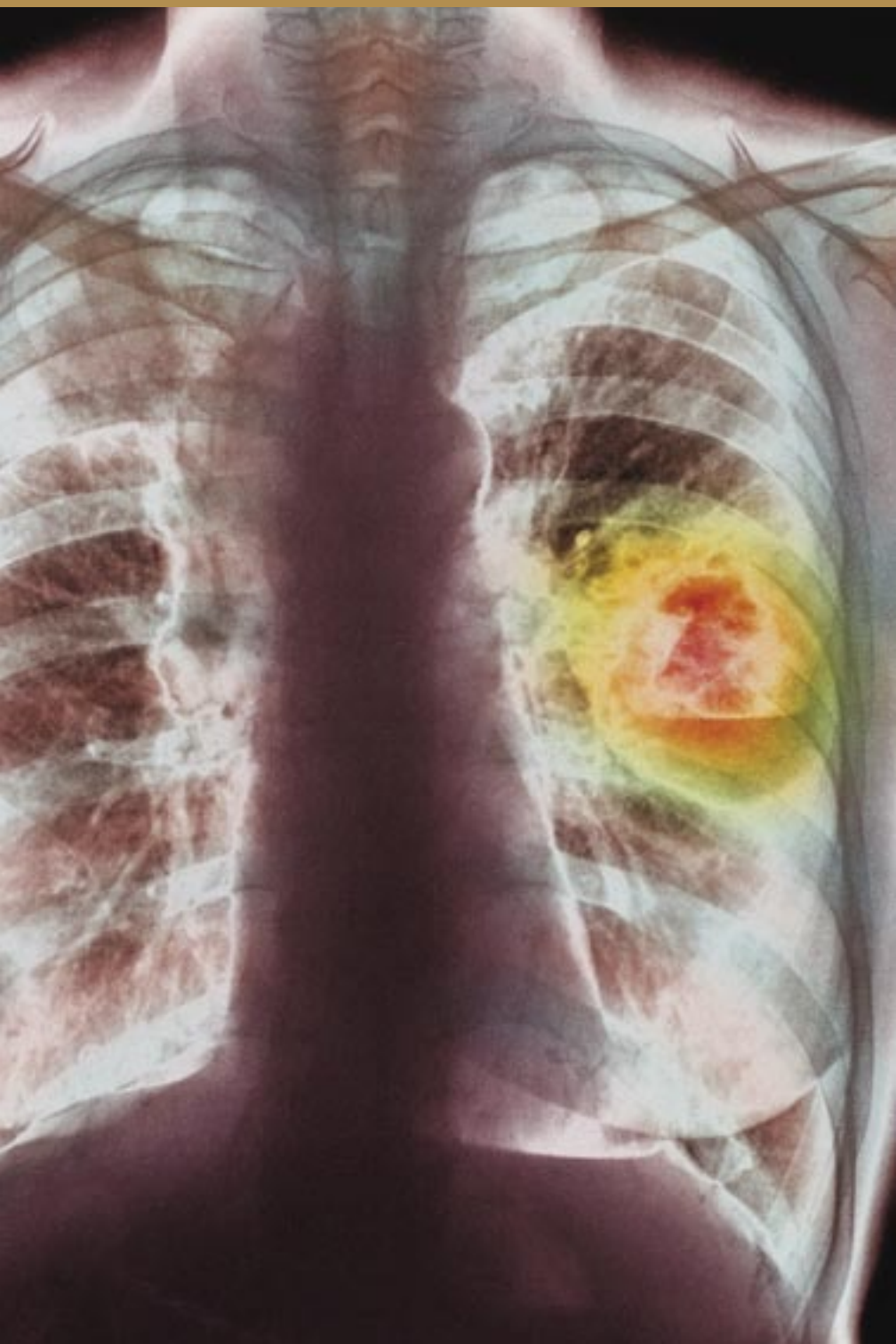



## LUNG CANCER





Lung cancer has presented a treatment challenge, but recent advances—including a vaccine and targeted therapies—are providing new hope.

