CERN physicist Maurice Jacob. So, Jacob says, it is an appropriate time to celebrate CERN's achievements.

The obvious question for the epilogue is, did CERN succeed? As *Science* went to press, CERN physicists were planning to present results from seven lead-beam experiments and cautiously lay claim to the creation of a quark-gluon plasma–like state of matter—if only for 10^{-23} seconds at a time. "A common assessment of the collected data leads us to conclude that we now have compelling evidence that a new state of matter has indeed been created ... [that] features many of the characteristics of the theoretically predicted quark-gluon plasma," Jacob and his fellow physicist Ulrich Heinz write in a paper summarizing the results.

As early as 1996, CERN scientists saw evidence of a quark-gluon plasma in the unexpectedly low production of an elusive particle known as the J/ψ (*Science*, 13 September 1996, p. 1492). Since then, CERN experiments have shown other hints of a quark-gluon plasma, such as anomalies in the distribution of "vector mesons" (such as the ρ particle) and in the production of "strange hadrons" (such as the Ω particle). "The excess in strangeness is quite spectacular; for the Ω, the production is 15 times normal," says Jacob. "So something new is happening."

Yet none of the evidence has put the issue to rest. Columbia University's Bill Zajc, a spokesperson for a RHIC experiment, notes that other mechanisms might account for the destruction of J/ψ particles, such as collisions with less exotic particles hurtling away from the nuclear smashup. "It's like being caught in machine-gun fire," he says. RHIC scientist and Brookhaven physicist Sam Aronson agrees: "It's fair to say I don't find they've made a compelling argument for discovery at all."

CERN physicists are careful not to overstate their case. "While all the pieces of the puzzle seem to fit, it needs definite confirmation," says CERN spokesperson and physicist Neil Calder. Achim Franz, a physicist who worked on two of the seven CERN experiments, agrees. "There's nothing there with a big red flag saying 'I'm a quark-gluon plasma,' " he admits. "I don't think you'll see an event and say, 'That's it!' "

Such decisive evidence is exactly what some researchers hope RHIC will provide. "The hope is that when you go to RHIC, which has two to five times as much energy, the particles created will have crossed the threshold, and it will be easier to interpret the results," says Wit Busza, a RHIC experimenter and physicist at the Massachusetts Institute of Technology. But Franz cautions against too much optimism. "I started as a postdoc in '86, and people said that SPS would find the quark-gluon plasma right away. It wasn't there," he says. "I don't think there will be a threshold suddenly."

For now, the CERN experiments will continue, colliding atomic nuclei at lower energies to fill in gaps in the data. Most of the community's anticipation, however, is focused on CERN's next big step: an accelerator called the Large Hadron Collider, which will eclipse RHIC in 2005. Until then, CERN scientists must be content to celebrate a set of experiments that gave them a glimpse of something bizarre. "I don't know whether it's a quark-gluon plasma or not," says Franz. "But if you take all the experiments together, it's something new and exciting."

—CHARLES SEIFE

HUMAN GENETICS

Start-Up Claims Piece of Iceland's Gene Pie

For almost 2 years, Iceland's small scientific and medical community has been torn apart by a bold plan to pool the entire country's medical records in a database that would aid the search for disease-causing genes. In December 1998, parliament approved the creation of the database (*Science*, 1 January 1999, p. 13). And just a month ago, the health ministry gave one company, deCODE, exclusive rights to run it—a move that engendered heated opposition.

Now, a small biotech start-up is providing an alternative for those critics who want to mine Iceland's genetic riches but dislike the arrangement with deCODE. The company, called UVS—after Urdur, Verdandi, and Skuld, three witches who according to old Icelandic sagas determine the fate of man—was established as an alternative to deCODE, concedes Snorri Thorgeirsson of the U.S. National Cancer Institute in Bethesda, Maryland. Thorgeirsson started the company along with Bernhard Palsson, a researcher at the University of California, San Diego, and Icelandic businessman Tryggvi Petursson.

Founded 2 years ago, UVS went public last week and promptly announced three major research agreements—with the Icelandic Cancer Society, the National University Hospital, and the Reykjavik City Hospital. Within 6 to 8 weeks, UVS plans to open a lab outside Reykjavik, says Thorgeirsson.

Scientists at UVS, like those at deCODE, believe that disease-causing mutations are easier to find in genetically homogenous populations, such as Iceland's, whose genomes have less "noise" than those of more diverse societies. Both companies hope to profit by selling that knowledge to pharmaceutical companies, which can use it to develop diagnostic tests and drugs. But whereas deCODE's search will be helped by having medical records on almost everyone in Iceland, UVS says it can turn up valuable data by working with smaller groups of patients, who have volunteered to participate.

UVS is teaming up with several scientists who fiercely oppose the national database. Critics have argued that procedures for obtaining patients' informed consent and safeguarding their privacy are inadequate. One of those is Jorunn Eyfjord, a geneticist at the Icelandic Cancer Society's lab, who will cooperate with UVS on three cancer projects. Another is Jon Johannes Jonsson, head of the department of biochemistry and molecular biology at the University of Iceland. Formerly a member of deCODE's scientific board, Jonsson broke with the company because he opposed the health database. Now, one of his faculty members, Reynir Arngrimsson, is scientific director of UVS, and the company will share laboratory equipment with his department. "I don't like to see a monopoly in Iceland," says Jonsson, "and I don't like to see human genetics done in the way deCODE proposes to do it."

> **"For me, it's a relief to have another company, so I'm not accused of monopolizing" Iceland's gene pool.**
>
> —Kari Stefansson

Kari Stefansson, founder and CEO of deCODE, is unfazed by the competition. The Icelandic government, keen to stimulate its budding biotech industry, has embraced deCODE's plan. And so far, only about 5% of Icelanders have asked that their medical data be excluded from the database—which shows that the general public has more confidence in deCODE than some scientists do, says Stefansson. Nor, he adds, does deCODE have a shortage of collaborators. The company, which employs almost 300 people, is working with many physicians on projects to identify genes involved in lung, prostate, colon, and skin cancer. Says Stefansson: "For me, it's a relief to have another company, so I'm not accused of monopolizing" Iceland's gene pool.

—MARTIN ENSERINK