

Figure S1. GO terms in biological processes, molecular functions, and cellular components showing significant differences.

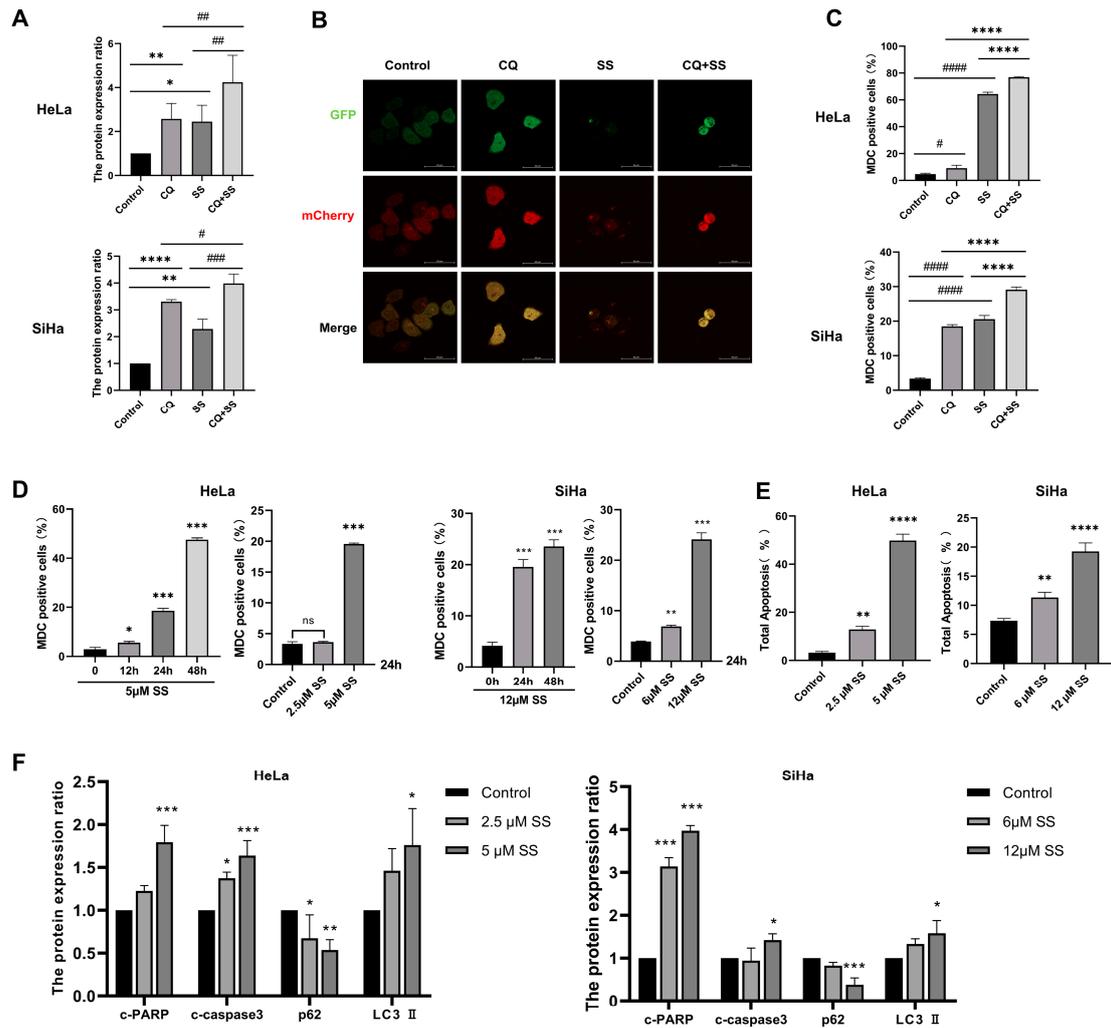


Figure S2. Sodium selenite induces autophagy and apoptosis in HeLa and SiHa cells. (A) The expression of LC3–II in HeLa and SiHa cells after CQ pretreatment (B) Observation of autophagosome and lysosome fusion in Ad–mCherry–GFP–LC3B–transfected HeLa cells by monitoring GFP fluorescence quenching after CQ pretreatment, magnification $\times 400$. (C) Bar chart of the quantitative analysis of the change in the percentage of MDC–positive cells after CQ pretreatment (D) Bar chart of the quantitative analysis of the percentage of MDC–positive cells after SS treatment at different times and doses in HeLa and SiHa cells. (E) Bar chart of the quantitative analysis of the percentage of apoptotic cells after different doses SS treatment in HeLa and SiHa cells. (F) Bar chart of the quantitative analysis of autophagy (LC3–II and p62) and apoptosis (cleaved–caspase3 and cleaved–PARP) protein expression in HeLa and SiHa cells after treatment with different doses of SS, the expression of β –actin was used as a reference. All experiments were repeated at least three times. * indicates statistical significance compared to the control group, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$, $****p < 0.0001$; # indicates statistical significance compared to the CQ+SS co–treatment group, $\#p < 0.05$, $\#\#p < 0.01$, $\#\#\#p < 0.001$, $\#\#\#\#p < 0.0001$. CQ: Chloroquine diphosphate salt; SS: sodium selenite; c–PARP: cleaved–PARP; c–caspase3: cleaved–caspase3.

