

Table S1 Materials and reagent information

Material name	Information
Chemiluminescent Color Developing Solution	Biosharp (Hefei, China)
CCK-8 kit	Biosharp (Hefei, China)
H&E staining reagents	Biosharp (Hefei, China)
Protease inhibitor	Roche (Indianapolis, USA)
PVDF membrane	Roche (Indianapolis, USA)
TUNEL detection kit	Roche (Indianapolis, USA)
Puromycin	Solarbio (Beijing, China)
Nissl detection kit	Solarbio (Beijing, China)
RPMI 1640 medium	GIBCO (Invitrogen, Carlsbad, USA)
Lentiviral shRNA	GenePharma (Shanghai, China)
Annexin V-FITC apoptosis detection kit	BD (New York, USA)
Phosphatase inhibitor	Beyotime (Shanghai, China)
RIPA lysis buffer	Beyotime (Shanghai, China)
BCA protein assay kit	Beyotime (Shanghai, China)
Goat anti-rabbit IgG	ZSGB-BIO (Beijing, China)
Rabbit anti-mouse IgG	ZSGB-BIO (Beijing, China)
HT-22 cells	Procell Corporation (Wuhan, China)

Table S2 Information and concentrations of the primary antibodies used

Antibody name	Type of experiment		
	Western blot	Immunofluorescence	Immunohistochemistry
NGF	SANTA, sc-32300, 1:400	Abcam, ab6199, 1:100	Abcam, ab216419, 1:300
p-PI3K	Cell Signaling Technology, #4228, 1:1000		Cell Signaling Technology, #4228, 1:400
PI3K	Cell Signaling Technology, #4257, 1:1000		Cell Signaling Technology, #4257, 1:400
p-AKT	Cell Signaling Technology, #13038, 1:1000		Cell Signaling Technology, #13038, 1:250
AKT	Cell Signaling Technology, #4691, 1:1000		Cell Signaling Technology, #4691, 1:200
p-Drp1 Ser616	Cell Signaling Technology, #4494, 1:1000	Cell Signaling Technology, #4494, 1:1000	Cell Signaling Technology, #4494, 1:200
Drp1	Abcam, ab184247, 1:1000	Abcam, ab184247, 1:1000	Abcam, ab184247, 1:600
OPA1	Abcam, ab42364, 1:1000	Novus, NB110- 55290, 1:400	
Cleaved-caspase-3	Cell Signaling Technology, #9661, 1:1000		
caspase3	Cell Signaling Technology, #9662, 1:1000		
β-Tubulin	ZSGB-BIO, TA-10, 1:1000		
YME1L1	Proteintech, 11510-1-AP, 1:1000		Proteintech, 11510-1-AP, 1:500

