her colleagues at Branch No. 1 of Russia's Institute of Biophysics—located in Chelyabinsk-65, a once-secret city of 85,000 people adjacent to the Mayak plant—found that workers at the facility's radiochemical plant had a leukemia rate about three times the Russian national average.

A parallel study, in which Mayak employees who worked with plutonium were compared with a control group who did not, found the risk of lung cancer among male workers increased by about 30% for each Sievert of plutonium radiation absorbed by the lungs. (Sieverts are units of the effect of an absorbed radiation dose on living tissue and vary with different types of radiation.) The workers received lung exposures ranging from 0.38 to 453 Sieverts.

The plutonium story is particularly exciting to radiation scientists, because it provides a set of data found nowhere else in the world. "We have very few people in the U.S. who were ever exposed to plutonium," says Sinclair. "And for those who were, the doses were too low and the populations not large enough" to accurately measure effects. According to Goldman, the Chelyabinsk data could help set radiation standards not only for plutonium but also for radon, which, like plutonium, emits high-energy alpha particles.

This potential treasure-trove of data will provide enough challenges and opportunities to keep the world's radiation experts working for many years to come. Russia and the United States have already set up a funding mechanism for more detailed studies (see box on p. 1085), and scientists are beginning to draw up plans to carry them out. To help calculate external exposure, for example, scientists such as Goldman have suggested using a new technique known as thermoluminescence dosimetry (TLD), which can detect very low levels of radiation absorbed by some inanimate materials, such as the tile roofs of village houses. NCI's Ron, who is planning a collaboration with some of her Russian counterparts to do more epidemiology, says that major tasks will be to "extend and improve the follow-up" of the various populations being studied, and "verifying the diagnoses on the death certificates."

The Russian scientists, for their part, have eagerly welcomed the intense interest of their international colleagues in the Southern Urals accidents. "I worked for all those years just to put my papers in a safe," says Kossenko. "Now I can show my data to all the experts of the world."

–Michael Balter

BREAST CANCER

NIH Gets a Share of *BRCA1* Patent

A 6-month battle over the future spoils from the discovery of the breast cancer gene known as *BRCA1* ended quietly last week when the combatants signed a peace treaty. In a settlement announced by the National Institutes of Health (NIH), three gene-hunting groups formally agreed to divvy up the patent rights. Their agreement gives recognition to federal researchers who were ignored in patent applications on *BRCA1* filed last summer by the University of Utah on behalf of itself and Myriad Genetics Inc. of Salt Lake City.

Echoing a widely held sentiment, one breast cancer researcher said this should end a "weird period" for *BRCA1* research, terminating a competitive frenzy that often appears in big gene hunts. Indeed, many top scientists in this area have recently joined a group called the International *BRCA* Consortium (IBC) and are freely sharing data and laboratory materials on mutations that are showing up in breast cancer genes.*

This is a big change from the ill will generated last summer, when the Utah team sent its claims to the Patent and Trademark Office shortly before submitting a paper to *Science* announcing the discovery (*Science*, 7 October 1994, p. 66). The Utah patent application named only Utah and Myriad scientists as inventors in the work, which tracked down a gene responsible for about 3% of all breast cancers. Not mentioned were two government biologists—Roger Wiseman and Andrew Futreal of the National Institute of Environmental Health Sciences (NIEHS)—who had sequenced small fragments of *BRCA1* that proved critical in Myriad's effort to assemble the entire gene. Speaking on background, a Myriad scientist acknowledged NIEHS's contribution, but described it as fairly limited.

The paper in *Science*, which cited NIEHS's work, went to press before NIH had time to file a patent application of its own.

"We're just happy that it's settled and we can focus on doing science once again."

—Roger Wiseman

Nevertheless, NIH filed a competing application last fall on NIEHS's behalf (*Science*, 14 October, p. 209). The move was designed to block Patent Office action on the Utah submission, says a government source. And NIH's tactic paid off. The Utah team understood that the entire patent might be invalid if the Patent Office agreed that there was an error in the list of inventors, and so, after a long negotiation, agreed to revise their filing.

The terms of the settlement—signed by NIH, the university, and Myriad—are being kept confidential. But sources say that NIH has agreed to abandon its patent application, and the Utah filers will amend theirs to name the NIEHS scientists as co-inventors and ensure that the government will get a 25% share of potential royalties. The agreements do not give NIH a role in setting the price of any products that may be developed.

In a mild declaration of victory, NIH Director Harold Varmus last week said, "I am very pleased that our collegial discussions ... have resolved the inventorship issues." Richard Koehn, Utah's vice president for research, embraced NIH as "a partner," and in a telephone interview, Wiseman said, "We're just happy that it's settled and we can focus on doing science once again."

Meanwhile, the scientific effort to characterize the mutations in *BRCA1* and track down a second breast cancer gene called *BRCA2* appears to be picking up speed. Wiseman and many would-be competitors have joined the IBC to share data on mutations among women who carry the *BRCA* genes. This consortium, founded by Stephen Friend of the Massachusetts General Hospital, includes most important gene hunters in this field. One notable exception, Mary-Claire King of the University of California, Berkeley, is planning a separate collaboration. King could not be reached for comment.

According to Friend, the IBC has already created a database with the help of Thomas Marr at the Cold Spring Harbor Laboratory and hopes to plug the system into the Internet by summer. That goal is possible, although "optimistic," says Marr. He adds that "It's really exciting to have so many good people collaborating on a hot gene." It means that the race to find clinical applications "is just going to accelerate."

–Eliot Marshall

* The IBC steering committee includes Stephen Friend of the Massachusetts General Hospital (chair); Anne-Lise Borresen of the Radium Hospital in Oslo, Norway; Graham Casey of the Cleveland Clinic; Francis Collins of the National Center for Human Genome Research; Peter Devilee of the University of Leiden in Amsterdam; Patricia Murphey of OncorMed in Gaithersburg, Maryland; Bruce Ponder of Cambridge University; Mark Skolnick of the University of Utah and Myriad Genetics Inc.; Barbara Weber of the University of Pennsylvania; and Roger Wiseman of the National Institute of Environmental Health Sciences.