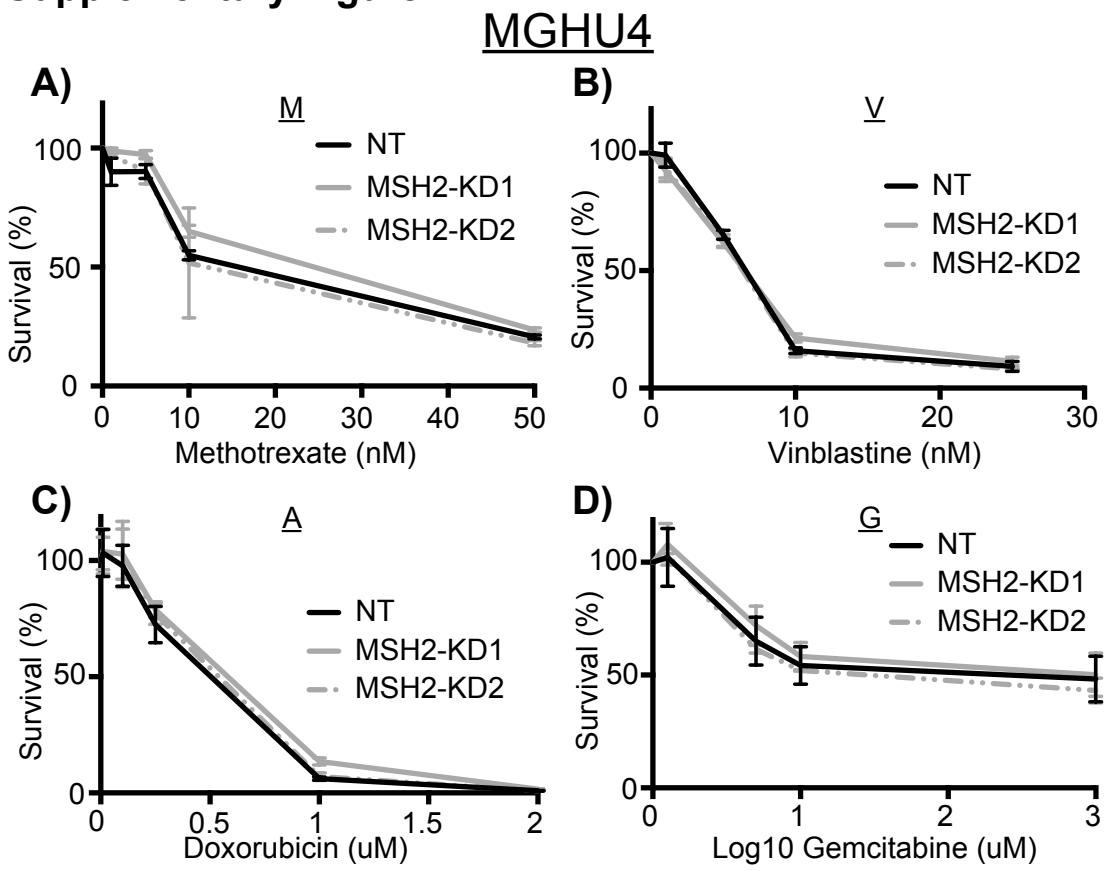
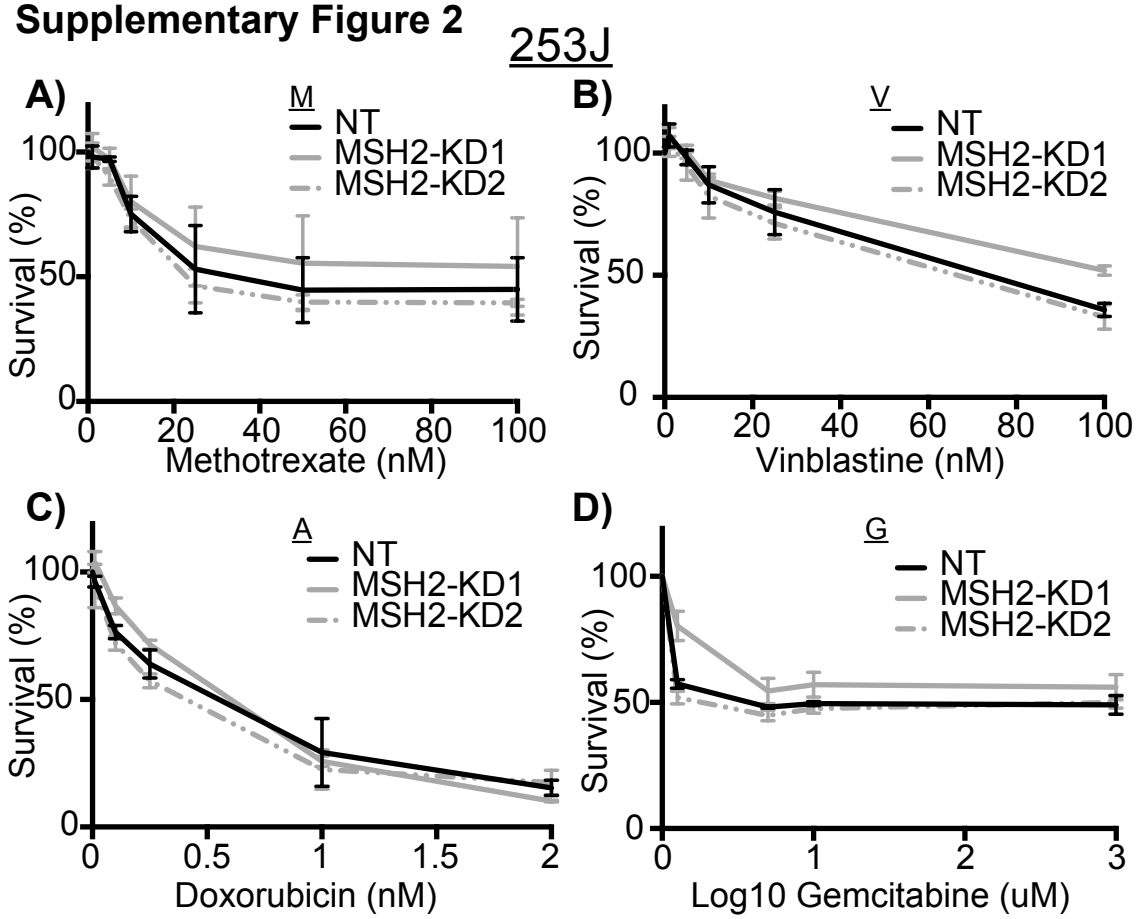
