Supplementary Materials and Methods

Cellular fractionation and immunoblotting analyses. Following harvesting, cells were lysed in a NP-40 lysis buffer (20 mM HEPES, pH 7.0, 10 mM KCl, 2 mM $MgCl_2$, 0.5% NP-40, 1 mM Na_3VO_4, 10 mM NaF, 1 mM PMSF, 2 μg/ml aprotinin). Thereafter, the cells were homogenized by 20 strokes in a tightly fitting Dounce homogenizer following by centrifugation at 1,500 xg for 5 min to sediment the nuclei. The supernatant was then centrifuged at 16,100 xg for 20 min, and the resulting supernatant formed the non-nuclear fraction. The nuclear pellet was washed three times with lysis buffer to remove any contamination from cytoplasmic membranes, and the purity of the nuclei was confirmed by light microscopy. To extract nuclear proteins, the isolated nuclei were resuspended in NETN buffer (20 mM Tris-Cl, pH 8.0, 150mM NaCl, 1mM EDTA, 0.5% NP-40, 1 mM Na_3VO_4, 10 mM NaF, 1 mM PMSF, and 2 mg/ml aprotinin) followed by sonication. Nuclear lysates were then collected after centrifugation at 16,100 xg for 20 min. To obtain whole cell lysates for western blot analysis, cells were lysed with Tween-20 lysis buffer (50 mM HEPES, pH 7.4, 150 mM NaCl, 0.1% Tween-20, 10% glycerol, 2.5 mM EGTA, 1 mM EDTA, 1 mM DTT, 1 mM PMSF and 2 μg/ml of leupeptin and aprotinin) and sonicated. Equal amounts of protein were analyzed by SDS-PAGE. Thereafter, proteins were transferred to nitrocellulose membranes and analyzed by specific primary antibodies as indicated. Proteins were detected via incubation with HRP-conjugated secondary antibodies and ECL chemiluminescence detection.

Apoptosis assessment. Apoptosis was assessed by the loss of plasma membrane asymmetry as one of the earliest features of apoptosis using Annexin V/Propidium iodide (PI) kit from BD Biosciences Pharmingen (San Diego, CA). Annexin V serves as a marker for the loss of plasma

membrane asymmetry representing an early feature of apoptosis, and PI is used to illustrate dying cells with the loss of membrane integrity. This double staining procedure distinguishes cells in early and late phases of apoptosis. Briefly, treated cells were harvested by trypsin, washed twice with PBS and then re-suspended in binding buffer at a concentration of 1 x 10^6 cells/ml according to manufacturer's instruction. Thereafter, 5 µl of Annexin V-FITC conjugate and 5 µl of PI were added into 100 µl of cell suspension and incubated for 30 min in the dark. After adding 400 µl of binding buffer, labeled cells were counted by flow cytometry within 30 min. All early apoptotic cells (Annexin V-positive & PI-negative), necrotic/late apoptotic cells (double positive) as well as living cells (double negative) were detected by FACSCalibur flow cytometry and subsequently analyzed by FlowJo software (Tree Star Inc., Ashland, OR). Argon laser excitation wavelength was 488 nm, while emission data were acquired at wavelength 530 nm (FL-1 channel) for FITC and 670 nm (FL-3 channel) for PI.