## Lung Cancer

A Report on the Latest Research and Treatments from ASCO—the American Society of Clinical Oncology

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If you would like more information on these topics and other news from ASCO's 2006 Annual Meeting, visit [www.OncologyReport.com](http://www.OncologyReport.com)

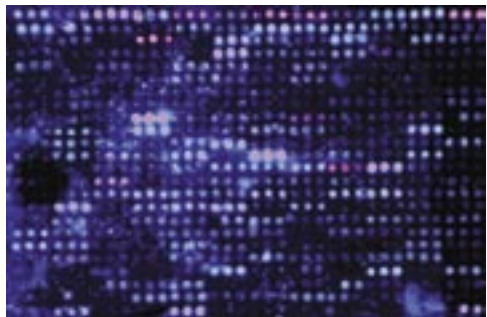
Photo of gene chip on opposite page: Mitch Doktycz, Life Sciences Division, Oak Ridge National Laboratory; U.S. Department of Energy Human Genome Program; <http://www.ornl.gov/hgmis>.

# The Challenge of Lung Cancer

Each year, nearly 175,000 Americans are diagnosed with lung cancer. It is the leading cause of cancer death in both men and women in the United States. Nearly twice as many women die of lung cancer than of breast cancer. There are two major types of lung cancer: non-small cell, the most common form, and small cell. About 85 percent of people who develop lung cancer either are or have been smokers. Yet, some people who have never smoked still get the disease and researchers are not sure exactly why. But there is a great deal of research under way to find better treatments, including new drugs, for lung cancer.

## Using Genes to Customize Treatment for Non-Small Cell Lung Cancer

Two medications belonging to a class of drugs known as **targeted treatments** have been shown to benefit people with **non-small cell lung cancer**—the most common form of lung cancer. The drugs, called erlotinib (Tarceva) and gefitinib (Iressa), zero in on cancer-promoting mechanisms in lung cancer cells. And rather than killing both healthy and unhealthy cells, as chemotherapy does, these targeted treatments attack cancer cells primarily, sparing healthy tissues and causing fewer side effects.



*Cancer researchers use gene chips to target specific genes and tailor drug treatment to a person's individual genetic make-up.*

Erlotinib and gefitinib block substances known as **epidermal growth factor receptors (EGFRs)**. These receptors reside on the surface of cells and take in messages ordering cells to grow and divide. Although many normal cells contain EGFRs, some kinds of cancer cells contain excess amounts of them. The more receptors on a cell, the more signals the cell receives to grow and multiply. When lung tumors contain large amounts of EGFRs, erlotinib and gefitinib can sometimes slow the cancer's growth. Researchers are trying to pinpoint which people with lung cancer are most likely to benefit from taking the drugs. Ongoing clinical trials are finding that tumors with certain genetic characteristics are most likely to be destroyed by targeted treatments.

### **ERLOTINIB (TARCEVA) AND EGFR MUTATIONS**

The findings from two small studies suggest that erlotinib is an effective treatment for advanced non-small cell lung cancer, as long as it is given to people whose tumors have certain **mutations** (changes in the structure) of the EGFR gene.

In a clinical trial conducted by the Spanish Lung Cancer Group, 40 people with advanced non-small cell lung tumors with EGFR gene mutations were treated with about six cycles of erlotinib, taken in pill form. None of the patients had been treated for lung cancer beforehand.

Overall, 13 percent (roughly five tumors) disappeared after treatment, and 69 percent (nearly 28 tumors) shrank. Erlotinib was especially effective in tumors with mutations on a particular area of the EGFR gene, called exon 19. The drug caused 95 percent, or 38, of the tumors with the mutation to disappear or shrink.

The findings from a separate clinical trial underscore the link between EGFR mutations and erlotinib's ability to stall cancer growth. More than 50 people with advanced non-small cell lung cancer were treated with either chemotherapy or erlotinib. After treatment, those who received chemotherapy lived about

## What's New, What's Important

- The findings from two studies suggest that the drug erlotinib (Tarceva) is an effective treatment for advanced non-small cell lung cancer, as long as it is given to people whose tumors have epidermal growth factor receptors, a genetic mutation.
- The drug gefitinib (Iressa) also appears to be most effective in people whose lung tumors have similar genetic mutations.
- The new drugs Sunitinib (Sutent) and Sorafenib (Nexavar) have shown promise as treatments for people with advanced non-small cell lung cancer.
- Researchers are testing an experimental drug, called ZD6474 (Zactima), as a possible treatment for advanced non-small cell lung cancer.
- The findings from nine clinical trials, considered together, suggest that the chemotherapy cisplatin (Platinol) is superior to the chemotherapy carboplatin (Paraplatin) at shrinking tumors in people with advanced non-small cell lung cancer and, possibly, prolonging their lives.
- For people with advanced non-small cell lung cancer, tumors shrank more when treated with platinum-based chemotherapy.

