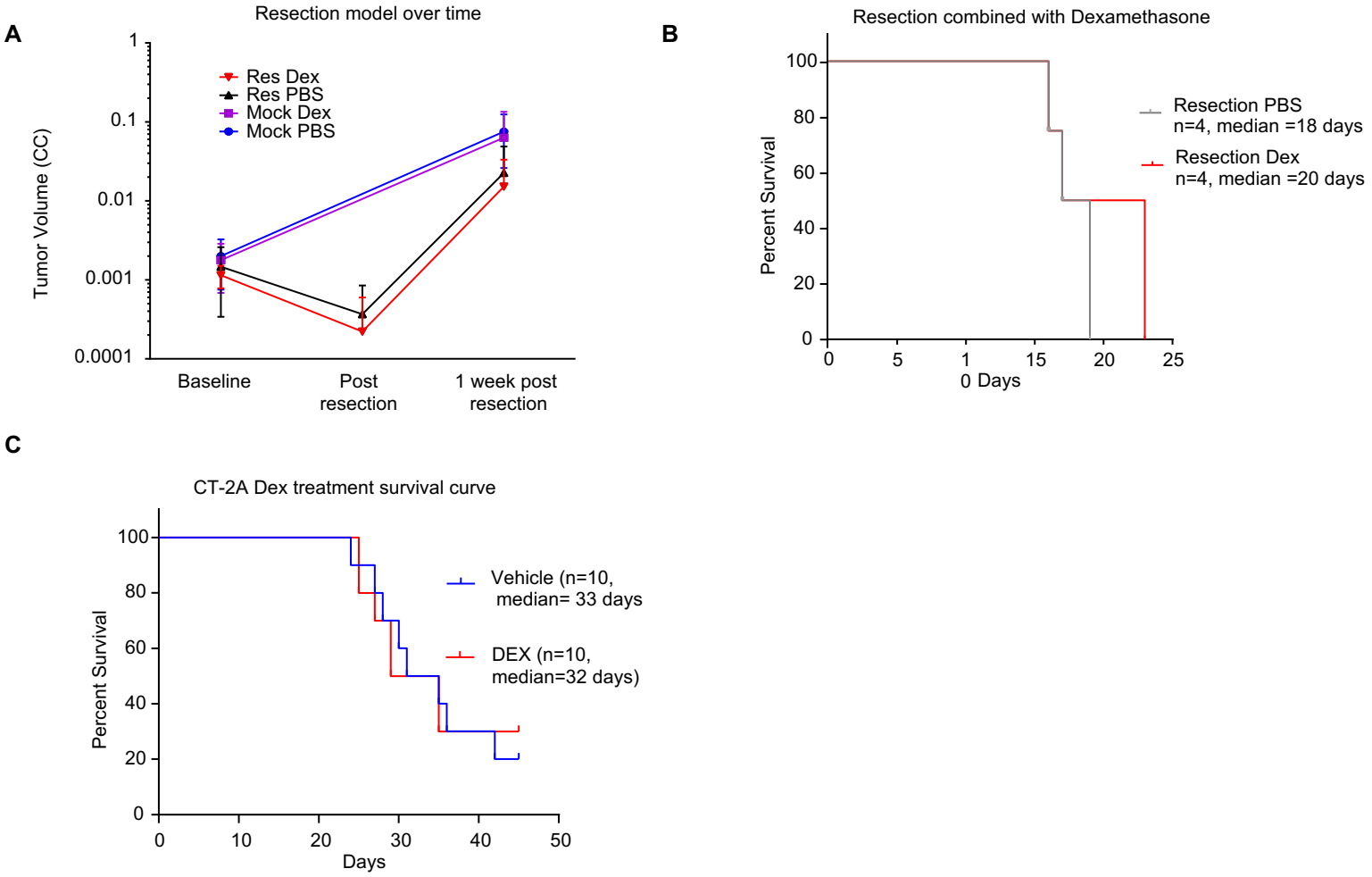
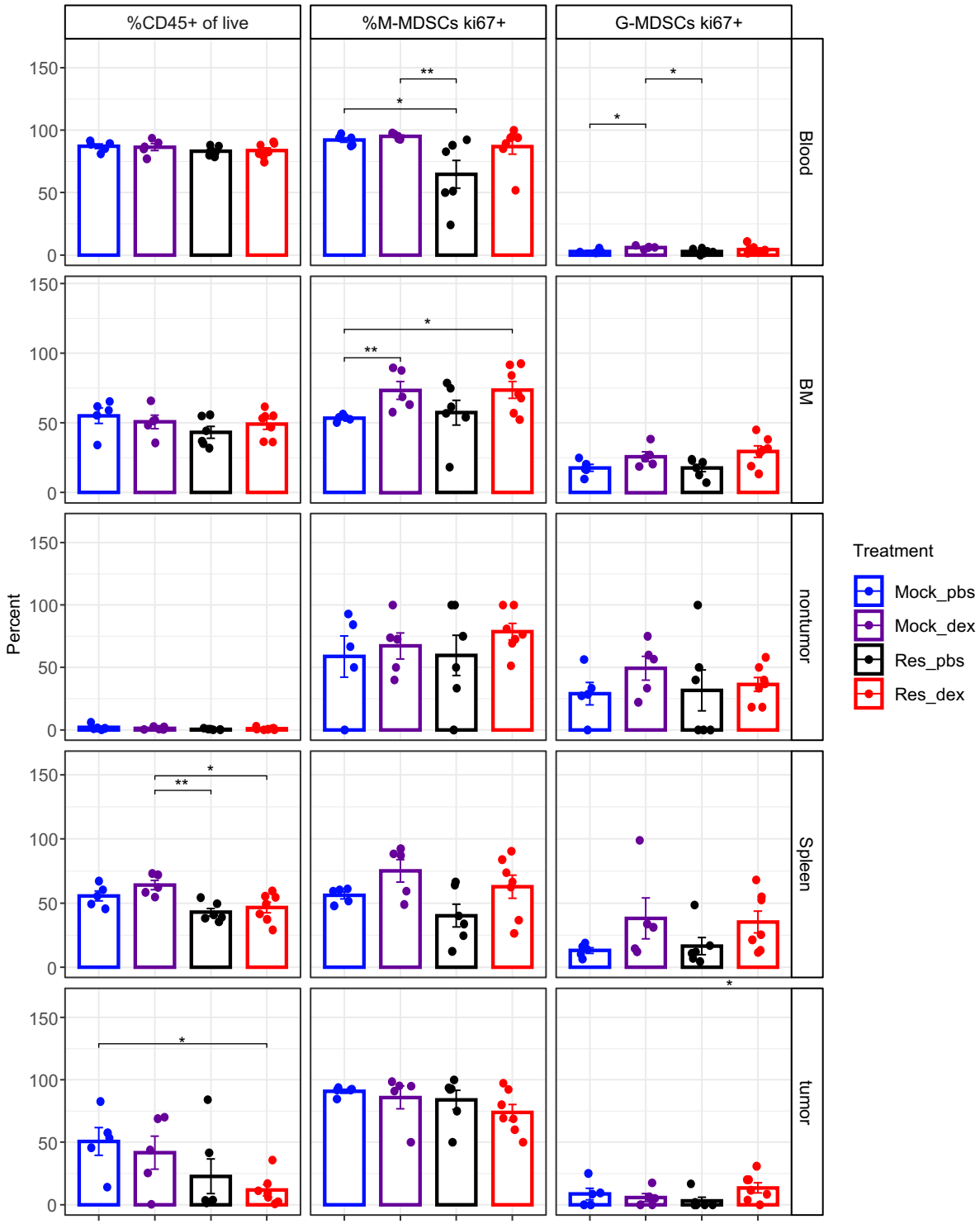
Supplemental Figure 1




**Supplemental Figure 1** - Mouse model of resection (n=7 per group) comparing the tumor volumes at baseline, post-resection, and 1-week post-resection. Note that the mock resected mice from this cohort did not receive back-to-back MRI on the same day as was performed for the resection cohort (**A**). Survival analysis of resection PBS- vs resection dexamethasone-treated animals (n=4 per group) (**B**). CT-2A-bearing vehicle- and dexamethasone-treated mice without surgical resection (n=10 mice per group) demonstrated no difference in survival, with median survival values of 33 and 32 days, respectively (**C**). Survival curve analysis was performed in GraphPad Prism using log-rank tests to obtain p values.

