Can anti-inflammatory therapies be effective against epilepsy?

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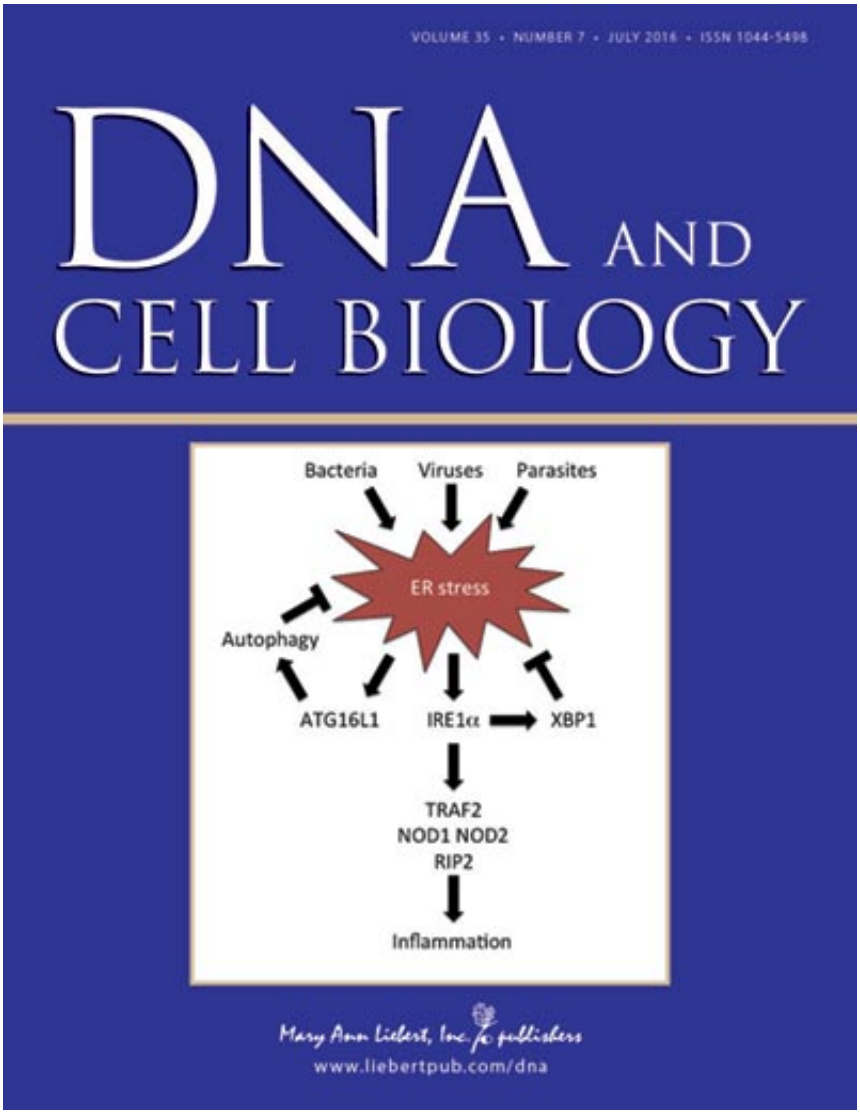

Credit: Mary Ann Liebert, Inc., publishers

In epileptic patients, seizures lead to an increased level of inflammation-related proteins called chemokines in the brain, and systemic inflammation likely helps trigger and promote the recurrence of seizures, making inflammation a promising new target for anticonvulsant therapy. The latest evidence on one particular chemokine of interest, CCL2, and its potential role in human epilepsy are the focus of an article in *DNA and Cell Biology*.

In "Epilepsy, Seizures and Inflammation: Role of the CCL2 Chemokine", Yuri Bozzi, National Research Council, Pisa, and Matteo Caleo University of Trento, Italy, provide a comprehensive review of the research demonstrating the link between both systemic and brain inflammation and epileptic seizures. Based on established evidence that CCL2 mediates the seizure-promoting effects of inflammation, and that selectively blocking either the synthesis of CCL2 or its receptor in animal models of epilepsy suppresses inflammation-induced seizures, the researchers suggest that drugs already in for several human disorders that interfere with CCL2 signaling might be effective for treating epilepsy that is not controlled with current therapies.

"The targeted therapeutic approach to attack recruitment of inflammatory cells to the site of neuronal hyperactivity by preventing the chemoattractant molecule CCL2 from recruiting circulating cells is very promising," says Carol Shoshkes Reiss, PhD, Editor-in-Chief, of *DNA and Cell Biology* and Professor, Departments of Biology and Neural Science, and Global Public Health at New York University, NY. "I hope these studies can be translated from the bench to the bedside."

More information: Yuri Bozzi et al, Epilepsy, Seizures, and Inflammation: Role of the C-C Motif Ligand 2 Chemokine, *DNA and Cell Biology* (2016). DOI: 10.1089/dna.2016.3345