**Table Components of Supplementary Figures:**

**Figure S1.a: a) Descriptive Statistics of Immune Cell Densities in STS (Figure 2a)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Immune Cell Density (cells/mm2)** | | | | | | **Paired Comparisons via Mann-Whitney t-test** | | |
|  | **UPS** | | **ERMS** | | **ARMS** | | **UPS vs ERMS** | **UPS vs ARMS** | **ERMS vs ARMS** |
| **Marker** | **Mean Density** | **±SD** | **Mean Density** | **±SD** | **Mean Density** | **±SD** | **p-value** | **p-value** | **p-value** |
| **CD3** | **247.9** | **±322.7** | **231.4** | **±209.7** | **294.2** | **±442.2** | **0.846** | **0.245** | **0.289** |
| **CD8** | **165.9** | **±188.7** | **64.27** | **±46.1** | **139.5** | **±227.6** | **0.0576** | **0.138** | **0.8443** |
| **Foxp3** | **41.65** | **±42.4** | **84.65** | **±182.2** | **60.58** | **±97.67** | **0.5625** | **0.4072** | **0.3951** |
| **CD163** | **1236** | **±851.8** | **580.9** | **±354.5** | **385.4** | **±263.4** | **0.0002** | **<0.0001** | **0.022** |

**Figure S3.a: Subpopulation Frequencies of CD4+ Cells**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Frequency from CD4+/Foxp3+** | | **Frequency from CD4+/Foxp3-** | |
| **Markers** | **Mean** | **±SD** | **Mean** | **±SD** |
| **IFN** | **11.8%** | **±18.6%** | **42.4%** | **±22.5%** |
| **IL-10+** | **8.0%** | **±13.1%** | **2.6%** | **±2.5%** |
| **PD-1+** | **76.2%** | **±26.7%** | **64.5%** | **±28.4%** |
| **PD-1+/TIM-3+** | **25.9%** | **±22.4%** | **5.2%** | **±4.7%** |
| **PD-1+/LAG-3+** | **1.3%** | **±1.5%** | **3.5%** | **±3.5%** |

**Figure S3.b: Subpopulation Frequencies of CD8+ Cells**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Frequency from CD8+/PD-1+** | | **Frequency from CD8+/PD-1-** | |
| **Markers** | **Mean** | **±SD** | **Mean** | **±SD** |
| **IFN** | **57.3%** | **±24.4%** | **57.5%** | **±22.6%** |
| **IL-10+** | **2.1%** | **±3.3%** | **2.2%** | **±1.6%** |
| **TIM-3+** | **15.8%** | **±20.0%** | **4.6%** | **±7.1%** |
| **LAG-3+** | **3.7%** | **±5.6%** | **5.4%** | **±6.3%** |

**Figure S4: Demographics and Clinical Information of LMS Cases**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **LMS**  **N=11** |  |
| **Age (years)** | **Mean** | **63** |  |
|  | **Range** | **31-80** |  |
|  |  |  |  |
| **Gender** | **M** | **1** | **(9%)** |
|  | **F** | **10** | **(91%)** |
|  |  |  |  |
| **Treatment History** | **No Systemic Treatment** | **4** | **(36%)** |
|  | **Chemotherapy** | **3** | **(27%)** |
|  | **Chemotherapy + Radiation Therapy** | **1** | **(9%)** |
|  | **Radiation Therapy** | **3** | **(27%)** |
|  |  |  |  |
| **Sample Type** | **Primary Tumor** | **9** | **(82%)** |
|  | **Metastatic Lesion** | **2** | **(18%)** |

**Figure S5.b: Relative CIBERSORT Fraction Score Means of LMS and UPS with Standard Deviation and Corresponding P-values Calculated via 2way ANOVA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **LMS** | | **UPS** | | **LMS vs UPS** |
|  | **Mean** | **± SD** | **Mean** | **±SD** | **p value** |
| **B cells naive** | **0.019** | **± 0.030** | **0.012** | **± 0.019** | **>0.9999** |
| **B cells memory** | **0.003** | **± 0.009** | **0.001** | **± 0.003** | **>0.9999** |
| **Plasma cells** | **0.011** | **± 0.031** | **0.003** | **± 0.008** | **>0.9999** |
| **T cells CD8** | **0.019** | **± 0.041** | **0.056** | **± 0.092** | **0.156** |
| **T cells CD4 naive** | **0.026** | **± 0.054** | **0.014** | **± 0.063** | **>0.9999** |
| **T cells CD4 memory resting** | **0.200** | **± 0.065** | **0.174** | **± 0.084** | **0.729** |
| **T cells CD4 memory activated** | **0.002** | **± 0.009** | **0.002** | **± 0.010** | **>0.9999** |
| **T cells follicular helper** | **0.033** | **± 0.038** | **0.027** | **± 0.040** | **>0.9999** |
| **T cells regulatory (Tregs)** | **0.013** | **± 0.019** | **0.014** | **± 0.017** | **>0.9999** |
| **T cells gamma delta** | **0.000** | **± 0.001** | **0.000** | **± 0.001** | **>0.9999** |
| **NK cells resting** | **0.054** | **± 0.046** | **0.027** | **± 0.036** | **0.679** |
| **NK cells activated** | **0.016** | **± 0.023** | **0.016** | **± 0.031** | **>0.9999** |
| **Monocytes** | **0.042** | **± 0.031** | **0.029** | **± 0.031** | **>0.9999** |
| **Macrophages M0** | **0.096** | **± 0.112** | **0.152** | **± 0.183** | **0.001** |
| **Macrophages M1** | **0.032** | **± 0.040** | **0.043** | **± 0.057** | **>0.9999** |
| **Macrophages M2** | **0.303** | **± 0.139** | **0.355** | **± 0.145** | **0.004** |
| **Dendritic cells resting** | **0.001** | **± 0.004** | **0.001** | **± 0.003** | **>0.9999** |
| **Dendritic cells activated** | **0.015** | **± 0.044** | **0.011** | **± 0.038** | **>0.9999** |
| **Mast cells resting** | **0.102** | **± 0.098** | **0.060** | **± 0.049** | **0.048** |
| **Mast cells activated** | **0.007** | **± 0.022** | **0.000** | **± 0.000** | **>0.9999** |
| **Eosinophils** | **0.000** | **± 0.001** | **0.000** | **± 0.002** | **>0.9999** |
| **Neutrophils** | **0.005** | **± 0.021** | **0.001** | **± 0.003** | **>0.9999** |

Highlighted cells are statistically significant with p values < 0.005.

*Abbreviations: SD = Standard Deviation; LMS: Leiomyosarcoma; UPS: Undifferentiated Pleomorphic Sarcoma.*