National Institute of Diabetes and Digestive and Kidney Diseases
Joint New Investigators and Network of Minority Research Investigators Workshop

November 7-8, 2002
Natcher Conference Center
45 Center Drive
Bethesda, Maryland

Meeting Summary

NOVEMBER 7, 2002

Welcome and Introduction

Dr. Lawrence Agodoa opened the meeting at 8:45 a.m. He stated that the goal of the meeting was to give minority scientific investigators an idea of how NIDDK functions, especially with respect to the various types of grants given to junior investigators. He also told participants that the workshop's success depended heavily on their feedback, both during the 2-day event and in their postworkshop evaluations.

Grant Planning Session

Introduction—Dr. James Hyde

Dr. Hyde made various meeting-related announcements and introduced Dr. Margolis.

Role of the Program Director—Dr. Ronald Margolis

Dr. Margolis discussed the role of the program director (PD) within NIH, especially as it relates to various aspects of research grants provided to scientific investigators. He focused primarily on the RO1, an investigator-initiated grant, although he noted that the central concepts of an RO1 grant translate well when applied to other types of similar non-NIH grants. Dr. Margolis noted that a grant proposal's acceptance depends greatly on how it interfaces with other Institute policy issues and the Institute's mission.

Dr. Margolis stated that the PD also maintains contacts with the principal investigator (PI), serves as an observer at grant peer reviews, reads and distributes summary statements to appropriate parties, monitors the annual progress of funded grants, and reviews the treatment of humans and animals within the experimental environment.

He then discussed the life cycle of a grant; general principles of a grant, such as its average length and the fact that it is peer-reviewed; the process that takes place within NIH once it receives a grant proposal; and what the submitter should do when notified that funding for a proposal has been approved or denied.

Dr. Margolis also discussed the role of the PD and the other NIH program officials, especially the scientific program officer; the organization of NIH, especially the numerous intramural and extramural components and their relation to the grants management process; the process of fund allocation within the individual Institutes and their components; and the initiative development process—from a single individual's idea to the formation of a Request for Applications (RFA) or Request for Proposals.

Role of the Scientific Review Administrator—Dr. Francisco Calvo

Dr. Calvo stated that the primary role of the scientific review administrator (SRA) involves the peer review process. The SRA is the designated Federal official overseeing the grant review process of a particular Institute. He noted that of the more than 45,000 grant applications received by NIH Institutes within a given year, about 25 to 30 percent are approved for funding.

Dr. Calvo said that SRAs manage the Center for Scientific Review (CSR) and the Institute and Center (IC) study sections set up to manage the grant review process. The SRA also helps perform reviews, selects the reviewers, manages the review meetings, and prepares the summary statements.

Dr. Calvo explained the peer review process for all grant applications, including the conflict-of-interest form, confidentiality issues, review criteria, the process for scoring and approving or denying grant funding, and the preparation of a summary statement. He also described the process of preparing an application for submission; common problems of many applications that result in a denial of funding; and the importance of NIH information sources, such as the NIH, CSR, and NIDDK Web sites and the NIH Guide for Grants and Contracts on the listserv.

Role of Grants Management—Mr. George Tucker

Mr. Tucker discussed the role of the Grants Management Officer (GMO): the person responsible for managing the fiscal side of the grant award. As such, the GMO is designated to obligate funds or to change funding levels, award duration, or other award terms. The GMO works closely with designated officials within the grantee's organization to prepare financial justification documents, ensure continued Federal financial support, and comply with organization and Federal requirements.

The Grants Management Specialist (GMS) works as an agent on behalf of the GMO. The GMS helps the awardee undertake preaward administration of the grant when the review process is complete and grant funding is assured, performs cost-analysis work, and continually assesses the financial viability of the award. The GMS continues to work with the awardee while the funded study is implemented, ensuring that the grant is being administered correctly and in compliance with the terms of the grant award.

Funding Mechanisms—Dr. Judith Podskalny

Dr. Podskalny gave a brief overview of many of the funding mechanisms available to scientific investigators, such as R-series awards, the most common type funded in a given year at NIH, and

K- and U-series awards, and discussed the difference between unsolicited applications—those submitted for receipt during one of the triannual dates (February, July, and October)—versus solicited applications.