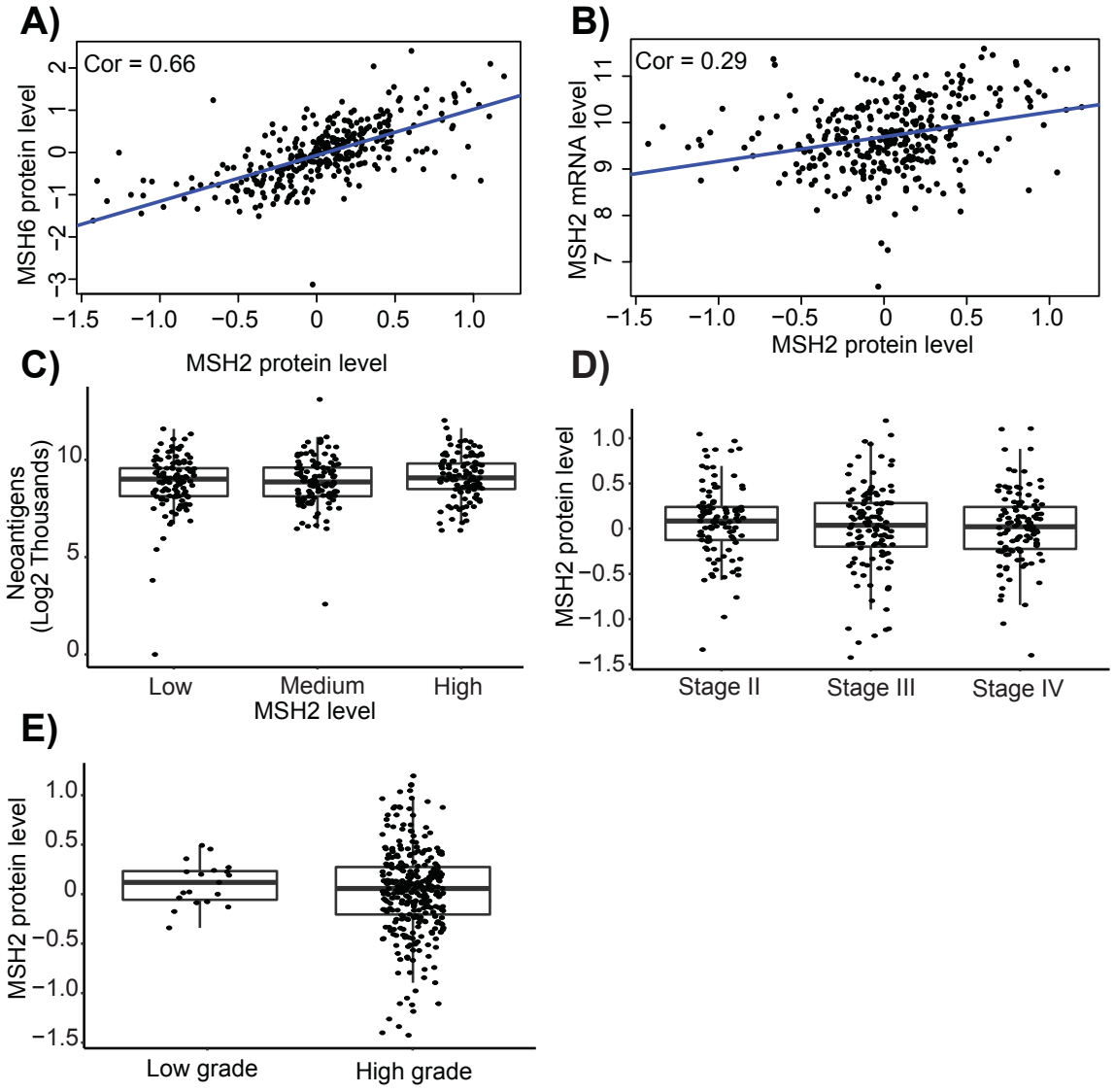
Supplementary Figure 1



