

Real-Time Health News

In a stunning discovery, doctors detected tens of thousands of gene mutations in a tumor removed from a patient with lung cancer caused by heavy smoking.

U.S. researchers from Genentech, the biotechnology unit of drug manufacturer Roche in California, found about 50,000 genetic mutations in an extracted tumor of a 51-year-old male patient who smoked an average of 25 cigarettes a day for 15 years, Reuters reported.

The team, whose study appears in the journal *Nature*, compared the tumor's genetic changes with the man's healthy tissue.

"Fifty thousand is a huge number," Genentech's Zemin Zhang said during a phone interview with Reuters. "No one has ever reported such a high number. This is likely associated with the smoking history of the patient. It is very alarming."

The team at Genentech rechecked all their work in order to make sure they hadn't made a mistake in their calculations, but the results showed they were correct and no other unusual factors related to the patient or his tumor played a role.

Previous studies suggest gene mutation takes place with each cigarette smoked, according to Reuters. With this particular patient, Zhang said the analysis revealed that for every three cigarettes he smoked, one genetic mutation occurred.

"If you imagine over a lifetime you are going to develop this many mutations in the genome, some people may think twice about it," Zhang told Reuters in hopes his new findings will prevent people from picking up this dangerous habit, the largest cause of lung cancer.

Though the findings are the result of only one man's genetics, the study of his genome has paved the way for a much broader view of genetic changes in lung cancer, Reuters reported.

"I think this provides a preview of what whole genome sequencing can tell us about the cancer genome," Zhang said.

The researchers were able to look at an entire genome rather than searching for a limited amount of potentially significant genes because of recent advances in gene



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sequencing.

Being able to see your entire genetic map is becoming more and more attainable, as several companies are creating machines that can outline someone's complete DNA code for \$1,000 to \$5,000.

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