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New Cerebrum Story Outlines Relationship Between Inflammation and Depression

Everyone gets the blues. Sometimes the trigger is a traumatic life event; other times it may be hard to pinpoint. But if time passes and they can't seem to get out from under symptoms that can range from a loss of appetite to complete and utter hopelessness, it's likely that they may be suffering from depression.

According to the [National Institute of Mental Health](#), each year 6.7 percent of all U.S. adults experience major depressive disorder; additionally, 3.3 percent of 13 to 18 year olds experience a seriously debilitating depressive condition.

Better understanding of the neurological and biological processes that lead to depression is vital to treating it. In this month's *Cerebrum*, Charles L. Raison, M.D., and Andrew H. Miller, M.D., write about what the latest research reveals about the link between inflammation in the brain and depression. Their story, "[Do Cytokines Really Sing the Blues?](#)" explains why it is a myth to believe that depression is solely an inflammatory disorder.

"To a large degree, those of us who study the role of inflammation in depression are responsible for spreading the idea," write the authors, who previously collaborated on a [2012 study on infliximab](#), a medication that inhibits inflammation in the brain. "But with the passage of time and the ongoing accumulation of findings from a variety of scientific disciplines, it is becoming increasingly apparent that this characterization, while attractive in the popular press, confuses as much as it clarifies, and is in deep need of refinement."

Inflammation is a normal physiological process that plays a major role in almost every major medical illness. In each illness inflammation causes the release of cytokines, which behave as chemical messengers and signal cells to the immune system. Our *Cerebrum* story, in part, focuses on two cytokines—tumor necrosis factor (TNF) and interleukin (IL)-6—and an acute phase reactant called C-reactive protein (CRP), which is produced by the liver and rises when there is inflammation throughout the body.

[Dr. Miller](#), a professor of Psychiatry and Behavioral Sciences at Emory University School of Medicine, and [Dr. Raison](#), formerly at Emory and now associate professor in the Department of Psychiatry at the University of Arizona, suggest that "something as simple as the widely available blood test for C-reactive protein may identify individuals with greater or lesser likelihood of responding to anti-inflammatory therapeutic strategies and, by extension, individuals for whom inflammation is more or less of a causative factor."

More insight on the role cytokines play in the body may be found in the Dana Foundation's "[Consequences of the Inflamed Brain](#)," a Report on Progress story published last August by Steven F. Maier, Ph.D., and Linda R. Watkins, Ph.D. To learn about research efforts to find biomarkers for depression—tests for aspects of a patient's physiology that can predict a clinical outcome, read "[Biomarkers and the Future Treatment for Depression](#)," co-authored by Marissa Toups, M.D., and Madhukar H. Trivedi, M.D., in the May 2012 issue of *Cerebrum*.

-- Bill Glovin

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