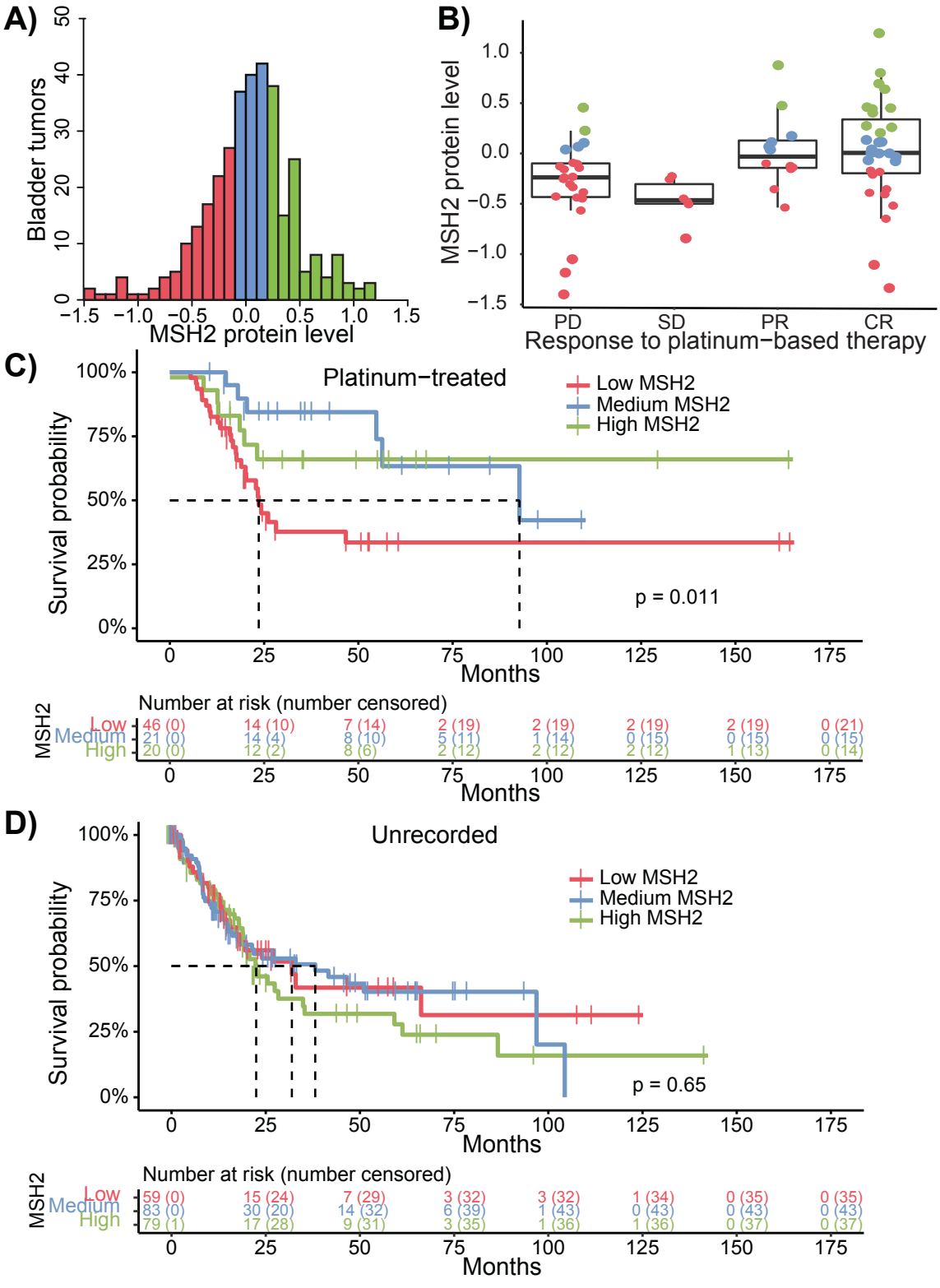
Supplementary Figure 2



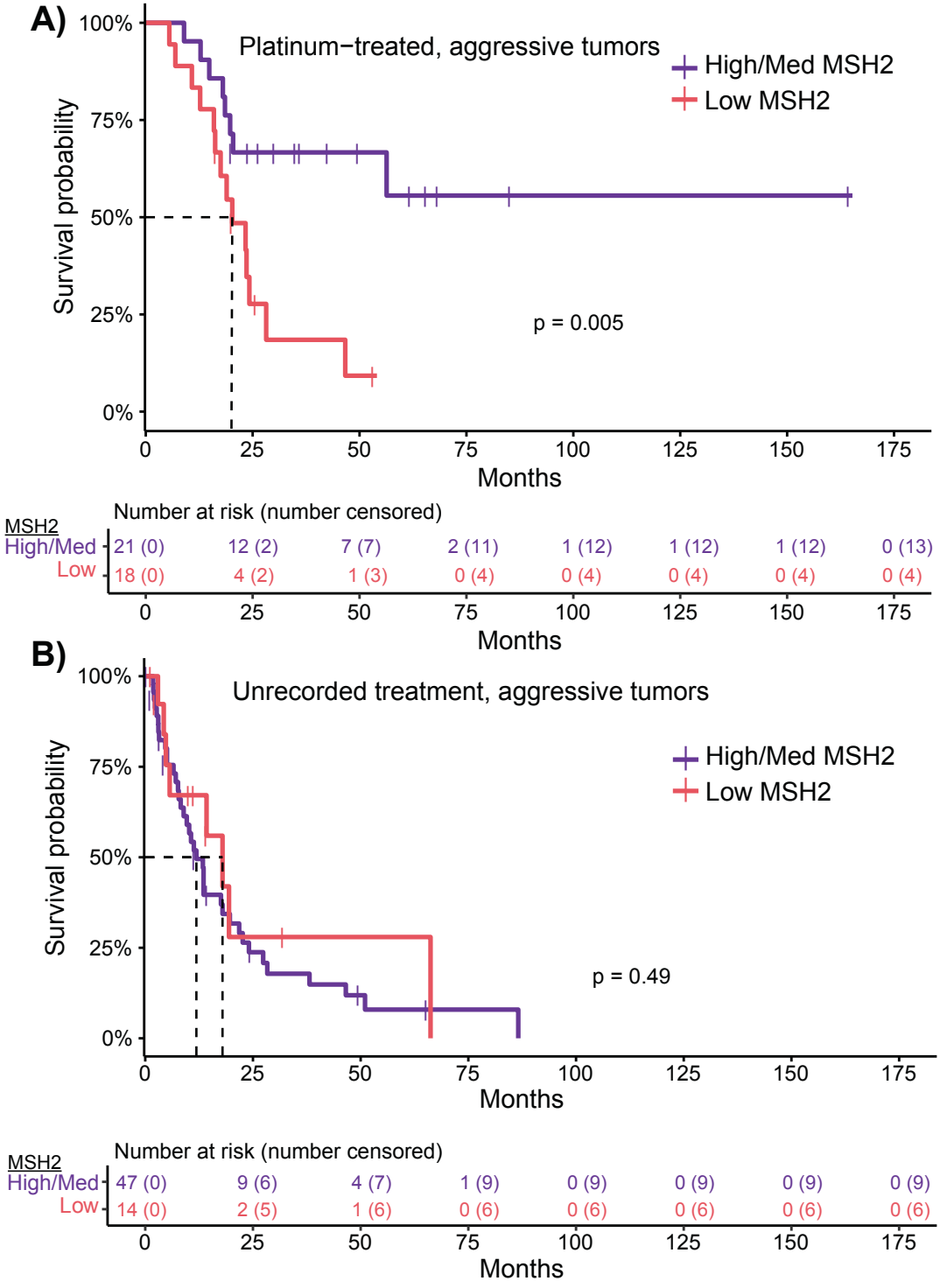
Supplementary Figure 3



Supplementary Figure 4



Supplementary Figure 5



Supplementary Figure Legends

Supplementary Figure 1. Cell viability of MGHU4 cells when treated with several chemotherapies is unaffected by MSH2 knockdown. MGHU4 bladder cancer cells were treated with methotrexate (A), vinblastine (B), doxorubicin (C), and gemcitabine (D) for 48 hours and cell viability was measured using an ATP-based assay.

Supplementary Figure 2. Cell viability of 253J cells when treated with several chemotherapies is unaffected by MSH2 knockdown. 253J bladder cancer cells were treated with methotrexate (A), vinblastine (B), doxorubicin (C), and gemcitabine (D) for 48 hours and cell viability was measured using an ATP-based assay.

Supplementary Figure 3. MSH2 protein levels and clinical characteristics in bladder cancer tumors. The clinical characteristics of 340 bladder cancer tumors were compared with MSH2 RPPA. A) Correlation of MSH2 and MSH6 RPPA levels