Supplementary materials

**Method and materials**

**The construction of DOX resistance cells: OS-RC-2/ADR cells**

OS-RC-2 cells were exposed to doxorubicin (DOX) at an initial concentration of 0.025 mg/L. Subsequently, the survival cells which were tolerant to DOX, were selected for further cultured in a double concentration of doxorubicin. This procedure was repeatedly applied to the cells, until the cells could finally be cultured well in the presence of 1.0 mg/L doxorubicin. When the cells were totally tolerance to doxorubicin, the ADR cells were successfully established. The ADR cells were continuously exposed to certain doxorubicin concentrations for resistance maintenance.

**Results**

Figure S1. Different sizes of PDA NPs at varying amount of NaOH

****Figure S2(A)&(B). Loading capacity and loading efficiency of PDA-DOX at ratio of 1:0.5, 1:0.25 and 1:0.125, respectively.

Figure S3. Viabilities of HK-2 cells after incubation with PDA-DOX at different concentrations of PDA