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# The emerging role of glutathione in Alzheimer's disease

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## Abstract

With millions of older individuals presently suffering from Alzheimer's disease (AD) worldwide, AD is an unduly common form of dementia that exacts a heavy toll on affected individuals and their families. One of the emerging causative factors associated with AD pathology is oxidative stress. This AD-related increase in oxidative stress has been attributed to decreased levels of the brain antioxidant, glutathione (GSH). In this article, we review the role of GSH in AD from a pathological as well as a diagnostic point of view. We recapitulate the literature that has assessed the role of GSH in AD onset and progression. We discuss the various methodologies through which alterations in GSH levels might be monitored, and highlight the yet uncharted potential of assaying GSH levels in vivo with magnetic resonance spectroscopy in AD therapeutics and prognostics. Finally, the present manuscript integrates findings from various studies to elucidate the possible molecular mechanisms through which disruptions in GSH homeostasis may contribute to AD pathology.

**Keywords:** Alzheimer's disease; amyloid- $\beta$  peptide; biomarker; glutathione; oxidative stress.

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