

**Experimental Neuroscience: Cerebrovascular /
Brain Injury / Neuroprotection**

A-686 Room F, 10/16/2000 9:00 AM - 11:00 AM (PS)

Induction of Inducible Nitric Oxide Synthase in the Gerbil Hippocampus Following Transient Forebrain Ischemia Hiroshi Abe, MD, PhD; Hideaki Tsuchida, MD, PhD; Hideyuki Shiratsuka, MD, PhD; Yoshimichi Ueda, MD, PhD; Shogo Katsuda, MD, PhD, *Anesthesiology, Kanazawa Medical University, Uchinada, Ishikawa, Japan.* This study addressed iNOS induced in the hippocampus may play an important role in the induction of apoptosis.

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A Molecular Mechanism for Action of Neuroprotectants and Paralytic Drugs Ying-Jun Cao, M.D.; John C. Dreixler, Ph.D.; Jeffrey D. Roizen; Michael T. Roberts; Khaled M. Houamed, Ph.D., *Department of Anesthesia and Critical Care, The University of Chicago, Chicago, IL, United States*

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Antioxidant Defenses in Hypoxic Immature Astrocyte Cultures Andrew J. Davidson, MBBS FANZCA; Douglas B. Cowan, PhD; Dimitrios N. Poutias, BS; Francis X. McGowan, MD, *Department of Anesthesia, Children's Hospital, Boston, MA, United States.* Hypoxic immature astrocytes are more susceptible to oxidant injury due to altered antioxidant defenses and increased production of oxyradicals.

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Traumatic Brain Injury or Peroxynitrite Reduces Vasodilatory Responses in Isolated Rodent Cerebral Arteries Douglas S. Dewitt, Ph.D.; Babu P. Mathew, M.S.; Donald S. Prough, M.D., *Department of Anesthesiology, University of Texas Medical Branch, Galveston, TX, United States.* Brain injury or peroxynitrite reduces vasodilatory responses to CGRP and cromakalim in isolated rodent cerebral arteries.

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Effect of Hypertonic Saline and Mannitol on Plasma Osmolality and Brain Water Eve Dillman, BS; Johnny E. Brian, MD; Michael M. Todd, MD, *Dept. of Anesthesia, University of Iowa Hospitals and Clinics, Iowa City, IA, United States.* Mannitol and hypertonic saline had equal effects on brain water for equal changes in osmolality. More saline is required to achieve the same osmolalities as mannitol.

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The Effect of Hypothermia on the Expression of Apoptosis-Regulating Proteins after Cerebral Ischemia in the Rat Kristin Engelhard, MD; Christian Werner, MD; Monika Bachl; Eva Eberspacher; Eberhard Hilt, PhD, *Klinik für Anaesthesiologie, Technische Universität München, München, Germany.* Mild hypothermia inhibits synthesis of apoptosis-regulating proteins 4h after cerebral ischemia.

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Cyclosporin A Protects Astrocyte but Not Cerebellar Granule Neuron Mitochondria from Calcium Induced Injury Gary Fiskum, Ph.D.; Krish Chandrasekaran, Ph.D.; Linda L. Bambrick, Ph.D.; Bruce K. Krueger, Ph.D., *Anesthesiology, Univ. of Maryland, Baltimore, Baltimore, MD, United States.* The neuroprotectant cyclosporin A protects non-neuronal but not neuronal mitochondria against calcium-induced damage.

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Optical Image Analyses of Neuronal Dysfunction in Hippocampal Slices from the Gerbil Following Transient Brain Ischemia Naoshi Fujiwara, Ph.D.; Ren-Zhi Zhan, M.D.; Kiichiro Taga, M.D.; Kenji Seo, D.D., *Department of Medical Technology, Niigata University School of Health Sciences, Niigata, Japan.* Ischemic neuronal dysfunction was optically analyzed by a membrane potential imaging technique.

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Effect of a Single Dose of Ketamine on Apoptotic Neurodegeneration in the Developing Rat Brain Hideaki Hayashi, MD; Pieter Dikkes; Sulpicio G. Soriano, MD, *Dept of Anesthesia, Children's Hospital, Boston, MA, United States.* A single dose of ketamine from 25 to 75 mg/kg did not increase neuronal apoptosis in the 3 to 7-day-old rat brains, as examined 24 hours after injection.

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Cardiopulmonary Bypass (CPB) Increases Brain Inducible Cyclooxygenase (COX2) mRNA Expression in Rats Bradley J. Hindman, MD; Steven A. Moore, MD; Johann Cutkomp, BS; Tom Smith, BS, *Department of Anesthesia, University of Iowa, College of Medicine, Iowa City, IA, United States.* Compared to surgical shams, rats undergoing 1 h of cardiopulmonary bypass had greater brain COX2 expression 4 h later.

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Effect of Isoflurane on Neuronal Apoptosis in Rats Subjected to Focal Ischemia M. Kawaguchi, M.D.; J.R. Kimbro, M.D.; J.C. Drummond, M.D.; D.J. Cole, M.D.; P.M. Patel, M.D., *Dept. of Anesthesiology, VA Medical Center and University of California, San Diego, CA, United States.* Isoflurane reduced the development of apoptosis early after ischemia but did not prevent it at later stages of post-ischemia.

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The Neuroprotective Agent Riluzole Inhibits NMDA-Induced FAK 125 Tyrosine Kinase Phosphorylation in the Rat Hippocampus Hawa Keita, M.D.; Agnes Peyclit, M.D.; Fanny Jardinaud; Danielle Rouelle; Jean Mantz, M.D.Ph.D., *Anesthesiology, Hopital Bicbat, Paris 7 University, Paris, France.* Inhibition of NMDA-induced tyrosine kinase phosphorylation contribute to riluzole neuroprotection.

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Chronic Hyperglycemia and Insulin: The Effect on Neurologic Outcome Following Transient Focal Cerebral Ischemia in Rats Heidi M. Koenig, MD; Mikbail I. Freidine, MD/PhD; Roberto A. Santizo, MD; Dale A. Pelligrino, PhD, *Anesthesiology, University of Illinois-Chicago, Chicago, IL, United States.* Insulin decreases brain injury after transient middle cerebral artery occlusion in chronically hyperglycemic rats.

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Effect of Lamotrigine on MRI-Derived Indices of Brain Water Content during Global Cerebral Ischemia Herbert Koinig, MD; John P. Williams, PhD; Michael J. Quast, PhD; Mark H. Zornow, MD, *Department of Anesthesia, University of Texas Medical Branch, Galveston, TX, United States.* Lamotrigine did not prevent fluid shifts during global cerebral ischemia, as derived from calculation of the ADC of water.