She provided detailed information on certain funding mechanisms. For example, RO1 grant awards can be submitted three times a year, be tailored to a particular research area, and result in much competition. Alternatively, RFAs must be tailored to an existing area of interest within NIH but engender less competition.

Dr. Podskalny advised potential grant applicants to sign up for and use the NIH Guide listserv, which provides links to Notice of Grant Awards, Program Announcements, and RFAs, and to use the CRISP database to ensure that an idea is different from other similar ongoing, funded studies. She also instructed participants to never name desired or suggested grant reviewers in one's cover letter. Dr. Podskalny also suggested that potential applicants use the NIH Guide listserv, Institute Web pages, outside source like the grants.net online database, mentors and colleagues, and NIH staff members as resources.

Opportunities at the NIH—Dr. Griffin Rodgers

Dr. Rodgers provided an overview of the NIH Loan Repayment Program (LRP) after showing a video about the history of NIH. The LRP is set up to allow scientific investigators to work at NIH; receive a stipend that pays off their undergraduate and graduate school loans; and receive a salary and benefits, including an extra tax-recovery stipend to pay the taxes assessed on the loan repayment stipend. He provided information on the LRPs available through NIH: the AIDS Research LRP, Clinical Research LRP, General Research LRP, Contraceptive and Infertility LRP, and Minority Health Disparities LRP. Most of the available LRPs are funded through NIDDK, but some are funded through other ICs.

Dr. Rodgers noted that the LRP might be expanded to allow scientific investigators to work with the HEA and the American Cancer Society. He also said NIH expected the number of awards to double from 2002 to 2003, from approximately 400 to 800.

Dr. Rodgers discussed LRP eligibility requirements, including those related to an individual's debt ratio, research level of effort, and the time an applicant gives to NIH to pay off the award; salary ranges and benefits; and the fact that current K-awardees are best suited to apply for LRP eligibility.

Grant-Writing and Submission

General Overview and Tricks of the Trade—Dr. Juanita Merchant

Dr. Merchant discussed the art of writing a grant application and the important elements that applicants should include:

- The telling of a good story—that is, how the various components of their funded study would work together to result in the study's overall goal—and enough time to develop it;

- Preparation, such as reviewing preliminary results, identifying conclusions, and discussing the potential impact of one's projected results;
- Personnel to be part of the study;
- Special permissions necessary initially or throughout the life of the study;
- A hypothesis, including far-reaching goals and the major idea that one is studying; and
- Aims, including their logic and flow throughout a study, and the testing of each model.

Dr. Merchant also discussed various aspects of the grant application:

- Background and Significance—Succinctly tell reviewers what they need to know to understand the grant.
- Experimental Design and Methods—Include alternatives in case of failure and develop the various sections of a study in relation to the projected aims, discussing the rationale, design, and expected results of each one.
- Abstract—Briefly discuss areas of interest, gaps in knowledge, and methods and aims.

She also discussed other areas of the application, such as the title, cover letter, and budget.

Dr. Merchant cautioned grant writers against developing new animal models or using new factors as a main experimental focus and encouraged them to build in time for proofreading, computer and printer problems, and institutional signatures.

Common Pitfalls—Dr. Mario Ascoli

Dr. Ascoli told participants of the many pitfalls they should avoid when preparing their grant applications. He advised them to do the following:

- Ensure that their proposals are hypothesis-driven.
- Review the literature comprehensively and explain why their study is different.
- Consider the aims carefully, having a goal and a hypothesis for each aim.
- Make each aim part of a coherent whole, but avoid aim interdependency.
- Avoid being overly ambitious with the study, keeping in mind that if they receive the award, they then have the duties of a PI added to those of being a scientist.
- Include as much high-quality preliminary data as possible and ensure its relevancy to the study aims.
- Consider alternate interpretations of the study results and discuss ways to resolve conflicts.
- Recruit the appropriate consultants or collaborators to help with the study.
- Make predictions as to the outcome of the study as well as to the potential next steps with respect to the postaward study research.
- If turned down for the grant, be responsive to reviewers' comments when reapplying. In addition, if they disagree with a reviewer's comment, explain why.

