

# Scientists use worms to unearth cancer drug targets

August 9 2012

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Through novel experiments involving small nematode worms, scientists from Wyoming have discovered several genes that may be potential targets for drug development in the ongoing war against cancer. Specifically, researchers hypothesize that inhibiting these genes could reverse certain key traits associated with cancer cells. This discovery is published in the August 2012 issue of the Genetics Society of America's journal *GENETICS*.

"Cancer is a leading cause of death worldwide," said David S. Fay, Ph.D., a researcher involved in the work from the Molecular Biology Department at the University of Wyoming in Laramie. "We hope that by carrying out basic genetic research on one of the most widely implicated human cancer genes, that we can contribute to the arsenal of diverse therapeutic approaches used to treat and cure many types of cancer."

To make this discovery, Dr. Fay and his colleagues used a strain of [nematode worms](#) that carried a mutation in a gene similar to one that is inactivated in many human cancers. This gene, called "LIN-35" in worms and "pRb" in humans, is thought to control at least several aspects of tumor progression including [cancer cell growth](#) and survival. The researchers systematically inactivated other individual genes in the genome of the mutant LIN-35 worms. As they deactivated various genes, scientists identified those that led to a reversal of defects caused by the loss of LIN-35, suggesting that they could be used as targets for anti-cancer therapies.

"This research is important because it offers possible new ways to shut down the genetic machinery that contributes to [cancer growth](#) and progression," said Mark Johnston, Ph.D., Editor-in-Chief of the journal *GENETICS*. "The causes of cancer are complex and varied, so we must approach this disease from many angles. Using simple 'model organisms,' such as nematode worms to find new [drug targets](#), is becoming an increasingly important and effective strategy."

As a companion piece to this article, the journal *GENETICS* debuts a new educational resource called a Primer. The Primer article, written by Elizabeth A. De Stasio, Ph.D., of Lawrence University in Appleton, Wisconsin, provides guidelines for genetics instructors who want to use this contemporary research on nematode worms to teach their students about genetics concepts. The Primer includes background biological information on the worms, explanations of concepts used, and a sample approach to using the article in the classroom with questions for discussion. Additional Primers for instructional use will follow in future issues of *GENETICS*.

**More information:** S. R. G. Polley and D. S. Fay. A Network of Genes Antagonistic to the LIN-35 Retinoblastoma Protein of *Caenorhabditis elegans* *Genetics* August 2012 Volume 191, Issue 4. [www.genetics.org](http://www.genetics.org)

Provided by Genetics Society of America

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