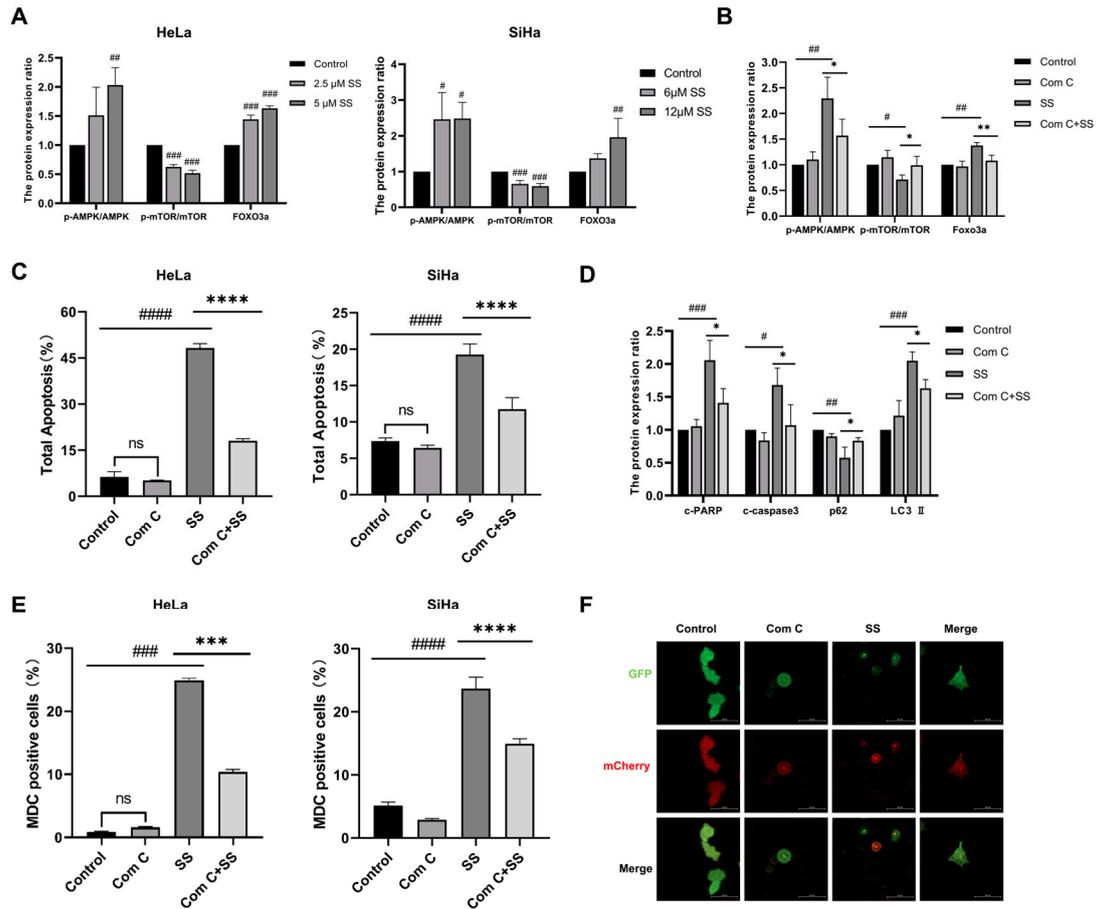


Figure S3. The AMPK/mTOR/FOXO3a signaling pathway is the key pathway involved in sodium selenite -induced autophagy and apoptosis. (A) Bar chart of the quantitative analysis of AMPK/mTOR/FOXO3a pathway proteins expression in HeLa and SiHa cells after treatment with different doses of SS, the expression of β -actin or Tubulin was used as a reference. (B) Bar chart of the quantitative analysis of the expression of AMPK/mTOR/FOXO3a pathway proteins after compound C pretreatment in HeLa cells, the expression of β -actin was used as a reference. (C) Bar chart of the quantitative analysis of the percentage of apoptotic cells in HeLa and SiHa cells after compound C pretreatment. (D) Bar chart of the quantitative analysis of the expression of autophagy and apoptosis proteins after compound C pretreatment in HeLa cells, the expression of β -actin was used as a reference. (E) Bar chart of the quantitative analysis of the change in the percentage of MDC-positive cells after compound C pretreatment. (F) Monitoring changes in autophagic flux by confocal microscopy in HeLa cells, magnification $\times 400$. All experiments were repeated at least three times. # indicates statistical significance compared to the control group, ns: $p > 0.05$, # $p < 0.05$, ## $p < 0.01$, ### $p < 0.001$, #### $p < 0.0001$; * indicates statistical significance compared to the SS treatment group, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$. Com C: Compound C; SS: sodium selenite; c-PARP: cleaved-PARP; c-caspase3: cleaved-caspase3.