Preparing a Realistic Budget—Dr. Mario Ascoli

Dr. Ascoli listed the following key points in developing a study budget:

- Determine the time and level of effort of all study personnel, including the PI.
- Be realistic about the aims and how long it will take to accomplish them.
- Consider the supplies needed at all stages of the experiment, especially new equipment, which is generally best purchased during a study's first year.
- Realistically estimate the costs of other study needs, including travel, equipment maintenance, and publication costs.
- Calculate total first-year budget costs and then estimate subsequent budget years.
- Keep in mind that modular budgets are more typical for NIH awards than nonmodular ones.

Modular vs. Nonmodular Budgets—Ms. Kathleen Shino

Ms. Shino discussed the differences between the two types of budgets used for NIH grant awards. Modular budgets are used for annual grant awards of $250,000 direct costs or less; nonmodular, or categorical, budgets grants are used for higher annual grant proposals. Most first-time grant applications involve modular budgets. Instructions and forms for completing applications (PHS 398) are available online at the NIH Website.
http://grants.nih.gov/grants/forms.htm

Ms. Shino outlined the process for developing a 3-year budget proposal with a higher first-year amount. She noted the importance of justifying any module variation and of stating whether any consortium listed as a partner is of domestic or foreign origin and stated the importance of providing a detailed explanation of your budget request. Ms. Shino noted the various audiences that need information to determine the validity of the budget request, including scientific review groups, grants management specialists, and program managers. She also reiterated the need to factor publication and equipment costs into study budgets and added other necessary, but sometimes forgotten costs, including rental leases, service contracts, and animal care costs.

After the award has been granted, Ms. Shino advised applicants to get a copy of the Notice of Grant Award (NGA) from their sponsored research office or business official. The NGA provides grant funding levels; the number of funding years; terms and conditions of award; and NIH contact information, such as the PD and GMS. For questions, the grantee should first contact their Research Administrator, NIH Grants Policy Statement, and then the Program Official or GMS named on the NGA.

NIDDK Director's Session—Dr. Allen Spiegel

Dr. Spiegel discussed various aspects of the NIH budget process, including the fact that it has doubled since 1998, the importance to the process of patient advocacy and patient testimony before Congress, and the amount of noncompeting funding (e.g., years 2 through 5 of a 5-year grant) that is a large part of any NIH annual budget.

He also discussed how the NIH budget related to minority scientific investigators, noting that in the past NIH was lax in funding a healthy share of minority researchers, both at NIH and outside institutions. However, NIH, and the Nation, needs minority scientific investigators to succeed as a way of addressing the health disparities of minorities within the United States, which are greater than those of minority groups in Canada and several European countries. This meeting is one way of ensuring success; another way is maintaining the more generous paylines and the expansion of the LRP that NIH has been able to fund over the past 5 years.

Dr. Spiegel closed by noting the importance that large institutions with a cadre of investigators now play in the research process. The era of the lone investigator, with minimal staff, making scientific breakthroughs is fading. Therefore, NIH support for minority scientific investigators within NIH and at other institutions is very important to both their individual success and scientific research success in general.

Review Process—Mock Study Section

Drs. Merchant, Ascoli, Walker, Miles, and Barnard engaged in a mock study section. They discussed three important elements in all reviews. First, they noted that confidentiality within the process (i.e., no reviewer contact with applicants) and the avoidance of reviewer conflicts of interest are crucial to the integrity of the system. Second, the scoring process for a grant application was explained, including the fact that each reviewer must justify his or her score and that only those applications judged to be in the upper half of those submitted are considered for funding. Third, the fact that some applications are not reviewed or scored, generally because the goals were viewed as unrealistically ambitious, the study lacked relevant preliminary data, and/or its experiments were poorly planned.

The panel next dealt with a grant that was reviewed and scored. They stated their opinions as to the positive and negative attributes of the grant application. A discussion of the projected budget would be next, and based on their assessment of the quality of the study, the panel could alter either the budget or the projected number of years. In addition, the panel's score for this application placed it in the lower range of those reviewed; therefore, it was not funded.

