

links of possible importance. Biology, however chaotic it might appear, had regions that he felt would yield to the firepower of mathematical methods. His first few papers exploring mathematical approaches to biology were sufficiently remarkable that he won a MacArthur Fellowship, the so-called "genius" award. "That grant was crucial for me," he said. "I was struggling to establish myself at the interface of math and molecular biology. Why should anyone take me seriously? The MacArthur gave me that essential credibility."

The \$250,000 grant helped finance travel to the far-flung and isolated human populations where he knew gene-hunting would be easier.

Dr. Lander soon started to make an impact in molecular biology, creating the mathematical tools to tease out a major gene in asthma, and a "modifier" gene that can suppress colon cancer. But eventually he tired of hunting down genes in the genetic jungle, one by one. "That time is over," he said. He is now laying plans for the next era in biology, in which he foresees that the entire set of human genes and their functions will be available on one CD-ROM disk, so there will be no more Stanley-and-Livingston searching.

"Now, suddenly, biology is finite," he said.

"The genome project is wholly analogous to the creation of the periodic table in chemistry," Dr. Lander said. Just as Mendeleev's arrangement of the chemical elements in the periodic table made coherent a previously unrelated mass of data, so Dr. Lander believes that the tens of thousands of genes in present-day organisms will all turn out to be made from combinations of a much smaller number of simpler genetic modules or elements, the primordial genes, so to speak. He theorizes that these modules helped carry on life in the most primitive cells living on the planet three billion years ago. The basic functions of the life carried out by the first genes must all have been formed very early in evolution, Dr. Lander surmises. Most present-day genes are variations on these few original themes, he said.

"The point is that the 100,000 human genes shouldn't be thought of as 100,000 completely different genes," Dr. Lander said. "They should be thought of as maybe a couple hundred families that carry on essentially all of life."

Making such a periodic table for families of genes will define a new direction for biology, in Dr. Lander's view. The completed table would mark the end of structural genomics, the analysis of the structure of genes. "When you get the last base of the genome, driven in like the golden spike in the transcontinental railroad, we'll maybe have a big ceremony," he said. "But when it's done, it's done."

Then comes what Dr. Lander calls functional genomics, or making practical use of the table. For example, Dr. Lander says, biologists may learn to read human DNA so effectively that laboratories will quickly be able to tell patients all the important variations they have in their entire gene set, or genome. Further, it should be possible to tell which of those genes are turned off or on at a given moment, thus getting a picture of whether the cells of the body are up to snuff.

"So here's the manifesto for the era of functional genomics," Dr. Lander said.

"One. At the DNA level we want the ability to re-sequence an entire genome—anybody's genome—in a regular medical setting, to find all the variations. Because you and I differ in one-tenth of 1 percent of our bases, and that accounts for our differences.

"Most genes will have two, three or four major variants. If you have 100,000 genes, that means there will only be about 300,000 major variants. It's a finite number. We can

then take that list, and then correlate all the different variations with health outcomes. You could take the Framingham Heart Study and find the rate of each disease associated with each of the 300,000 variants of genes."

That would allow each person to get a full list of what disease they are most at risk for, based on their inheritance.

With a mix of hope and skepticism, he said: "In principle, that would allow us to have personalized health care and personal health care strategies. In practice, of course, whether we do that will depend on what we as a society want to pay for, and how much we can protect our privacy, and so on."

"Two," he said, holding up fingers to signal the next item on his manifesto. "We want to be able to monitor gene expression." Finding out which of an individual's genes are active at any time would help indicate a body's response to drugs, dieting, exercise and other factors.

"All this is not so crazy as it sounds," Dr. Lander said. "Less crazy, in fact, than the genome project itself. There are already genetic 'chips' that can make these things possible."

He was referring to one of his favorite new technologies, which has put human genes on microchips. Genes in a blood sample can be matched against the standard ones on the chip to see if there are any important abnormalities.

So far, one company making "gene chips," Affymetric Inc. of Santa Clara, Calif., has succeeded in putting all the genes of H.I.V., the virus that causes AIDS, on a chip for such comparison. The company has plans to put 30 to 40 human genes on one chip, and "in principle at least," said Robert Lipschutz of Affymetric, "we should be able to put all human genes on a chip."