**Supplemental Figure 2**

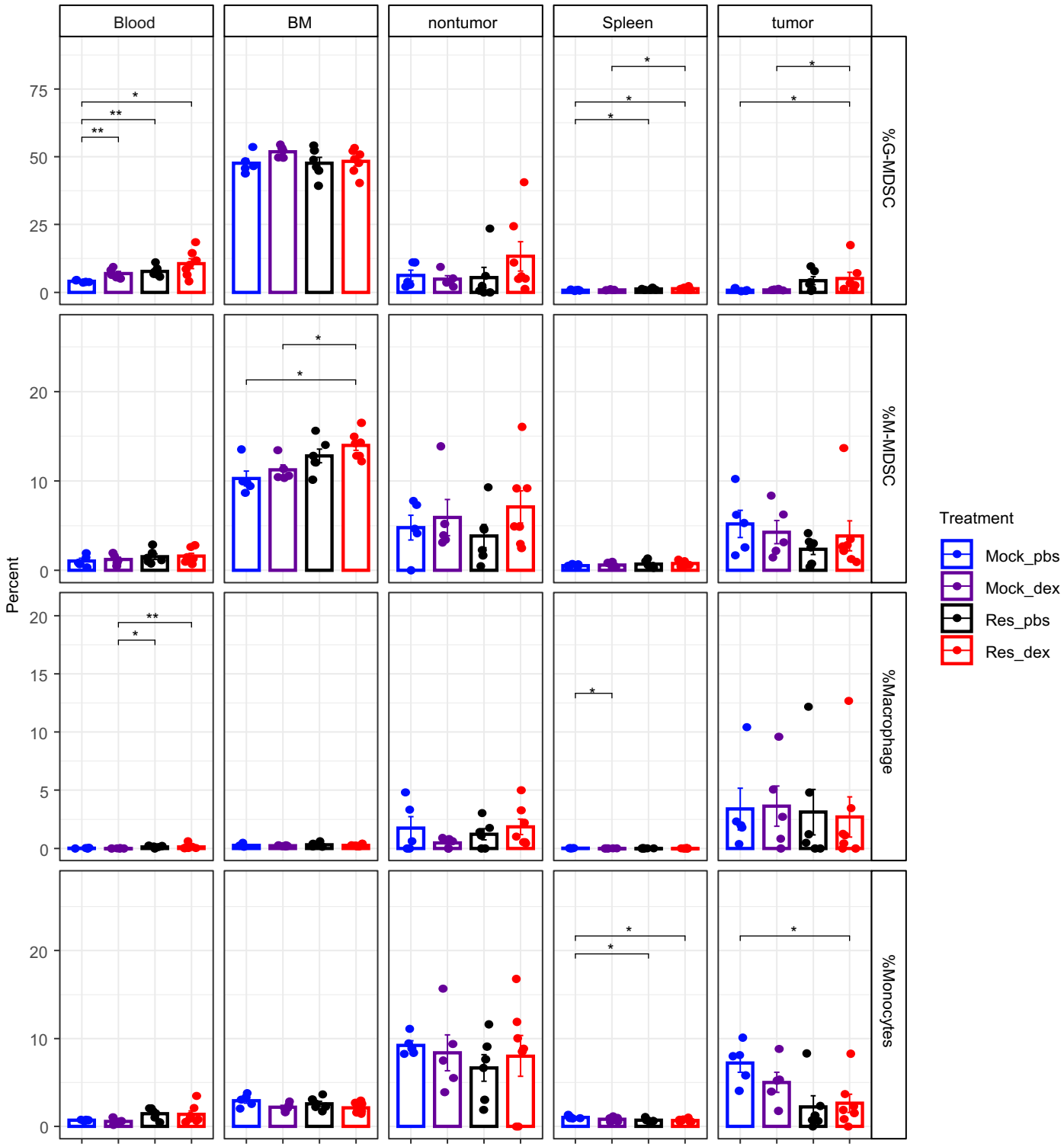
GL261 Resection Model from Figure 4 including blood, bone marrow Nontumor, tumor and spleen Myeloid Panel




**Supplemental Figure 2** - GL261-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone, were evaluated via flow cytometry for % CD45+ cells of live cells, % Ki67+ M-MDSCs, and % Ki67+ G-MDSCs in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Student's two-tailed t-tests were used to perform the comparisons; *p<0.05, **p<0.01, ***p<0.001.

**Supplemental Figure 3**

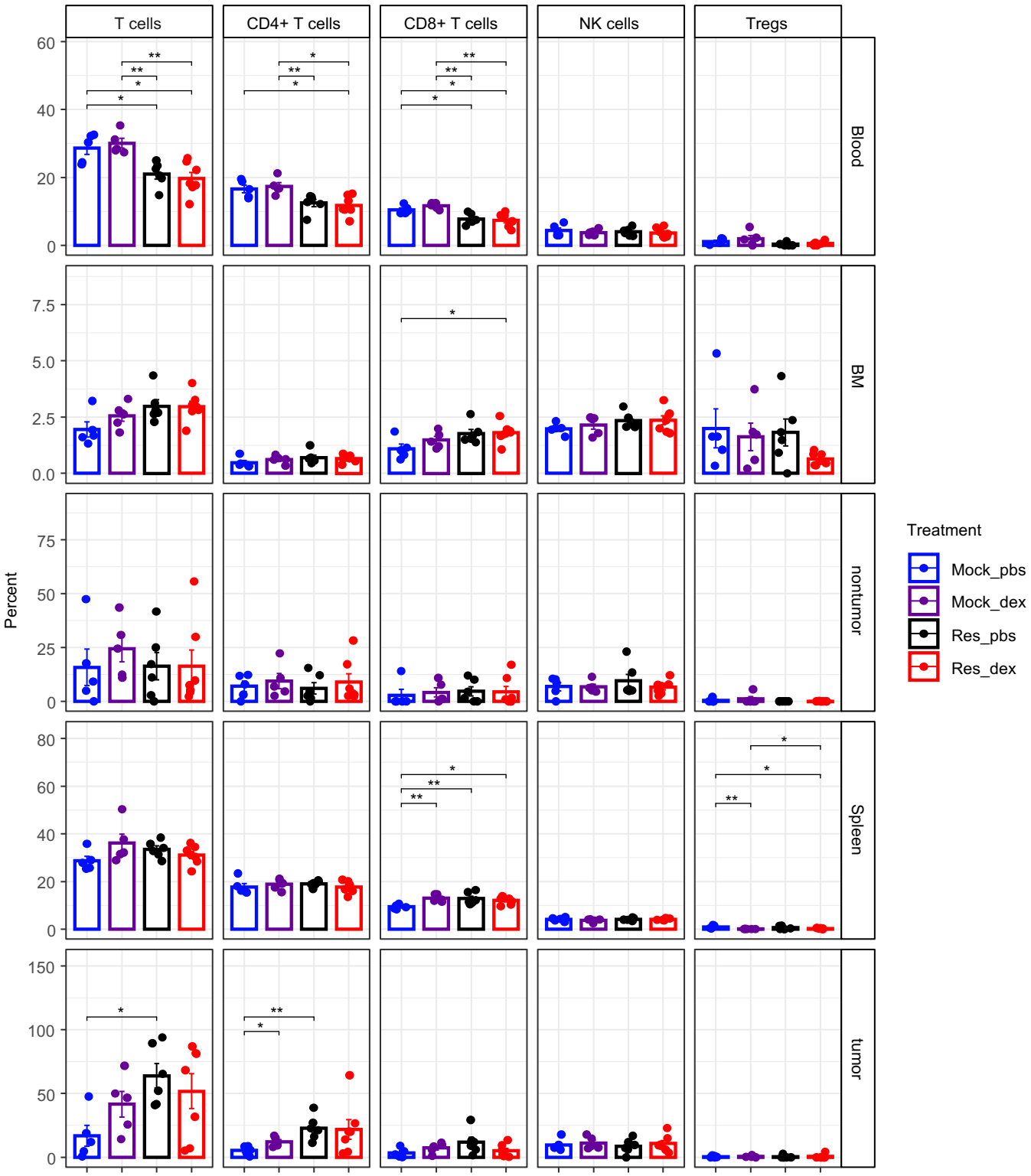
GL261 Resection Model from Figure 4 including blood, bone marrow Nontumor, tumor and spleen Myeloid Panel




**Supplemental Figure 3** - GL261-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone were evaluated via flow cytometry for G-MDSCs, M-MDSCs, macrophages, and monocytes in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Note: Blood and bone marrow G-MDSCs and M-MDSCs are shown in Figure 2C, D but are also shown globally with other organs for comparisons. T-tests were used to compare groups; *p<0.05, **p<0.01, ***p<0.001.

