

the end of 2001 (such as Amgen's \$16 billion acquisition of Immunex; *Nat. Biotechnol.* 20, 105–106, 2002). Lehman's Dougherty says that most activity is coming from companies "with a problem of some sort—either because they are running out of cash or they are hungry for products." For example, drug-delivery company Alkermes (Cambridge, MA) announced that it would acquire private company Reliant Pharmaceuticals (Liberty Corner, NJ), gaining the rights to three products; Alkermes previously had just one product on the market. But despite the lowered valuations, Dougherty does not see a wave of merger and acquisition activity building for the first half of the year. "It takes a long time to lower people's expectations," he says. Company executives continue to value themselves on their 52-week high share prices—too costly for some potential acquirers.

Analysts agree that no single event is likely to turn the market around, but product approvals will be key. Potential good news could come for any of the nine potential blockbuster drugs close to approval by regula-

tors, including Icos's (Bothell, WA) erectile dysfunction drug Cialis, Biogen's (Cambridge, MA) psoriasis treatment Amevive, and MedImmune's (Gaithersburg, MD) flu drug FluMist. Burrill says that investors may only regain confidence in the market if companies can "add tremendous value by showing very positive clinical data."

But for now, analysts have a sense of *déjà vu*. Clark says: "It is a typical reaction to a run of bad news, but it is a bit of an overshoot on the downside We have been here before ... in 1997 and also in 1994." Burrill agrees and says that a loss of faith could see the sector fall into a deeper trough. But another "boom and bust" cycle is unlikely, says Clark: the biotechnology sector is more mature than it was five years ago, and many companies have huge cash reserves left over from 1999–2000 bull market. And with many biotechnology companies now at attractively low valuations, braver investors might be tempted back to the sector.

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NIH outlines goals to counter bioterror

The US National Institutes of Health (NIH; Bethesda, MD) detailed their research priorities for countering bioterrorism on March 14, sketching the outline of what could be one of the largest funding reallocations by the NIH in years. Although the broad goals of the agenda—increasing funding for treatments, diagnostics, vaccines, and more basic research in key areas—are not surprising, according to researchers and executives, the document is already being scrutinized for hints of how the government will spend future funds to combat bioterrorism.

US President George W. Bush has already proposed a \$1.8 billion boost for bioterrorism in the fiscal year 2003 NIH budget (*Nat. Biotechnol.* 20, 209, 2002), and NIH officials say they hope that earmark will grow as the rationale for increasing biodefense spending becomes clearer. The primary goal of the agenda was to broaden the range of researchers focused on bioterrorism, according to Carole Heilman, director of the National Institute of Allergy and Infectious Diseases' (Bethesda, MD) division of microbiology and infectious disease. "When you thought of bioterrorism before, the community you worked with was military," Heilman says. Now, she says the new research priorities should bring in "investigators in a wide variety of pathogen [research areas] who haven't necessarily thought about bioterrorism."

The 68-page report focuses on the so-called

Category A agents—the group of pathogens that includes anthrax, smallpox, and plague—and lays out both short-term and long-term goals for each pathogen. Although the immediate goals emphasize efforts already well underway, such as expanding clinical trials for new vaccines, it is the long-term efforts that appear designed to elicit a response from a broader population of researchers, calling for a set of ambitious projects in immunology and genomics, such as efforts to "identify pathogen-induced immunoregulatory and immunosuppressive effects" and "analyze gene expression of agents of bioterrorism."

Biotech companies are viewing the new NIH priorities as a sign that the US government interest in bio-preparedness remains high. Acambis (Cambridge, UK), the main supplier of new smallpox vaccine to the US, says that the US government interest in investing in bioterrorism defense has not tapered off as the anthrax attacks of October and November recede into the past. "We haven't seen a slowdown," says Gordon Cameron, Acambis's president and chief financial officer. "There's been sufficient interest and it's been sufficiently high on the agenda that funding should still be coming."

Acambis's shareholders have been one of the largest indirect beneficiaries of the government's spending push, with the company's stock nearly tripling in value over the past 12 months, focusing attention on the sector.

However, Paul Heldman, an analyst at Schwab Washington Research Group (Washington, DC), says that although the \$1.8 billion increase in the NIH's funding represents a potential boon for grant-seeking academics and companies, the spending probably is not yet large enough to spur the market to invest in companies in this area. "It strikes me that unless you're Acambis, there isn't enough money right now for a windfall."

Although the NIH funding is not likely to go directly into company coffers, a boost in spending on bioterrorism defense could foreshadow future government spending that could directly benefit biotech firms working on infectious disease issues or immunology. "There are people on Wall Street looking at [the NIH agenda]," says Heldman. He says some of his clients "have suggested to me that this is the next military-industrial complex."

However, bioterrorism experts say that the NIH agenda, though a good start, does not address the range of threats the country faces. Although the initial focus has been on the Category A pathogens that have garnered headlines in the last year, experts say the government needs to look at a broader group of germs. "A truly successful biodefense agenda has to go beyond the obvious pathogens," says Brad Smith, a fellow at the Center for Civilian Biodefense Strategies at Johns Hopkins University (Baltimore, MD). "We're going to have to think a little bit more outside of the box about agents that might not be as high on the radar."

Moreover, keeping companies, researchers, and investors interested in the government's fight against bioterrorism may rely heavily not on this year's spending request or the newly minted research goals, but the prospect that a correctly focused agenda will be in place for the long run. Although the funding will receive a large boost this year, the payoff for that spending is likely to take years, not months of research. That means that researchers and firms deciding to re-orient their effort will need to trust that the agenda will remain a priority for the NIH and for the administration. "In order for them to really decide whether they want to focus on biodefense issues, they need to know that this isn't just a flash in the pan," says Smith. "They need to know that the US government will be committed."

For its part, Heilman says the NIH is dedicated to expanding its emphasis on biodefense to address Smith's concerns. "We're trying to put a set of infrastructures [in place]," she says, pointing to the next steps the NIH hopes to take. "We need to think not about specific target therapeutics and target pathogens. We have to look at broader goals," she admits.

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