

Editors' Note: Drs. Brenner, Calamante, and Gross, *Neurology*[®] Editor-in-Chief, discuss the ethical implications of the artistic interpretation of animal research. Teive and colleagues describe their experience with a patient with lipoid proteinosis to further stress the susceptibility of brain blood vessel to rupture in this disease.

Chafic Karam, MD, and Robert C. Griggs, MD

MOUSE BRAIN KALEIDOSCOPE

Steven R. Brenner, St. Louis: While this image is beautiful,¹ it seems to have gone beyond the intended purpose of the original research on the mice. I understand publishing the original mouse brain image based on the striking images as an educational process and raising awareness of the experimental animals, technology, and the findings involved. However, arranging them in the kaleidoscope design appears to me to go beyond the original intent of the research and takes on the perspective of artistic expression.

I may be overly sensitive, however I want to raise awareness of experimental animals and the dependence we have on them for research in understanding and developing treatments for human diseases. Should the results of such animal research be used in artistic expression? The bioscience community accepts that animals should be used for research only within an ethical framework.²

Author Response: Fernando Calamante, Melbourne:

I appreciate the comment by Dr. Brenner regarding the brain kaleidoscope image.¹ Further to his comment, we would like to clarify that the image used to construct the kaleidoscope was from a dataset acquired for justifiable scientific purposes.³ The subsequent use of the image for artistic expression should not detract from the primary purpose of these data.

We would argue that medical research in general (not just animal research) should only be undertaken for good scientific reasons.

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1. Calamante F. Visions: Mouse Brain Kaleidoscope. *Neurology* 2012;79:1829.
2. Festing S, Wilkinson R. The ethics of animal research: talking point on the use of animals in scientific research. *EMBO Rep* 2007;8:526–530.

3. Calamante F, Tournier J-D, Kurniawan ND, et al. Super-resolution track-density imaging studies of mouse brain: comparison to histology. *NeuroImage* 2012;59:286–296.

Editor's Note: Robert A. Gross, Rochester, NY: Dr. Brenner raises an important point about the ethical treatment of animals, a position with which we agree. As the text accompanying the image makes clear, this animal work was done to refine imaging techniques. The result, published elsewhere, had another benefit: it yielded beautiful images of the nervous system. Had the animal work been done solely for artistic purposes, one could raise ethical concerns; but providing a thought-provoking and esthetic image of the nervous system, using already-acquired material, seems felicitous and beneficial. The purpose of the occasional Visions section is to provide artistic images of a neurologic nature, for our edification.

SPONTANEOUS INTRACEREBRAL HEMORRHAGE IN URBACH-WIETHE DISEASE

Helio A. Teive, Curitiba; Eduardo Ruschel, Joinville; Renato P. Munhoz, Curitiba, Brazil:

Messina et al.¹ presented a 39-year-old woman with Urbach-Wiethe disease or lipoid proteinosis (LP) who developed right hemiparesis due to a left lenticular nucleus hemorrhage. The authors suggested that LP is associated with diffuse small-vessel disease. LP is a rare autosomal recessive disease due to mutations in the extracellular matrix protein 1 (ECM1) gene.² ECM1, the protein mutated in LP, is expressed around the blood vessels and involved in angiogenesis. This abnormality could explain the susceptibility of brain blood vessel rupture.¹ We published a case report of generalized dystonia and striatal calcifications in a patient with LP.³ Family history was positive for a 34-year-old sister diagnosed with LP who had epilepsy and mild mental retardation.³ This patient later developed a sudden right hemiplegia and brain MRI showed a massive hemorrhage in the left fronto-temporo-parietal lobe. The patient had neurosurgery and an extensive workup, including cerebral angiography, which was normal. This case report confirms the association of LP and brain hemorrhage, not only with small deep brain hemorrhage, but also with large brain hematoma.

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Mouse Brain Kaleidoscope

Steven R. Brenner, Fernando Calamante and Robert A. Gross

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