Could the submitter "rescue" the grant application and reapply? Yes, but the panel gave the following advice to those whose applications, especially their first attempts at gaining funding, are rejected:

- Read the summary statement carefully.
- Talk to Institute program staff members about the proposed study and how it relates to the work being done within the Institute and possible future research directions.
- Talk with colleagues or mentors about the quality or viability of the application and ask whether it should be resubmitted with the necessary changes included.
- Address the critique but do not rebut the criticism point by point.
- Be mindful of the tight deadline for revised applications and of the fact that a revised application is in competition with a pool of mostly new applications.

The first day ended with a long question-and-answer session with the audience, and then the meeting adjourned for the day.

NOVEMBER 8, 2002

***Panel of NIDDK New Investigators*—Dr. Judith Podskalny**

Dr. Podskalny introduced five successful K01 awardees who highlighted the strategies they have used, rightly or wrongly, in the grant process.

Dr. Michael Bates serves as pediatric gastroenterologist at the University of Cincinnati. He offered this advice to meeting attendees.

- Be involved in writing grants and acquiring experience in R01s.
- Take the advice given by the review committees.
- Leave room for other pursuits and have other interests in life beyond research.
- Refer to the book *At the Helm* if running a lab or research program. The book provides information on how to hire and set up a program.
- Hire carefully. It is important to get the best possible people, and not to "settle."
- Remember that it is impossible to receive a grant without applying for it. Be aggressive in applying for a grant in your particular area.
- If the grant is not relevant to your interests, do not apply. Focus on what is important to your career as well as to what your interests are.
- Use NIH program directors as great sources of advice.

Dr. Douglas Corley works at the Kaiser Research Foundation in California. He offered this advice.

- Remember that a good mentor does not necessarily have to be in your exact field but has to be knowledgeable, and accessible, and a good listener and can foster your career. Invest in the beginning. Spend the necessary time in the first few months coming up with an idea before applying for a grant.
- Invest in your own training if necessary.
- Love what you are doing and do what works for you. If you do not like the field you are now in, remember that you will be doing this for some time and make adjustments.
- Try to get all agreements and contracts in writing.
- Create uninterrupted large blocks of time to conduct research. This will be more productive than scheduling research time interrupted by meetings and other commitments.
- Make 5- and 10-year plans for projects to accomplish. Take the guidance provided by NIH on R01s and available opportunities. If you do not apply for a grant, you will not receive it.
- For a research interest outside your particular division, collaborate with others to help accomplish the necessary tasks.

Dr. Ian Krantz works in the Department of Pediatrics at the University of Pennsylvania. He provided these suggestions.

- Identify one research mentor who you respect and trust. Mentorship is critically important, but if the mentorship is not working for you, end it and find a mentor who is a better fit.
- Write small grants in the $20 -30,000 range in anticipation of writing a large NIH research grant. It is a good way to get feedback before applying for larger grants. Ask senior funded researchers to review your grant before submission. This is a far less stressful process than starting out by applying for an R01.
- Identify an NIH Director or program administrator to turn to for timely and reliable advice.
- If the grant has deficiencies, admit these up front in the summary statement.
- If your first proposal submission is rejected, do not give up or take no for an answer. Find out the criticisms, repackage the proposal, and resubmit it for consideration.
- Diversify and have several projects in the works instead of depending solely on one grant.
- Love what you do, believe it is important, and feel comfortable about it.

Dr. Rohit Kulkarni is with the Joslin Clinic in Boston and offered this advice.

- Establish a relationship with a mentor. This is very important advise.
- Learn to write clearly. Writing takes up a large component of a researcher's time.
- Establish strict deadlines and follow them. Time management is important.
- Do not be afraid to solicit help from colleagues. Small-group discussions with peers can be very helpful.
- Work on one major project and two smaller ones in case the major one does not work out.
- Be flexible. Do not be afraid to adapt to new situations.

Dr. Simin Liu works at Brigham and Women's Hospital in Boston, and his suggestions follow.

