

FACULTY INTEREST SHEET: A. M. Bailey

A. Neurological Mechanisms of Learning Set Formation

A learning set is a hypothesis that allows an animal to solve two choice discrimination problems. Rendering certain areas of the brain nonfunctional produces impairments in learning set. Which circuits of the brain are used in learning sets? What neurotransmitter systems are critical for the acquisition and retention of learning set? When an animal shows a deficit in learning set, what pharmaceutical agents might alleviate the deficit? (See K.Martin SMP; J. Lee SMP)

B. Learning Deficits in Neurofibromatosis

Neurofibromatosis (*Nf1*) is a common genetic disorder that can result in abnormal brain development, learning difficulties, and brain tumors. A heterozygous *Nf1* mouse model has been developed to examine deficits seen in the human condition. What specific learning deficits do these mice show? Are the learning deficits in the mice similar to those seen in humans? What type of treatment could be given to the mice to alleviate learning deficits? (see Costa, R.M. et al. (2001). Learning deficits, but normal development and tumor predisposition, in mice lacking exon 23a of *Nf1*. *Nature Genetics*. 27, 399-405)

C. Animal Behavior

There are an endless number of animal behavior projects that could be done. Some examples of previous projects include (a) examination of neurological, cognitive, and social behavior in dolphins, (b) mating behavior of captive seahorses, (c) behavioral differences in wild vs. semi-domestic vervet monkeys. (see N. Little SMP).