

**INTERVENTIONISTS INTERVENING?**

**FAVORING RHONE-POULENC?**

LONDON—A row is developing—both inside and outside France—over a huge new research and development (R&D) project, Bio Avenir, which will channel Ffr 200-400 million (\$35-70 million) a year for the next five years into French biotechnology. Fully 40-70 percent of the funds will come from Rhone-Poulenc (R-P, Paris), the French agrochemical and pharmaceutical giant. The row is not about the involvement of R-P funds, but about the company's role in directing the project. Some see Bio Avenir simply as a way of allowing the French government to boost R-P's biotechnology efforts or to defray its costs.

Bio Avenir will support fundamental research in molecular biology, protein structure and function, genetics, and membrane responses, with projects focusing on animal and human healthcare, as well as agriculture. However, neither the Prime Minister's office, the Ministry of Research, nor Rhone-Poulenc would discuss details of the Bio Avenir proposal. Yet French officials elsewhere confirm that R-P will play the dominant role in defining projects and allocating funds both internally and to French research institutes. This pleases no one. French companies are concerned about a R-P monopoly of the national research base—putting all the research eggs in one development basket. The research institutes fear the loss of autonomy. And companies outside France believe that if Bio Avenir goes ahead as planned, it would encourage the interventionist French government to intervene further in a supposedly free Eu-

ropean market.

Competing companies can take their case to the European Commission (EC, Brussels, Belgium). In 1991, following industry objections, DGIV, the EC's Competition Directorate, opposed Belgium government proposals to provide property-tax exemption and direct aid to SmithKline Biologicals (Brussels). The opposition was eventually dropped, setting a precedent which may prove an obstacle to Bio Avenir opponents. However, two factors distinguish that case from the Bio Avenir case. Firstly, the state aid was for recombinant vaccine development for which, the Belgian government argued, there was a social need and which would not otherwise be developed. Secondly, the amount of direct aid was only \$7.5 million.

Bio Avenir should be looked at in the context of biotechnology R&D spending by both the French government and R-P. Government funding for biotechnology runs at around Ffr 1,500 million (\$250 million) a year, according to figures from Daniel Thomas, the head of the Ministry of Research's National Program for Biotechnology. For its part, R-P spent Ffr 3,700 (\$630 million) on healthcare and agriculture R&D in 1990, biotechnology representing around Ffr 500-700 million (\$85-120 million) of that. With the government providing 30 percent of the Bio Avenir funds, that would be up to Ffr 120 million (\$20 million)—over 5 percent of biotechnology government spending—going into one company. If Bio Avenir is 60-percent government funded, the figure would be over 10 percent of government funds. —John Hodgson

Though Abramowicz does not say so straight out, the cutting edge of PCB bioremediation is probably research into genetically engineered microbes, an approach many think will complement and even supplant applications using natural bugs. GE and the University of Iowa (Iowa City), with EPA funding, are working on the next generation of FM4560, an engineered strain of *Escherichia coli* that has shown the capacity to degrade moderately toxic compounds including Alacor 1242 (Mondello, F.J., *J. Bacteriol.*, 171, 1725, 1989). On the anaerobic side, the potential for recombinants down the road seems to lie in building a microbe capable of removing ortho-chlorine atoms from biphenyl molecules at the lightly chlorinated end of the PCB spectrum.

Abramowicz believes that PCB biore-

mediation will be an effective technology within 10 years. But he admits that the research has not yet made much of an impact on biotechnology companies, which stand to earn sums variously estimated at between \$3 billion and \$23 billion from bioremediation in the U.S. alone. Says Abramowicz: "The regulatory system around PCBs is so intimidating, and public perception is still so negative, that even though the growing weight of scientific evidence is in bioremediation's favor, significant pressure against the use of bacteria to clean up PCBs will continue, at least for the near future." —R.H.

*Russ Hoyle, former senior environment editor at Time, is currently editor of ECO, a new magazine on business and the environment due out next year.*

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