

# Researchers isolating glaucoma gene

THE ASSOCIATED PRESS

RALEIGH—In his waiting room, Dr. Rand Allingham saw all the evidence he needed of glaucoma's disproportionate impact on his black patients—the speed and intensity with which the disease ravaged eyes, robbing victims of their sight.

To find the reason, and a potential treatment, the ophthalmologist decided to seek an answer in the DNA of blacks. His journey took him into the eyes of Ghana, a west African nation where glaucoma is also widespread.

Allingham believes researchers have a better chance of finding the offending gene in Ghana because the nation is more than 98 percent African. He and his researchers hope the lack of outsiders in the population will help them isolate the gene or genes that lead to glaucoma in that nation—and possibly in blacks in the United States, many of whom trace their ancestry to slaves brought to this country from Ghana.

Trying to find a potential genetic cause of glaucoma in blacks is difficult in the United States, where blacks have lived alongside Europeans, Asians and Native Americans for centuries, he said.

"I really didn't think African-Americans came to this country and then developed glaucoma," he said. "The U.S. is a melting pot. When you look at it genetically, 25 percent of African-Americans have European blood. Our population in the U.S. is not what you'd call a pure population genetically."

Glaucoma is the leading cause of irreversible blindness in the world and affects about 2 percent of the American population 40 years and older, according to the National Eye Institute in Bethesda, Md. Blacks are nearly three times more likely than whites to suffer from the disease.

It acts slowly. Over time, it prevents fluid from draining properly from the eye, increasing pressure and inflicting damage.

The disease rate isn't known in Ghana, where no studies of glaucoma have been conducted, Allingham said. The entire country has about five ophthalmologists for its 18 million residents—and none specialize in glaucoma, said Pratap Challa, a researcher on Allingham's team.

For the past eight years, Allingham and a team of

researchers from Duke University have worked intermittently in Ghana, tending to glaucoma patients, teaching health care providers to treat eye disease and collecting blood samples from families with a history of glaucoma.

"One thing that surprised us was how advanced the disease would be before people came in (for treatment)," Challa said.

In Ghana, blindness often leads to a life spent in one room, alone, Allingham said.

"The families take care of them, but they don't go anywhere," he said. "There's no resources for the blind. When you see it firsthand, it's really sad. It's horrifically sad to see little children."

Two years ago, the National Eye Institute agreed to finance a three-year, \$450,000 pilot project led by Allingham, allowing his research team to make more regular visits to Ghana. They are also working with a team at the University of Ghana in Accra, the nation's capital, that examines patients, collects blood samples, extracts DNA and stores the samples.

During this time, they have doubled the number of genetic samples in their study and set up a control population that does not have the disease. They will compare the DNA samples of the control group with those with the disease, hoping to find a gene that's common to those with glaucoma.

Paul Sieving, director of the National Eye Institute, a division of the National Institutes of Health, said such research holds promise. Researchers have found nearly 450 genes responsible for eye diseases, but haven't found one yet believed to be a major cause of glaucoma, he said.

Looking for it in Africa, among a genetically clean population where the disease is prevalent, makes sense, he said.

"That's the kind of creativity that makes difficult questions a little more tractable," said Sieving, who does his own genetic studies on patients who have macular degeneration and retinal degeneration. "It's a tremendous application."

Of course, finding the gene won't lead immediately to a cure.

"When you got the gene, then your imagination can take over," Sieving said. "You can make a copy, repair it, avoid it. It gets really exciting."

Allingham and his team plan to return to Ghana on Saturday for another week-long stay. There are undoubtedly many more such trips ahead.

"Getting to that cure stage, it's going to be challenging,"

he said. "We're kind of literally in the Model A period when it comes to genetics."

On the Net:

Duke Eye Center:

[www.dukeeye.org](http://www.dukeeye.org)

National Eye Institute:

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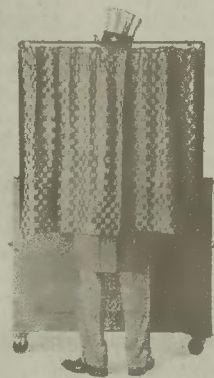
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## Students trace roots

Continued from page 1B

more difficult searches, were asked to bring pictures of relatives from home.

"It's pretty rough to have to get up early in the summer and drag yourself down to the library, but it was worth it," said 12-year-old Jordan Rock. "I found out about 'Wild Man' Rock, who was a Mardi Gras Indian master. And L.C. Beauregard, he was in my family and he was a mulatto policeman in the 1880s."

As fascinated as Jordan was with his ancestors, his 15-year-old sister, Amandia, was even more amazed by the discovery of a white member of the family tree.

"She was my father's great, great, great grandmother," Amandia said. "I was shocked. I never thought of myself as being white in any way."

Akanke McKinsey, 10, said she thought the camp might be boring, but it wasn't. "It was like reading a story about me," she said.

Akanke proudly displayed a picture of a 1910 federal grand jury that shows her ancestor Homer Cyprien. "He was the first black man invited to sit on a federal grand jury in Louisiana," she said.

Discoveries like that, and the sense of family history they give a child, are important for the city of New Orleans, said Mayor Ray Nagin.

"This may be one of the keys for unlocking what is one of the biggest problems in our city," he said. "Our young men, more than anyone else, need to know their history. They are the ones dropping out of school and getting into drugs and crime and shooting each other."

Harrell-Miller said she welcomes white campers next summer. She said it is easier for people with European ancestors to trace their genealogy because records have been better preserved, she said.

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