- In preparing an R01, anticipate all the potential questions and how to address them.
- Do your best and let the process take care of the rest.
- Encourage large research institutions to come up with ways to reward those researchers doing the work and allow them to become independent.
- Be proactive and take advice with a "grain of salt." Select a mentor who can provide support and help. There is a lot of give and take in any mentoring relationship. While remembering the strengths you have to offer, also keep in mind that the mentor has his or her own ambitions, passions, and anxieties.
- Have fun in the process and do not take it all personally. Believe in yourself and do not get discouraged. Remember, you are in this for the long haul.

A question-and-answer session followed the remarks. There was a spirited discussion about the right time to start a family without creating a substantial gap in one's curriculum vitae (CV). Panel members responded to this question from their personal experiences and noted that it is impossible not to have some gap in a resume. Trust that the grant reviewers will understand the gap.

Another question involved strategies to deal with two-career families. Each speaker discussed his or her personal situation. The general consensus was that tremendous compromises are required.

Finally, a researcher asked how to keep one's research focused. Responses included dedicating oneself to one major project. However, diversity is also important, so a person may want to have other smaller projects. One should pick a mentor that he or she respects both personally and professionally.

Senior NMRI Investigators Meeting

Attendees

Dr. Lawrence Agodoa
Dr. Francisco Andrade
Dr. Ricardo Azziz
Dr. Marco Cabrera
Dr. Samuel Dagogo-Jack
Dr. Daisy De León
Dr. John Finerty
Dr. Martin Frank
Dr. Gregory Florant
Dr. Sidney Golub
Rene Gonzalez
Dr. Eddie Greene
Dr. Victor Ramirez
Elizabeth Singer
Dr. Jacqueline Tanaka

Discussion

This meeting was an open discussion among senior investigators concerning the problems faced by their junior colleagues, including the need for greater mentoring of young investigators, increasing their numbers throughout the scientific community, increasing reapplication rates among those whose first-time grant applications were rejected, and serving as role models for those just beginning their careers as investigators.

Elizabeth Singer stated that NIDDK wanted feedback and two-way communication about future program direction and she noted that this meeting has two purposes: (1) to increase the number of minority investigators and (2) to increase research into diseases that affect minorities, helping to eliminate the ethnic and racial health disparities that exist within the United States.

Dr. Azziz raised the subject of the need for more mentoring in general, the lack of a role for senior investigators at this meeting, and the lack of meeting sessions that deal with mentoring. He remarked that the role of the mentor, especially those mentoring minority investigators, could have been better addressed at this meeting.

Dr. Finerty noted the many complaints he hears from junior investigators concerning what they were hired to do vs. their actual job duties. He recommended expansion of a National Cancer Institute program whereby junior investigators are encouraged to hire new faculty members, postdoctoral fellows, and graduate students in their laboratories as a way of introducing them to research careers, including the need to engage in various aspects of "biopolitics."

Dr. Dagogo-Jack noted that very few mentors are available from Central and South America. Where are the role models for minorities when most available mentors are of white, European descent? He recommended having an annual workshop with minority investigators on a panel to

discuss their career paths and the mentoring relationships that helped them and then breaking into small groups to discuss specific challenges faced by junior investigators.

Dr. Finerty said that this meeting lacked sessions that gave participants practical advice and skills. He suggested that next time a room be set up to help participants with grant writing.

Dr. Florant suggested a liaison system for postdoctoral fellows. When they returned to their home institution from an NIH meeting, they would have a contact person to answer questions about applying the lessons learned at a particular meeting or day-to-day problems. He also suggested including K-awardee mentors at this meeting to get their perspective on complaints from junior investigators.

Dr. Greene spoke of a mentor-for-the-mentors program developed by the Robert Wood Johnson Foundation, which was set up to improve the quality of the ongoing mentoring. He suggested that the NIH set up a similar program.

Dr. De León said that most junior investigators are quite knowledgeable as to the availability of mentoring programs at numerous institutions. However, not all institutions have them. She suggested setting up a national mentoring program instead of having each institution run their own. When fully implemented, junior investigators would have nationwide access to mentoring rather than merely have access to a program within their institution.

Dr. Dagogo-Jack asked how more graduate students could be persuaded to choose a research career. He noted the positive effects of enlarging the minority population among scientific investigators and having that population reflect the general outlines of the U.S. population. He agreed with the pipeline approach to attracting minority investigators but noted that many young investigators leave the field after getting rejected on their first RO1 application. Could NIH track the reapplication rate of minorities and encourage them to resubmit their application, with changes? This might further increase the number of minority scientific investigators.

