

## **SPIRULINA PROTECTS AGAINST LPS INDUCED DECREASE IN NEUROGENESIS**

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The generation of neurons within the granule cell layer (GCL) of the hippocampus is a lifelong occurrence. Disruptions in hippocampal neurogenesis may lead to deficits in learning and memory such as those observed during cognitive decline in the aging process. During natural aging there is an increase in pro-inflammatory cytokines. This increase negatively impacts neurogenesis which can then lead to disruptions in hippocampal neurogenesis and cognitive decline. Therapeutic interventions are now seeking to halt the decrease of neurogenesis associated with cognitive decline. Data from this lab has shown that spirulina, a blue-green algae rich in antioxidants and fatty acids, decreases pro-inflammatory cytokines in the aged rat brain (Gemma, 2001). Here, the effects of an acute inflammatory insult of lipopolysaccharide (LPS) combined with a spirulina diet were analyzed for migration of BRDU labeled cells to the GCL in adult rats. The LPS insult resulted in a decrease in cell migration, supporting the finding that inflammation decreases neurogenesis. A spirulina diet administered for 30 days prior to insult attenuated the negative impact of LPS. However, a spirulina diet administered without an LPS insult did not alter levels of BRDU labeled cells in the GCL. In conclusion, spirulina promotes neurogenesis following an inflammatory insult within the brain.