bling precedent" by carving out an exception to its confidentiality policy. BIO officials are concerned that confidential patient and business data may inadvertently be released. What's more, says BIO bioethics counsel Michael Werner, releasing data on all adverse events before they can be investigated could "be misleading or misunderstood or taken out of context" by patients and the public, as many of these problems are related to a patient's underlying disease and not the therapy. But Noguchi disagrees, noting that the only events that sponsors have to report immediately are those possibly related to treatment; the rest are summarized in an annual report.

Federal officials say this new body of information will "complement" the work of the Recombinant DNA Advisory Committee (RAC), which advises the director of the National Institutes of Health (NIH) on the ethics and safety of gene therapy trials. The RAC already releases protocols and safety reports on NIH-funded trials (www4.od.nih.gov/oba/rdna.htm). (Those few investigators with no direct or indirect NIH funding can submit information voluntarily to the RAC but would be obliged to follow the FDA rule.) The RAC now wants to analyze those adverse event reports for trends and recently proposed establishing a new working group to do so. Amy Patterson of the NIH Office of Biotechnology Activities, which runs the RAC, explains that the FDA proposal will satisfy the public's desire for access to safety information right away, while the RAC will continue to provide an open forum for analyzing the reports.

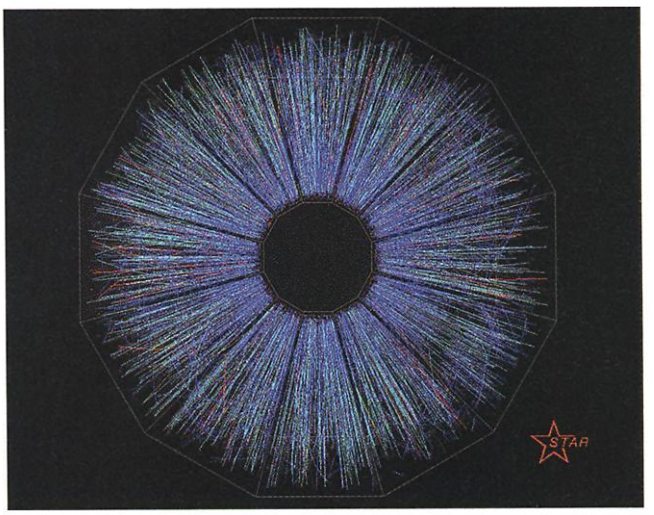
The rules also cover the rapidly evolving field of animal organ and tissue transplants. FDA plans to release data from such xenotransplantation trials, while the Department of Health and Human Services (HHS) is finalizing more stringent guidelines for trials as part of a broader effort to reduce the risk of introducing new viruses into the population (*Science*, 30 January 1998, p. 648). A new HHS xenotransplant advisory committee—similar to the RAC—will hold its first meeting in late February. **–JOCELYN KAISER**

HIGH-ENERGY PHYSICS

New Collider Sees Hints Of Quark-Gluon Plasma

STONY BROOK, NEW YORK—Ever since the Relativistic Heavy Ion Collider (RHIC) was turned on last June, physicists have been eagerly awaiting news from the newest, biggest particle accelerator on the block. The wait is over. The first results, presented at an international particle physics conference here last week,* hinted that scientists have finally managed to coax atomic nuclei to melt—creating a state of matter that hasn't existed since the big bang.

Inside RHIC's tunnels at Brookhaven National Laboratory in Upton, New York, gold nuclei accelerate to more than 99.99% of the speed of light and smash into each other head on. By analyzing the showers of particles that fly off the colliding nuclei, physicists are attempting to figure out how matter behaves when so much energy is poured into so small a space. Last year, scientists at CERN in Geneva implied that their collider had slammed nuclei together so hard that the individual particles that make up the atom melted into a liquid melange of the particles' components (*Science*, 11 February 2000, p. 949). When RHIC started up, physicists hoped that its data would show evidence of such a quark-gluon plasma. So far, the most tantalizing hints have come from what scientists *don't* see.



CREDIT: BROOKHAVEN NATIONAL LABORATORY

Nuclear shrapnel. In RHIC's STAR experiment, particles spray away from colliding gold nuclei, viewed face-on. Asymmetric explosions may bear witness to quark-gluon plasmas.

At low energies, a nucleus behaves something like a clump of hard wax pellets. Slam two into each other, and particles shoot in all directions, caroming off one another like hard billiard balls. By studying jets of particles spraying from the sides of these collisions, physicists can figure out what took place during the collision. At RHIC's higher energies, something different is happening. "The distribution of fast-moving particles is lower than one would predict," says Yale physicist John Harris, spokesperson for STAR, one of RHIC's four experiments. There seem to be fewer high-energy particles coming off the sides of the collisions than expected.

Just as someone counting wax pellets might explain such a deficit by saying that the wax had melted at high energies, particle physicists suspect that the particles in the nuclei might be melting into a sticky quark-gluon plasma that slows down particles shooting out the sides—quenching the jets. "It's a very exciting observation. It hasn't been seen before," says Tim Hallman, a physicist at Brookhaven working on STAR. "It's early enough that people are guarded, but it matches predictions pretty well of when you make a transition to the quark-gluon plasma."

Another line of evidence for a quark-gluon plasma has to do with how the wreckage of the collisions sprays away. Most often, the two colliding gold nuclei don't slam directly head on. Instead, the nuclei—flattened to pancakes by the extreme relativistic speeds at which they are traveling—strike each other off center, colliding only in an almond-shaped region where the disks overlap. To scientists' surprise, particles scattered off in an almond-shaped distribution, rather than evenly. Calculations showed that it would be very hard to preserve the almond shape if the subatomic particles were intact, but easier if the particles had broken down into a soup of components. "It seems to imply that something weird is happening," says Jim Thomas, a physicist at Lawrence Berkeley National Laboratory in California who is working on the STAR experiment at RHIC. "But more than that wouldn't be prudent to say."

Although the evidence is suggestive, nobody is willing to claim that RHIC has actually spotted a quark-gluon plasma. "It's a consistent picture if the quark-gluon plasma is being formed," says CERN physicist Carlos Lourenco. But Lourenco warns that the RHIC measurements don't show a sharp, well-defined transition between ordinary matter and a quark-gluon plasma: "What we're looking for is big—to see a phase transition."

That might happen during RHIC's next run, scheduled to begin in May, which will last longer, reach higher energies, and employ more sophisticated detectors. In the meantime, particle physicists are simply saying that interesting things are happening in RHIC's tunnels—not bad for a first run. "Something is going on that we don't understand," says Columbia University's Bill Zajc, spokesperson for RHIC's PHENIX experiment. "We expected to open up a new frontier, but this is too easy," he adds—and that "has some people a little concerned."

–CHARLES SEIFE

* Quark Matter 2001, 15–20 January.