Dr. Agodoa responded that reviewers do not know the race or ethnicity of the grant applicant. Dr. De León suggested that professional societies could help NIH track the race and ethnicity of those who work outside NIH and apply for grants. Dr. Andrade suggested that NIH begin with NMRI participants who apply; NIH knows their ethnicity and race.

Dr. Frank stated that mentoring programs could add to future networking possibilities. Graduate students who were mentored should be actively encouraged to mentor others, building large mentoring networks over time. Junior investigators also should be encouraged to have their mentors review their grant applications before submission.

Dr. Finerty noted that some minority investigators are reluctant to be pigeonholed as minorities, even to the point of being reluctant to attend meetings such as this. They nevertheless need to be encouraged to take advantage of programs available for minority investigators to help the entire research field.

Dr. Golub suggested that investigators will get involved only if they "find the value to be added;" that is, once junior investigators become funded, we should encourage them to help set up mentoring programs if they work at institutions in which such programs are lacking.

Dr. Azziz noted that the low resubmission rate among first-time RO1 rejectees is not merely a minority investigator issue. He suggested that NIH send a followup letter to encourage all applicants to resubmit the grant proposals and to seek out mentors for advice. He also suggested that mentors be invited to the next meeting to lead breakout sessions that discuss issues and problems specific to junior investigators.

Dr. Greene said that in his experience a low rate of resubmission was a problem more likely to affect minority investigators than nonminority ones. In addition, because of their already low numbers in basic research fields, the problem is more acute among minority investigators even if their resubmission rates match those of the entire field.

Dr. De León cautioned that some minority scientific investigators are reluctant to take advantage of minority-oriented programs, which may stem from hesitation among the general minority population to become involved with clinical trials or academic experiments. Expanding the pool of minority investigators for whom they could work might make academicians, postdoctoral fellows, and graduate students more likely to become involved with such programs.

Dr. Azziz advised against focusing a program to boost grant reapplication rates on minorities only; by doing this, one could miss some minority populations. He advised expanding such a program to include all first-time rejectees.

Dr. Ramirez said the number of minority scientific investigators is still disappointing and commented that a lack of minority investigators detracts from the study of minority-related health problems, which leads to further problems attracting both junior investigators and minority population interest in these health problems. The current methods to attract more minority researchers are not working; the research field needs new ideas.

Dr. Ramirez also noted the reluctance of some minority scientific investigators to take on junior minority investigators because they may lack some of the necessary training already possessed by their nonminority counterparts. Therefore, a senior investigator would need to spend more time training their junior minority colleague than their nonminority counterpart training a nonminority junior investigator. He reiterated previous recommendations to invite those with mentoring experience to the next meeting and have more sessions on the subject.

Dr. Florant asked why senior minority scientists are not more involved in minority-related training programs. He recommended outreach to invite some to the next meeting to introduce them to such training programs.

Dr. Finerty suggested that the scientific community develop a definition of mentoring accepted throughout the field; one does not exist at this point.

Dr. Andrade noted that junior minority scientific investigators could also serve as role models for graduate and undergraduate students.

Dr. Agodoa asked the senior investigators whether a second yearly meeting would be necessary. After some discussion, it was decided that there should be two meetings in 2003 and one annual meeting in subsequent years. In addition, Dr. Frank suggested that NIDDK study ideas developed and implemented by various scientific institutions outside NIH.

Dr. Tanaka suggested that the program committee should interact more between meetings to help with the R01 grant process. Dr. Frank suggested that the program committee help junior investigators with the two most common areas of difficulty—an investigator's first R01 grant and first-year implementation of the grant award.

Dr. Agodoa stated that NIDDK had explored expanding the NMRI program to include unfunded scientists, such as postdoctoral researchers, but decided for this meeting and the next to invite only those who had received at least one grant award.

Dr. Dagogo-Jack suggested adding a funded or an unfunded investigator box to check on future grant applications to gauge the level of interest in this meeting among those who are unfunded.

