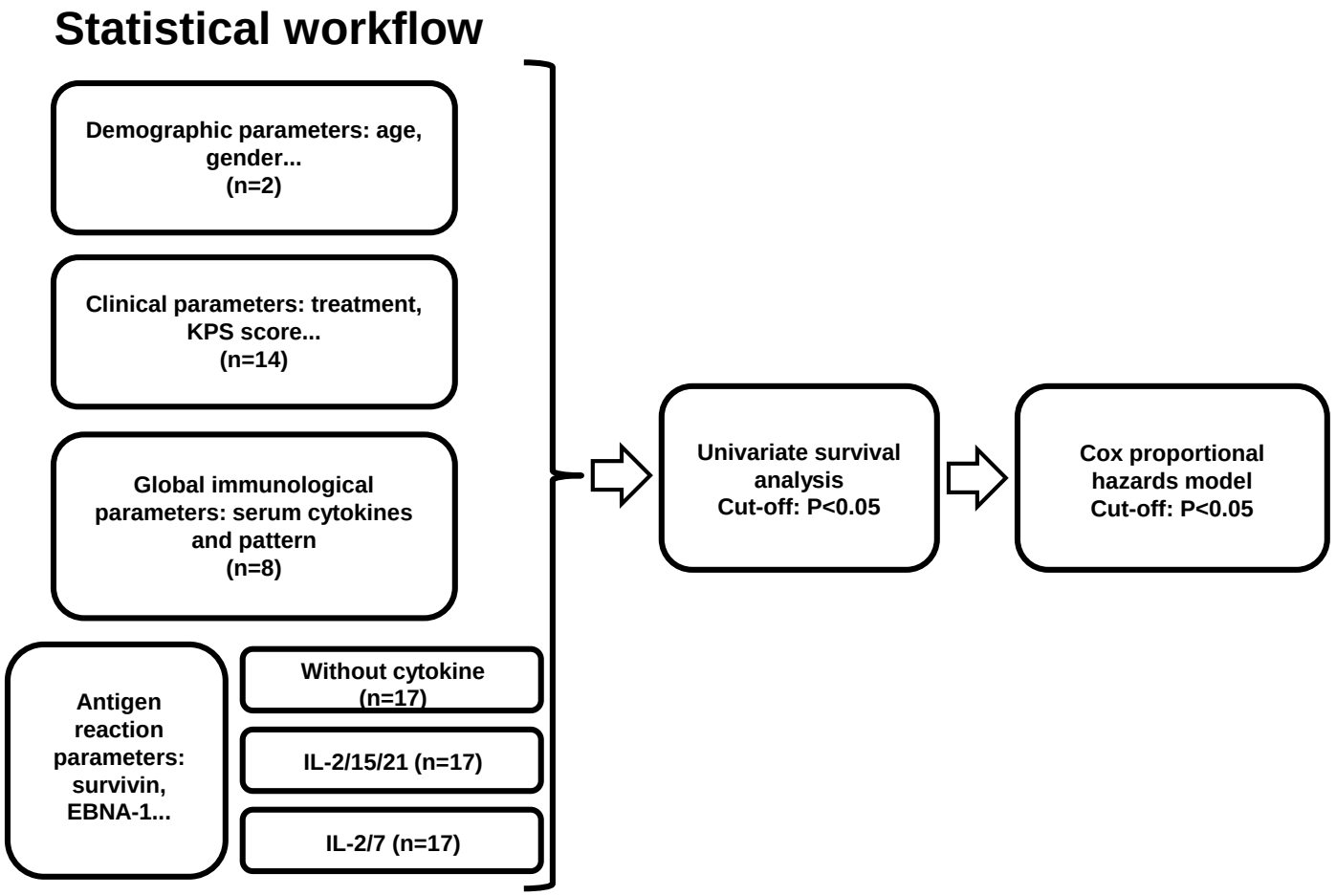
Supplementary Figure S3. Immune-reactivity in blood of patients with GBM to survivin$_{97\text{-}111}$ peptide (TLGEFLKLDRERAKN). Specific IFN-γ responses to survivin$_{97\text{-}111}$ peptide was tested with blood samples from 134 patients with GBM using the same WBA method described in this study. 23.9% of patients with GBM (n=32) showed positive reactivity to the survivin$_{97\text{-}111}$ peptide, defined by detectable IFN-γ production in WBA supernatants, while the remaining 76.1% of patients (n=102) did not have a measurable IFN-γ response.