in bladder cancer patients. B) Correlation of MSH2 mRNA and RPPA levels. C) Amount of neoantigens in bladder cancers grouped by MSH2 RPPA level. Amount of MSH2 in bladder cancer tumors separated by stage (D) and grade (E).

Supplementary Figure 4. Low MSH2 protein levels correlate with poor response to platinum-based therapy. A) A histogram displaying the MSH2 protein z-scores in the bladder tumors. The 340 patients were grouped into 3 equal groups by low (red), middle (blue), and high (green) MSH2 protein levels. B) MSH2 protein levels were plotted according to their response to platinum-based chemotherapy (PD, progressive disease; SD, stable disease, PR, partial response; CR, complete response). Overall survival is plotted for bladder cancer patients with a platinum-based treatment (C) or a non-pharmacologic or radiation treatment (D). Patients are grouped by MSH2 protein level.

Supplementary Figure 5. Low MSH2 protein levels correlate with poor response to platinum-based therapy in patients with aggressive disease. The effects of MSH2 on survival are investigated in bladder cancer patients that have positive lymph node infiltration and are stage III or higher. Overall survival is plotted for bladder cancer patients with a platinum-based treatment (A) or a non-pharmacologic or radiation treatment (B). Patients are grouped by MSH2 protein level into low (red) or medium/high (purple) groups.

Supplemental Tables

Supplementary Table 1. Sequences of shRNA sequences used in this study.

Supplementary Table 2. Specific antibodies used in this study.

Supplementary Table 3. Sequences of qRTPCR primers used in this study.

Supplementary Table 4. Summary of bladder cancer tumor data from TCGA.

Supplementary Table 5. Raw counts from the cisplatin resistance screen.

Supplementary Table 6. Normalized screen data and DeSEQ output.

Supplementary Table 7. Patient characteristics of platinum-treated patients by MSH2 group.

Supplementary Table 8. Patient characteristics patients with an unrecorded treatment by MSH2 group.

Supplementary Table 9. Patient characteristics of platinum-treated and lymph+ patients by MSH2 group.