3 months longer, overall, than those given erlotinib. When the researchers analyzed the patient's tumors, however, they found that none of those treated with erlotinib had EGFR mutations. The findings suggest that the drug works best in people whose tumors contain the genetic mutation.

### GEFITINIB (IRESSA) AND EGFR MUTATIONS

The findings from two other small studies suggest that the drug gefitinib is most effective in people whose tumors have similar EGFR gene mutations.

In an ongoing clinical trial under way at the Memorial Sloan-Kettering Cancer Center in New York City, researchers have been testing gefitinib in a group of patients with early **stage**

non-small cell lung cancer and a high likelihood of having EGFR gene mutations. In previous U.S. studies, only about 10 percent of patients have had the genetic mutations in question. The researchers increased the chances of finding people with the mutations threefold by choosing patients with certain characteristics that have been linked to the genetic changes in other studies. These characteristics included a history of not smoking (or only light smoking) and a tumor with features resembling a rare form of non-small cell lung cancer called **bronchioloalveolar lung cancer (BAC)**.



All of the participants took gefitinib daily for 3 weeks and then had **CAT scans**—a type of x-ray used to detect spread of cancer or progress of treatment. In addition, their lung tumors were surgically removed and analyzed to check for EGFR gene mutations. At that point, people whose tumors had shrunk by at least 25 percent or contained the EGFR mutations kept taking gefitinib for another 2 years.

Five of nine people whose tumors had shrunk after the first 3 weeks on gefitinib had the EGFR gene mutations. What's more, only two of 14 people whose tumors did not shrink after taking the drug had the mutations. While the clinical trial is still under way, the preliminary results suggest that identifying patients whose tumors have a high likelihood of containing EGFR gene mutations may increase the effectiveness of gefitinib treatment.

A separate study, currently being conducted at three medical centers in Italy, lends weight to the findings on gefitinib and EGFR gene mutations. In this study of 42 people with advanced non-small cell lung cancer, presence of certain EGFR

gene mutations was significantly associated with effectiveness of the drug.

Nearly 70 percent of patients' tumors containing the mutations either shrank or disappeared in response to treatment with gefitinib. The **response rate** among those whose tumors did not contain the mutation was only 9 percent. Gefitinib worked especially well in tumors with mutations on specific areas of the EGFR gene. Sixty-five percent of these tumors responded to the drug, either shrinking or not growing. Of the tumors without the mutations, only 21 percent responded.

## Targeted Treatments for Non-Small Cell Lung Cancer

Two new drugs that have been approved for treatment of kidney cancer are currently being tested in people with advanced non-small cell lung cancer. Named sunitinib (Sutent) and sorafenib (Nexavar), both medications are targeted treatments. Each is designed to block several chemical pathways in cells that promote cancer growth. In addition, studies are under way with an experimental targeted treatment, called ZD6474 (Zactima), which also aims to block several cell mechanisms involved in growth of non-small cell lung cancer.

### **SUNITINIB (SUTENT)**

Sunitinib works by attacking numerous cell mechanisms that promote cancer, both cutting off their blood supply and blocking their ability to grow. Researchers believe that the drug's dual actions may enable it to control some types of cancer.

Sunitinib was tested in a clinical trial involving more than 60 people with advanced non-small cell lung cancer that had come back after treatment with chemotherapy. The participants took the drug daily for one month, followed by

two weeks “off.” If the drug appeared to be working for a patient, he or she resumed taking it.

Nearly 10 percent of participants’ tumors shrank after taking the drug—a response rate that is comparable to treatments currently used to treat lung cancer. In addition, more than 40 percent of patients’ tumors stabilized, neither shrinking nor growing. Equally encouraging, most of the people who took sunitinib experienced only mild or moderate side effects from the drug, such as fatigue. Based on the promising results, the researchers have extended the clinical trial to include more people.

### **SORAFENIB (NEXAVAR)**

Sorafenib works by suppressing receptors for **vascular endothelial growth factor (VEGF)** and **platelet derived growth factor (PDGF)**—substances that play critical roles in the growth of blood vessels that feed cancerous tumors (a process doctors call **angiogenesis**). In addition, sorafenib targets another substance, called **RAF kinase**, which helps signal cancer cells to grow and divide. Researchers suspect that these multiple actions are what make the drug so effective at slowing the advancement of some forms of cancer.

