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Scientists and researchers from rich and varied fields will gather in informal settings for many of this year’s Gordon Research Conferences to ruminate the fruits of their research. See page 1176 for details of the 1993 conferences. [Photograph: Pamela Zilly/Image Bank]

ARTICLE

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A. Ransick and E. H. Davidson

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Changing cell fate in sea urchin embryos

Indicates accompanying feature

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  - Montreux (CH), March 29-31

- "Molecular Diagnosis and Monitoring of Leukaemia and Lymphoma"
  - E. Grignani (I)
  - Perugia (I), April 15-17

- "Molecular Basis of Inflammation"
  - J. Navarro (USA)
  - Heidelberg (D), April 21-23

- "Metabolism in the Female Life Cycle"
  - M.P. Diamond and F. Naflolin (USA)
  - Taormina (I), May 17-18

- "Recent Advances on Monoclonal Gammapathies and Related Malignancies"
  - B. Barlogie (USA) and F. Dammacco (I)
  - Evian (F), June 3-5

- "Inhibin and Inhibin-Related Proteins"
  - H.G. Burger (AUS)
  - Siena (I), June 17-18

- "Cell and Molecular Biology of the Testis"
  - M.L. Dufau (USA) and A. Isidori (I)
  - Majorca (E), September 13-14

- "GTPase-Controlled Molecular Machines"
  - D. Corda, S. Garattini and A. Luini (I)
  - S. Maria Imbaro (I), Sept. 22-25

- "Developmental Endocrinology"
  - M.L. Aubert and P.C. Sizonenko (CH)
  - Geneva (CH), Sept. 30 - Oct. 2

- "The Challenge of Biotechnology: from Laboratory Diagnosis to Clinical Therapy"
  - S.A. Aaronson (USA) and R. Verna (I)
  - Rome (I), October 11-12

- "Molecular Basis of Endocrine Diseases"
  - C. Pavia (E)
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Science. How does that work?

Noital. First you pick a public scare, such as high power lines or cellular phones, identify a lovable ignoramus as the plaintiff, and hire the best trial lawyer that money can buy.

Science. But doesn't the plaintiff have to have some logical connection to the illness?

Noital. Not really. Get someone with a tumor, dizziness, or a birth defect, all of which are common, and then find out if they ever took a pill, have a cellular phone, or visited someone near a high power line. Just be sure that the defendant is a government or a corporation known to have lots of money and that the plaintiff is a "little guy," who will sentimentally be identified as "one of us."

Science. Doesn't the plaintiff have to produce some causal connection between the illness and the proposed cause?

Noital. Of course not. The new system is that the deep-pocket moneybags are presumed to be guilty and have to prove they are innocent, whereas plaintiffs are presumed to be scientifically correct. Because judges and juries don't understand science, and judges throw out evidence likely to overturn their biases, the plaintiffs have an easy time. If 35 percent of people die of cancer, it should be expected that 35 percent of the people taking a placebo or visiting a friend near a power line should get cancer, but those kinds of statistics seem to baff le judges and juries. They say "the victim is ill, they took the pill, Q.E.D."

Science. But why is it so difficult to explain?

Noital. Lawyers can always confuse the issue with statistical nonsense. If the plaintiffs had to prove that the pill user or phone user were getting cancer at a much higher rate than normal and that there was some evidence for the new scare, then most of these phony cases could be thrown out of court immediately by any educated judge. However, if you say the plaintiff is innocent until proven guilty and the moneybags is guilty until proven innocent, you then require a company (even one that has spent millions to get its drug approved) to explain laws of probability to a lay jury or judge.

Science. But I've heard that many of these cases eventually are decided against the plaintiff anyway.

Noital. True, but there's another fact that I'm very proud of in this new get-rich-quick scheme. Court trials are so expensive that the defendants often settle out of court even when they know they are right. Trials are so long and lawyers fees are so high that it is far better to pay up front than go to trial, spend lots of money, and get bad publicity, even if the defendants eventually win. We have legalized blackmail, and it pays.