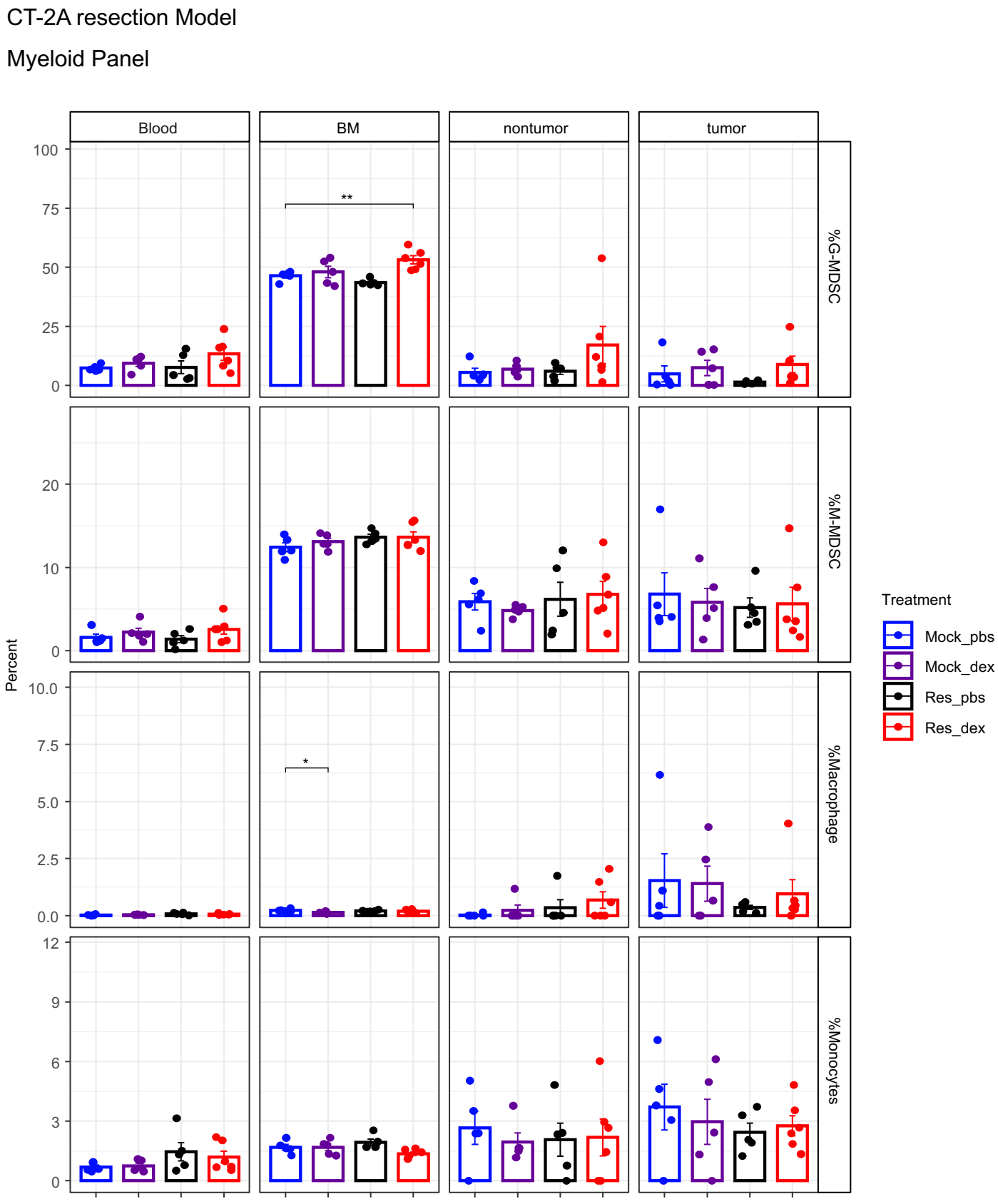
**Supplemental Figure 4**

GL261 Resection Model from Figure 4 including blood, bone marrow Nontumor, tumor and spleen Lymphoid Panel




**Supplemental Figure 4 -** GL261-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone, were evaluated via flow cytometry for T cells, CD4+ T cells, CD8+ T cells, NK cells, and T-regulatory cells in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Note: Blood and bone marrow T cell populations are shown in Figure 2E, F but are shown globally with other organs here for comparison. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

**Supplemental Figure 5**

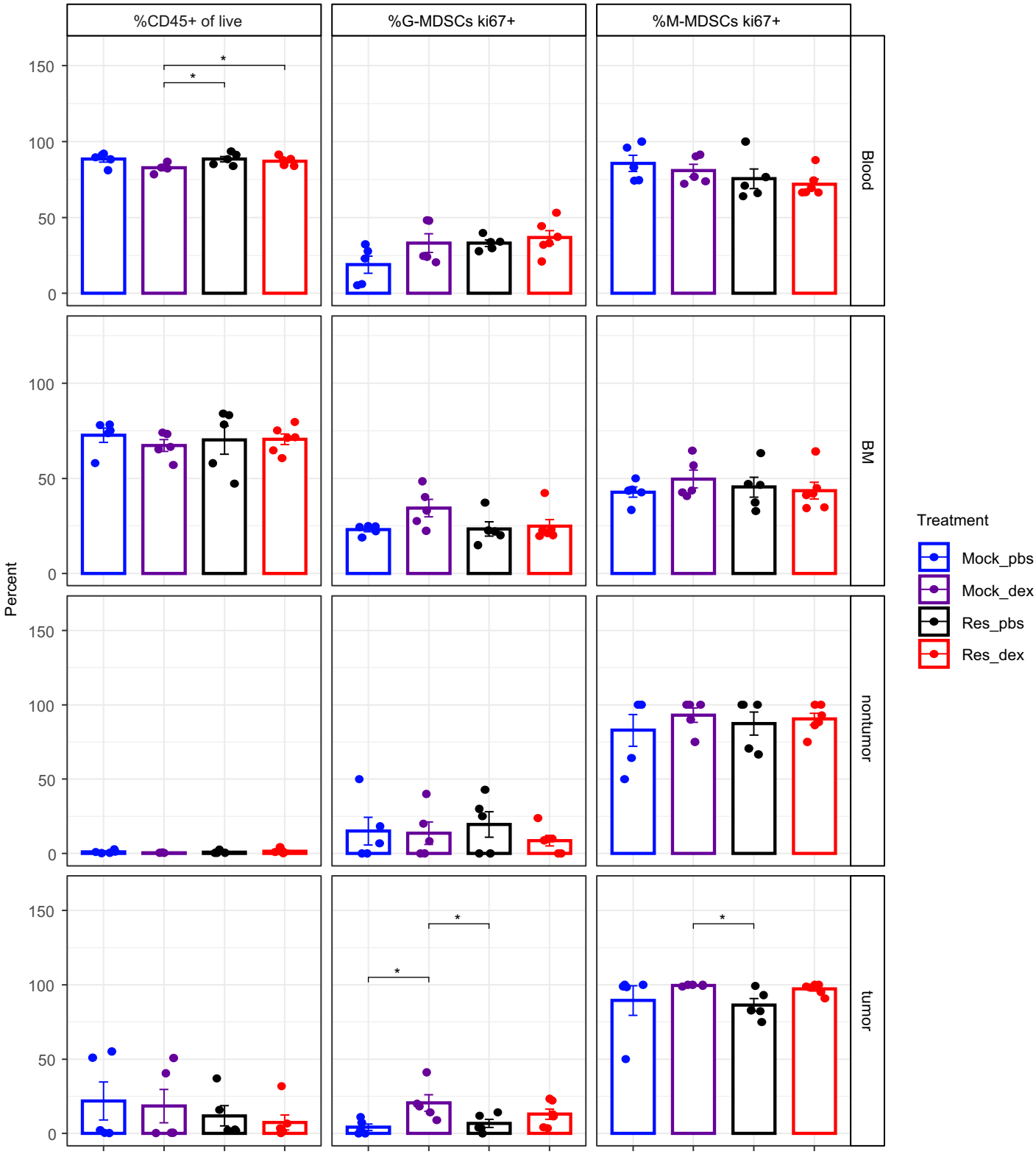



**Supplemental Figure 5** - CT-2A-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone, were evaluated via flow cytometry for G-MDSCs, M-MDSCs, macrophages, and monocytes in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

**Supplemental Figure 6**

CT-2A resection Model

Myeloid Panel

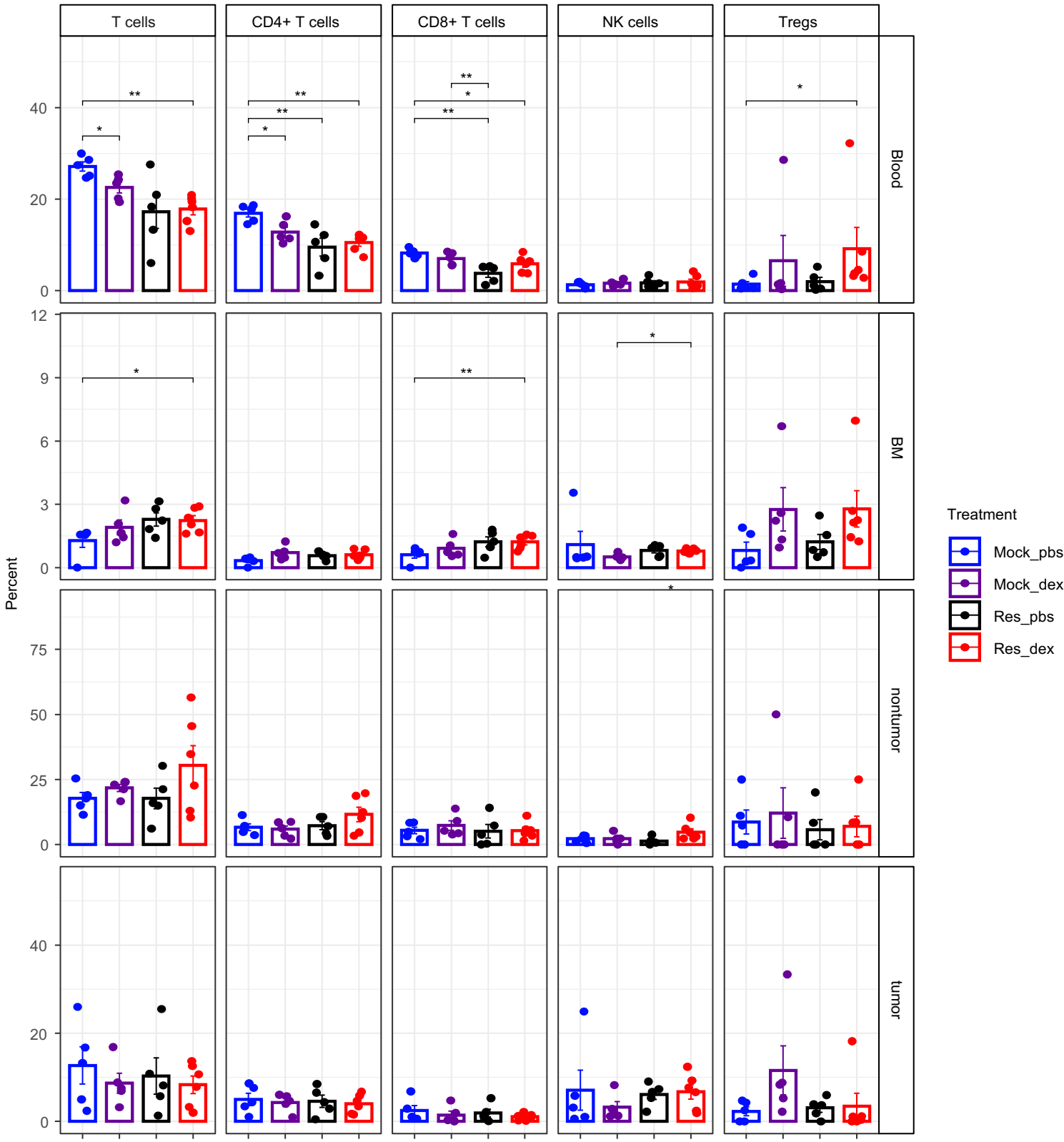



**Supplemental Figure 6** - CT-2A-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone, were evaluated via flow cytometry for % CD45+ cells of live cells, % Ki67+ M-MDSCs, and % Ki67+ G-MDSCs in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

