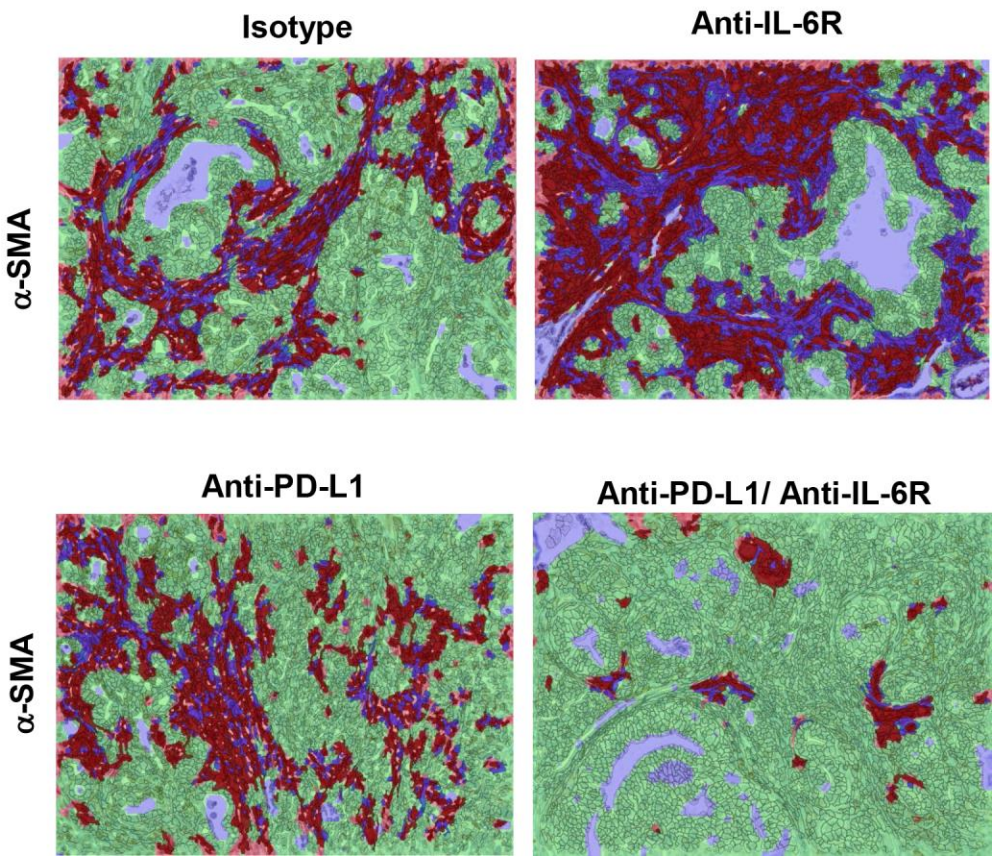
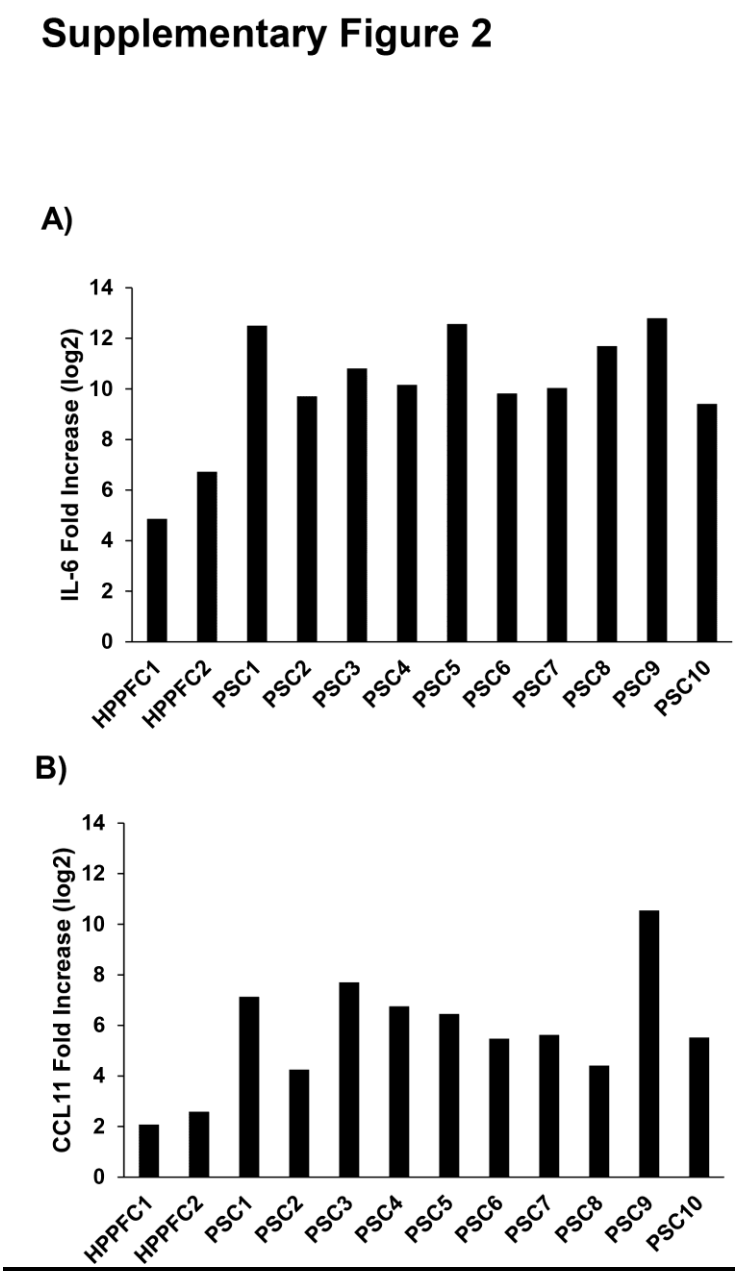
Supplemental Figures