Science. But doesn't someone pay for this?

Noital. Sure, but they are called taxpayers, or consumers, or the unemployed (blue-collar workers who lose their jobs). They have no political or legal clout.

Science. Does the nonsensical lawsuit look like a growth industry?

Noital. Wonderfully so. Because anyone can get three clients and produce a scare, the sky's the limit. Some Gulf War soldiers have discovered that they were exposed to "depleted uranium." If the public is scared by low levels of radiation, it can be terrified by the "absence of radiation."

Science. Is this solving problems or creating them?

Noital. Solving them. The country won't need health insurance at all. Anyone with common sense can visit a friend near a power line, take a pill (any old pill), buy a cellular phone, or inhale some smog and be able to collect enough money to provide care for the whole family.

Science. What if some people don't like to participate in fraud?

Noital. Then they are "immorality" deprived because their education or religious background doesn't allow them to participate in moneymaking schemes. These people should be taken care of by the state because their education prevented them from earning a living.

Daniel E. Koshland, Jr.
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Minors in Science: The Dialogue

Science is to be commended for its lengthy coverage of Minorities in Science (Special Section, 13 Nov., p. 1175). Too little attention is being paid to the underutilization of human resources in the United States.

Along with my commendation, however, I strongly disagree with the pessimistic tone of one of the sections of the article "What went wrong: Why programs failed" by Calvin Sims (p. 1185). While the progress of significant numbers of minorities into the science professions is less than hoped for, even the statistics quoted in the article belie the overly pessimistic tone of the article. There has been a 50% increase in minorities in the sciences and engineering professions and a 365% increase in engineering degrees! While the figures are not the basis for jubilation when one considers that the base was so small in the 1960s and 1970s, they are hardly reason for the gloom and doom of the article.

The National Institutes of Health (NIH) minority programs MARC (Minority Access to Research Careers) and MBRS (Minority Biomedical Research Support) come in for much criticism. I can speak from firsthand experience with the MBRS program at Chicago State University. CSU is a charter member of the program. I have been a research participant from the date of its initial funding (1972) and its program director for the past 2 years. In many ways CSU is typical of the 80-plus schools currently being funded by MBRS. We have about 8000 students, of whom 87% are minorities (primarily African-American). In 1991, we awarded 17 B.S. degrees in biology and chemistry and 4 M.S. degrees in biology. While these numbers may be considered small, they represent the majority of the science degrees awarded to African-Americans in Illinois that year. In the 20 years that CSU has participated in the MBRS program, 270 students have been directly involved; 214 have received B.S. degrees and 42 have received M.S. degrees (a 95% graduation rate). More than 100 have continued on to graduate or professional programs, and 32 doctorsates have been awarded to CSU-MBRS alumni.

To say that "NIH ran its programs for 20 years without tracking students" overlooks the very effective control that many MBRS participating schools have over their programs. I have no doubt, on the basis of graduation statistics and feedback from alumni, that our MBRS program is a success.

Warren V. Sherman
Department of Chemistry and Physics, Chicago State University, Chicago, IL 60628

The report on Minorities in Science was long overdue, and I am glad Science took the initiative to present it. I am concerned, however, that the first two articles are overly pessimistic and that many good programs will be cut because of this. While I agree with Walter Massey and Luther Williams that programs need more accountability, I cannot agree that the "programs have failed." It seems to me that even the small gains made by Asian-Americans and Hispanics (p. 1180) in getting Ph.D.'s are a cause for celebration. Would these numbers have increased without the MARC and MBRS programs? Are all the other MARC and MBRS participants to be labeled "failures" because they did not pursue Ph.D. degrees?

I would not be at Northwestern University if it were not for the MARC program, which in 1983 allowed me to spend a postdoctoral year in the laboratory of Susan A. Gerbi at Brown University. That experience made me realize I could do molecular biology. Without it, I would never have applied for the NIH grant that has supported me for the last 2 years. The programs are working but, with the magnitude of the problem, the gains may be much smaller than any of us would desire.

