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SEARCH

## People / Faculty



Gerald E. Schneider, Ph.D.  
Professor of Neuroscience

Department of Brain and Cognitive Sciences  
Building: 46-6021  
Email: [jerry@mit.edu](mailto:jerry@mit.edu)

Current research: axon regeneration in the central nervous system with functional recovery; special topics in human neuropsychology and perception; studies of the brains of sea mammals.

The discovery and publication of the "two visual systems" (1967, 1969) set the stage for much of what followed. After the early work with adult brain lesions, I pursued studies of brain damage early in life and found reasons why the functional effects of lesions in young animals were so different from those in adults: Axonal connections became altered in various ways. The implications are clear: Such abnormalities must occur in humans with early brain damage, as in cerebral palsy, some forms of schizophrenia, and some cases of mental retardation. Much of this work was published in the '70s (1973-1979). In 1981, the first paper on CNS axon regeneration was published, and this work has continued, using both neonate and adult animals, in collaboration with former students. We have found that a self-assembling peptide solution, discovered at MIT by T. Holmes and S. Zhang, will form a nanofiber mesh in the CNS wound site which serves as an effective bridge for axon growth (Ellis-Behnke et al. 2006a). This material also stops bleeding rapidly, without coagulation, not only in brain but in many other tissues (Ellis-Behnke et al. 2006b).

Additional research interests: Human perception and the phenomenon of central visual persistence (a kind of photographic short-term memory) with development of a new interpretation; neuropsychological and neurological effects of hypoglycemia; comparative anatomical studies of the brains of sea mammals, currently concentrating on the California sea lion.

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Montie EW, Pussini N, Schneider GE, Battey TW, Dennison S, Barakos J, Gulland F. Neuroanatomy and volumes of brain structures of a live California sea lion (*Zalophus californianus*) from magnetic resonance images. *Anat Rec (Hoboken)*. 2009 Oct;292(10):1523-47.

Montie EW, Schneider GE, Ketten DR, Marino L, Touhey KE, Hahn ME. Neuroanatomy of the subadult and fetal brain of the Atlantic white-sided dolphin (*Lagenorhynchus acutus*) from in situ magnetic resonance images. *Anat Rec (Hoboken)*. 2007 Dec;290(12):1459-79.

Ellis-Behnke RG, Liang YX, Tay DK, Kau PW, Schneider GE, Zhang S, Wu W, So KF. Nano hemostat solution: immediate hemostasis at the nanoscale. *Nanomedicine*. 2006 Dec;2(4):207-15. Epub 2006 Oct 12.

Ellis-Behnke RG, Liang YX, You SW, Tay DK, Zhang S, So KF, Schneider GE. Nano neuro knitting: peptide nanofiber scaffold for brain repair and axon regeneration with functional return of vision. *Proc Natl Acad Sci U S A*. 2006 Mar 28;103(13):5054-9. Epub 2006 Mar 20. Erratum in: *Proc Natl Acad Sci U S A*. 2006 May 9;103(19):7530.

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### [Additional Publications](#)



MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
77 Massachusetts Ave Cambridge, MA 02139  
(tel) 617.258.9344