Dr. Golub noted a statistic he found troubling; only about one-half of those who get one NIH grant award ever get another one. He suggested that NIDDK address this issue at a future meeting.

Dr. Agodoa asked for volunteers for the upcoming program planning committee, which he suggested should take place in about 3 months to allow time to plan the agenda for the April NMRI Meeting. Drs. Dagogo-Jack, Andrade, Tanaka, Frank, Azziz, Florant, Greene, Ramirez, Cabrera, and Isales; and Mr. Gonzalez volunteered to serve on the committee.

The senior investigators meeting adjourned, and the group rejoined all other participants in the main auditorium for the next session.

Postsession comments from Dr. Ascoli

The Endocrine Society has a grant from the NIH that provides funds to send Endocrine Society members to give short courses in endocrinology at minority institutions. This is done by matching members who want to participate with institutions who want them. In doing so, minority students are encouraged to enter science and some of them are even invited as guests (with expenses paid) to the annual Endocrine Society Meeting.

Since young minority students are not necessarily in institutions with a high minority representation, Dr. Ascoli believes NMRI should be used as a way to mentor young minority scientists either electronically or by phone. He suggested starting a Web database that contains relevant information about established minority investigators who would be willing to mentor young minority investigators. Long-distance mentorships are better than none.

Dr. Ascoli asked whether there are additional mechanisms to encourage minority scientists to study health-related issues that affect minorities. One way would be to solicit participation through RFAs. This could be coupled with the formation of special study sections that may have a higher than usual minority representation.

The issue of retention is more difficult to deal with, but part of it should definitely be a mentoring process again, that can be done long distance but is tailored more to mid-career investigators rather than young investigators. This could include a yearly scientific workshop where funded individuals present their progress. This could be coupled with research talks given by more senior investigators. Such a forum would provide them with an opportunity to have their work reviewed in an informal and friendly fashion and with an opportunity to learn about keeping an active program by listening to the talks of the senior minority scientists.

Negotiating for a New Position—Drs. Sidney Golub and Jackie Tanaka

Drs. Golub and Tanaka discussed the strategies of negotiating for a new research program position, noting that some of the information could also apply to negotiating with other research institutions such as NIH or commercial enterprises. They advised junior scientific investigators to limit their requests early in the interview and to listen more than talk; to discuss specifics about their goals; and to get as much as possible in writing about their duties, for example, the percentage of time to be spent on research tasks versus administrative ones. Dr. Golub also advised participants to use their instincts about whether a certain institution or laboratory would be a good fit.

Dr. Golub advised participants to use *Guide to Academic Survival—How To Succeed in Academics* by Edward and Linda McCabe for tips on weathering bureaucratic problems that typically occur within large institutions.

Issues Related to Career Development—Dr. W. Allan Walker

Assembling and Managing an Effective Research Team

Dr. Walker advised junior investigators to avoid overloading their first grant with a lot of information. Instead, concentrate their first grant application in an area of research about which they are familiar and get letters of commitment for help with their research proposal from colleagues. In addition, if the investigator is becoming a coinvestigator on a particular study within the same laboratory, then try to use the senior investigator as their coinvestigator. The role of the senior investigator as coinvestigator and a new R01 needs to be addresses in detail as part of a cover letter that accompanies the original grant.

Maintaining Your Professional and Personal Lives and How To Best Manage Your Time

Dr. Walker stated that allowing time for family matters is very important. He advised young investigators to aim for success at home and at work. If family matters intervene, attend to them; if they must attend to a long-term family problem, then slow down the pace of their career and speed it back up again when they are able.

Developing Mentoring Skills

Dr. Walker emphasized the importance of a mentor for junior investigators. The positive aspects of mentoring include a unique expertise and environment, an ability for the trainee to move toward independence, ongoing counsel, a good role model, and a comfort level for the mentee while he or she learns various skills and interacts with the mentor.

He advised picking a mentor who has an established position, such as a full professor or associate professor; who is tenured and whose funding position is secure; who is available for consistent levels of personal interaction; whose own mentoring experience was positive; and who has a good record as a mentor. Key factors to selecting a mentor include identifying an area of interest; selecting the best mentor for your interest, for example, picking a mentor from one's area of the basic sciences rather than a mentor from the clinical sciences; checking that person's record as a mentor, if possible; and one's own "gut feeling" about the potential mentor.

