

## Cure for South Africa's Ills

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Call her an idealist or call her a geek, but the CEO of the only bioinformatics company in South Africa believes many of Africa's problems will be solved by scientists, hackers and open-source networks.

Even over a phone line heavy with static from Cape Town, South Africa, Tania Broveak Hide's enthusiasm is apparent as she describes a recent event called the "biohackathon."

Her company, [Electric Genetics](#), sponsored the meeting of some of the top bioinformatics minds in the world. Bioinformatics -- a combination of biology, information technology and open source -- could help Africans address health problems and create jobs, she said.

Instead of relying on a developed country to come in and rescue Africa from its problems, Hide and other researchers who participated think citizens should learn about bioinformatics and help themselves.

"Africa has so much potential but so many problems, some of them health related, such as HIV, tuberculosis and malaria, and bioinformatics can really help attack some of these problems," said Ewan Birney, team leader for genomic annotation at the [European Bioinformatics Institute](#), who helped organize the biohackathon.

For example, Birney's lab is decoding the African mosquito genome. The complete genetic makeup of the African mosquito, which spreads malaria -- a disease that kills up to [2.7 million](#) Africans each year -- could profoundly affect the management of the disease.

Other researchers around the country are analyzing genes to find vaccines or treatments for AIDS, dengue fever, tuberculosis and other tropical diseases.

Few Africans, however, know how to use the huge amounts of genetic information generated in such research.

"This means we have to get some bioinformatics tools in there, as the only way to understand a genome is via bioinformatics tools," Birney said.

The biohackathon was a step in that direction, he said.

"We kicked butt," he said. "We got much more done than we were expecting."

The groups' results are posted on the [Open Bioinformatics Foundation](#) website.

The biohackathon screened researchers who were relatively new to bioinformatics and chose three candidates to participate in the event. They were placed alongside more seasoned researchers from such places as Cold Spring Harbor Laboratory, the Massachusetts Institute of Technology and the University of California at Berkeley.

"They dug in and did some great programming," Hide said. "I was worried that they'd be overwhelmed, but the others were kind and integrated them."

That an event such as this could occur in South Africa was a source of pride and validation for Hide.

"People were very surprised that international programmers would come to South Africa to do this," she said.

Electric Genetics not only wants to get bioinformatics into Africans' toolboxes, but wants to improve the social state of black South Africans by encouraging them to enroll in bioinformatics training.

The company has a close relationship with the nearby South African National Bioinformatics Institute ([SANBI](#)). In fact, Hide is married to Winston Hide, the director of SANBI.

SANBI recently hosted a training course sponsored by the World Health Organization. Compaq donated nine PCs loaded with Linux and the best bioinformatics programs. And the nine most worthy students who applied to participate (out of about 80) were allowed to take the computers home.

Projects such as this will help Africans solve their own problems rather than relying on drugs from developed countries, Hide said.

Not only that, but the growing bioinformatics industry will provide more jobs in a country with 25 percent unemployment, according to the [U.S. Agency for International Development](#).

The South African government recently crafted a national biotechnology strategy to encourage growth of the small pockets of biotech activity.

The first biotech venture capital fund, Bioventures, was launched by Gensec Bank and Real Africa Holdings in 2001, and Hide said more are soon to follow.

"Big venture firms here in our area are looking at biotech as a potential opportunity," she added. "They're treading slowly but they're keen."

Bioinformatics' essence is open source, researchers say.

Open source "gives access to all this data that they may not have known existed," she said. "The more data you have, the better chance you're going to come up with the right answer."

Even big pharmaceutical companies know that if they are to reap the benefits of bioinformatics, it has to remain open source.

"The only good bioinformatics is open source -- there is no Microsoft and unlikely to be one," Birney said. "The big money here is in making drugs, not software; and for big pharma, software just helps you get to drugs."

Even if a pharmaceutical firm were to try to make big business out of bioinformatics software, most researchers don't think it would work.

"The future Bill Gates is probably still writing assembly code," said Jim Kent, a bioinformaticist at the University of California at Santa Cruz who played a key role in completing the draft of the human

genome. "I don't think there is an IBM around to inadvertently give this future Bill the leverage of owning the operating system. I'm not worried."