Supplementary Figure 1. Effect of Imatinib on cell number. K562 cells ($0.1x10^6$ cell/ml) were incubated in the presence of the indicated concentrations of Imatinib (Im) or vehicle control (CT) for different periods of time. At the reported time points, cells were counted and cell viability was determined by Trypan blue staining. The cell number reported in the Figure represents total cells (Trypan blue positive + Trypan blue negative cells). Data represent the average and standard deviation of at least 3 separate experiments. Where standard deviations are not visible, the standard deviation is too small compared to the scale of the y-axis. Asterisk indicates significant difference to control cells (CT) ($p<0.05$).

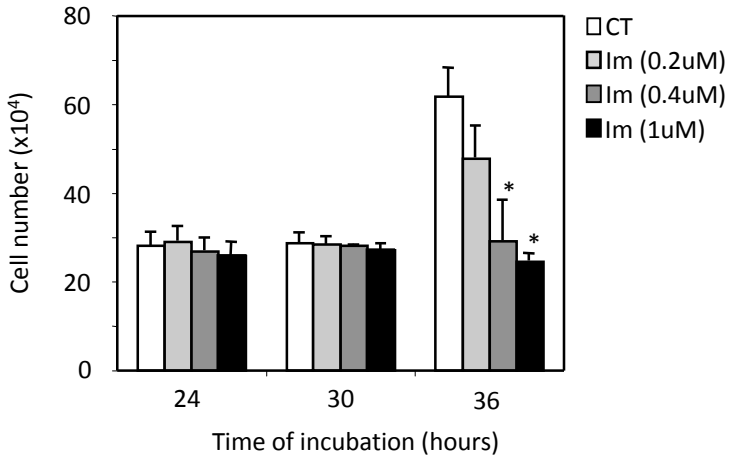
Supplementary Figure 2. Expression of *SMS1* after down-regulation with short hairpin RNA and siRNA. K562 cells were transduced with lentiviral particles either containing control short hairpin (LCT) or short hairpin targeting *SMS1* (LSMS1-). After selection of stable clones as described in the "Materials and Methods" section, each of the two cell lines was transiently transfected with the All Star siRNA scrambled control (SCR) or with siRNA targeting *SMS1* (siSMS1-). After 24 and 48 hours of transfection, 2 million cells were collected from each condition and RNA was isolated using the Qiagen RNeasy kit. *SMS1* expression was measured by quantitative RT-PCR. Data represent the average and error bars of two separate experiments.

Supplementary Figure 3. Down-regulation of *SMS1* did not affect cell proliferation of HL-60/neo cells. HL-60/neo cells were transfected with either the All Star Scrambled control siRNA (SCR) or *SMS1* siRNA (SMS1-). Aliquots of cells were counted and stained with Trypan blue after 24, 48, and 72 hours. Treatment with *SMS1* siRNA induced an average 70-80% down-regulation of *SMS1* expression after 48 hours. Data represent the average and error bars of two separate experiments. CT: mock transfection control.

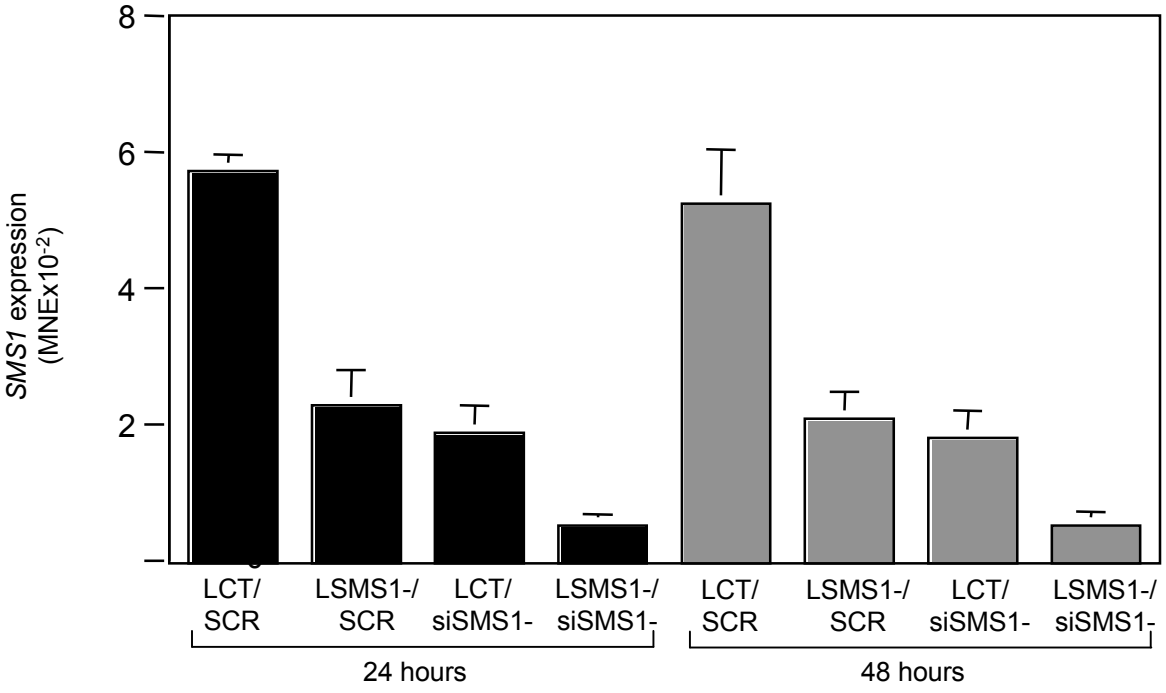
Supplementary Figure 4. Inhibition of SMS activity in K562 cells did not induce apoptosis. Treatment of K562 cells with either D609 (50 μg/ml) or *SMS1* siRNA (SMS1-) for 72 hours did not induce PARP cleavage (as determined by western

blotting). MCF-7 cells treated with 1nM TNFα for 18 hours were used as positive control for PARP cleavage and β-actin as control for equal loading within samples of the same treatment group.

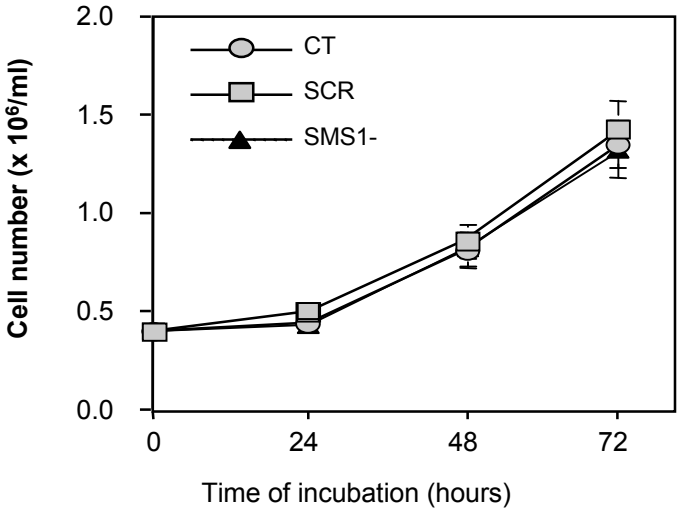
Supplementary Figure 1



Supplementary Figure 2



Supplementary Figure 3



Supplementary Figure 4