SOUTHWESTERN NEWS

Media Contact: Steve O'Brien
214-648-3404
stephen.obrien@utsouthwestern.edu

EMBARGOED UNTIL 1 P.M. CST WEDNESDAY, OCT. 30, 2002

UT SOUTHWESTERN SCIENTIST HELPS IDENTIFY NEURONS IN WORMS THAT CONTROL CONNECTION BETWEEN STRESS, EATING

DALLAS – Oct. 31, 2002 – Scientists at UT Southwestern Medical Center at Dallas and the University of California, San Francisco have shown that feeding behavior in worms is controlled by neurons that detect adverse or stressful conditions.

The findings are published in the Oct. 31 issue of *Nature*.

The discovery of the gene that controls social feeding behavior in worms was made in 1998 by researchers at UCSF. The new findings build on the earlier research by identifying the nociceptive neurons – neurons that transmit pain signals – triggering group feeding.

"The gene that controls this behavior in worms is like the one that controls feeding in humans," said Dr. Leon Avery, associate professor of molecular biology at UT Southwestern and an author of the study. "The epidemic of obesity in America makes [the findings on neurons] potentially relevant to health."

Scientists have long known that soil worms, called *Caenorhabditis elegans*, have varying eating habits. The species of the worm commonly used in research labs tends to feed alone. In the wild, however, most of the *C. elegans* feed in groups.

"It's like they're having a party," Avery said. "Other worms pay no attention to each other when there's food."

In higher species, factors like season, availability of food and natural enemies can regulate aggregation behavior, which in turn can affect biodiversity as well as community structure and dynamics. Although social scientists have made strides in understanding the significance group behaviors have had on ecological and evolutionary processes, little research has been done on the basic neural mechanisms underlying this behavior.

Avery and other researchers were able to show that whether the worms ate alone or in

(MORE)

groups was dictated by the existence of the ADL and ASH nociceptive neurons. Worms without ASH and ADL eat alone.

C. elegans are studied because they have a genetic makeup similar to humans. Because their systems are very small (about 950 cells make up an entire worm), genes are easier to track and study. About 1 millimeter long, the worms grow, reproduce and age much like humans. Researchers who identified key genes in *C. elegans* involved in organ development and programmed cell death were awarded the Nobel Prize in physiology or medicine earlier this month.

Avery said the *Nature* study is the culmination of a decade-long research project. Some of the initial work was performed in 1990 by Dr. M. Wayne Davis, another of the study's authors, when he was a summer undergraduate research fellow at UT Southwestern under the tutelage of Avery. Davis is currently a researcher at the University of Utah.

The work was supported by the Wellcome Trust, the Howard Hughes Medical Institute and the Medical Research Council of Great Britain.

###