題名:Protection against arsenic trioxide-induced autophagic cell death in U118 human glioma cells by use of lipoic acid.

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摘要:Arsenic is an environmental toxicant found naturally in ground water. Epidemiological studies have suggested a correlation between chronic arsenic exposure and potential brain tissue damage in clinical case and animal experiments. Lipoic acid (LA) is a thiol-compound naturally occurring in plants and animals, which is thought to be a strong antioxidant and possess neuroprotective effects. The objective of this study was to determine if the AS2O3-induced glial cell toxicity could be prevented by LA. The human malignant glioma cell (U118) was selected as a research model. By using acridine orange staining and flow cytometry analysis, we found that autophagic, but not apoptotic, cell death was significantly induced by AS2O3 in U118 cells, and that AS2O3-mediated autophagic cell death was nearly completely attenuated by LA. Down-regulation of p53 and Bax proteins and the up-regulation of Bcl-2 and HSP-70 proteins were observed by western blot in AS2O3-mediated autophagic cell death. Our results implied that LA completely inhibited U118 cells autophagic cell death induced by AS2O3. We suggested that LA may emerge as a useful protective agent against arsenic-induced glial cell toxicity and reversing arsenic-induced damage in human brain.