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# Lycium barbarum polysaccharides related RAGE and Aβ levels in the retina of mice with acute ocular hypertension and promote maintenance of blood retinal barrier

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## Abstract

Our previous study verified the protective effects of Lycium barbarum polysaccharides (LBP) on retinal neurons and blood vessels in acute ocular hypertension (AOH) mice. To investigate the effect of LBP on the reactivity of retinal glial cells, an AOH mouse model was established in one eye by maintaining ocular hypertension of 90 mmHg for 60 minutes. Either LBP solution (1 mg/kg) or phosphate-buffered saline was administrated to the mice by gavage daily, starting 7 days before the AOH insult and continuing until the mice were sacrificed for specimen collection on day 4 post-insult. After AOH insult, increased numbers of astrocytes and microglia were observed, together with decreased expression of the following glial cell biomarkers in the retinal ganglion cells of AOH mice: glial fibrillary acidic protein, glutamine synthetase, aquaporin-4, S-100 proteins, ionized calcium-binding adaptor molecule 1, amyloid precursor protein and receptor of advanced glycosylation end-products. After intervention with LBP, the above changes were significantly reduced. Remarkably, morphological remodeling of blood vessel-associated retinal astrocytes, marked by glial fibrillary acidic protein, was also observed. These results, taken together, suggest that LBP regulated the production of amyloid-β and expression of receptor of advanced glycosylation end-products, as well as mediating the activity of retinal glial cells, which may lead to the promotion of better maintenance of the blood-retinal barrier and improved neuronal survival in AOH insult. This study was approved by the Committee for the Use of Live Animals in Teaching and Research (approval No. CULTRA-#1664-08).

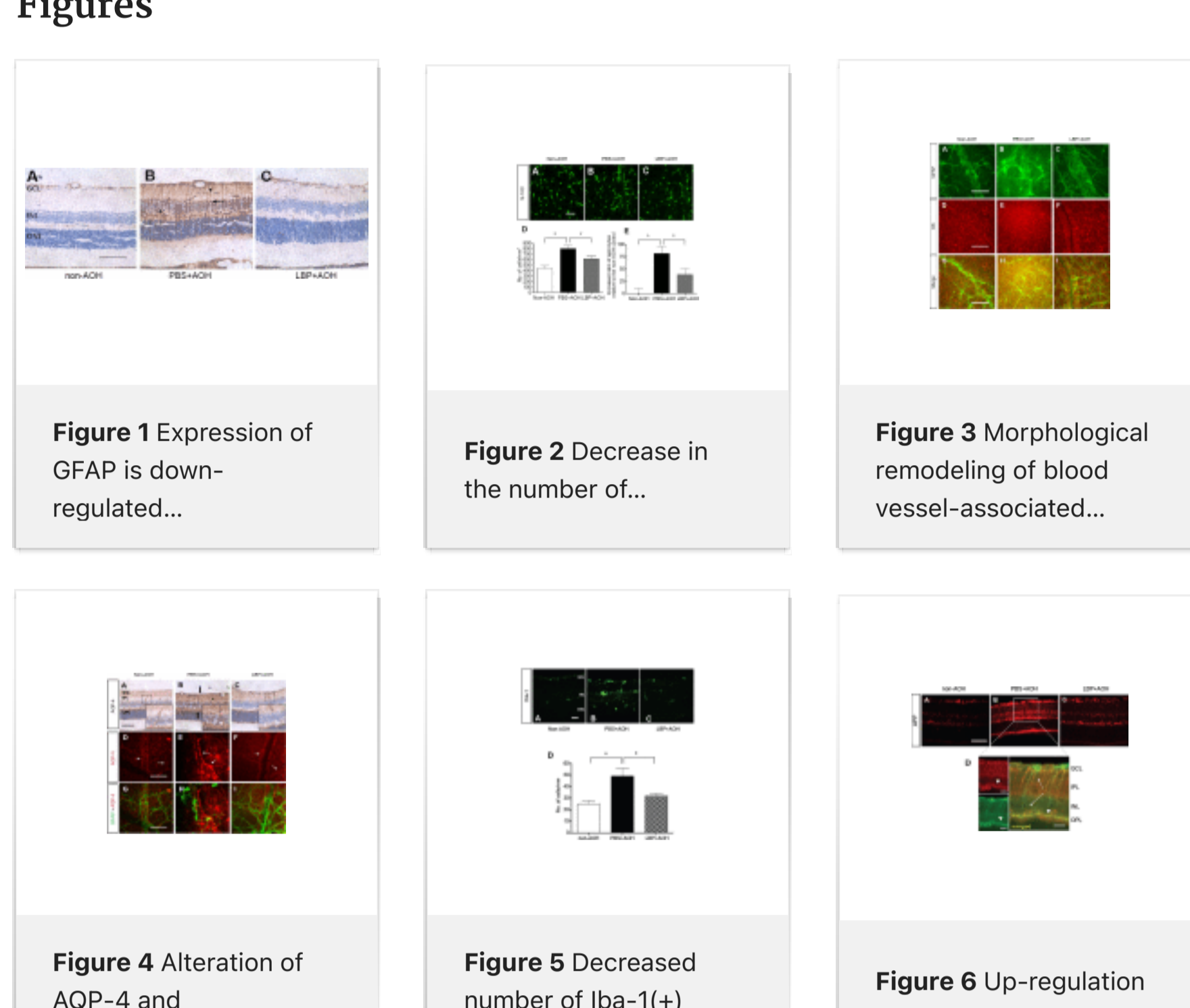
**Keywords:** Lycium barbarum; astrocyte; blood-retinal barrier; glial cell; microglia; model; plasticity; remodel; retina.

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## Conflict of interest statement

None

## Figures



All figures (7)

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