

Survivor fights cancer with insects

November 1 2011, By Rob Denell

(Medical Xpress) -- Rob Denell thought he was done with cancer after his wife beat the disease. No more chemotherapy by his wife's side. No more long drives to hospitals. He was about to say goodbye to cancer.

It turns out it was just the beginning chapter of a troublesome, yet fruitful relationship with the disease. It's a relationship that involves [insects](#), Kansas State University's Johnson Center for Basic Cancer Research and a battle with cancer.

Denell, a university distinguished professor of biology and director of the cancer research center, primarily studies insects such as fruit flies. The creatures are linked to cancer research.

Denell conducts genetic, developmental and molecular research on insects and primarily studies the [genetic control](#) of early embryonic organization. The genes he studies in insects are shared with humans and can reveal the origins of some cancers.

When some genes are activated at inappropriate locations and times in insects, they change the structure of insects. An antenna can take the place of a leg, for example. The same rules apply to cancer in humans: Changes in [genes](#) can lead to cancer. Studying insects has the potential to detail the human development process and how cancer forms.

"For both ethical and scientific reasons, insects offer powerful experimental approaches not possible in humans," Denell said. "History strongly supports the view that such insect studies can give key

information about humans."

Denell has studied insects as an affiliate researcher for Kansas State University's cancer research center since it opened in 1980. He became the director in 2003 after he survived a bout with cancer, the second-leading cause of death in the United States and the No. 1 cause in Kansas.

Kansas State University's Johnson Center for Basic Cancer Research supports research, education and outreach to fight cancer. Some 70 faculty researchers affiliated with the center represent 13 departments in five colleges.

Researchers primarily study molecules, organisms and cells that can help the fight against cancer by understanding the basic components of life.

"Our strength is basic research, which provides the foundation for more focused investigations into new approaches to preventive medicine, diagnosis and treatment," Denell said. "You have to have basic research before you can have treatments and cures."

Since the center's opening in 1980, researchers have brought in more than \$40 million in active extramural funding, which translates to a regional economic impact of \$60 million.

The center also provides undergraduates with financial support to conduct real laboratory research and has supported the work of more than 800 undergraduates and their faculty mentors. The university's cancer research center works closely with other Kansas research institutions to advance its basic research to clinical trials, including the University of Kansas Cancer Center.

A personal struggle with cancer pushed Denell to become the cancer

research center's director. He found a lump on his neck in 2001.

"I knew then it was time to push the panic button," he said. Denell saw a doctor to get a biopsy and test his skin tissue for cancer. He waited weeks to hear the results.

"That time between thinking you might have cancer and knowing you actually do is the worst time," Denell said. "You're left adrift. You have no idea what will happen."

Denell was diagnosed with nasopharyngeal cancer in the upper part of his throat behind his nose. His lymph node enlarged in his neck to capture cells released from the tumor.

Denell's wife had just battled and survived breast cancer. The couple often drove back and forth from their home in Manhattan, Kan., to the University of Kansas Medical Center in Kansas City, Kan., for her [chemotherapy](#). This time Denell had to take a break from his teaching and research. He started treatment at the University of Nebraska Medical Center in Omaha. The debilitating treatment of radiation and chemotherapy took nine months, during part of which Denell was bedridden, and he could eat or swallow only with great difficulty.

Denell is now cancer free. His chances of recurrence are low, but he fears another tumor caused by radiation could develop. Denell still suffers from the side effects of radiation such as poor salivary function, low blood pressure and loss of sensation in his fingers. He has trouble hearing and gets dizzy if he stands too quickly.

"I don't complain because I'm just happy to be here," he said. "The treatment was worth it."

The fight against cancer will progress rapidly in the next few decades,

Denell said.

"This is the most exciting time ever in cancer research," Denell said. "I feel so privileged I'm at Kansas State University, where we remain dedicated to cancer outreach and basic cancer research. As a [cancer](#) survivor, it's my personal mission to help coordinate research that eventually enhances diagnosis and treatment of these life-threatening diseases."

Provided by Kansas State University

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