**Supplemental Figure 7**

CT-2A resection Model

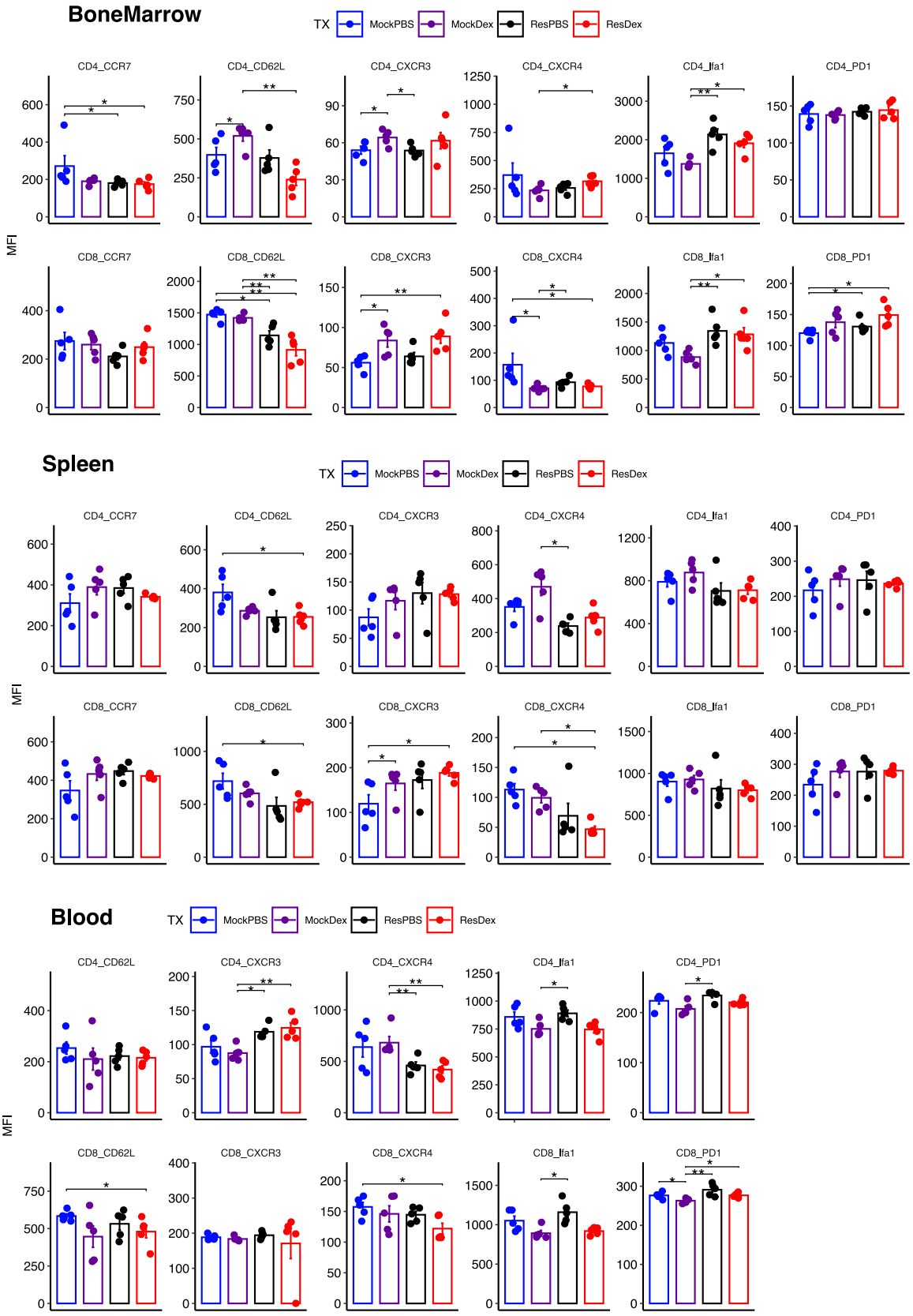
Lymphoid Panel




**Supplemental Figure 7** - CT-2A-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone, were evaluated via flow cytometry for T cells, CD4+ T cells, CD8+ T cells, NK cells, and T-regulatory cells in the blood, bone marrow, non-tumor cortex, spleen, and tumor. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

