

# It's in your head: The brain's own globin defends you from shock and stroke

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The next generation of treatments for shock or stroke could be based on a protein that is already in our heads – neuroglobin. In a review article to be published in the November issue of The FASEB Journal, scientists from University of Rome describe this protein, which may be the key to unlocking new therapies to minimize brain damage and improve recoveries for patients.

The Italian researchers suggest that neuroglobin is involved in the brain's response to oxygen deprivation and plays a protective role against brain damage. Structurally similar to hemoglobin (blood) and myoglobin (skeletal muscle), neuroglobin is found in neurons and is most prevalent in areas of the brain that have adapted to physiological stress, such as stroke.

Unlike hemoglobin or myoglobin, however, neuroglobin's primary function does not appear to involve transporting oxygen. Instead, the authors suggest that neuroglobin is more likely to usher in nitric oxide to protect neuron survival and recovery in areas where oxygen supply is reduced.

"Understanding that our brains have a hemoglobin-like molecule in our head that protects and helps restore function in the brain is an important step toward helping people who experience strokes or similar problems," said Gerald Weissmann, MD, Editor-in-Chief of The FASEB Journal. "Hemoglobin carries oxygen to all the body; neuroglobin defends our brain when it needs air. This article provides the first analysis of this

exciting finding in brain research."

Source: Federation of American Societies for Experimental Biology

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