



## John D.E Barks M.D.

Associate Professor  
Assistant Research Scientist  
Department of Pediatrics and Communicable Diseases  
Center for Human Growth and Development  
8301 Medical Science Research Building III 0646  
Ann Arbor, MI 48109  
(734)936-8621  
[jbarks@med.umich.edu](mailto:jbarks@med.umich.edu)



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### Research Interests

Our research focuses on mechanisms of injury to the developing brain, primarily hypoxic-ischemic (i.e. stroke-like) brain injury, and on mechanisms of recovery from neonatal brain injury. Hypoxic-ischemic brain injury is responsible for approximately 10-20% of all cases of cerebral palsy in infants born at term, and a greater proportion of cases of cerebral palsy in infants born prematurely. We use basic research in models of stroke-like brain injury in immature rats and mice. Post-injury behavioral interventions being evaluated in neonatal rodents include Early Neonatal Handling and Neonatal Novelty Exposure. Neurobehavioral assessment tools that are sensitive to changes in severity of neonatal brain injury in rats, e.g. place navigation in the Morris Watermaze, are used to evaluate functional outcome.

Potential recovery mechanisms being investigated include synaptogenesis and neurogenesis, primarily in the hippocampal formation. Methods used include Golgi-Cox staining, mossy fiber staining, Western blotting, immunohistochemistry, confocal microscopy and cell counting by systematic random sampling (also known as stereology).

### Selected References

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