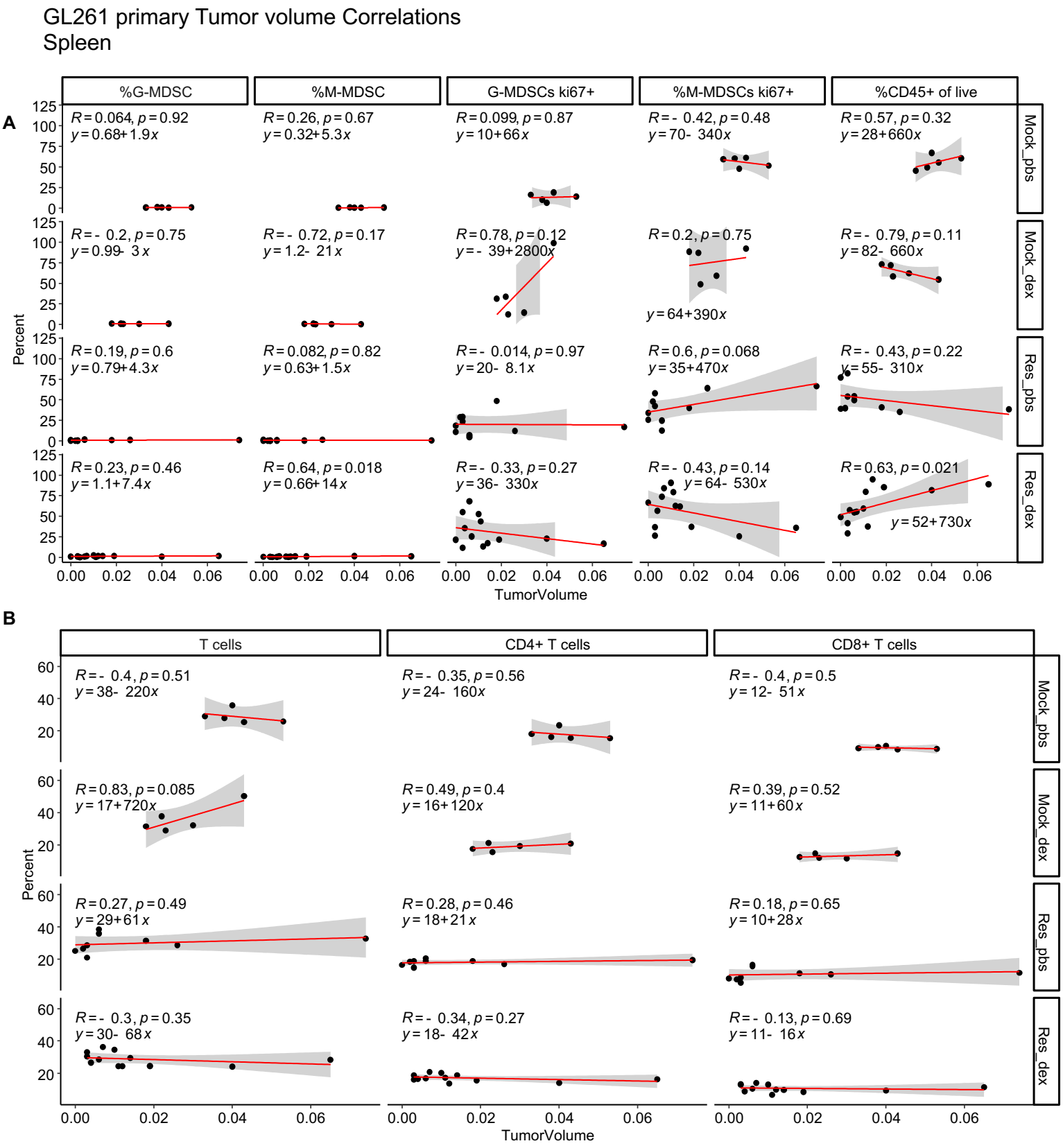
**Supplemental Figure 8**

GL261 resection model T cell Surface marker MFI levels



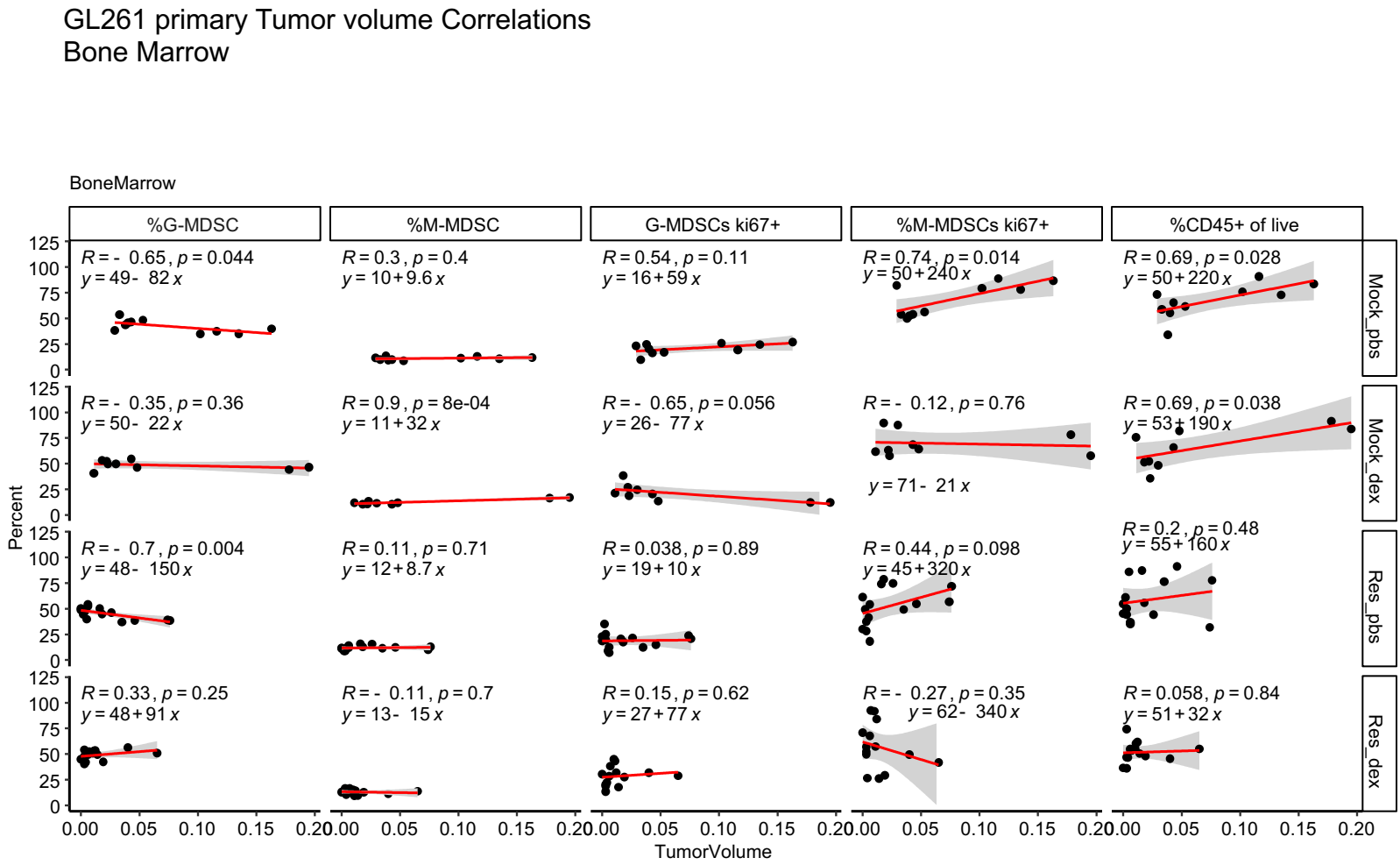

**Supplemental Figure 8** - GL261-bearing mice as described in Figure 1 and Figure 2, including the groups mock PBS, mock dexamethasone, resection PBS, and resection dexamethasone (n=5 per group), were evaluated via flow cytometry for T cells, CD4+ T cells, CD8+ T cells, and the surface markers CCR7, CD62L, CXCR3, CXCR4, LFA1, and PD1 using blood, bone marrow, and spleen. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

Supplemental Figure 9



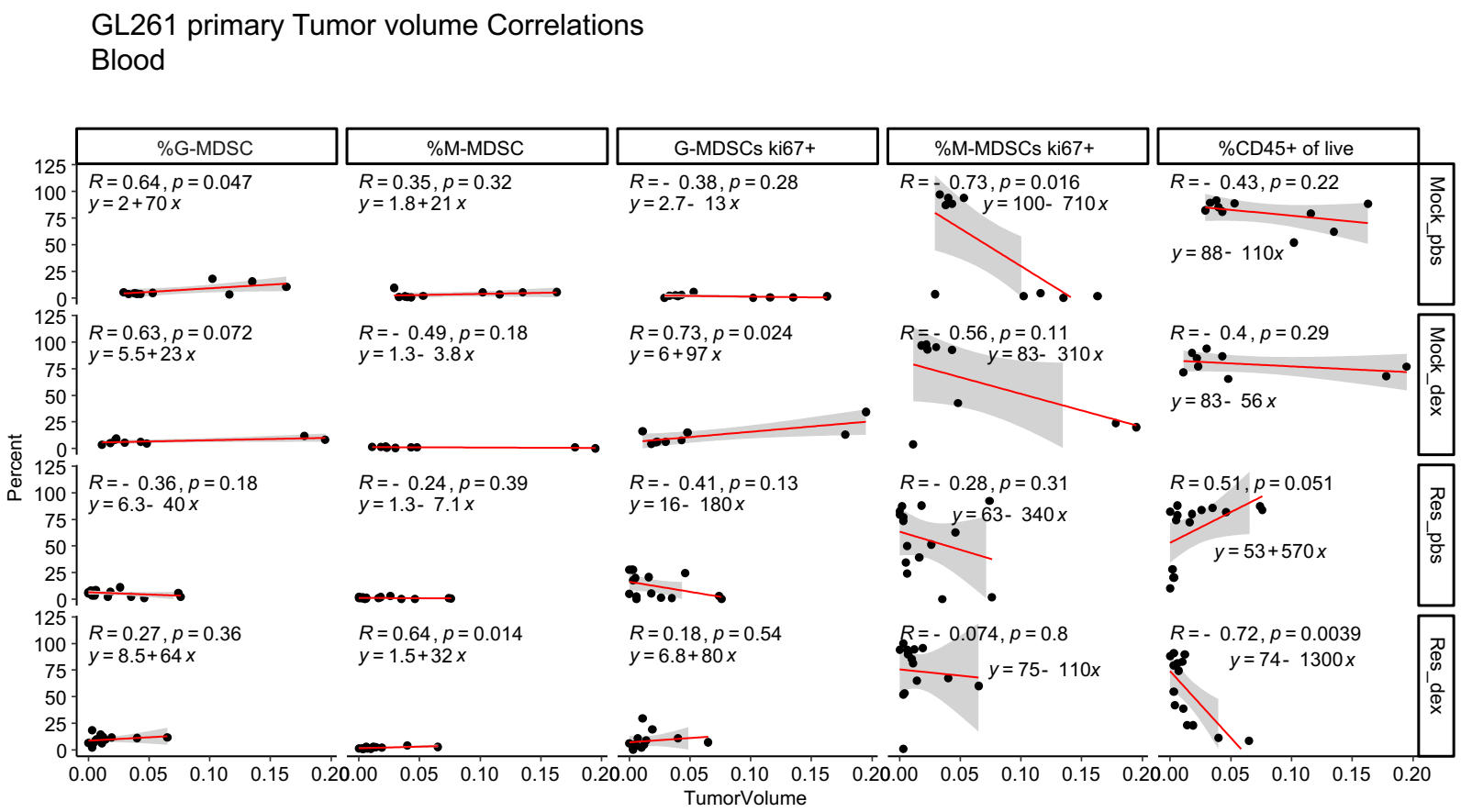

**Supplemental Figure 9** - The spleen myeloid populations and total CD45+ cells of live cells (**A**) and splenic T cell populations (**B**) are shown for n=10 mock PBS, n=9 mock dexamethasone, n=14 resection PBS, and n=13 resection dexamethasone mice. This corresponds to data included in Figure 3 showing the tumor volume correlation with splenic myeloid populations via flow cytometry. Correlation coefficients (R), p values and fitted line parameters are shown.

**Supplemental Figure 10**




**Supplemental Figure 10** - The bone marrow myeloid populations and total CD45+ cells of live cells are shown for n=10 mock PBS, n=9 mock dexamethasone, n=14 resection PBS, n=13 resection dexamethasone mice. This corresponds to data included in Figure 3 data showing the tumor volume correlation with splenic myeloid populations via flow cytometry. Correlation coefficients (R), p values and fitted line parameters are shown.

