



CLOSING THE LOOP: A fiber-optic thread delivers light to the brain to stimulate neurons. Microelectrodes measure changes in local voltage, and computer software uses the data to generate an average firing rate for hundreds of neurons. Researchers designed the program to instantaneously adjust the brightness of the LED light to keep the firing rate within a desired range.

FIRE AWAY: Channelrhodopsins—introduced via transgenes—in neuronal membranes are light sensitive. When activated, the channels transport positive ions (cations) into the neurons, causing them to fire.

