

## Brain Tumor Incidence at Los Alamos

The media have reported a suspected high incidence of brain tumors in Los Alamos, New Mexico, home of the Los Alamos National Laboratory (Briefings, 9 Aug., p. 620). I want to offer some scientific evidence relevant to this issue.

Attention was called to this concern by a resident who compiled a list of possible brain tumor cases. The list was evaluated by a private physician who found that 19 of the cases were Los Alamos residents who had primary brain tumors (those originating in the brain) diagnosed in the 20-year period from 1970 through 1989. The rest were attributed to metastatic brain tumors (disseminated to the brain from primary tumors in other organs), to some other disease, or to diseases that could not be verified from medical records. These 19 cases were the same cases already recorded by the New Mexico Tumor Registry for this period. The list produced no new information.

A preliminary analysis by the registry for the years 1974 through 1988 shows the Los Alamos brain cancer incidence rate as 6.3 cases per 100,000 people per year, compared with a national rate of 6.2 and a New Mexico rate of 4.8. These differences are not statistically significant.

In the 5-year period (1984–1988) when Los Alamos had the most cases (10), its rate was 10.5, compared with a national rate of 6.5 (6325 cases) and a New Mexico rate of 5.2 (336 cases). Because the actual number of Los Alamos cases (10) is small, any comparison with state or national numbers is highly uncertain. According to the Registry, “the observed differences could occur due to chance alone.”

Although these preliminary data are not cause for alarm, they also do not prove there is no problem. Therefore, we strongly support the independent epidemiology study by the state of New Mexico (funded by the Department of Energy) which will be completed in 1 to 2 years.

The Laboratory has monitored the air, water, soil, foodstuffs, and other pathways in the surrounding community and at the lab for decades. To augment this, the community and the laboratory are collaborating in a working group to address health concerns. Its focus is environmental investigations in the neighborhood where the first cases were reported. The group initiated a radiation survey of the neighborhood, reviewed home radon levels, measured exter-

nal electromagnetic fields, analyzed original home construction materials for carcinogens, developed a plan to sample soils for organics and radionuclides, sampled locally grown produce for radionuclides, analyzed samples of residential water for lead, and reviewed historical water quality data. Results to date have shown nothing out of the ordinary.

I believe the epidemiology study will confirm that Los Alamos is a safe and healthy place to live. However, as we give science a chance to provide conclusive results, we will continue our active participation in the working group to resolve this concern to the satisfaction of our community.

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## Peer Review and Patent Rights

Jan P. Koniarek's (Letters, 16 Aug., p. 719) makes an excellent point: that published peer-reviewed scientific papers and patent applications have a common format. The next point, however, that peer review itself is similar to examination by the U.S. Patent and Trade Office (PTO) and that peer reviewed journals could be used as a form of official notice for securing patent rights is not accurate.

Peer review addresses the criteria “Was the research properly conducted?” “Does the work truly advance scientific knowledge?” and “Is the presentation clear and concise?”

PTO examination is guided by the law, primarily 35 U.S. Code, paragraphs 101, 102, and 103. The invention must be new, useful, and unobvious to someone skilled in the art. There are other constraints for patent applications. A patent is not granted when another application is filed for the same invention that predates the original inventor's conception. Also, the inventor must apply for a patent within 1 year of publication in this or a foreign country. If the invention was known or used by others in this country or patented or described in printed publication in this or a foreign country before the original inventor's conception, there is no patent granted. In addition, there are other legal requirements.

Peer review does not substitute for the above requirements. The scientist who published in a peer-reviewed journal cannot follow a unique route to obtaining a patent while other inventors must abide by the patent laws. Is it time for a change in the patent laws?

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## Volcanoes: How Dangerous?

I refer to the calculation by Robert Tillig, included in Richard A. Kerr's article about Pinatubo Volcano (Research News, 2 Aug., p. 514) that the number of people killed by volcanoes had increased from 315 per year (for the years 1600 to 1900) to 845 per year (in the 20th century). Assuming the accuracy of these figures, it should be noted that the population of the world has markedly increased over the period in question. On the basis of a rough calculation of world population figures, it appears that the average population of the world from 1600 to 1900 was about 750 million, while the average population in the 20th century (through 1990) has been about 2.75 billion. If these figures are correct, then the average probability of death from volcanoes has fallen from 1 in 2.4 million per year for the earlier period to about 1 in 3.3 million for the more recent period. This would be in line with the data for probability of death from most types of accidents and natural disasters over time.

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## Correction

The sequence reported in our 22 March 1991 report “Isolation of a *rel*-related human cDNA that potentially encodes the 65-kD subunit of NF- $\kappa$ B” [*Science* 251, 1490 (1991)], contained some errors. Sequencing under strong denaturing conditions revealed three insertions at nucleotide positions 1194, 1212, and 1220, which changed the AA sequence from RSAR-PRLGP to QISQASALAP (residues 372 to 380), thus accounting for some of the divergence in this region. A corrected sequence has been sent to GenBank.

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