

# Kevin Dalby, UT Austin Professor, Discusses DNA Testing – A Promising Weapon in the War on Cancer



Dr. Kevin Dalby

The fruits of the [Human Genome Project](#) are showing promise in diagnosing and treating cancer. Modern oncology is in the midst of radical change, with DNA testing methods designed to help patients live longer through early cancer detection and treatment. Dr. [Kevin Dalby](#) explains some of the ways in which DNA testing is proving to be a promising weapon in the war on cancer.

## **Predictive Genetic Testing**

This type of testing looks for any inherited gene mutation that could put someone at a higher risk of getting some cancer

types. People who have a family history of cancer can see if they have the gene mutation that would, in turn, increase their risk of getting cancer themselves.

By identifying the gene mutation early, they can potentially lower their particular risk to that cancer.

In addition, people who have been diagnosed with cancer can benefit from this testing, too. DNA testing could show if the patient also has a high risk of contracting other cancers as well.

### **Targeted Therapy**

DNA testing can help healthcare providers determine whether some targeted drugs could help patients treat certain cancers. In many cancers, a cell mutation leads to a specific form of protein found in a tumor's tissue.

Most tumors that contain this type of mutation tend to grow more rapidly, are more prone to spread, and could be resistant to standard chemotherapy. In these cases, therapy that specifically targets the protein that has changed could prove to be very effective.

DNA testing helps healthcare providers detect mutations that could "code" the specific proteins, which in turn would identify the tumor that could be susceptible to a particularly targeted cancer therapy.

### **Tumor Detection**

Dr. Kevin Dalby points out that it's not always easy to detect a tumor. One way that DNA testing can help this is by identifying circulating tumor DNA, or ctDNA.

When a tumor increases in size, it kills off the cells, replacing them with new ones. The cells that are dead break down, with their contents being released into a person's bloodstream.

DNA testing can help detect ctDNA in a person's bloodstream, indicating that a tumor is present somewhere – or is in development. ctDNA stands out because it doesn't match precisely with a person's regular DNA. This allows healthcare providers to detect a genetic difference between the two types of DNA and hopefully detect the tumor.

ctDNA can also help doctors determine the treatment that could be most effective for that specific tumor. If ctDNA decreases over time, it could also suggest that the tumor is getting smaller and the treatment is working.

### **About Dr. Kevin Dalby**

[Kevin Dalby is a UT Austin professor](#) of chemical biology and medicinal chemistry, currently working on cancer drug discovery. At the College of Pharmacy at The University of Texas, he examines the mechanisms of nature and cancer to develop new treatments and teach and motivate students to conduct research. Dalby is optimistic about the future of cancer treatments.