Dr. Walker advised against switching mentors unless there is no other solution to a troubled mentorship, because one wastes valuable career time when switching to a different mentor. He also advised trying to get one's R01 award before switching positions and bringing it to the new job; therefore one's work on the R01 tasks cannot be replaced by other after-the-fact tasks that the mentee had not previously agreed to perform.

Developing Research Collaborations

Dr. Walker talked about the necessity of legitimate research collaborations with respect to one's grant application, especially collaborations with senior investigators. This might help increase the possibility of getting the award and also open new avenues of research in collaboration with others.

The best ways to develop those collaborations include performing literature reviews of a research field, seeking the advice of a mentor concerning with whom one should collaborate in the next phase of a research career, attending local research conferences and single-topic research symposiums, and participating in poster sessions at national meetings in one's research field.

The pitfalls include different expectations of the parties, a problem that can be avoided by putting the expectations into a written document, and the primary data access demands of the senior member of the collaborative team. How does he or she intend to use the data with respect to document authorship? If possible, investigate previous collaborative relationships with which this senior investigator was involved.

Collaboration advantages include getting answers to research questions outside one's particular field, accomplishing more than when working alone, improving one's grantsmanship, and working directly with colleagues.

Group Interactive Sessions on Promotion—Mock CVs

A group of investigators split into smaller groups, discussed the job qualifications for three investigators, and chose the best applicant for a tenure-level position. NIDDK's purpose here was to give participants an idea of how a search committee would view certain kinds of activities.

The three applicants included one with a strong record in teaching and service, one with an excellent record in clinical care and clinical research, and one with an outstanding record of basic research. The group determined that while a focus on one's current research career is important, the job must fit the applicant's interests. For example, a department of medicine position with a strong expectation in clinical care and teaching would not be appropriate for someone with a sole commitment to basic science investigations, regardless of other qualifications. Similarly, a strong teacher-clinician would probably not prosper in a job that has expectations for lots of research productivity.

NMRI Lunch Breakout Session—Input and Feedback

Participants made numerous suggestions for the next meeting's agenda:

- The differences between clinical science and basic sciences research should be recognized, and the next meeting should be structured to reflect those differences, including having separate breakout sessions, using both clinical and basic science grant application examples during mock sessions, allowing enough time in a few select sessions for both senior clinical and senior basic science researchers to present during the same session, and inviting mentors from clinical and basic science fields.
- Numerous suggestions were made with respect to grant applications, such as discussing one in greater detail to determine the reason for its success or failure, sending a mock grant to participants ahead of time and discussing it in detail during a meeting session, and setting up a grant-writing seminar workshop.
- All participants seemed to agree with two suggestions: First, that the NMRI program should be opened to postdoctoral fellows as soon as possible, and second, based on participant comments, the next meeting should allow more time for investigator networking.
- Dr. Tanaka asked participants to become involved in planning the next meeting, including returning a questionnaire that NIDDK will send out next year as a way to get subject matter input from meeting participants and asking for volunteers to serve on the program planning committee, which will develop the premeeting questionnaire and the agenda for the April NMRI meeting. Rosita Rodriguez, Marianne Tellez-Greene, Eva McGhee, Le Roi Hicks, and Olubunmi Afonja agreed to serve on the planning committee.

General Session—Dr. Patricia Robuck

Human Subject Concerns

Dr. Robuck provided participants with definitions of clinical research and patient-oriented research; discussed the role of institutional review boards, including Federal Government policy for the protection of human subjects; the importance of including women and minorities in clinical trials in an effort to balance research burdens and benefits; and the need for data and

safety monitoring of all clinical trials and studies, for purposes of adverse-event reporting to various agencies; and the critical elements to be included in any data and safety monitoring plan.

FDA

Dr. Robuck discussed the need to apply for an investigational new drug application (IND) when conducting clinical research; the circumstances when a researcher needs to obtain an IND, such as studying an unapproved product or an unapproved use of an existing product; and IND exemptions, when an IND is not necessary.

The meeting adjourned at 3:30 p.m.