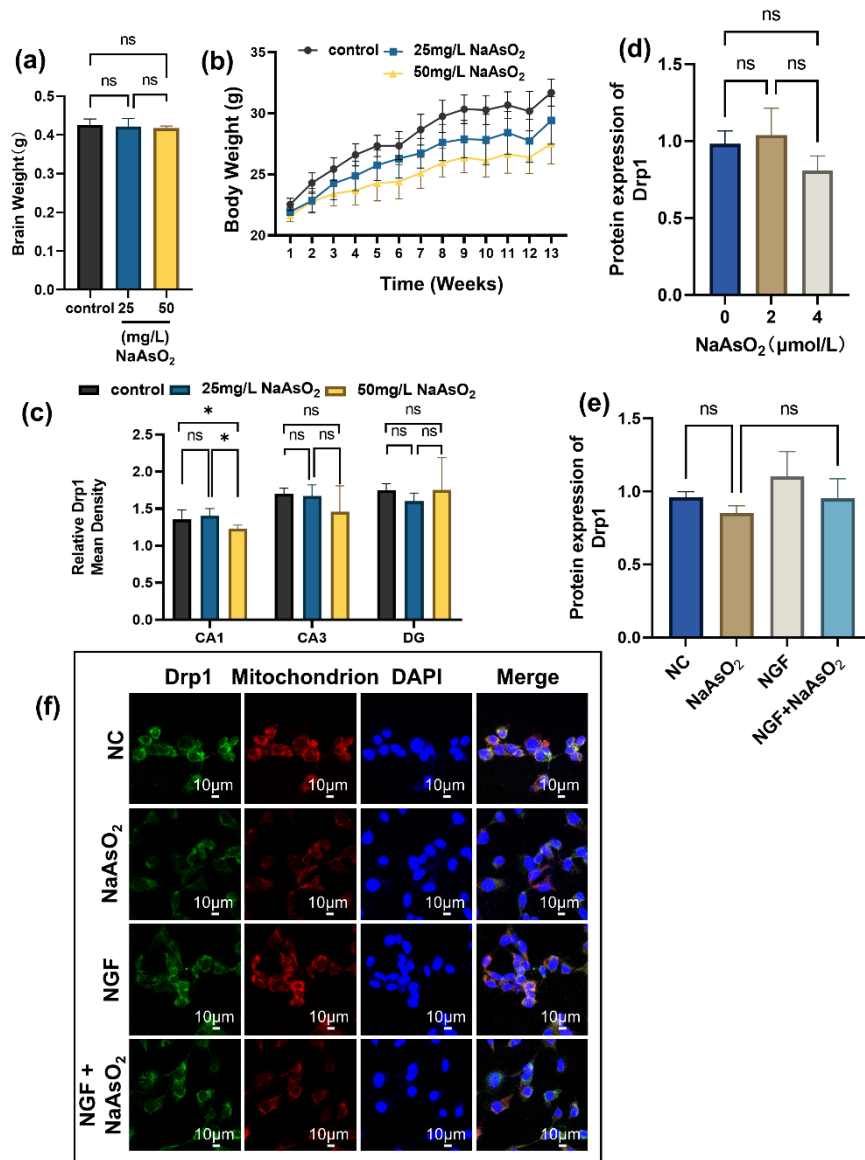


Fig. S1 Effects of arsenic on general information and mitochondrial dynamics-related proteins in mice. (a) Changes in brain weight of mice in each group, $n=10$. (b) The body weight changes of mice in each group, $n=10$. (c) The average optical density values of dynamin-related protein 1 (Drp1) in the hippocampus, $n=4$. (d) Western blotting analysis of Drp1 protein in HT-22 cells exposed to different concentrations of NaAsO₂, $n=3$. (e) Quantitative analysis of Drp1 protein abundance in HT-22 cells after arsenic treatment and/or lentiviral transfection with NGF overexpression vector, $n=3$. (f) The Drp1 fluorescence intensities in HT-22 cells were observed using confocal microscopy, $n=3$. The values are expressed as mean $\pm$ standard deviation (SD). * $P<0.05$, ns: no significance. CA: cornu ammonis; DG: dentate gyrus; NGF: nerve growth factor; NC: normal control; DAPI: 4',6-diamidino-2-phenylindole.

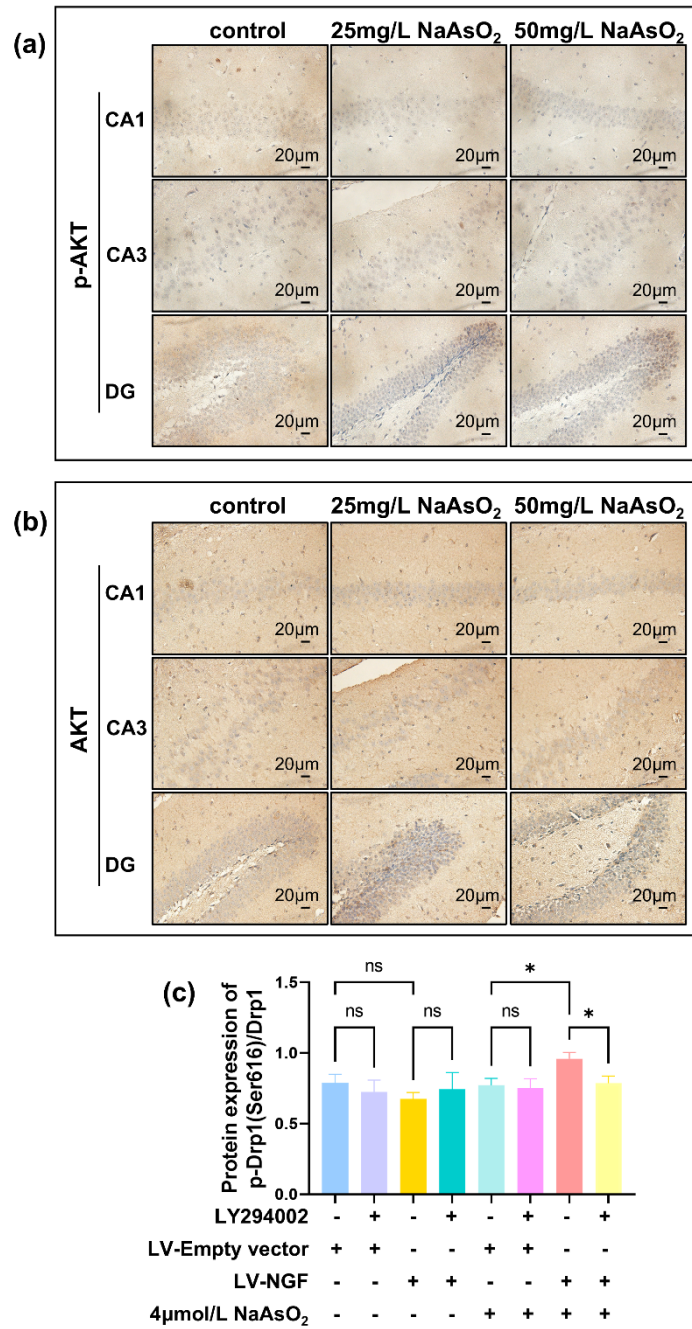


Fig. S2 Effects of arsenic on p-AKT, AKT, and LY294002 on p-Drp1/Drp1. Use immunohistochemistry to detect representative images of p-AKT (a) and AKT (b) in various regions of the hippocampus. (c) Western blot was used to detect p-Drp1/Drp1 in HT-22 cells treated with LY294002, $n=3$. The values are expressed as mean $\pm$ standard deviation (SD). * $P<0.05$, ns: no significance. AKT: protein kinase B; p-AKT: phosphorylated AKT; Drp1: dynamin-related protein 1; p-Drp1: phosphorylated Drp1; CA: cornu ammonis; DG: dentate gyrus; NGF: nerve growth factor; LV: lentiviral vector.