Prions Make Amends
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Because one kind of prion causes “mad cow disease,” prions in general get a lot of bad press. The very word “prion” may conjure horrific visions of saboteurs cascading through brain tissue. But not all prions are deadly. Kausik Si, a neurobiologist at Columbia University, and his colleagues propose that at least one protein that acts like a prion may do something positive: it may help store long-term memories in the sea hare, *Aplysia,* a marine invertebrate favored in neurological research because of its large neurons.

Memories seem to form when two stimulated neurons change the way they communicate across a synapse, the gap between them. The prion-like protein in *Aplysia* resides in the synapse. Si and his colleagues speculate that when the neurons are stimulated, the protein refolds itself and causes other, neighboring proteins of the same kind to follow suit—much like the self-perpetuating prions of ill repute.

Instead of wreaking havoc, however, the “domino effect” ends of strengthening the synaptic connection. The shape change in the prion-like proteins leads to the synthesis of other kinds of proteins that help stabilize the connection. The net effect is that *Aplysia*’s neurons retain memories for several days instead of just a few minutes. (“A neuronal isoform of CPEB regulates local protein synthesis and stabilizes synapse-specific long-term facilitation in *Aplysia,*” *Cell* , 115:893-904, December 26, 2003)—Caitlin E. Cox

Running the Numbers
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It’s well known among primatologists that the number of males within a group of, say, baboons, chimpanzees, or lemurs is related to the number of females. Patrik Lindenfors, a zoologist at the University of Virginia in Charlottesville, and two colleagues have now identified which sex appears to be in charge of regulating those numbers.

The biologists reanalyzed previously recorded data for a variety of primate species and discovered that females are the vanguard of the revolution: changes in the number of males lag behind changes in the number of females. Female numbers apparently respond directly to such evolutionary pressures as predation, climate, and the availability of food. The females tailor their social relationships accordingly, and the males—if they hope to mate with anybody—must then adjust to the new size of the sisterhood. (“Females drive primate social evolution,” *Proceedings of the Royal Society of London B (Suppl.)* 271:S101-S103, February 7, 2004)—Caitlin E. Cox