SUPPLEMENTAL MATERIALS AND METHODS

Western hybridization

A2780 or SKOV-3 cells treated as indicated were washed with PBS and lysed with RIPA buffer supplemented with PMSF and Phosphatase Inhibitor cocktail (Pierce). Protein concentration was measured with Bradford reagent (Pierce) Proteins were detected and quantified using the Odyssey infrared imaging system. Antibodies against cleaved PARP, CHK1/2 were purchased from Cell Signaling.

Caspase-3/7 activation

Caspase-3/7 enzymatic activity was evaluated using the Caspase-Glo assay kit (Promega) according to the manufacturers' instructions.

DAPI staining

SKOV-3 cells were seeded overnight on coverslips and fixed in 4% paraformaldehyde at 4 ^{o}C for 20 min. After drying overnight cells were stained with DAPI-Slowfade Gold (Invitrogen). Nuclear condensation and DNA fragmentation was demonstrated using fluorescence microscopy.

siRNA studies

siRNA transfections were performed as per the manufacturer's instructions. Briefly, cells were incubated with 25 nM siRNA/Dharmafect 4 for 6 hours before replacing with fresh media. Protein content was analyzed by western blot. Antibodies against XRCC1 and MDC1 were purchased from Bethyl Laboratories, against γ-H2AX, CK2α and CK2α' were purchased from Cell Signaling. MDC1, XRCC1, CK2α/α' siRNA and transfection reagent Dharmafect 4 were purchased from Dharmacon.

SUPPLEMENTAL FIGURE LEDENDS

Figure S1. Quantified western blots for γ–H2AX and cleaved PARP levels normalized to β-actin levels from cisplatin or gemcitabine combinations with CX-4945 in A2780 and SKOV-3 cells.

Figure S2. **A,** Effects of CK2α/α' depletion by siRNA on γ-H2AX levels induced by cisplatin (Cis) in SKOV-3 cells. **B,** Effects of CK2α/α' depletion by siRNA on γ-H2AX levels induced by gemcitabine (Gem) in SKOV-3 cells. **C,** Effects of MDC1/XRCC1 depletion by siRNA on γ-H2AX levels induced by cisplatin or gemcitabine in SKOV-3 cells. For gemcitabine combination with CK2α/α' siRNA transfection, gemcitabine (10 nM) was added immediately after replacing the media following transfection. For all other experiments, cisplatin (10 μM) or gemcitabine (100 nM) were added 48 h after replacing the media following transfection.

Figure S3. The global role of CK2 in DNA repair and cancer therapies that potentially rely on CK2 mediated repair mechanisms.