says accepting Ariad's claims would have been like accepting "a claim on antigravity." In 2003 the federal circuit faced a similar case—the *University of Rochester v. Searle*. The university, which obtained a cyclooxygenase type 2 (Cox-2) patent but did not describe specific Cox-2 inhibitors, sued Skokie, Illinois–based Searle (now part of Pfizer) over Searle's cyclooxygenase type 2 inhibitor Celebrex (celecoxib). The university lost.

Ariad and its university co-plaintiffs took the same road, with the same outcome. Patent claims, to be allowable, must be supported by a written description of the invention detailed enough "to enable any person skilled in the art" to make and use the invention—a key requirement of US patent law. Although Ariad claims its patent, unlike the Rochester patent, discloses "specific information and specific guidance," the patent failed the written description test, and the court didn't even bother ruling on the enablement requirement.

The inventors "didn't do anything to enable even an iota of this particular patent," says Arti Rai, a law professor and patent expert at Duke University in Durham, North Carolina. Although the discovery of NFκB was a significant achievement, Rai says, it didn't give the discoverers the ability to lay claim to all future modulators of that pathway.

Ariad isn't admitting defeat as yet. The company's CEO Harvey Berger, in a press release, noted that the April ruling only invalidated four patent claims (out of 211) and invoked "only one of the technical requirements for validity." "We believe that this decision may allow us to pursue further legal action and review of the ruling," Berger commented in the release.

But Ariad looks beaten. Woessner predicts that "they're not going to get any further judicial review." In addition, the company's dispute with Amgen is in trouble, with Ariad appealing a September 2008 district court ruling that cleared Amgen's Enbrel of infringement. What's more, an ongoing US Patent and Trademark Office reexamination of the patent gives scant hope, as 157 of the 211 patent claims had been either rejected or cancelled as of March 16. Ariad could again sue for infringement based on the surviving claims, but it would face the same legal objections that proved fatal in the Lilly case.

The investment community isn't counting on any future royalties. "We expected the [original] ruling to be overturned," says Phil Nadeau, a biotech analyst for Cowen and Company in New York. "There was no value in Ariad stock for any royalty payments they could have received based on these patents."

So for the moment, broad upstream "mechanism of action" patents, like the NFκB patent, do not seem to pose much of a threat. "The pharmaceutical industry has had a bad run as plaintiffs in patent infringement cases, but they've been doing okay as defendants," says Rebecca Eisenberg, a law professor and biotech patent expert at the University of Michigan in Ann Arbor. "The federal circuit has been with them on invalidating these upstream patents that they've been charged with infringing. And the Supreme Court also."

Companies asserting broad claims "are not going to get much sympathy" from the federal circuit, agrees Rai. "And if they're trying to assert them against a defendant who is as willing to fight as Eli Lilly is, they're ultimately going to lose."

Many universities, however, emboldened by Ariad's 2006 district court victory, have been pressing for such broad claims. "Every professor that discovers a mechanism of action now wants you to claim it," says Woessner, who advises universities. "And it can be hard to dissuade them from that." The take-home lesson from the Ariad case, says Woessner, is that filing such broad claims, without specifying compounds, hoping that some will stand, is a risky patent strategy. "Don't try to get broad functional claims, like the Ariad claims, or the Rochester claims," he says, without describing specific pathway modulators.

There's a broader lesson in the NFκB dispute. In Rai's view, the case highlights the potential harm that universities can inflict when their patents broadly claim downstream commercial products. She points out that the 1980 Bayh-Dole Act, which granted universities ownership of patent rights, was intended to promote commercialization of federally sponsored inventions, not to place a tax on innovation by others. But Ariad, a reputable science-based biotech company, never tried to develop NFκB inhibitors on its own. Instead, it sought to use the license to collect a revenue stream from other companies. If such claims were allowed to stand, they could ultimately chill product development because companies developing novel drugs would face possible infringement from the outset—not a conducive mindset for undertaking risky drug development.

The universities holding the NFκB patent, in Rai's view, are ultimately at fault for the misuse of its license. (MIT made the licensing decision, but declined to comment for this story.) The NFκB patent "shouldn't have been applied for with that breadth," Rai says, "and then it shouldn't have been exclusively licensed, given that it was so broad, to one company that didn't seem to have the capacity really to develop it." In the end, MIT, Harvard and the Whitehead may receive very little from what remains of the contentious patent.

**Ken Garber** *Ann Arbor, Michigan*

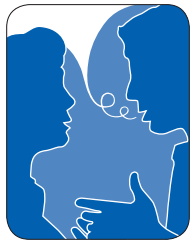


# IN brief

## TNF-blocker triple approval

A new tumor necrosis factor alpha (TNF-α) blocker with a unique once-monthly dosing schedule has been approved, but despite its advantages, few believe it will shake up the market. Simponi (golimumab) won approval from the US Food and Drug Administration for three rheumatology indications—rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis—in April, and from Health Canada earlier that month. Simponi, a fully human anti-TNF-α monoclonal antibody produced by Johnson & Johnson's (J&J) subsidiary Centocor Ortho Biotech of Horsham, Pennsylvania, and Schering-Plough of Kenilworth, New Jersey, must compete in the already crowded rheumatology space, which includes J&J's own blockbuster Remicade (infliximab). Market watchers, however, believe it is unlikely Simponi will displace best-selling counterparts Enbrel (etanercept), Humira (adalimumab) and Remicade. Janice M. Reichert, a senior research fellow at Tufts Center for the Study of Drug Development in Boston, who collects data on emerging drugs in the industry says: "Remicade has an established market and it is difficult to push something out of [that] position." If a patient is responding well to conventional treatment, Reichert notes, the physician will be reluctant to switch to a new therapy, especially when a clear competitive advantage is lacking. Simponi's once-monthly dosing schedule, less frequent than that of other TNF-α blockers. could provide that advantage. *James Netterwald*

# IN their words



**"You need to live with that executive team. You need to be with that team."**

San Francisco-based Corey Goodman insinuates the motives behind his resignation as leader of Pfizer's Biotherapeutics and Bioinnovation Centre, as the recently merged Pfizer-Wyeth executive teams locate to the East Coast. (*San Francisco Business Times*, April 29, 2009)

**"It's fair to say that at some point the virus passed through a pig. It could have been months; it could have been years ago."**

Paul A. Offit, an infectious disease expert at Children's Hospital of Philadelphia explains that, based on the virus's genetic structure, the animals do not seem to be playing a role now. (*New York Times*, April 28, 2009)

**"We shot ourselves in the foot."**

Paul Collier, professor of economics at the University of Oxford, on how a decade ago Europe, followed by Africa, banned GM crops, which now seem to offer a way to adapt to global warming. (*The Independent*, April 18, 2009)