

Description of Additional Supplementary Files

Supplementary Movie 1: The time lapse video of apoptosis process of AML for 8 hours of Ara-C treatment (the static images were shown in Supplementary Fig.5b). Green: FRET positive (live) cells, Red: FRET negative (apoptotic) cells.

Supplementary Movie 2: The higher magnification of the time lapse video of AML cell apoptosis *in vivo* with intravital confocal time lapse imaging at day 2 of chemotherapy (the static images were shown in Supplementary Fig. 5d) Green: FRET positive (live) cells, Yellow: FRET negative (apoptotic) cells.

Supplementary Movie 3: The lower magnification of the time lapse video of AML cell apoptosis *in vivo* with intravital confocal time lapse imaging at day 2 of chemotherapy (the static images were shown in Supplementary Fig. 5d) Green: FRET positive (live) cells, Yellow: FRET negative (apoptotic) cells.