In a study of more than 50 people with advanced non-small cell lung cancer, some 60 percent of their tumors stabilized after treatment with sorafenib. This response rate is comparable to rates seen in patients treated with two targeted treatments already approved by the U.S. Food and Drug Administration for patients with non-small cell lung cancer: gefitinib and erlotinib. Thirty percent of patients showed some signs of a reduction in tumor size. What’s more, side effects from the drug, such as diarrhea, tended to be mild. With the encouraging results, the researchers are planning a new clinical trial that will further look at the effects of sorafenib in people with non-small cell lung cancer.

## ZD6474 (ZACTIMA)

ZD6474 is an experimental targeted treatment designed to go after a number of cell mechanisms that are central to cancer growth. Like some other targeted treatments, it zeros in on EGFR and VEGF. In addition, the drug blocks **RET kinase**—a substance that drives the growth and survival of some tumors.

The drug was tested in an international clinical trial involving nearly 170 people with advanced non-small cell lung cancer. The participants were treated with either gefitinib or ZD6474. Overall, people in the ZD6474 group experienced no growth or spreading of their tumors for about 11 weeks, compared with about 8 weeks for those who received gefitinib.



As part of the study, some patients who started out in one group were then switched to the other, in an effort to better control the progress of the cancer. Those who went from ZD6474 to gefitinib survived for about 6 months, overall. In contrast, those who went from gefitinib to ZD6474 lived for about 7 months, overall.

Research with ZD6474 is ongoing.

## Chemotherapy and Advanced Non-Small Cell Lung Cancer

When non-small cell lung cancer spreads to other parts of the body, the standard treatment is chemotherapy with platinum-containing drugs. In the United States, the most commonly used treatment plan is the platinum-containing drug

carboplatin (Paraplatin) combined with another chemotherapy called paclitaxel (Taxol). In Europe, on the other hand, a different platinum-containing chemotherapy, called cisplatin (Platinol) is typically combined with gemcitabine (Gemzar) or vinorelbine (Navelbine).

Paclitaxel, gemcitabine, and vinorelbine are all known as **third generation drugs**, as they are among the newest drugs to be introduced during the past decade. European doctors generally hold off on using paclitaxel, reserving it for patients whose cancer doesn't stop growing after treatment with cisplatin and one of the other newer drugs.

Comparisons of cisplatin- versus carboplatin-based treatment plans have yielded conflicting results. The question of which is more effective at shrinking advanced non-small cell lung cancer and extending the lives of people with the disease remains controversial. Researchers are continually looking at different ways of incorporating newer drugs into treatments for advanced non-small cell lung cancer.

### **CISPLATIN (PLATINOL) VERSUS CARBOPLATIN (PARAPLATIN)**

The findings from nine clinical trials, considered together, suggest that cisplatin is superior to carboplatin at shrinking non-small cell lung cancer and, possibly, prolonging lives. Researchers in the United States and Europe pooled the results of nine clinical trials conducted between 1987 and 2001, involving nearly 3,000 people with advanced non-small cell lung cancer. They found that in more than 30 percent of the patients treated with cisplatin-based treatment plans, tumors shrank or stopped growing. In contrast, the response rate among those given carboplatin was only about 25 percent.

Overall, people in both groups survived for 8 to 9 months after treatment. But 80 percent of the people in the clinical trials were treated with the newest drug combinations containing third-generation chemotherapy. When researchers examined

data for those individuals, they found that those given combinations containing cisplatin were more likely to survive longer after treatment than those given carboplatin-based combinations. Overall, the findings suggest that treatment with cisplatin, combined with one of the newer drugs, gives people with advanced non-small cell lung cancer a slight survival advantage.

### **PLATINUM-BASED CHEMOTHERAPY VERSUS NEW DRUGS**

In a separate study, a platinum-based chemotherapy treatment plan was compared with a combination of new, third generation chemotherapy not containing platinum. Conducted by the Japanese Multinational Trials Organization, the study involved nearly 400 people with advanced non-small cell lung cancer split into two groups. One group was treated with a combination of vinorelbine, gemcitabine, and docetaxel (Taxotere)—a combination known as VGD. The other group was given a platinum-based treatment plan of carboplatin and paclitaxel.

