



## **Each CLC Dollar Donated to Research Generates \$20 More In Funding**

During the past 30 years Cancer League of Colorado, Inc. (CLC) has raised over \$4 million to be used for early-stage cancer research. These funds have been disbursed to Colorado-based research organizations, typically in amounts of \$15,000 to \$30,000. In many cases this seed funding has resulted in significant follow-on research funded by the federal government, pharmaceutical companies and other organizations

CLC recently did a statistical analysis of a number of grants made during the past several years and determined that for every dollar it provided as early-stage research grants in Colorado, another \$20\* was raised through subsequent funding by larger organizations to continue the more promising investigations. This covered basic research as well as translational research that can be readily applied to clinical applications. It included pursuits into bold new directions as well as the expansion of previously successful treatments. Even without additional funding, CLC financial support resulted in numerous helpful publications in peer reviewed journals.

Without the aid of CLC, many of these researchers would have struggled greatly to have obtained backing elsewhere. But don't simply take our word for it. Following are what our research grant recipients have to say about the efficacy of CLC funding in the marathon struggle to find a cure for cancer.

"CLC provides bridge funding for young investigators early in their careers, allowing them to continue their research while they work on obtaining more long-term support," notes **Timothy Garrington M.D.**

"CLC works like a seed. From the seed, we grow up huge trees," observed researcher **Zhang Gongyi.**

"The CLC funding was crucial for my stay in that research area because my salary was provided from this grant. The work I initiated during that period provided fertile ground for my research," explained CLC grant recipient **Naushad Ali, Ph.D.** "The preliminary results generated during that period led the foundation stone for my current research programs, and as a result I was able to publish a few research papers. The preliminary investigation during this period helped in getting grants from the American Liver Foundation (\$90,000 over 3 years)."

"Your contribution helps researchers to continue their interest in cancer biology. The information generated by each research project funded by CLC is like thick dots that make a bold line. You are not only part of those dots but also connecting links," Ali concluded.

"Thanks to the first CLC grant, we were able to create a new line of transgenic mice that will be of general use to researchers in the areas of B cell development and malignancies," **James Hagman Ph.D.** emphasized.

**M.D. Gail Eckhardt's** CLC funded research "has helped guide what types of biological tests are most useful in these clinical trials." The results "are being used to develop novel treatments for cancer and to determine if they are effective in hitting the cancer target. "This really helps fund cutting edge clinical and translational research," she concluded.

"Three publications have resulted from this work, and a fourth publication has been submitted," summarized **Lela Lee M.D.** "In my estimation, this is a high publication-to-funding ratio."

It's "good to have the money stay local. Colorado universities have become national factors in cancer research," said appreciative researcher **Carol Sartorius.**

One of the most interesting stories we have comes from cancer researcher and former cancer patient **Anne Brauweiler, Ph.D.** "I felt very lucky since someone in my situation 20 years sooner would not have survived at all. In addition there are many people for which chemotherapy and radiation are not effective. I kept imagining that there must be some way of drastically improving on the current methods of treatment available. Since I was nearing completion of graduate school, I decided that my goal would be to develop better, more specific therapies that would allow the selective targeting and destruction of tumor cells," she told us.

"I considered that one potentially successful strategy might be to rely on the tremendous powers of the immune system. The immune system can protect against disease by attacking and destroying bacterial and viral invaders. Before I entered the laboratory, no-one was studying cancer or tumor immunity.

"The previous two years of funding from the Cancer League has enabled me to test a model in which tumor cells could be destroyed or eliminated, not by chemotherapy, but instead by the immune system. Based on these studies, we found that the immune system cells, known as macrophages, indeed could eliminate tumor cells if they were given some 'help' in the form of tumor specific antibody and a cytokine known as interferon gamma.

"Intriguingly, recent clinical studies have demonstrated the first successful use of antibodies to directly treat human cancer. These antibodies, developed by the biotech company, Genentech, were effective in curing over half of the patients with untreatable lymphoma. I believe that one day, there will be specific antibodies that recognize and selectively destroy all human cancer cells," she concluded.

**Dr. Thomas Langan** cited a critical difference in CLC funding from others. "Support of basic research is extremely important, and is the only thing that will eventually provide the solid foundation of knowledge needed to control cancer. This is especially true these days where pressure (applied by earmarking research funds to be used solely for the purpose) to carry out "translational research," research that is supposed to have the potential to be 'translated' directly into patient care, is extremely high. The fraction of such projects that successfully translate into beneficial treatment has been extremely low."

"This answer sounds somewhat melodramatic, but I would probably not be in an academic setting today without the support of CLC. The first grant was instrumental in permitting us to continue our work, and without it, I almost certainly would be in another position today, most likely in industry," stated **Jerome Schaack.**

"The support of CLC provided us the security to perform several costly, yet risky, experiments that we might not otherwise have attempted," observed **William Schiemann.**

“Without the research grant from Cancer League Colorado, we would not be able to pursue the research that we had proposed,” **Dai Zonghan Ph.D.** concluded. “We might have (had) to spend (a) significant amount of time to look for funding opportunity elsewhere. With the support from Cancer League Colorado, we were able to identify molecular events that are critical for pathogenesis of CML and ALL.”

“The spread of a primary tumor to secondary sites complicates treatment and makes complete eradication of the cancer considerably more difficult,” noted **Bruce Cuevas, Ph.D.** “Indeed, ... cancer therapies that successfully prevent the cancer from spreading to other sites would greatly simplify treatment and would be expected to significantly improve the survival rate of patients suffering from a number of cancer types.”

*\*The multiplier of \$20 was based on a recent internal study covering a time frame from 1996 through 2009. CLC is a purely volunteer organization that puts 100% of the donated monies towards cancer research grants and service grants in Colorado. Approximately 85% of the monies are awarded for research grants that may qualify for additional funding. The other 15% are awarded as service grants that do not result in additional funding.*