



Review

Kynurenic acid and kynurenine aminotransferases in retinal aging and neurodegeneration

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Abstract:

The kynurenine aminotransferases (KATs) KAT I and KAT II are pivotal to the synthesis of kynurenic acid (KYNA), the only known endogenous glutamate receptor antagonist and neuroprotectant. KAT I and II have been found in avian, rodent, and human retina. Expression of KAT I in Müller cell endfeet and KAT II in retinal ganglion cells has been documented. Developmental changes in KAT expression and KYNA concentration in the avian and rodent retina have also been found. Studies of retinal neurodegeneration have shown alterations in KYNA synthesis in the retina in response to retinal ganglion cell loss. In DBA/2J mice, a model of ocular hypertension, an age-dependent decrease of retinal KYNA and KATs was found. In the corpora amylacea in the human retina intensive KAT I and II immunoreactivity was demonstrated. In summary, these findings point to the potential involvement of KYNA in the mechanisms of retinal aging and neurodegeneration.

Key words:

kynurenic acid, kynurenine aminotransferase, neurodegeneration