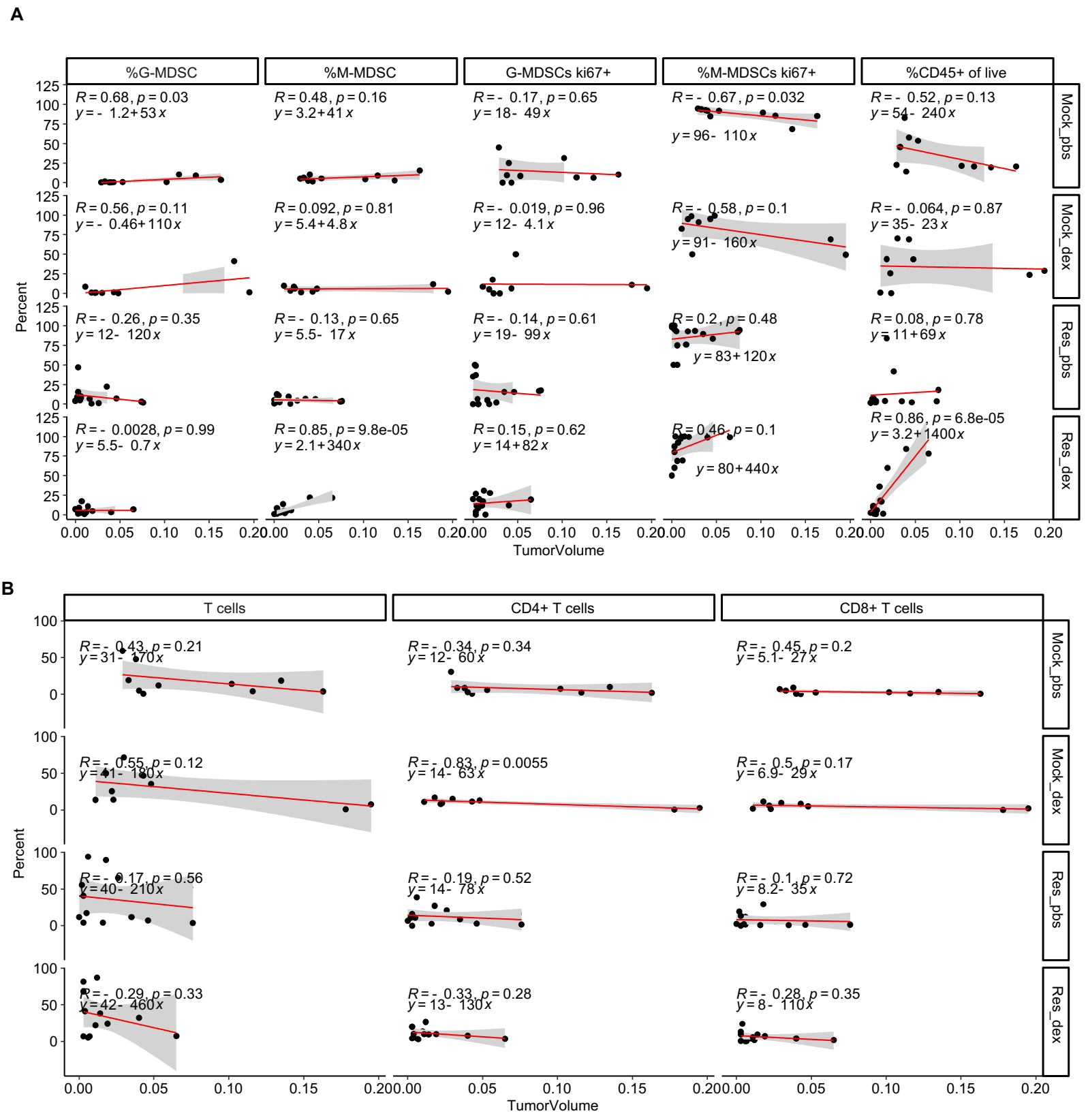
**Supplemental Figure 11**




**Supplemental Figure 11** - The blood-derived myeloid populations and total CD45+ cells of live cells are shown for n=10 mock PBS, n=9 mock dexamethasone, n=14 resection PBS, n=13 resection dexamethasone mice. This corresponds to data included in Figure 3 data showing the tumor volume correlation with splenic myeloid populations via flow cytometry. Correlation coefficients (R), p values and fitted line parameters are shown.

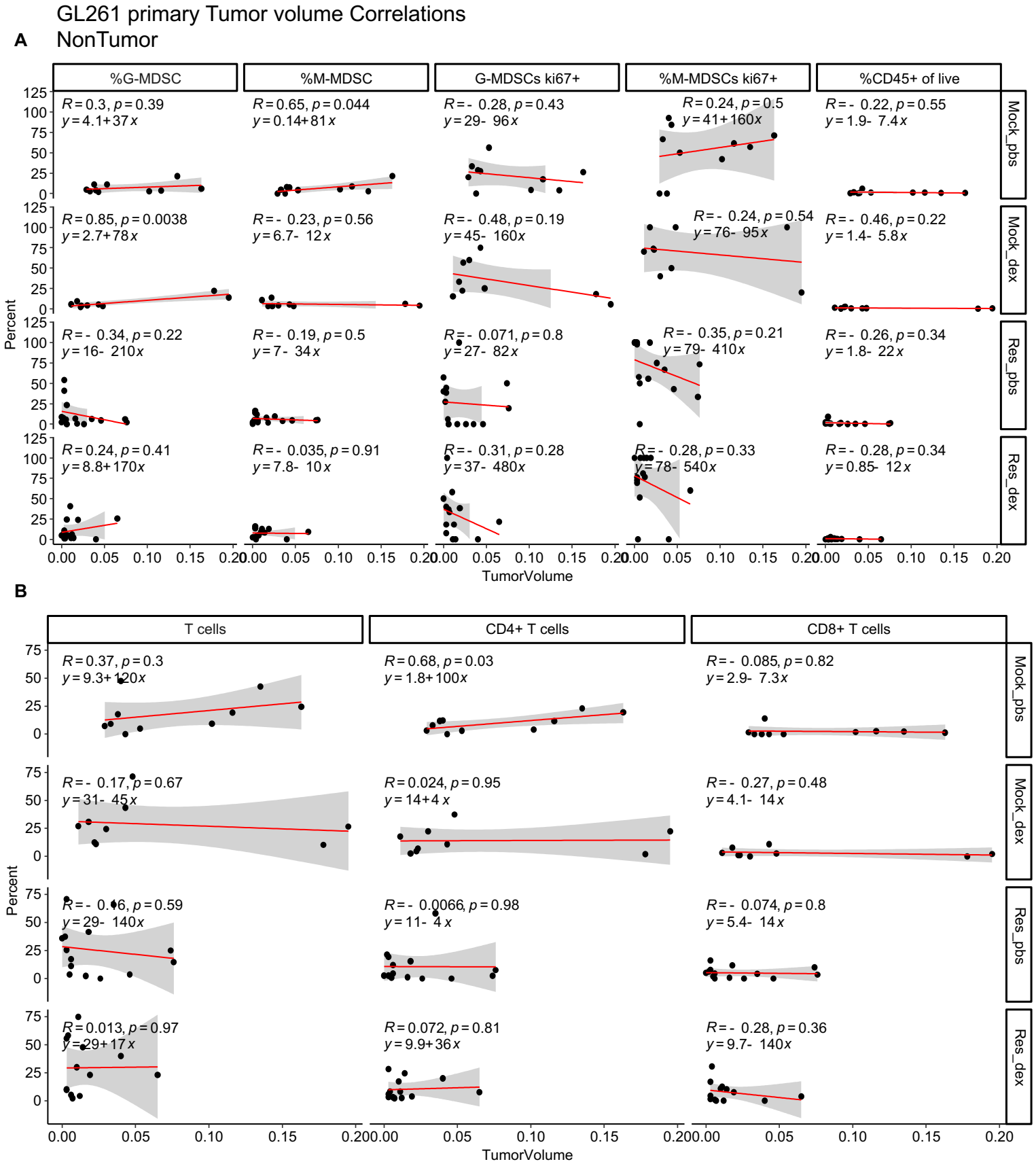
**Supplemental Figure 12**

GL261 primary Tumor volume Correlations
Tumor



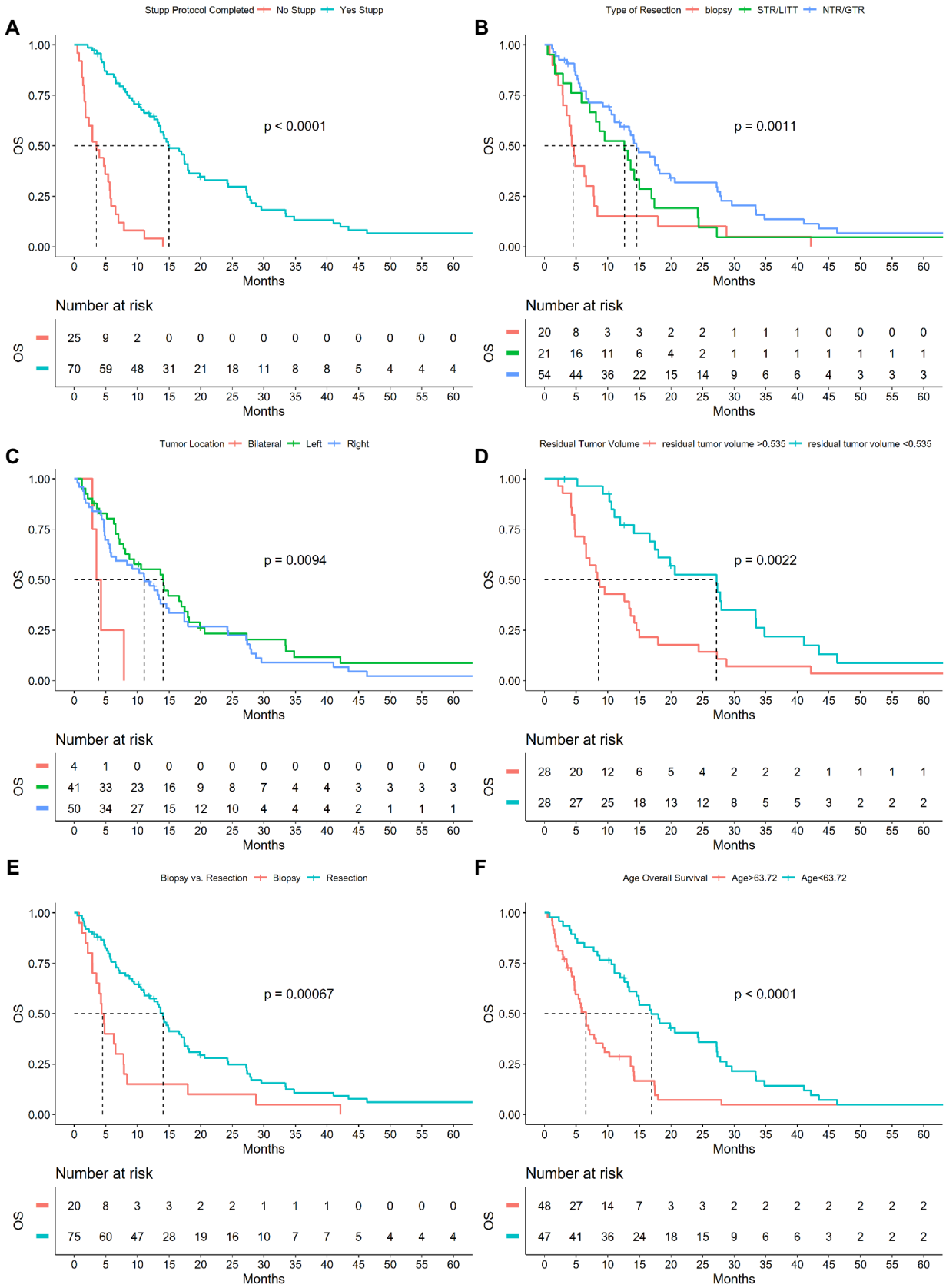

**Supplemental Figure 12** - The tumor-derived myeloid populations and total CD45+ cells of live cells (**A**) along with T cell populations (**B**) are shown for n=10 mock PBS, n=9 mock dexamethasone, n=14 resection PBS, n=13 resection dexamethasone mice. This corresponds to data included in Figure 3 data showing the tumor volume correlation with splenic myeloid populations via flow cytometry. Correlation coefficients (R), p values and fitted line parameters are shown.