Supplementary Figure 1. Quantification of histological analysis of α-SMA$^+$ cells in the pancreas of KPC-Brca2 mice.



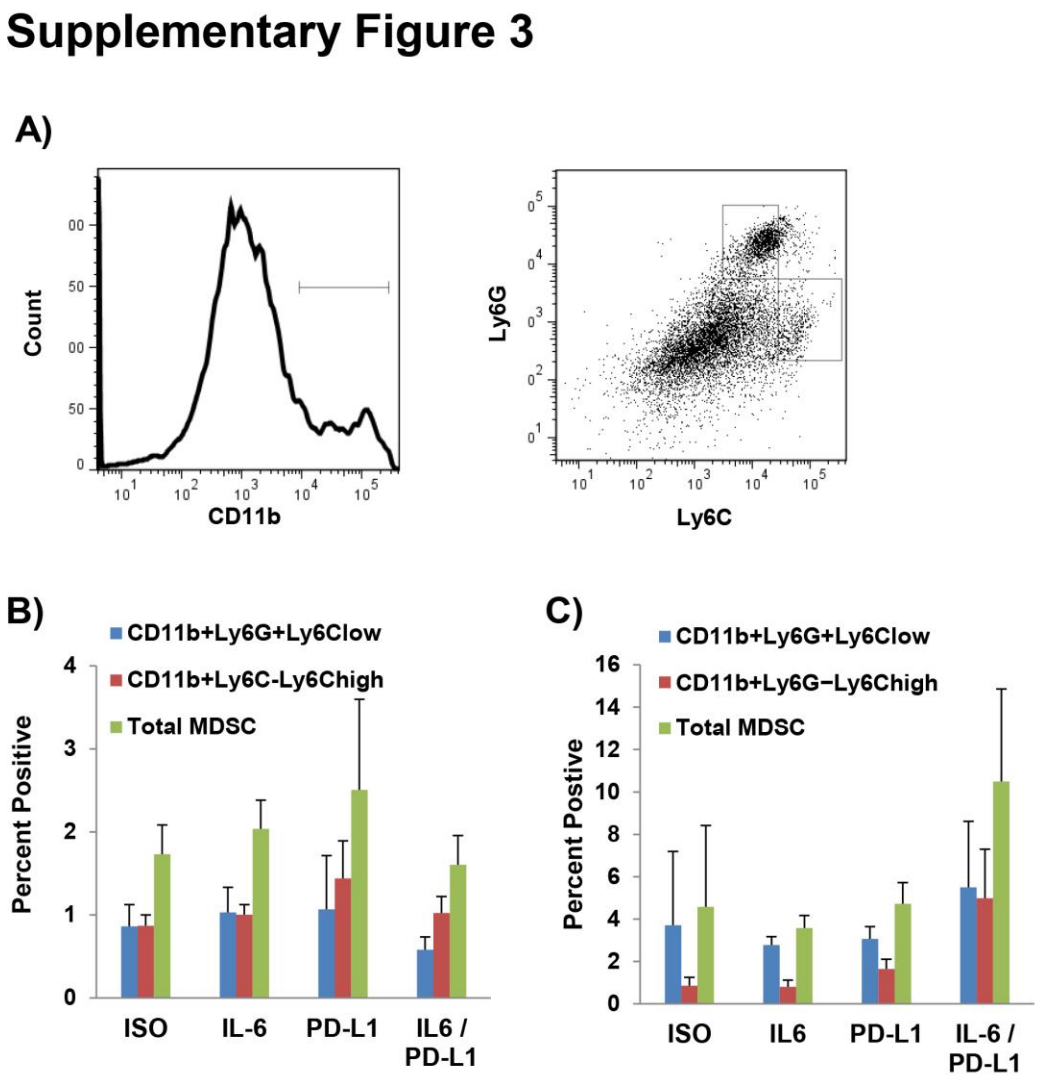
KPC-Brca2 mice were treated at 5-6 weeks of age with 200μg (intraperitoneal injection 3 times/week) of isotype control, anti-IL-6 and/or anti-PD-L1 antibodies for 2 weeks (n=5 mice/group). Paraffin embedded tumor tissue was stained for α-SMA$^+$ cells in the pancreas and analyzed using PerkinElmer's Vectra multispectral slide analysis system and inForma software tools. Representative quantification images from Figure 7C-D.