In more than 35 percent of those treated with the platinum-based combination, tumors shrank compared with only about 25 percent of those given VGD. But the people in both groups survived about the same length of time after treatment, overall: about 14 months. One year later, nearly 60 percent of the people in both groups were alive; 2 years later, about 30 percent had survived.



### What's New, What's Important

- Adding the chemotherapy paclitaxel (Taxol) to a standard chemotherapy treatment plan as initial treatment does not benefit people with advanced non-small cell lung cancer any more than the standard treatment alone.
- Combining chemotherapy with the drug cetuximab (Erbix) may prolong the lives of people with advanced non-small cell lung cancer, according to the results of a small study.
- Treatment with the new drug bortezomib (Velcade) following chemotherapy prolonged the lives of people with advanced non-small cell lung cancer.
- Combining the experimental drug ZD6474 with the chemotherapy docetaxel (Taxotere) holds promise as a treatment for advanced non-small cell lung cancer.

Although the groups' survival times didn't vary significantly, the severity of the side effects they experienced did. More than 70 percent of the participants in the platinum-based treatment group withdrew from the study, primarily because the side effects included severe pain and very low blood counts. In contrast, about half of the people in the VGD group withdrew from the clinical trial; only 20 percent of those withdrawals were due to serious side effects.

According to the researchers, the findings uphold the role of platinum-based treatments as a standard of care for non-small cell lung cancer.

### CISPLATIN AND PACLITAXEL

A European study looked at the possible benefits of reserving paclitaxel as a treatment for advanced non-small cell lung for patients whose cancer doesn't respond to other drugs. Conducted by the European Lung Cancer Working Party, the clinical trial involved nearly 500 people with the disease.

All of the participants received three cycles of cisplatin,

ifosfamide (Ifex), and gemcitabine—a chemotherapy combination called GIP. Participants whose cancers kept growing, despite the three cycles of GIP, were given paclitaxel, in keeping with standard European protocol. Patients whose cancer stopped growing after treatment with GIP were then split into two groups. One group received six more cycles of GIP, while the other received six cycles of paclitaxel.

Nearly 45 percent of the people given the extra six cycles of GIP responded to this additional treatment. Their tumors shrank, disappeared or remained stable. In contrast, only about 35 percent of the patients given six cycles of paclitaxel had a response.

Overall, more people who had been treated with the extra GIP were alive 3 years later than those treated with the extra six cycles of paclitaxel. But, the difference between the two wasn't significant.

The findings suggest that adding paclitaxel to the initial treatment with GIP does not benefit people with advanced non-small cell lung cancer any more than standard GIP treatment alone.

## Combining Chemotherapy with Other Drugs to Treat Advanced Non-Small Cell Lung Cancer

### **CHEMOTHERAPY COMBINED WITH CETUXIMAB (ERBITUX)**

Preliminary research has shown that combining chemotherapy with the targeted treatment cetuximab (Erbix) may prolong the lives of people with advanced non-small cell lung cancer. Cetuximab works by binding to EGFR, preventing it from starting a series of reactions in the cell that lead to lung cancer.

Because the combination holds promise, researchers from the Southwest Oncology Group tested it in nearly 160 people with advanced non-small cell lung cancer. The patients, none of

whom had received previous treatment for the disease, were all given cetuximab and the chemotherapy paclitaxel and carboplatin. They were divided into two groups. One group got all three drugs at the same time: paclitaxel, carboplatin,



and cetuximab. The second group received paclitaxel and carboplatin first, then cetuximab later.

Tumors shrank in more than 35 percent of the people treated with all three drugs at once, and the cancer stopped growing in 75 percent. In contrast, tumors shrank in 25 percent of the patients who received the drugs in

a sequence, and cancer stopped growing in about 70 percent. A year later, nearly half of the participants who received the drugs together were alive, compared with 43 percent in the other group. The surviving patients are still being monitored to see how the drugs affect them over the long run.

### **BORTEZOMIB (VELCADE) AND CHEMOTHERAPY**

For the past several years, researchers have been testing a new class of drugs in people with lung cancer. The drugs, called **proteasome inhibitors**, block a substance called a proteasome. Lab research has shown that cancer cells die when the actions of proteasomes are blocked.

The first proteasome inhibitor that has been studied in clinical trials is called bortezomib (Velcade). It's being tested as a treatment for non-small cell lung cancer.

