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An anthraquinone compound and its protective effects against Homocysteine-induced cytotoxicity and oxidative stress

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Abstract: In this work, we designed an anthraquinone derivative: 1,4-diacrylateanthracene-9,10-dione (DAAD) with antioxidant activity for preventing Alzheimer's disease (AD) through preventing the neurotoxicity of Homocysteine (Hcy). This compound has very low cytotoxicity and protects the cells against Hcy-induced cytotoxicity and oxidative stress. Thus, maybe DAAD can be used as a potential reagent to preventing AD. In addition, we investigated the UV–Vis and fluorescence spectra of DAAD in PBS (pH 7.29) / DMSO (v/v, 1:1) solution for detecting Hcy, and the detection limit of DAAD for Hcy was found to be 0.121 μM. Thus, DAAD also can be used to monitor the Hcy level in plasma and cells.

Keywords: 1,4-diacrylateanthracene-9,10-dione; Antioxidant activity; Homocysteine; Alzheimer's disease;