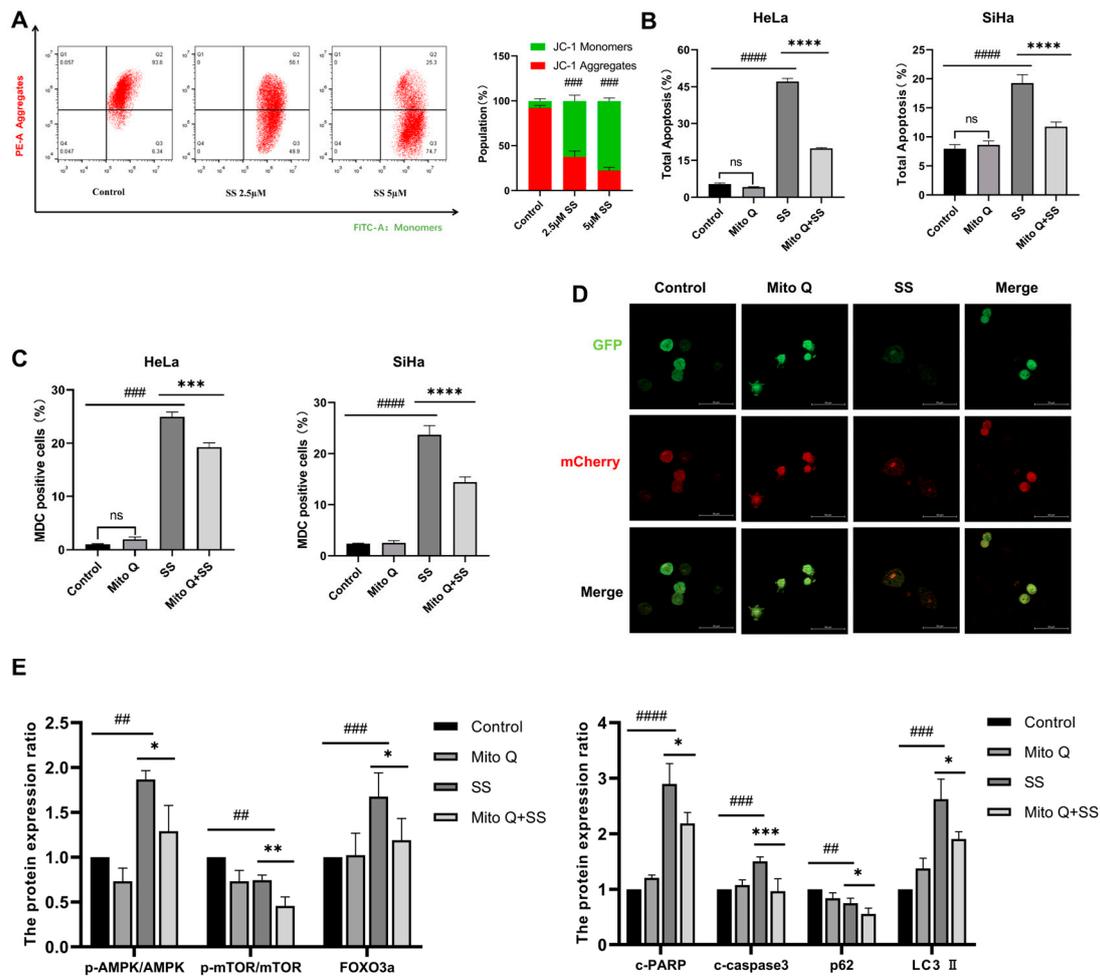


Figure S4. Sodium selenite induces autophagy and apoptosis via mitochondrial ROS. (A) Detection of the effects of different doses of SS on mitochondrial membrane potential changes in HeLa cells by flow cytometry. (B) Bar chart of the quantitative analysis of the percentage of apoptotic cells after Mito Q pretreatment in HeLa and SiHa cells. (C) Bar chart of the quantitative analysis of the percentage of MDC-positive cells after Mito Q pretreatment in HeLa and SiHa cells. (D) Monitoring changes in autophagic flux by confocal microscopy in HeLa cells, magnification $\times 400$. (E) Bar chart of the quantitative analysis of AMPK/mTOR/FOXO3a pathway proteins, autophagy and apoptosis proteins expression after Mito Q pretreatment in HeLa cells, the expression of β -actin was used as a reference. All experiments were repeated at least three times. # indicates statistical significance compared to the control group, ns: $p > 0.05$, ## $p < 0.01$, ### $p < 0.001$, #### $p < 0.0001$; * indicates statistical significance