**Supplemental Figure 13**



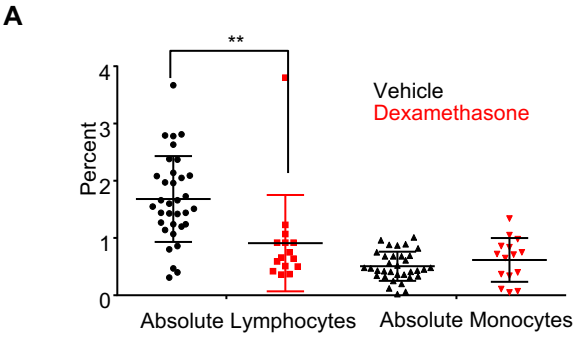

**Supplemental Figure 13** - The non-tumor cortex-derived myeloid populations and total CD45+ cells of live cells (**A**) along with T cell populations (**B**) are shown for n=10 mock PBS, n=9 mock dexamethasone, n=14 resection PBS, n=13 resection dexamethasone mice. This corresponds to data included in Figure 3 showing the tumor volume correlation with splenic myeloid populations via flow cytometry. Correlation coefficients (R), p values and fitted line parameters are shown.

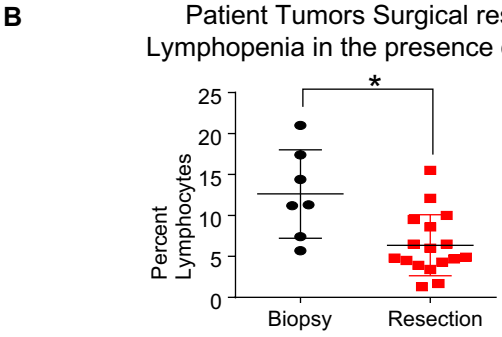
## Supplemental Figure 14

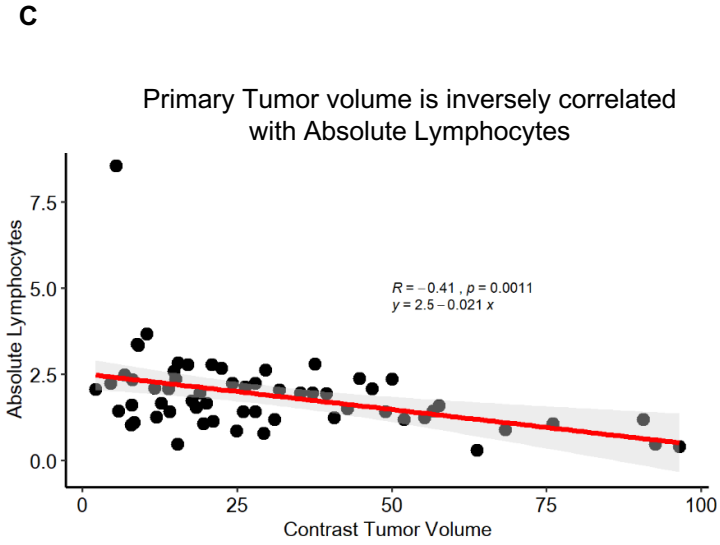


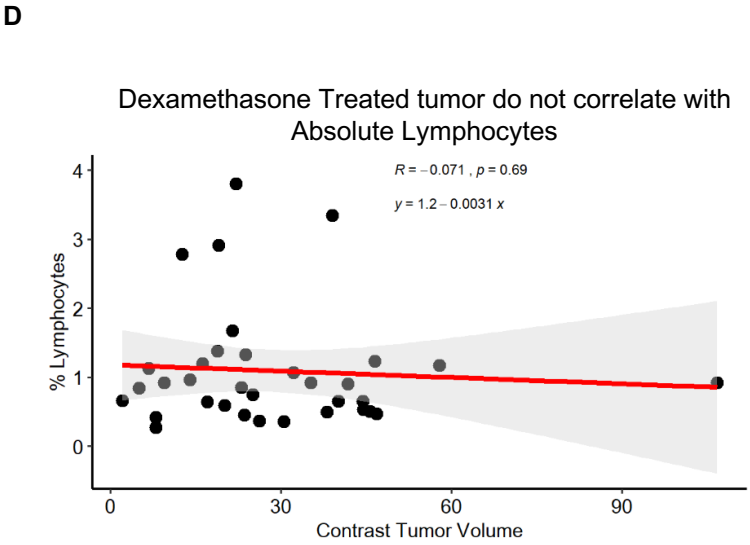

**Supplemental Figure 14**- Univariate Kaplan Meier (K-M) analysis of overall survival (OS) GBM cohort n=95 patients. OS comparison of those who completed Stupp Protocol vs those who did not (**A**). OS comparison of those who had a Biopsy vs subtotal resection/LITT therapy, vs near total or gross total resection (**B**). OS comparison of the tumor location L=Left hemisphere, R=Right hemisphere, B=Bilateral (**C**). OS comparison of the residual tumor volume post resection, divided by median 0.535 (**D**). OS comparison of those who had Biopsy vs resection of any type (**E**). OS comparison of ages split by median 63.72 years (**F**). All P values represent log rank comparison and dotted lines represent the median survival times for each curve.

**Supplemental Figure 15**



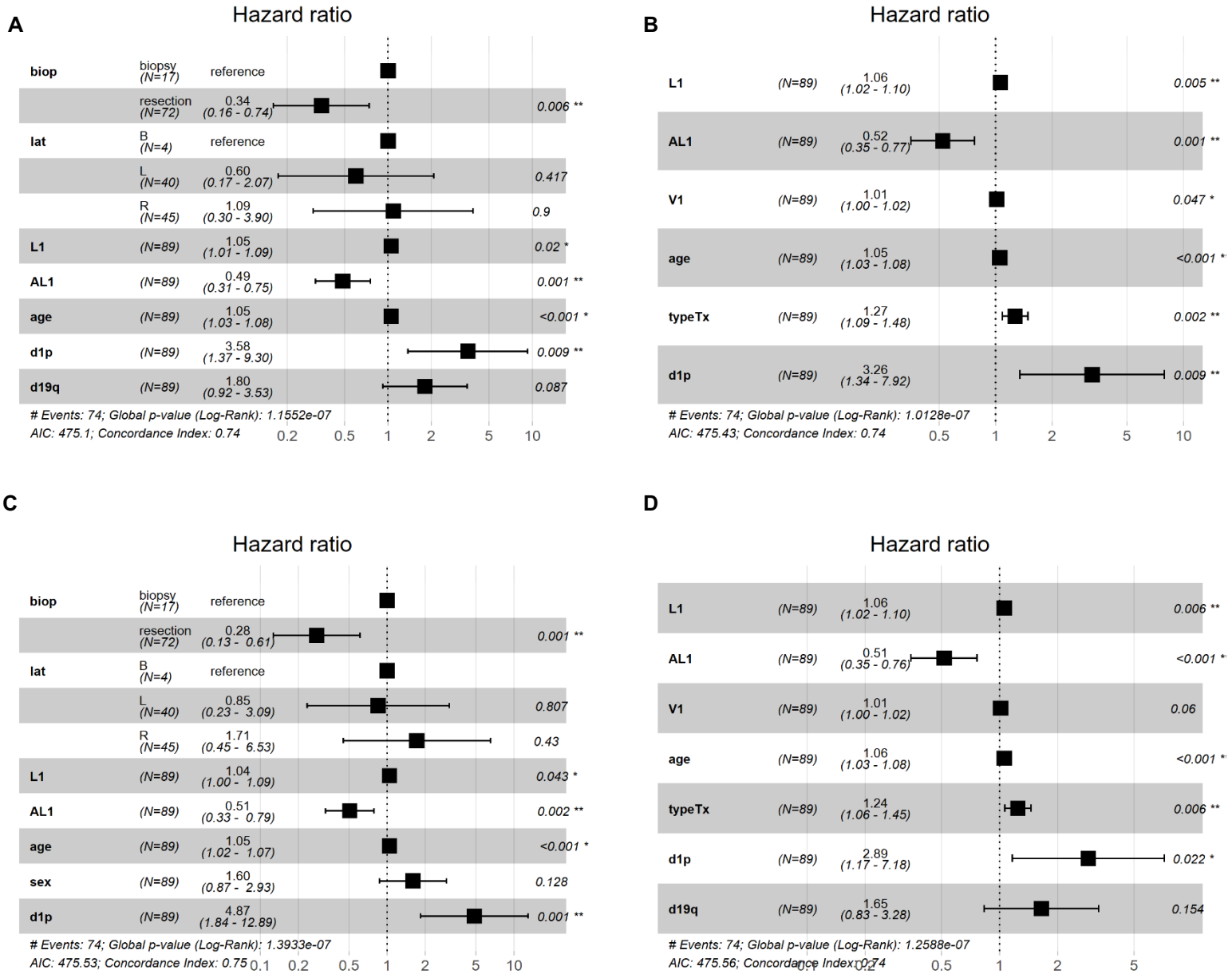




**Supplemental Figure 15**- Corresponding to Figure 4, absolute lymphocyte count vs tumor volume was graphed for patients prior to surgery or other treatment (**A**). Similarly, lymphocyte levels post-intervention were graphed for dexamethasone-treated patients, prior to surgery or biopsy (**B**). Corresponding to Figure 4, the absolute lymphocytes were graphed against tumor volume in steroid-naïve and steroid-treated patients (**C, D**). Correlation coefficients (R), p values and fitted line parameters are shown. Groups were compared by t-tests; *p<0.05, **p<0.01, ***p<0.001.