Dr. Lander has a piece of that company, as well as a major financial interest in Millennium, a company that intends to make use of the data from the genome project to design diagnostics and treatments of disease.

If there is a danger sighted ahead in the "new biology," some critics suggest, it is that businesses may be too close to science, and may even sometimes be in the driver's seat. Scientific judgments may too often yield under pressure from business needs.

Dr. Lander, an avid businessman, takes these problems more seriously than most people in science, said Dr. Francis Collins, director of the Federal genome project. Dr. Collins credits Dr. Lander with leading the way to help solve at least one of the problems—that of hoarding data to gain business advantages.

The Whitehead genome center, at Dr. Lander's direction, puts out on the Internet all the data it produces on DNA markers and sequences, which are freely available to anyone who wants to copy the material.

At first the M.I.T. laboratory's data were posted every few months, and soon they will be disseminated almost daily, Dr. Lander said. "This work is paid for with public money and it's got to be made public as fast as we can," he said. "That means breaking with tradition and getting it out there long before it can be published in scientific journals."

The effect he says, is highly stimulating for biologists. "We get 50,000 to 100,000 hits on our database per week. People need this data."

The Federal genome project office has begun to follow his lead, and those receiving grants must now make their data available at least every six months.

The task over the next few years for those leading molecular biology will be to get biologists away from their traditional tools—pipettes, gels and flasks—and into analyzing gene function with computers.

"In the next one to three years, we have to figure out how to get humans out of the loop," he said. "Then we can really get to work thinking about biology and what's going on in life."

REMARKS OF KIKA DE LA GARZA
AT THE CONGRESSIONAL HIS-
PANIC CAUCUS INSTITUTE'S 19TH
ANNUAL GALA

HON. BILL RICHARDSON

OF NEW MEXICO

IN THE HOUSE OF REPRESENTATIVES

Friday, October 4, 1996

Mr. RICHARDSON. Mr. Speaker, on Monday, September 30, 1996, the gentleman from Texas, Mr. DE LA GARZA, addressed the House for the last time. I would like to include for the RECORD Mr. DE LA GARZA's remarks at the Congressional Hispanic Caucus Institute's 19th Annual Gala.

PARTIAL TRANSCRIPT OF CONGRESSMAN KIKA DE LA GARZA'S REMARKS AT THE CONGRESSIONAL HISpanic CAUCUS INSTITUTE'S 19TH ANNUAL GALA, WEDNESDAY, SEPTEMBER 25, 1996

This is a great night for me, of course for the tribute, but more important for who we are, and what we do, and what we celebrate here, beyond me. The odyssey began a thousand years ago, in a little corner of Europe called the Iberian peninsula. And then, some 500 years ago, it crossed a vast ocean to a new world. Those galleons were manned by Spaniards, Hispanics. And then they came and explored the coast of the Carolinas, Newfoundland, what we now know as North and South America and began settlements. So the odyssey continued—Spanish, Mexican and Texan, and Confederate and U.S. and we never moved from the same ranch.

. . . people out of the United States, how not to educate children because their parents might be illegal or . . . that to me was a sad occasion that a child, you know, the Master said, "Suffer the children to come unto me." He didn't say if they were Palestinians or Nazarianians, he said, "the children, come unto me." And here we're saying, "No, you're not going to teach this child. You're going to throw him out on the street. We don't care if he's educated because his parents are illegal or because he's illegal. That's not right. That's not what America is all about. (Applause) Thank you. (Applause)

Some of us have been more fortunate than others. I have been more fortunate. But I come to you saying that, to those who receive much, have more to repay, and this is something that we have to look at, and that's been my thrust all along. That we have a . . . When they said life, liberty, and the pursuit of happiness, that's what it means, having a youngster be educated, have a youngster the ability to help himself. If no one else will help them, at least he'll help himself. And I had, throughout my life, the best educators, teachers, since my very first nun, Sister Mary Teresita, and my very first scout master, and following that my first high school coach. We followed them, and we were able to achieve. And my friends, I stand here tonight as part of that odyssey that began long time ago, thank to those who have touched my life along the way. Family, my wife, my kids. I regret that my kids could not be here. One, Mike, is out in the middle of the Mediterranean, the task force with the Enterprise, Lieutenant Commander Mike de la Garza. We're very proud of him. Our daughter Angela works for Jay Morwin (??) in Austin with the Gulf of Mexico initiative. And our heart surgeon George, we're

very proud of him. He's there at home and he's the one that we see more often. But that's the family, that's the evolution, but we're family, all of us Hispanics. That's what our life has been about. Family. Unity. Any primo can find a place . . . we don't have any homeless among the Hispanic community. There's always a relative to go and take them in. (Applause) There are many people in Texas who got me where I am tonight. (Applause)

