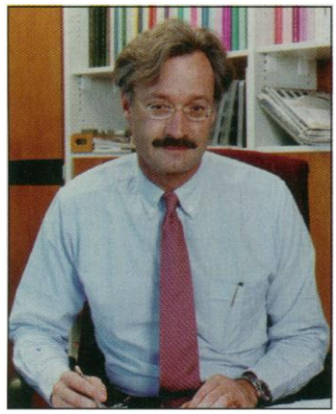
BIOTECHNOLOGY

Pharma Giant Creates Genomics Institute

Most pharmaceutical companies seeking to apply the wealth of genomic data now being produced to the hunt for new drugs have turned to specialized start-up companies for help (*Science*, 7 February 1997, p. 767). But one drug giant is bucking this trend. On 8 April, Novartis Pharma of Basel, Switzerland, announced that it is committing $250 million to create its own research institute dedicated to tracking down the functions of the many genes being discovered.



NOVARTIS PHARMA AG.

Looking ahead. Novartis's Paul Herrling expects his company will profit from the new institute.

The Novartis Institute for Functional Genomics, to be based in La Jolla, California, should be up and running in 2 years and will be home to some 100 researchers, says neurobiologist Paul Herrling, head of research for Novartis. The company decided to set up the institute, he adds, because it expects to get "a large competitive advantage" if it can efficiently translate genetic information into drug targets. Other biotech experts question whether Novartis's approach is better than linking up with smaller companies, however.

The institute will combine under one roof the various kinds of expertise it takes to perform studies of gene function on a large scale. This functional genomics, as it's called, incorporates bioinformatics, DNA chip technology, animal models, and other approaches to pin down the genes that cause human diseases and are therefore prime targets for drug development. "What we want to create is an institute that integrates these technologies," says Herrling. In addition, its scientists "will help develop high-capacity methods" that will speed up and streamline the determination not only of the functions of individual genes but also of how those genes and their protein products interact.

According to Herrling, the institute will not be part of any Novartis company but instead will be operated by the Novartis Research Foundation, although the exact nature of this foundation and its relationship to the corporate side of this pharma giant has not been worked out. The institute's scientists will be funded entirely by the foundation—to the tune of $20 million a year for the next 10 years—and will not seek public or government support. Broadly speaking, the goal will be to find genes causally related to disease that Novartis can evaluate as potential drug targets. But otherwise, the researchers would have "a large latitude" in pursuing their research interests, he explains. He expects, too, that they will be encouraged to publish their results once intellectual property rights arising from the work have been protected.

"I think this will be a world-class center, like Bell Labs was in its day," comments Richard Lerner, president of The Scripps Research Institute, which is located across the street from the proposed institute site in La Jolla. Scripps receives $20 million a year from Novartis, in return for first rights of refusal on some Scripps discoveries and inventions (*Science*, 20 May 1994, p. 1077).

But although Lerner welcomes the institute, Lee Babiss, a molecular biologist and vice president of biological sciences for Glaxo Wellcome in Research Triangle Park, North Carolina, like many pharma executives, argues that forging links with start-up genomics companies may be a better way to go. G. Steven Burrill, who runs Burrill and Associates, a private merchant bank in San Francisco that specializes in life sciences companies, agrees. In general, he says, few companies have tried to build such extensive expertise in-house because "that model has not been successful by and large." In his experience, the best minds in functional genomics are much more likely to start their own companies, where they can be owners and entrepreneurs, not just employees. In these start-ups, "the technology gets further, faster," he adds.

Novartis takes advantage of such partnerships, says Herrling, but still opted to create an institute with the hope of coming up with better ways to do high-throughput functional genomics. It is betting $250 million that its new institute will prove the exception.

–Elizabeth Pennisi

ENVIRONMENTAL POLICY

Panel Scores EPA on Clean Air Science

When the Environmental Protection Agency (EPA) unveiled a plan last summer to reduce levels of fine soot particles in urban air, industry critics assailed it for relying on what they viewed as flawed science (*Science*, 25 July 1997, p. 466). To appease its detractors, EPA promised to review new research findings before spelling out how states should implement the regulations, which could cost $104 billion a year. And Congress told EPA to expand its current air pollution research program. Now, a National Research Council (NRC) panel assembled to help design and critique that research effort has concluded that the EPA once again is giving science short shrift.

The panel issued a report last week urging EPA to revamp its research program to better understand how much soot people inhale and why fine particles appear to cause harm. It also took the agency to task for moving ahead with a new, costly network to monitor fine particles without a clear idea of which ones are most dangerous. "We were disappointed" by the agency's priorities, says panelist Phillip Hopke, a chemist at Clarkson University in Potsdam, New York.

EPA's new regulations focus on levels of particulate matter 2.5 micrometers or less in diameter ($PM_{2.5}$), produced mainly by combustion, because dozens of population studies suggest that this class of pollutants may worsen respiratory and heart problems, especially in the young and elderly. EPA predicts that its new limits—which won't go into effect until after 2002—should prevent about 15,000 premature deaths each year. But the agency also acknowledges gaps in its under-

SELECTED AIR POLLUTION RESEARCH RECOMMENDED BY NRC (IN $MILLIONS)

(Areas shaded purple are currently underemphasized by EPA)

Topics	1998	1999	2000	2001	2002
Outdoor measurements vs. human exposure	3	3	3	—	—
Assessment of hazardous PM components	8	9	9	14	14
Deposition of PM in the respiratory tract	3	1.5	1.5	1.5	—
Interactions between PM and other pollutants	4	9	10	10	10
Susceptible subpopulations	2	2	3	3	3
Toxicity mechanisms	9.5	9.5	9.5	9.5	9.5

SOURCE: NRC