The findings from several lab studies have suggested that administering bortezomib with, or after, chemotherapy improves bortezomib's ability to destroy cancer cells. So,

researchers with the Southwest Oncology Group put the drug to the test in about 100 people with advanced non-small cell lung cancer. All of the patients were treated with gemcitabine and carboplatin. An hour later, they received bortezomib.

With treatment, more than 20 percent of the participants' tumors disappeared or shrank, and 66 percent stopped growing. In addition, the people in the study survived about 11 months after treatment, overall—the longest extension of life this group of researchers has ever seen in a study involving people with advanced non-small cell lung cancer. The findings suggest that giving people bortezomib after chemotherapy may prolong their lives.

### **ZD6474 AND CHEMOTHERAPY**

The experimental drug ZD6474 was tested, in combination with chemotherapy, in an international study involving more than 100 people with advanced non-small cell lung cancer. All of the participants had already been treated with platinum-containing drugs, but their cancer had continued growing.

For the clinical trial, the patients were split into three groups. One group received a low dose of ZD6474 along with the chemotherapy docetaxel. A second group got docetaxel and a higher dose of ZD6474. The third group received docetaxel and a **placebo** (an inactive drug).

Overall, cancer growth was stalled for the longest stretch—nearly 19 weeks—in people treated with the low-dose of ZD6474 and chemotherapy. In contrast, cancer stopped growing for 17 weeks, overall, among those in the high-dose ZD6474 group, and only for 12 weeks in patients in the placebo group.

Another international study looking at the effects of ZD6474 and docetaxel is currently under way.

## Chemotherapy Following Surgery for Non-Small Cell Lung Cancer

Previous clinical trials have shown that chemotherapy after surgery to remove non-small cell lung cancer has produced mixed results. (The tumors studied had not spread to distant parts of the body.) As a result of these studies, chemotherapy was not routinely recommended.

But in 2004, preliminary findings from a large U.S. study conducted by the Cancer and Leukemia Group B (CALGB) suggested that chemotherapy after surgery could prolong the lives of people with early-stage lung cancer. In fact, the National Comprehensive Cancer Network now endorses the use of chemotherapy in those with early-stage lung cancer.

### **NEW FINDINGS QUESTION BENEFITS OF CHEMOTHERAPY**

However, the latest analysis of the ongoing CALGB study complicates the matter. This analysis shows that people with early-stage cancer who are treated with chemotherapy after surgery do not live significantly longer, overall, than those who don't receive chemotherapy. Specifically, the CALGB researchers found that risk of death from all causes among people given chemotherapy was 20 percent lower than that of their counterparts not treated with the drugs. In contrast, the earlier analysis showed a nearly 40 percent decrease in risk in people treated with chemotherapy. The latest evidence indicates that people who undergo chemotherapy survive about 8 years, overall, compared with 6½ years in those who don't undergo the extra treatment. That difference is not statistically significant.

The CALGB clinical trial involved nearly 350 people who had undergone surgery for early-stage non-small cell lung cancer. Four to six weeks after their operations, the participants were either treated with four cycles of the drugs paclitaxel and carboplatin or not given any further treatment.

## What's New, What's Important

- New findings from a large U.S. study suggest that paclitaxel/carboplatin chemotherapy should no longer be considered a standard treatment for people with early-stage non-small cell lung cancer.
- Chemotherapy after surgery to remove non-small cell lung cancer can be safe and beneficial for older adults.
- The pooled results of five studies show that chemotherapy following surgery prolonged the lives of people with non-small cell lung cancer, particularly those whose cancer had invaded nearby tissues in the chest but had not spread to distant parts of the body.
- Researchers have identified a gene that may help predict whether cisplatin-based chemotherapy will benefit a person with non-small cell lung cancer.
- An experimental vaccine called MAGE-A3 may be an effective treatment for some people who have undergone surgical removal of early-stage non-small cell lung cancer.

Researchers noted that compared with people not given chemotherapy, more patients who had been treated with it were alive at the 2- and 3-year marks after treatment. And when the researchers looked at the relationship between the size of the lung tumor and the effect of the medications, they found that chemotherapy significantly extended the lives of people with large tumors, but not those with relatively small tumors.

Still, the CALGB researchers say that their new findings indicate that paclitaxel/carboplatin chemotherapy should no longer be considered a standard of care for patients who had surgery for early-stage non-small cell lung cancer. They continue to track the participants who are still living.