(Break in recording)

. . . When my wife and I go there and they can't hug me much more above my waist, but they come and hug me and all of them are so happy that we're there. I'm . . . That's the only school named after someone that's not dead. So they're glad to see me, "Yes, that's Kika de la Garza, yes, oh boy." (Laughter) But they're learning and that's the future. That's who we're working for. Those of you who are in the corporate world, those of you who help us with the interns and the fellows. I just got a call today from a former fellow of the Hispanic Institute who is a dean at Cornell University. (Applause) And that, my friends, is what it's all about. That we include la familia . . . Unfortunately we're having hard times in this country, and there's no perfect country. We're probably the closest one to perfection, with all our faults, of all the countries in the world. And what we have from Mexico all the way to Chile and Argentina and through the Caribbean, that's the extended family. That's la familia. But because of an accident of history, many of us became American citizens and let me tell you that when we became American citizens we transferred the loyalty. We transferred all of our interest and we have pledged allegiance to the flag of the United States of America. But I respect the Mexican flag because that was part of my family history in the beginning. And that's something that (Applause) . . . that some people would not understand, but we served. I served in the navy. I served in the army. And this is something that . . . "We can't spend our money on the youngsters because he's illegal." There is an illegal dead marine whose family has the Congressional Medal of Honor at home. That, my friends, . . . (Applause) . . . And we served. We have some Congressional Medal of Honor winners here. I saw the winner, Mr. Rojo. Where are you? Will you take a bow? (Applause) . . . And from Mission, Texas, we had Sergeant Lopez and we're going, October the 12th, we're going to commission the U.S.S. Freddy Gonzalez, a new cruiser, and Freddy died in Vietnam. And got the Congressional Medal of Honor, which his mother has, and my uncle Bobby, my mother's youngest brother, died in World War II. And for those that may doubt, let me tell you, I grew up in el barrio en el escuela Católica. We all lived around the Catholic school. Let me tell you. Joaquin Castro, buried somewhere in the Pacific ocean, only the good Lord knows where he is at, Roberto Gonzalez, killed after 65 missions as an aerial gunner, came and died in an accident, his plane fell in Utah. Around the corner, Ricardo Alaniz, Cayo we called him, died in the Battle of the Bulge. Next to him Daniel Garcia, somewhere in the bowels of the Pacific ocean, only the good Lord knows where he's at. My uncle Bobby that lived with us for some time after my grandmother died. Around the corner Merced Salinas, 28 years in the army waiting for thirty, dead in Vietnam. And Panchito Bentania, 18 years old, dead in Vietnam. My friend, this is our family, this is our neighborhood—el barrio y la escuela Católica—that's our contribution: everyone served. (Applause) And so I truthfully tell you we don't want any handouts, we just want to be treated as every other American should be treated. And hopefully

we will get the same respect and treatment as everyone else. And we'll work. Because Lyndon Johnson came to my district once after he'd left the Presidency for something they had for me and he was asked by the media "What has been your philosophy of life? What have you tried to do in politics as president?" He said, "Very simple—a job for every person able to work, a decent home for his family, and a good school for his children. Beyond that, they can take care of themselves." And that's what I have tried to do my friends.

