

## عنوان مقاله:

Increased protein expression of ABCA1, HMG-CoA reductase, and CYP46A1 induced by garlic and allicin in the brain mouse and astrocytes-isolated from C57BL/6J

## محل انتشار:

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## خلاصه مقاله:

Objective: Regulation of cholesterol level is essential for the brain optimal function. The beneficial effect of garlic consumption on cholesterol homeostasis is well known; however, the molecular mechanism to support its properties is unclear. Here, we investigated the beneficial effect of aqueous extract of garlic and allicin on lipid profile and the main players involved in brain cholesterol homeostasis including ABCA1, HMG-CoA reductase, and CYP46A1 in both C57BL/6J mice brain and astrocytes. Materials and Methods: Thirty mice were divided into control and garlic groups. Garlic group was fed with the aqueous extract of garlic. Serum lipids were measured and brain protein levels of ABCA1, HMGCR, and CYP46A1 were determined by western blotting. Changes in these proteins expression were also studied in the presence of allicin in cultured astrocytes. Results: A moderate decrease in serum total cholesterol and a significant increase in plasma HDL-C levels ( $p < 0.05$ ) were detected. A significant increase in ABCA1, HMGCR, and CYP46A1 protein levels was observed in the garlic group and in the cultured astrocytes treated with allicin by western blotting ( $p < 0.05$ ). Conclusion: Our findings indicated that the main players involved in cholesterol turnover including HMGCR that is involved in cholesterol synthesis, ABCA1 that is important in cholesterol efflux, and CYP46A1 that is necessary in cholesterol degradation, were up regulated by garlic/allicin in both animal and cell culture model. We concluded that increasing cholesterol turnover is a possible mechanism for the beneficial effects of garlic in cholesterol homeostasis.

## کلمات کلیدی:

Garlic, Allicin, HMG-CoA reductases, ATP binding cassette transporter 1, CYP46A1