**Supplemental Figure 16**

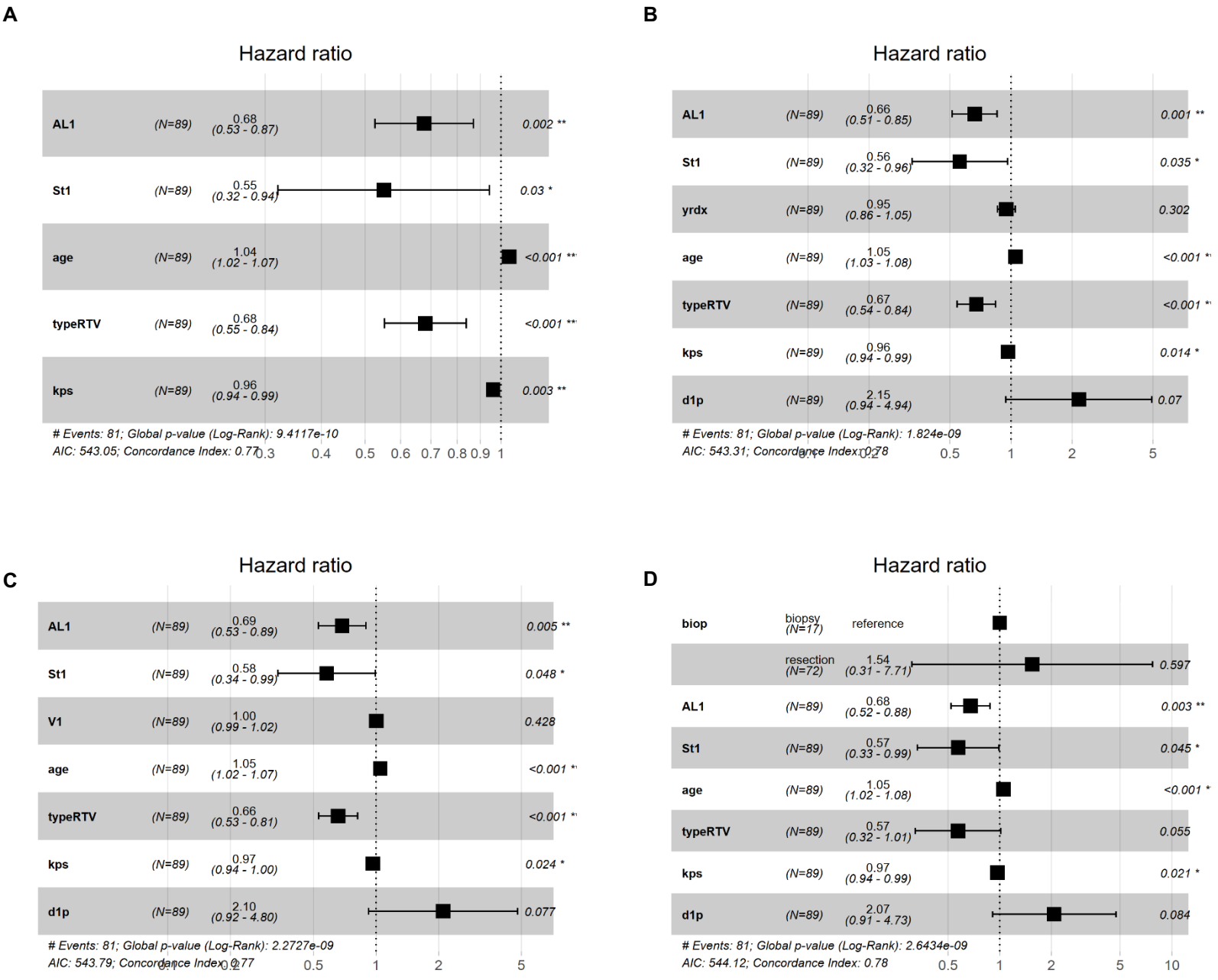
Additional top models correlated with Progression Free Survival




**Supplemental Figure 16**- Cox proportional hazards models of progression free survival automatically selected based on AIC using R package glmulti. In this analysis the top model is in **Fig. 4D** and the next 4 are in (**A-D**) here. Biop=Biopsy vs resection, lat=Tumor Laterality, L1= % lymphocytes pre surgery, AL1= Absolute lymphocyte count pre surgery, d1p=chromosome 1p status, d19q=19q status, V1= tumor volume at diagnosis, typeTx= type of tumor resection.

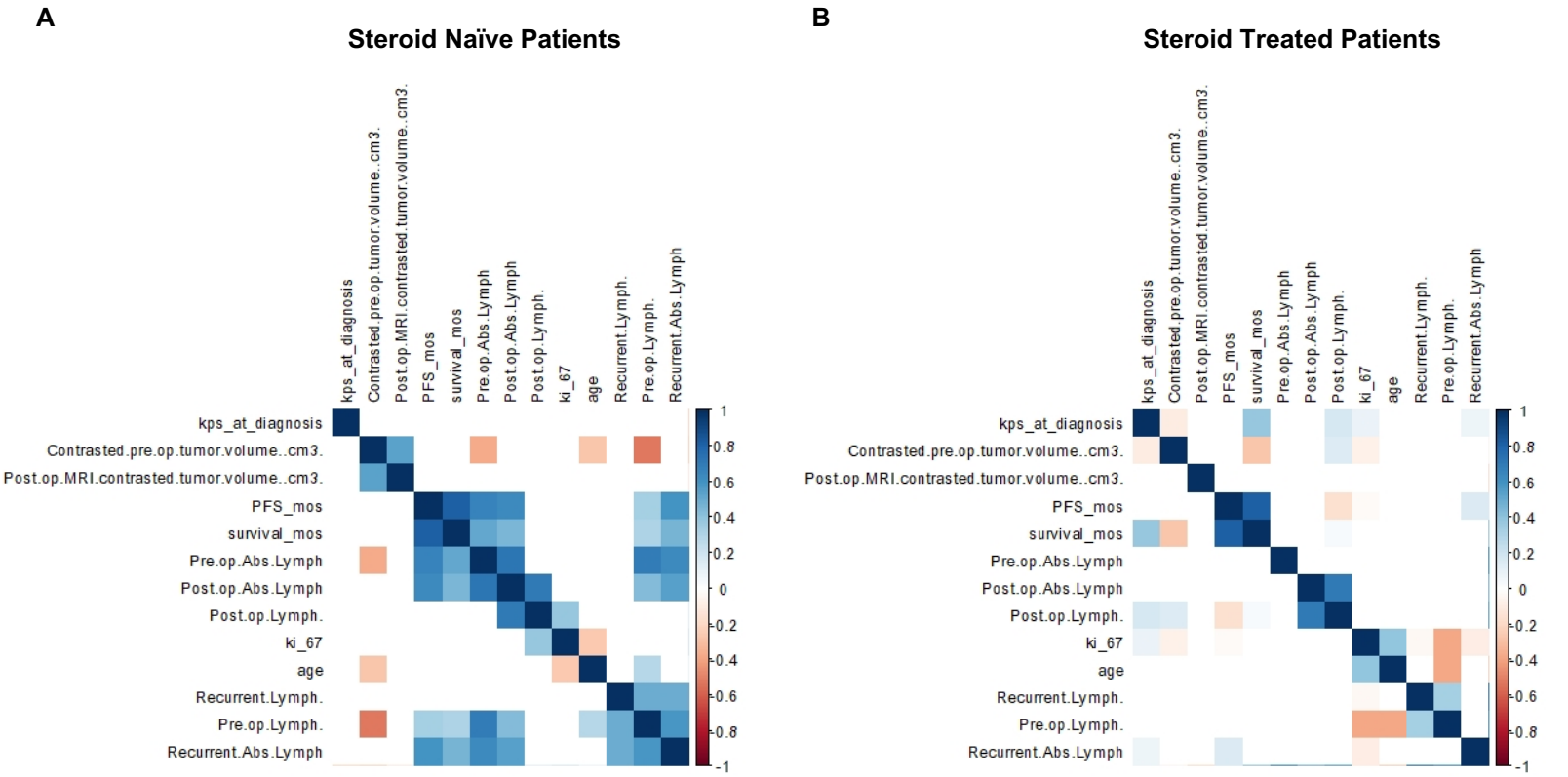
**Supplemental Figure 17**

Additional top models correlated with overall survival




**Supplemental Figure 17**- Cox proportional hazards models of overall survival automatically selected based on AIC using R package glmulti. In this analysis the top model is represented in **Fig. 4E**, the additional 4 models identified using this method are represented in (**A-D**). Biop=Biopsy vs resection, St1= Steroids pre op at time of lymphocyte measurement, typeRTV= Type of tumor resection, L1= % lymphocytes pre surgery, AL1= absolute lymphocyte count pre surgery, d1p=chromosome.

## Supplemental Figure 18




**Supplemental Figure 18-** Inter-variable correlation showing variable co-dependence when steroid-treated patients vs non-steroid treated patients n=61 and n=34 respectively (**A-B**). Correlation plots only show correlations with $p<0.05$ with the correlation coefficient colored by the scale -1 to 1 to the right of plot.