Supplementary Figure 2. IL-6 and CCL11 mRNA transcripts are upregulated in human PSC.



RNA was isolated from 10 patient-derived pancreatic cancer stellate cells and analyzed utilizing the Nanostring nCounter PanCan Immune Profiling Panel. A) IL-6 and B) CCL11 mRNA transcripts expressed as the fold change (log2) in expression as compared to a normal human pancreatic fibroblast cell line and relative to several housekeeping genes.

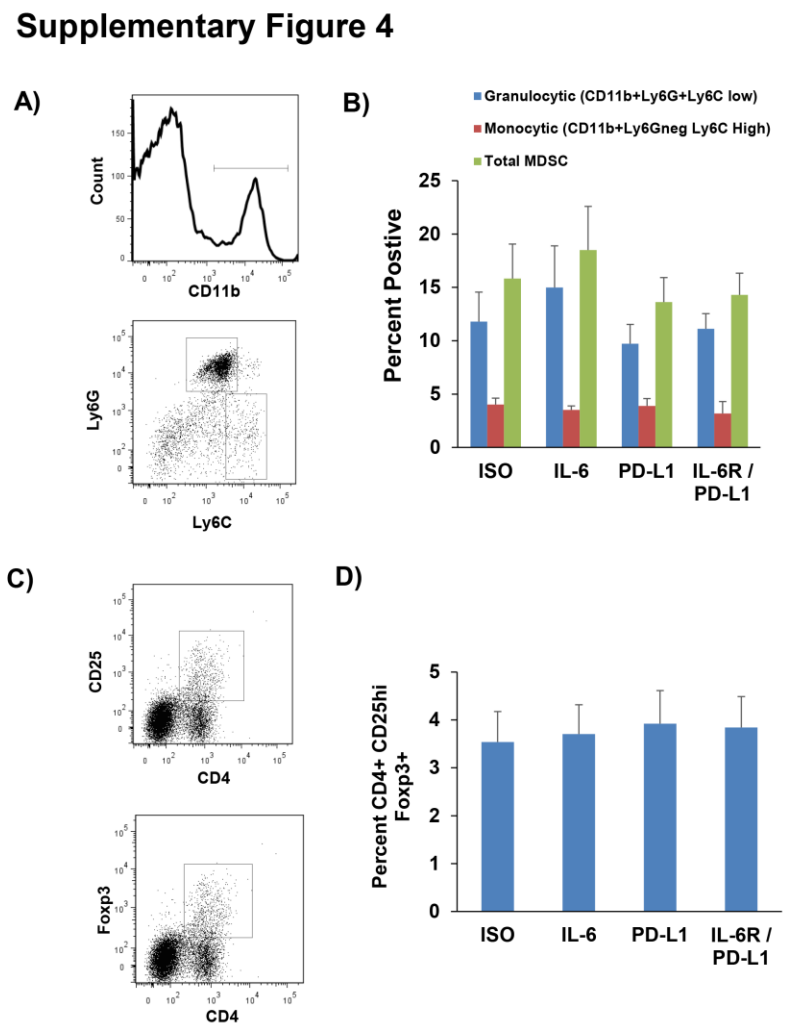
Supplementary Figure 3. Levels of splenic and intratumoral MDSC in Panc02 tumor-bearing mice administered combination therapy.