compared to the SS treatment group, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$. Mito Q: Mitoquinone mesylate; SS: sodium selenite; c-PARP: cleaved-PARP; c-caspase3: cleaved-caspase3.

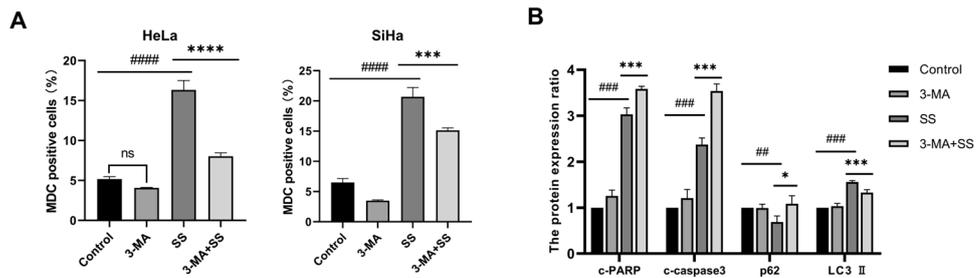


Figure S5. The effects of 3-MA pretreatment on sodium selenite-induced apoptosis in HeLa cells. **(A)** Bar chart of the quantitative analysis of the percentage of MDC-positive cells after 3-MA pretreatment in HeLa and SiHa cells. **(B)** Bar chart of the quantitative analysis of the expression of autophagy and apoptosis proteins after 3-MA pretreatment in HeLa cells, the expression of β -actin was used as a reference. All experiments were repeated at least three times. # indicates statistical significance compared to the control group, ns: $p > 0.05$, $##p < 0.01$, $###p < 0.001$, $####p < 0.0001$; * indicates statistical significance compared to the SS treatment group, $*p < 0.05$, $***p < 0.001$, $****p < 0.0001$. 3-MA: 3-methyladenine; SS: sodium selenite; c-PARP: cleaved-PARP; c-caspase3: cleaved-caspase3.