## CHEMOTHERAPY FOR OLDER ADULTS

Although many older adults are diagnosed with lung cancer, no study has looked at the effect of giving chemotherapy after surgery to this group of patients. Often, chemotherapy is not considered an option for people over the age of 65 because many have other medical problems that can complicate treatment.

So researchers re-examined data collected from a clinical trial sponsored by the National Cancer Institute of Canada. The study looked at the effect of chemotherapy—specifically cisplatin and vinorelbine—on people who had undergone



surgical removal of early-stage non-small cell lung cancer. The new analysis was designed to see what effect age has on the safety and effectiveness of the treatment plan.

They found that 5 years after treatment, 66 percent of people aged 65 and older who had been treated with

chemotherapy were still alive. In contrast, only 46 percent of their counterparts who had not undergone chemotherapy had survived. Although there were no significant differences in the number and severity of side effects experienced between younger and older participants, the older people received fewer doses of the drugs. The findings suggest that chemotherapy after surgery should not be withheld from older patients based on their age alone.

## CISPLATIN (PLATINOL)

In 1995, a look at the findings from several studies showed that surgery followed by chemotherapy treatment plans using the

drug cisplatin prolongs the lives of people with non-small cell lung cancer. Since that time, a number of other clinical trials designed to look at the effects of cisplatin-based chemotherapy on lung cancer have been conducted. The Lung Adjuvant Cisplatin Evaluation (LACE) Collaborative Group pooled the results of five of these clinical trials, involving more than 4,500 people, to identify patients who reaped the most benefit from chemotherapy following surgery.

Considered together, the results of the five studies clearly show that five years after chemotherapy, the lives of people with non-small cell lung cancer had been prolonged by 5 percent. Those who benefitted the most were patients whose cancer had invaded nearby tissues in the chest but had not spread to distant parts of the body. The chemotherapy had no effect at all in people whose tumors were small and confined to the lung.

A larger pooled analysis of additional clinical trials, involving more than 12,000 patients, is currently under way. Results are expected to be reported in 2007.

### **GENES AND EFFECTIVENESS OF CHEMOTHERAPY**

Researchers have identified a gene that may help predict whether cisplatin-based chemotherapy will benefit a person with non-small cell lung cancer. The gene in question is called **excision repair cross-complementing 1 (ERCC1)**. It plays a key role in the process cancer cells use to repair themselves when damaged by the drug cisplatin.

Given ERCC1's role in fixing cisplatin-injured cells, researchers wondered whether the results from a study called the International Adjuvant Lung Trial (IALT) would provide insight into its usefulness as a marker for a tumor's vulnerability to cisplatin-based chemotherapy. They analyzed tumors from more than 760 participants in IALT and compared their levels of ERCC1 with their survival times after treatment.

In people not given chemotherapy, nearly 40 percent whose tumors had low levels of ERCC1 survived for 5 years after treatment, overall, compared with 46 percent of patients whose tumors contained high levels of the gene. In the people treated with chemotherapy, 46 percent whose tumors had low gene levels lived 5 years. Overall, chemotherapy had no effect on the lifespan of people with tumors containing high levels of ERCC1.

The results suggest that cisplatin-based chemotherapy is particularly effective against non-small cell lung tumors with low ERCC1 levels. In the future, tailoring chemotherapy to a tumor's genetic profile may be a useful strategy in the treatment of the disease.



### On the Horizon: MAGE-A3 Vaccine and Non-Small Cell Lung Cancer

A new cancer vaccine holds promise as a treatment for non-small cell lung cancer. Called the MAGE-A3 vaccine, the treatment helps the body's own immune

system recognize cancer cells and destroy them. Unlike vaccines given to prevent diseases from occurring, cancer vaccines are used to target cancer growth after it starts. The MAGE-A3 vaccine helps the body go after tumors containing substances called MAGE-A3, which are found in about 35 to 50 percent of early-stage non-small cell lung cancers.

In a study of nearly 200 people who had undergone surgery to remove early-stage non-small cell lung cancer, those treated

with the vaccine were about 30 percent less likely than those who did not receive the vaccine to have a recurrence of the cancer 2 years later. Even more encouraging, most of the participants experienced only mild, temporary side effects from the vaccine.

The findings suggest that the MAGE-A3 vaccine may be an effective treatment for some people who have undergone surgical removal of early-stage lung cancer. For this group of people, the vaccine may one day be an option. Larger studies of the vaccine are slated to begin early in 2007.