Panc02 murine pancreatic tumor cells were subcutaneously injected into C57BL/6 mice with treatment beginning when tumors reached 50-100mm^3. Mice were treated with 200μg (intraperitoneal injection 3 times/week) with isotype control, anti-IL-6 and/or anti-PD-L1 antibodies (n=3 mice/group) until mice met pre-specified IACUC-approved early removal criteria. Tumors were dissociated using Collagenase II and the Miltenyi Biotec gentleMACS dissociator to obtain a single cell suspension and **A)** stained by flow cytometry. **B)** Splenocytes or **C)** cells isolated from tumors were stained and analyzed by flow cytometry for cells with

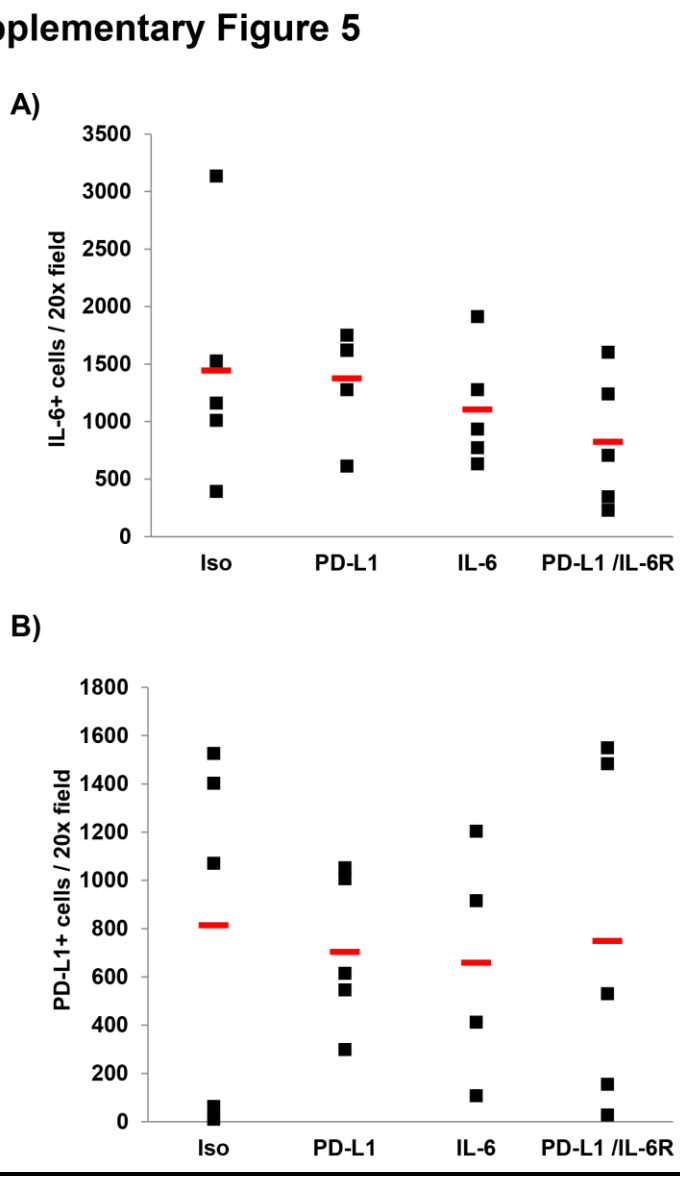
phenotypes consistent with MDSC (Granulocytic, $CD11b^{+}Ly6G^{low}Ly6C^{-}$; Monocytic, $CD11b^{+}Ly6C^{hi}Ly6G^{-}$).

Supplementary Figure 4. Levels of splenic MDSC and Treg in KPC-Brca2 mice administered combination therapy.



