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## Efficient Identification and Cloning of Single Gene Deletions in the Nematode *Caenorhabditis elegans*

<b>Status</b>	Current
<b>Competition</b>	III
<b>Sector</b>	Health
<b>Genome Centre</b>	Genome British Columbia
<b>Project Leader</b>	Donald Moerman

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### Project Description

The nematode (*Caenorhabditis elegans*) is a small, about 1 millimetre in length, roundworm used as a model organism in genetic research. Its genome was the first multicellular metazoan to be completely sequenced, in 1998, and almost half of its genes have homologs in humans – genes, which have comparable functions and common origins over evolutionary time.

Dr. Donald Moerman, a professor of zoology at the University of British Columbia, is project leader of Efficient identification and cloning of single gene deletions in the nematode *C. elegans*.

In collaboration with the international *C. elegans* knockout consortium, Dr. Moerman will develop a resource of mutant strains of the nematode by deleting, or knocking out genes. In some cases, the research team will knock out genes specific to the nematode. Such genes are potentially important from both a human health perspective and because nematodes are major agricultural pests. Targeting such genes may lead to the development of species-specific nematicides.

In other cases, the team will knock out genes with homologs in humans. Many biochemical pathways are conserved between the nematode and humans. Because of the simplicity of the nematode it is often easier to determine the role of specific genes in existing and novel biochemical pathways than it is in humans. A better understanding of the basic biological function of genes in the nematode could have direct consequences for medical diagnosis and treatment of inherited diseases in humans, such as cancer.

This project will create a valuable resource for the international research community. Nematodes can be frozen, which means that the mutant strains developed by Dr. Moerman's research team will be an enduring legacy for the research community.