Sister Catalina Fresquez
Department of Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, IL 60208–3500

Science may be congratulated on developing their first report on Minorities in Science, but we beg to differ on the analysis of the MBRS and MARC programs. The University of Hawaii at Manoa has been fortunate to have both programs since the mid-1970s and to track sufficient of its graduates from the programs into M.P.H., Ph.D., M.D.,
Scientists of Color is an organization of graduate students at the University of California, Berkeley, devoted to promoting the interests of ethnic minorities in the biological research sciences. We were pleased to see the discussion regarding the present paucity of scientists from historically underrepresented ethnic groups in the 13 November issue of Science. However, as “minorities in science,” we recognize one important factor as being omitted from this report—the continued prevalence of prejudice and racism in the sciences.

We disagree with Daniel E. Koshland, Jr.’s assertion in his editorial (p. 1067) that “the world fortunately has changed” with respect to the existence of prejudice. Our collective personal experiences belie this sentiment. While the world has changed with respect to prejudice, this change has simply forced prejudice and racism to adopt more genial appearances. Koshland’s statement that an overdone discussion of prejudice will discourage young minority students from seeking scientific careers is an example of the attitude with which we are presented. If an institution has a problem with racism, attempting to hide that problem from minority applicants will only exacerbate it. We must recognize and address these issues fully if we are ever to overcome them.

We do not believe that our cultures and upbringings stand as obstacles to achievement in the scientific community. The scientific community must see beyond the stereotypes and recognize the benefits to be gained by regarding scientists as individuals with varied backgrounds and heritages and not as the representatives of their ethnicities.

Derrick T. Brazill
Steven J. Mack
Co-coordinators,
Scientists of Color,
Departments of Molecular and Cell Biology,
Integrative Biology, and Plant Biology,
University of California,
Berkeley, CA 94720

If we truly wish to have greater representation of African-Americans, Latinos, Native Americans, and all women in the scientific community, there will need to be change. Colleges and corporations will have to change the way they recruit and not look only to Ivy League and other “prestige” schools for their future hires; executive search firms specializing in racial minorities must be seriously considered as sources of talent and not merely an easy way of satisfying the Equal Employment Opportunity requirements; and the way we teach science will also need to change—science educators will have to accept that not all students learn in the

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schools, in affluent suburban public and private schools, and in Nigeria).

It is presumed that if minorities are just given the chance, they will flock to the sciences. Is the scientific culture somehow “superior” to any other? Many of the brightest among the minority students may just not be interested—and their reasons may be sound.

The problem is not being looked at realistically. The two minority groups most “at risk” (African-Americans and Hispanics) both have strong cultural values that differentiate them from the mainstream American culture. The scientific tradition is not emphasized in the root cultures in Africa and Latin America. The “science is fun” syndrome is a characteristic American attitude, but science is part of a broader learning tradition that has not been adopted by all Americans.

American black colleges send students to medical and engineering schools. Is anyone saying to these students, “Don’t go into particle physics, neurology, molecular biology, or mathematics”? Is there a lack of talent or a lack of interest? As science educators, we should stop trying to make everyone conform. If the minorities aren’t interested, that does not mean they don’t have the ability.

Joseph D. Ciparick
315 East 86th Street,
New York, NY 10028

An annual minority section would certainly be most helpful. However, it would be much better to include more about minorities and women in the body of the journal, for as long as minorities and women require separate sections, we indeed have no more than “outsider” status.