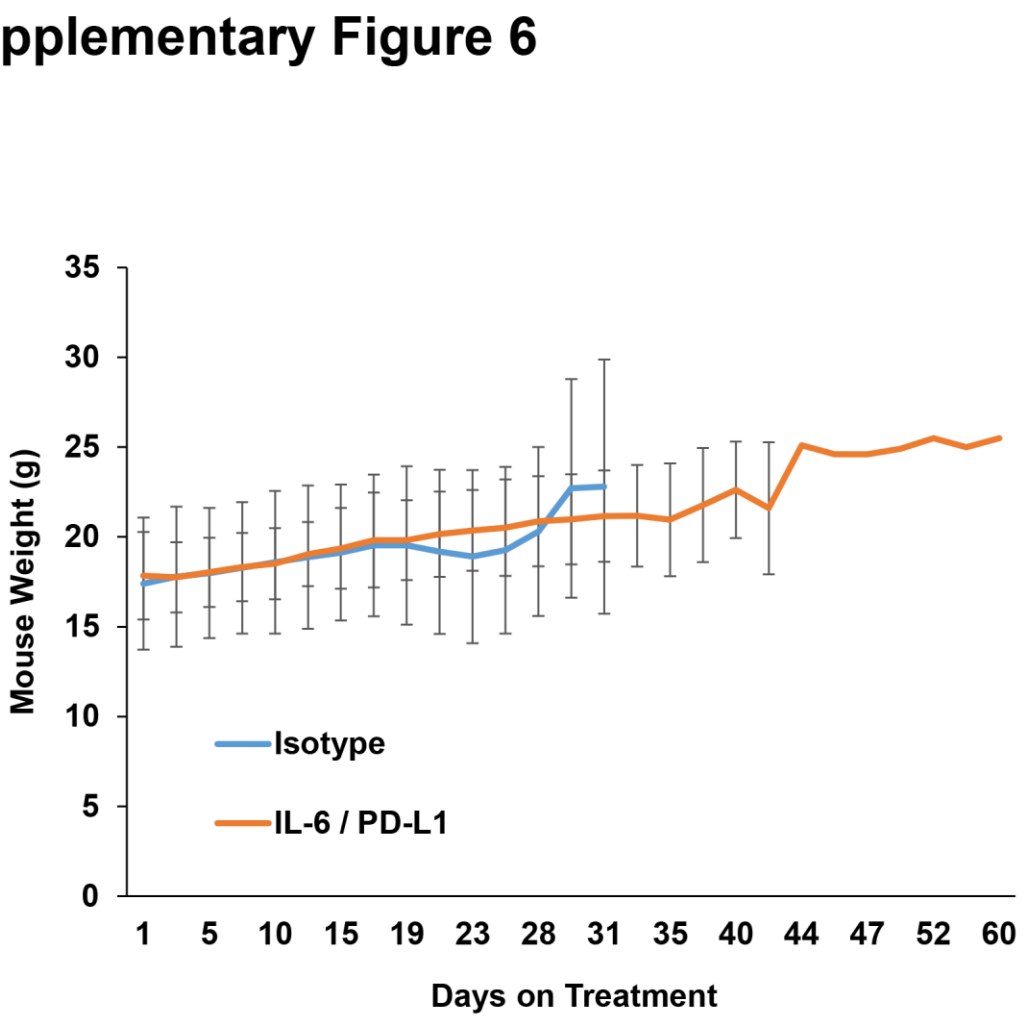
KPC-Brca2 mice were treated at 5-6 weeks of age with 200μg (intraperitoneal injection 3 times/week) of isotype control, anti-IL-6 and/or anti-PD-L1 antibodies for 2 weeks (n=5 mice/group). Splenocytes were stained and analyzed by flow cytometry for cells with phenotypes consistent with **A and B)** MDSC (Granulocytic, $CD11b^{+}Ly6G^{low}Ly6C^{-}$; Monocytic, $CD11b^{+}Ly6C^{hi}Ly6G^{-}$) or **C and D)** Tregs ($CD4^{+}CD25^{hi}Foxp3^{+}$).

Supplementary Figure 5. Quantification of histological analysis of PD-L1$^+$ and IL-6$^+$ cells in the pancreas of KPC-Brca2 mice administered combination therapy.



KPC-Brca2 mice were treated at 5-6 weeks of age with 200μg (intraperitoneal injection 3 times/week) of isotype control, anti-IL-6 and/or anti-PD-L1 antibodies for 2 weeks (n=5 mice/group). Paraffin embedded tumor tissue was stained for **A)** IL-6 or **B)** PD-L1$^+$ cells in the pancreas and analyzed using PerkinElmer's Vectra multispectral slide analysis system and inForma software tools.

Supplementary Figure 6. Body weights of KPC-Brca2 mice with long term exposure to IL-6/PD-L1 combination therapy.



KPC-Brca2 beginning at 5 weeks of age mice were treated with isotype control antibodies or antibodies targeting IL-6 and PD-L1 (200µg/each) until mice were moribund and met pre-specified IACUC-approved early removal criteria. Body weights were measure for the duration of treatment.