We are la familia. We are la familia. We have been able to garner a coalition to stop legislation—not to pass—but we can garner our coalition to stop almost any bit of legislation if we can get that coalition going. And we have passed some good legislation. So let me say that as we celebrate Hispanic month, as we look around us at la familia—who the Hispanics are—whatever color, whatever shade of face or hair or how much hair, we know that we have worked together, we know that we have the love that every family has for their children and want to see their children achieve and prosper and succeed in life. We want to see that every child becomes your child—that every child becomes my child—and that together we gather that family and we work to see that the doctor, lawyer, or engineer. It was so great the other night to see in the baseball, in the arts, in education, those that were recognized as having been leaders and having achieved beyond the norm the greatness of these individuals. In my area you know, our brethren and our brothers in the Black College Fund have a saying that a mind is such a terrible thing to waste. My friends, this is true. I grew up—Don Baltisario Guzman could play 5 musical instruments, could write poetry. He was photographer at funerals and weddings if there wasn't anybody to delivery the speech he would be there. This man who was a genius never went to school. Can you imagine had he had a formal education what he could have achieved beyond what he did? And this is what we're talking about. That everyone be able to fulfill their good-given ability and this is . . . Don Baltisario was to me was one of my heroes. There was a scientist, Ben Villalona, and he tamed the wild jalapeño. No one had been able to do that. He's a research scientist at Weslaco and head of that Texas A&M experiment station in Doctor José Amador who is here with us tonight and we're very proud of him, that he's here with us.

And so, let me just put it all together, my friends, that as we achieve, we shouldn't disregard . . . there's a saying "No see me olvida de donde vine ni quien me puso donde estoy.—I don't want to forget where I came from nor who placed me where I'm at." And this is it. I brought them with me tonight. (Applause) I brought them with me tonight. The Freddy Gonzalez, and the Cayo Alaniz, the migrant who worked in the fields, the sailors in those galleons that came across the vast ocean to begin what we celebrate tonight. The mothers who worked in the fields and reared the children, the teachers who worked for free in the neighborhood, the priests, the nuns, the preachers, all of those that came to people of low economic resources. I bring them all with me tonight and any tributes that you give me, really belongs to them. They're here. (Applause)

They are here, my friends, and I hope that you can visualize that they're here, my friends from the migrants, my friends the campesinos, my friends who worked and toiled, my friends who are able to say "I never went to school but all my kids have graduated from college." That's what it's all about. (Applause) And so let me say, you're saying what is this guy doing? (Laughter)

I'm waiting for the President to come. (Laughter) (Applause) May I can tell the submarine story.

So let me just end with this, my friends. A long time ago, when the explorers were going to the North (Laughter) they stopped in the evening near a big mountain. And one of the soldiers said "I wonder if anybody will ever know we came this way." And his commander said "Well, I'm going to take care of that for me." So he got his saber and he carved his name on the side of the rock and put the date and below it put "Pasó por aquí." So my friends I contributed my little grain of sand to the vast ocean of what is the legislative field, but I wanted you to know that hopefully someday somehow the world and our friends and especially my Hispanic family will know that someone named Eligio de le Garza, otherwise known as Kika pasó por aquí. Thank you. (Applause)

CONFERENCE REPORT ON H.R. 3005,
NATIONAL SECURITIES MARKETS
IMPROVEMENT ACT OF 1996

SPEECH OF

HON. THOMAS J. BLILEY, JR.

OF VIRGINIA

IN THE HOUSE OF REPRESENTATIVES

Saturday, September 28, 1996

Mr. BLILEY. Mr. Speaker, in connection with the historic passage in the House of Representatives and the Senate of the National Securities Markets Improvement Act of 1996, I offer the following remarks to clarify the congressional intent underlying certain provisions in the act.

PREEMPTION OF STATE AUTHORITY OVER SECURITIES
ISSUERS

Section 102 of the National Securities Markets Improvement Act of 1996 eliminates State regulation of securities offerings by a variety of securities issuers, while preserving State authority to police against fraud and to require notice filings and fees. The legislation's express preservation of State authority to require securities issuers to file documents with the States for notice purposes only is intended to allow States access to information that is routinely filed with the Commission and is not intended to extend to documents that are not filed with the Commission. This would not, however, preclude a State that, consistent with the legislation, has legitimate cause to commence an investigation pursuant to its anti-fraud authority from requesting such documents as it might be entitled to pursuant to such authority.

The preemption effected by section 102 also extends to securities that are listed on the New York Stock Exchange, the American Stock Exchange, or the National Market System of the Nasdaq Stock Market. This preemption is intended to apply to securities that are nationally traded and list or have been authorized for listing on any of these three markets. In the past, disparate regulatory treatment of these markets by State laws has unnecessarily hindered the competition that improves the markets for investors. This legislation is designed to provide a level playing field for those markets by eliminating duplicative or unnecessary State regulation equally for securities that are listed or authorized for listing on any of the New York Stock Exchange, the American Stock Exchange, or the National Market System of the Nasdaq Stock Market.