



India challenges gene piracy

In a step toward protecting India's genetic resources, the Indian Council of Agricultural Research (ICAR) has started DNA fingerprinting the plant varieties in its gene bank. "We are doing this to establish proof of origin of the genetic material, in the event of ownership or patent disputes," says ICAR director general, Rajendra Singh Paroda. For instance, ICAR is currently mapping the molecular fingerprints of India's basmati rice, which it

claims is unique, in order to challenge the US patent given to RiceTech (Austin, TX) for its aromatic rice variety that is marketed as basmati. And Paroda says India has many unique genes in its gene bank. "Oriza nivara," for instance, is the only germplasm in the world that contains the gene to resist attack by grass stunt virus.

"We have so far profiled some 2,000 out of the 6,000-odd released crop varieties and a few medicinal plants, but we have a tremendous backlog," says KV Bhat, a scientist at National Bureau of Plant Genetic Resources (NBPGR; New Delhi), which operates the gene bank and fingerprinting labs. In addition, DNA probes from many crop species are still under development in his lab, and fingerprinting can cost \$125 for each sample.

"It is not possible to fingerprint every plant species or all the 100,000 seed types in our gene bank," says PL Gautam, NBPGR director. So priority has been given to released varieties and parental lines of hybrids, then medicinal plants of great commercial value or on the brink of extinction, and finally seeds that contain genes for such desirable traits as salt or drought tolerance, high yield, or resistance to insects.

Avanir prepares for sale

Avanir Pharmaceuticals (San Diego, CA), formerly known as Lidak Pharmaceuticals, was delisted from Nasdaq in mid-September after FDA delayed approval and requested more data for the firm's key product, a skin cream for the treatment of herpes infections. Avanir officials say they are preparing for a sale after months of legal battles, regulatory delays, and employee cutbacks. "We will be stepping up negotiations and talks with interested parties," says Patrice Saxon, director of investor relations for the troubled biotech.

In 1998, the board of directors ousted Lidak's founder and CEO David Katz after he tried to arrange a \$130 million loan from a financier; the board rejected the agreement (*Nat. Biotechnol.* 16, 315, 1998). Katz has since sued the directors of the renamed firm over his firing, arguing it was not justified and that his reputation was damaged. Avanir countersued, and a civil trial over damages took place in September in San Diego Superior Court. Company officials allege Katz was a "toxic boss" whose mismanagement cost shareholders \$14 million. They also claim he locked employees in a closet for nonperformance.

Research Collaborations

Company 1	Company 2	\$Millions	Details
DuPont Pharmaceuticals (Wilmington, DE)	Pharmasset Ltd (Tucker, GA)	30	A multiyear agreement to develop antiviral compounds against HIV and hepatitis B. In exchange for creating and identifying novel nucleoside reverse transcriptase inhibitors, Pharmasset could receive over \$30 million, including an equity investment, upfront payment, research funding, milestones, and royalties.
ArQule (Medford, MA)	Bayer (Leverkusen, Germany)	30	A three-year combinatorial chemistry collaboration to use ArQule's Custom Array program to design and create compounds for screening against Bayer's therapeutic and agrochemical targets. ArQule could receive \$30 million in cash payments for delivery of arrays.
Lynx Therapeutics (Hayward, CA)	Hoechst Schering AgrEvo (Frankfurt, Germany)	25	AgrEvo aims to develop new crop varieties by studying certain plants using Lynx's DNA analysis technologies. Lynx could receive over \$25 million in exchange for DNA analyses, genomic maps, fees for SNP discoveries, and milestone payments.
Genome Therapeutics (Waltham, MA)	bioMerieux (Lyon, France)	6.2	An agreement to develop infectious disease diagnostic products. For the first year, GT will receive \$6.2 million in funding, including an equity investment from bioMerieux, which has also purchased a subscription to GT's microbial database. Genetic markers identified from the genomic sequence information in this database will be used to develop diagnostics.
Isis Pharmaceuticals (Carlsbad, CA)	Rhône-Poulenc Rorer (Collegeville, PA)	*	A three-year collaboration using Isis's antisense target-validation technology to assess genes identified in PRP's genomics programs. RPR and Isis will use resulting target information to develop pharmaceutical products and antisense drugs, respectively.
Cell Genesys (Foster City, CA)	Rigel (Sunnyvale, CA)	*	A cancer gene therapy collaboration whereby Rigel will identify novel therapeutic genes using its functional genomics technology. CG will have exclusive worldwide rights to these genes in the field of gene therapy; Rigel will be able to access certain of CG's patents and retroviral gene delivery technology to use in functional genomics.

*financial details not disclosed