Gertraude Wittig
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Corrections and Clarifications

In the special section “Minorities in science: The pipeline problem” (13 Nov., p. 1175), the graph on page 1199 showing the field distribution of employed scientists and engineers by ethnicity should have been labeled “Percentage” along the x axis. Also, the designation “Engineers” should have read, “Engineers, total.” Labeled correctly, the graph would indicate, for example, that among all employed white scientists and engineers in 1988, about 50% were scientists and 50% were engineers. Of employed black scientists and engineers, about 70% were scientists and only about 30% were engineers. Among Hispanics, the breakdown was about 45% scientists and 55% engineers.
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Any Template (1,2)
Sequenase polymerase efficiently incorporates nucleotide analogs used to resolve gel compressions and enables you to read sequence close to the primer and as far as 500-600 bases. Sequenase DNA sequencing kits are ideal for sequencing clones in M13 and plasmid vectors and for large templates, like \( \lambda \) clones and cosmids.

PCR** Products (3,4,5)
The Sequenase kits can be used to directly sequence PCR products. As little as 100 fmol of template DNA can be sequenced without using labeled primers.

Critical DNA Samples
Sequenase Version 2.0 DNA polymerase (Prod. No. 70775) has high processivity, rarely pauses and has no associated exonuclease activity. It also creates remarkably uniform band intensities. Together these properties ensure low background and permit accurate, definitive and confident reading of sequence.

USB** recognizes your need for increased versatility in sequencing. We respond with new sequencing innovations.

Glycerol Tolerant Gel Technology
An innovative new sequencing gel buffer from USB eliminates sequencing gel band distortions caused by glycerol-containing samples (6). The additional glycerol in the sequencing reactions gives the following advantages:

- Increased enzyme stability
- Increased reaction temperature
- Elimination of false priming from mismatched priming sites

The Sequenase Version 2.0 DNA Sequencing Kit (Product No. 70770) allows you to take advantage of this technology by including a glycerol enzyme dilution buffer. When diluted in this buffer, the enzyme can be stored at working concentration.

Sequenase® RapidWell™ Kit
(Product No. 71940)
Sequenase Version 2.0 polymerase is now featured in a versatile, new 96-well plate format which takes advantage of Glycerol Tolerant Gels.

- Pre-dispensed and color-coded reagents
- Fewer pipetting steps
- Easy to use
- Versatile, use with plasmid or M13 templates
- Includes 7-deaza-dGTP to resolve compressions
**TAQuence® Cycle Sequencing Kit**

(Product No. 71075)

For those who use cycle sequencing, when only limiting amounts of template DNA are available.

- Complete with primer end-labeling reagents
- Both dGTP and 7-deaza-dGTP included
- Low background with end-labeled primers

**Guarantee**

Simply stated, you won’t find a better sequencing system. Guaranteed. If you try Sequenase Version 1.0 or 2.0 polymerase enzyme or kit, and are not satisfied, we will replace it (with either version of Sequenase T7 DNA polymerase enzyme or kit, Sequenase RapidWell DNA Sequencing Kit, Klenow, AMV RT, Taq DNA polymerase or TAQuence Cycle Sequencing Kit at your option) or refund your money.

Call USB’s Technical Services Department for more information on any of our products. Our staff is readily available to help you troubleshoot new sequencing techniques and protocols.

No one offers more for DNA Sequencing than USB.

**References:**


Contact United States Biochemical, P. O. Box 22400, Cleveland, Ohio, 44122.

Phone: 800-321-9322, Fax: 800-535-0898.

International: 216-765-5000.

Telex: 980718, Fax: 216-464-5075.

*Sequenase is a registered trademark of United States Biochemical Corporation. This reagent kit is covered by or suitable for use under one or more U.S. Patent Nos. 4,795,699; 4,942,130; 4,962,020; 4,994,372 and 5,145,766. Patents pending in the U.S. and other countries.

†Glycerol Tolerant Sequencing Gel Buffer - Pat. pending.

Sequenase® RapidWell™ DNA Sequencing Kit - Pat. pending.

**PCR is covered by patents issued to Cetus Corp. If you are interested in performing PCR, you may wish to contact Cetus for information on obtaining an appropriate license.

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37°C 50°C

Example of Sequenase RapidWell Kit sequences which demonstrate the use of high reaction temperature and Glycerol Tolerant Sequencing Gels for sequencing double-stranded plasmid DNA.
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