whelming majority in favor of developing the networks," says Dujon. The network structure will be used to coordinate activities around sets of genes or techniques and help laboratories to collaborate. Dujon expects an even larger collaboration will be needed: "Biology is not as easy as sequencing, but we want to use the experience of working on the genome," he says.

The EU will decide whether to provide funding for this project at the end of the month. While awaiting the decision, researchers have begun working out which methods to use for full-scale functional analysis of the yeast genes. A pilot study, supported by the EU's biotechnology program and coordinated by Piotr Slonimski at the Centre Génétique Moléculaire at Gif-sur-Yvette, France, is already under way. Its aim is to develop methods to produce mutant strains in which individual yeast genes have been disrupted, as well as better assays for assessing the functional effects of the disruptions. A suggestion is also being floated by Johnston to provide a library of mutants as a research resource. "Having them all in the freezer might stimulate people to look at functions," he says.

The treasure-trove of information being accumulated on the yeast genome is likely to prove valuable to researchers beyond the yeast community, because yeast genes can be used as probes to find related genes in other species including humans. By working back and forth, it should be possible to increase the understanding of gene function by leaps and bounds. "Yeast genes will be a real help for studying human gene functions," says Bodmer.

The biological stakes are high. The discovery of so many new genes has been likened to the characterization of new species which led Darwin to the theory of evolution. "It is impossible to say what might come out of the genome data. We are groping our way to facts we cannot yet imagine," says Stephen Oliver of the University of Manchester Institute of Science and Technology, who coordinated the sequencing of chromosome 3. Johnston, on the other hand, believes that data on the new genes are likely to fall into place along current lines without fundamental surprises.

Whatever yeast genes might ultimately reveal, researchers in Lisbon have reason to be in a buoyant mood. "In a short time it will be hard to realize how we managed without the sequence data. Biology will never be the same again," says Oliver.

–Nigel Williams

IMANISHI-KARI CASE

Marathon Hearing Gets Under Way

This week marked the opening of the latest—and perhaps final—stage of one of the most prominent scientific misconduct cases ever handled by the federal government. A three-person administrative panel began hearing testimony on an appeal from Tufts immunologist Thereza Imanishi-Kari of a finding by the Department of Health and Human Service's (HHS's) Office of Research Integrity (ORI) that she falsified and fabricated data for a 1986 paper in *Cell*, coauthored by Nobel laureate David Baltimore and four other researchers, on immune function in transgenic mice.

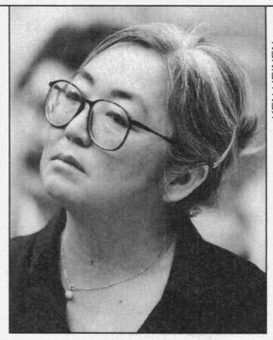
Last November ORI concluded after a 2-year investigation that Imanishi-Kari "not only fabricated and falsified critical areas of the reported results, but in denying the original misconduct, she further compounded these violations by fabricating data that she claimed supported her initial findings" (*Science*, 2 December 1994, p. 1468). It has proposed that she be banned from receiving federal funding for 10 years, prohibited from serving on federal advisory panels, and required to submit a full retraction of the *Cell* paper. In a 55-minute opening statement to the panel, ORI counsel Marcus Christ explained why Imanishi-Kari's conduct warrants the harsh sentence requested by the government. "It is not a simple act of falsification and fabrication in a paper," Christ said, "but a continuing pattern of conduct to deceive the government."

Imanishi-Kari's lawyer, Joseph Onek of Crowell and Moring in Washington, D.C., sees another pattern in the case, one distinctly less favorable to ORI. Drawing on his successful defense of National Institutes of Health virologist Robert Gallo and other scientists against charges of scientific misconduct, Onek told the panel in brief opening remarks that "ORI has used the same overheated rhetoric in other cases in which no misconduct was found, and we are confident that no misconduct will be found here."

During a break in the hearing, Onek told *Science* that a successful appeal, in his view, "will bring to an end an ignoble decade of attacks against scientists" by the federal government. ORI Director Lyle Bivens acknowledged that this "is the last of the big cases we've inherited" from ORI's predecessor, the Office of Scientific Integrity. But he offered a different assessment of the outcome. "Whichever way this turns out, I think we've succeeded in showing that we can present a strong case and do a good job investigating scientific misconduct," he said.

The hearing, featuring more than 40 witnesses, is expected to run for 3 weeks this month and then resume for 2 weeks in late August. Witnesses for the defense will include the Massachusetts Institute of Technology's Baltimore and most of the other coauthors of the *Cell* paper. A second Nobelist, Harvard's Walter Gilbert, will appear on behalf of the government.

The first half will focus on the methodology for the experiments, the reliability of various reagents used to determine expression of antibodies, and the scientific significance of the work, as well as philosophical discussions of the ethical responsibilities of scientists. It will delve into Imanishi-Kari's attitude toward conflicting and contradictory data and her lab management practices. The August portion, including testimony from Imanishi-Kari herself, will be devoted to a forensic analysis of her notebooks. Secret Service agents will offer evidence that Imanishi-Kari juggled the scientific record to make her case in the *Cell* paper, while defense experts will argue that the government's forensic analysis is flawed. The testimony is expected to be replete with the arcana of printer ribbons, data tapes, recycled paper rolls, and the impressions left by pens on subsequent pages of a notebook.



KEN HEINEN

My turn. Imanishi-Kari appeals ORI decision.

ORI's witnesses are expected to say that Imanishi-Kari's conduct violated scientific norms and that her alleged attempt to cover up her actions makes her offense particularly flagrant. Witnesses for Imanishi-Kari are expected to defend her scientific and administrative practices as falling within the range of acceptable behavior, noting that other researchers have built on her work.

A ruling is expected by the end of the year. The panel, officially the Research Integrity Adjudications Panel of the HHS Departmental Appeals Board, consists of two lawyers who are members of the board, Cecilia Sparks Ford and Judith Ballard, and an outside virologist, Julius Youngner, who is professor emeritus at the University of Pittsburgh School of Medicine.

The panel has considerable leeway in deciding whether to support or reject ORI's position; its decision on the proposed sanctions will be final in all matters except for the funding ban, which will be made in the form of a recommendation to HHS. If the board upholds ORI's conclusion, Imanishi-Kari's only recourse would be to take her case to federal court.

–Jeffrey Mervis