Supplementary Figure S4



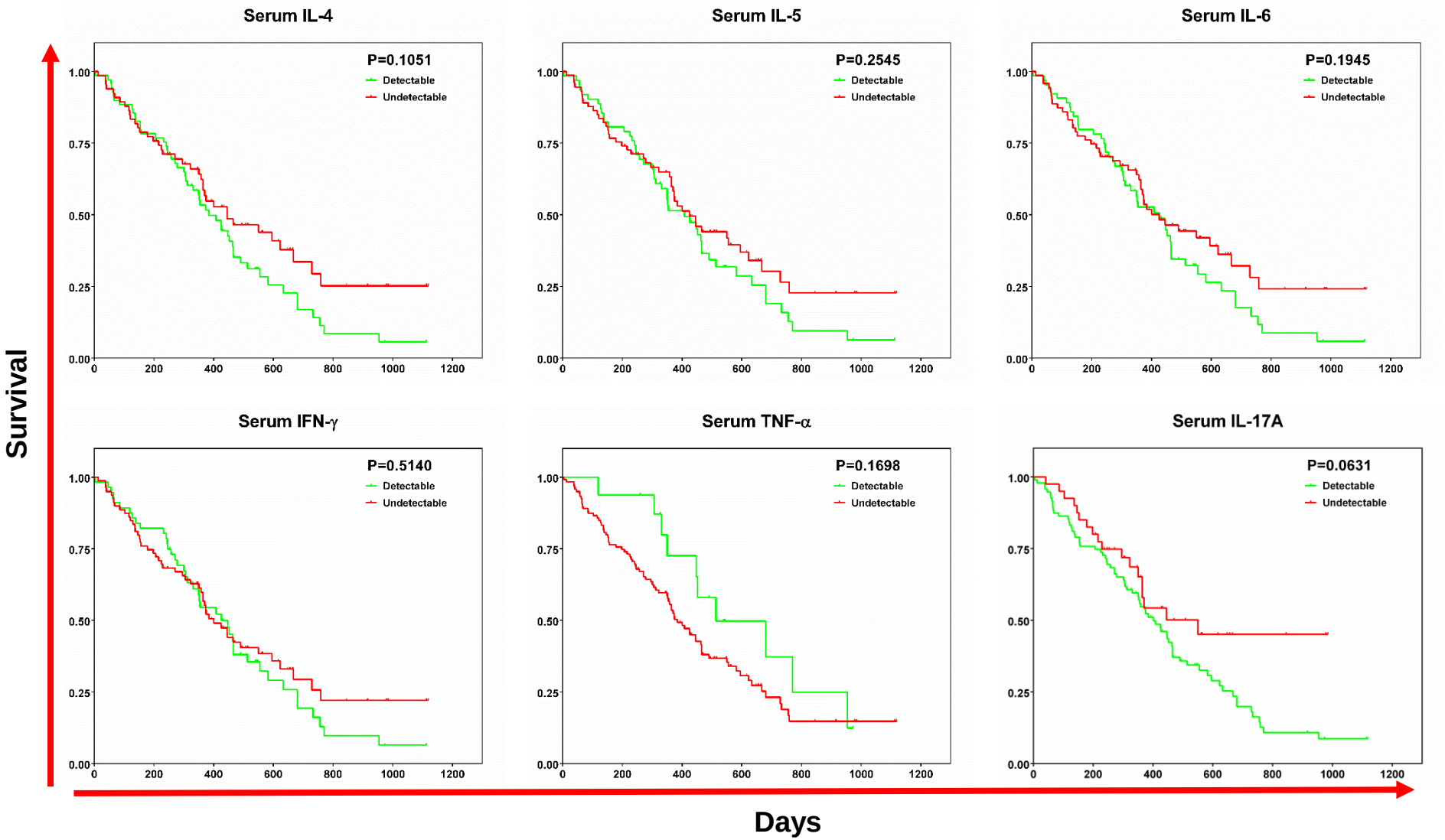
Supplementary Figure S4. Immune-reactivity of glioma TIL (tumor-infiltrating lymphocytes) to survivin. TIL were expanded as reported earlier (ref. 40) using IL-2, IL-15 and IL-21 and tested directed against the survivin peptide mix in a standard 6h intracellular cytokine release assay (ICS). Addition of medium or PMA, served as the respective negative or positive control. TIL were first gated on CD3+ T-cells, then sequentially on CD3+CD4+, CD3+CD8+ and on CD3+CD4-CD8- (double, negative, DN) T-cells. The latter cell population represents strong activated T-cells that downregulated CD4+ or CD8+. Percentages are shown for IFN-γ and TNF-α producing cells in the parental T-cell population. Survivin-specific IFN-γ and TNF-α production in CD4+, CD8+, as well as in DN (double negative, i.e. CD3-CD4-CD8-) TIL.

Supplementary Figure S5



Supplementary Figure S5. Statistical workflow of the univariate and multivariate analyses steps. Flow diagram showing how the parameters for the univariate and multivariate (Cox proportional hazards model) analyses were selected and included.

Supplementary Figure S6



Correlation between Serum cytokines

	IL-4	IL-5	IL-6
IL-4	--		
IL-5	0.7832*	--	
IL-6	0.8104*	0.8160*	--

	IFN-γ	TNF-α	IL-17A
IFN-γ	--		
TNF-α	0.5523*	--	
IL-17A	0.9161*	0.5049*	--

Supplementary Figure S6. **Serum levels of individual cytokines and their effect on the survival pattern of patients with GBM based on univariate analysis.** Cytokine levels (IL-4, IL-5, IL-6, IFN-γ, TNF-α and IL-17A) were measured using a sandwich ELISA in the sera of patients with glioma (GBM and non-GBM) and expressed in pg/ml. Kaplan-Meier survival analyses show the individual effect of serum cytokines on the survival pattern of patients with GBM up to 1200 days post-surgery, based on whether the cytokines were detected (identical approach to Figure 2 in the main manuscript). The interaction between individual cytokines was also ascertained using Spearman's correlation. None of the individual cytokines tested affected patient survival.