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

Bethesda North Marriott Hotel & Conference Center
Bethesda, Maryland
April 20–21, 2006

Workshop Summary

THURSDAY, APRIL 20, 2006

Introduction and Overview of the Day's Activities

Lawrence Agodoa opened the workshop at 8:10 a.m. by welcoming Network of Minority Research Investigators Workshop (NMRI) members and reminding them of the reason that the Network was originally set up—to help minority investigators improve their research career prospects. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) ran the program during its first few years, with Network members taking over the reigns of responsibility over the past 2 years. He noted that time would be set aside on Friday afternoon to discuss Network improvements. Dr. Agodoa then introduced members of the Planning and Oversight Committees and thanked them for their efforts in developing the 2006 NMRI Workshop.

Keynote Speaker—*Dr. Joan Y. Reede*

Dr. Agodoa introduced Dr. Reede by noting her accomplished career; Dr. Reede opened by discussing her key research interests. She discussed the following pipeline-related issues:
- Continuing problems with assumptions and stereotypes, researcher isolation, and excessive demands and committee assignments
- The likelihood that poor and/or minority students will be taught by less experienced or uncertified teachers in high school and will be less prepared to study science in college
- The falloff in college attendance and graduation rates among African-Americans, with the rates of Hispanic Americans and Native Americans being even lower
- The lower rates of medical and science degree graduates among African-Americans
- The lower rates of underrepresented minorities (URMs) among medical school faculty members, as compared with their overall population percentages.

Dr. Reede then discussed several key issues and challenges faced by minority investigators:
- The increased scrutiny of a minority investigator's work
- Heightened visibility of the minority investigator's work and performance pressure, especially as it might affect whether a department would hire a second minority investigator
- Increased stereotyping and exaggeration of differences
- Marginalization among colleagues
- The feeling of tokenism among minority investigators, who may chafe at their limited roles within a department or feel that key decisionmaking positions are out of their reach
- Fewer opportunities for research collaboration and mentoring
- Female URMs being viewed as nurturers within a department and as the "public" face of the department.

Dr. Reede discussed the importance of successful diversity programs within a department, highlighting consistency with an organization's stated mission; improved work attitudes and motivation; increased

academic and job performance; increased student, faculty, and staff retention; and an improved competitive advantage for a department or an institution. She also noted the importance of URMs taking part in the investigator and faculty recruitment process, including helping review and monitor the search process, taking a role on search committees, and suggesting short- and long-term initiatives to address minority recruitment issues.

Dr. Reede discussed the important role that department chairs play in the recruitment process:
- Setting bold diversity goals, mainstreaming them within the department, and setting up a standing committee to deal with the issue
- Holding division chiefs accountable for the progress of diversity
- Monitoring the diversity process via data collection and analysis
- Opening doors to challenging assignments for URMs
- Providing career advice and counsel and sending a message that a URM's potential success is invaluable.

She then discussed the importance of URMs acting as mentors and providing various kinds of advice to their mentees, such as the need to be prepared for the unpredictable challenges that they will face at each stage of life and in one's research career; the importance of career support and autonomy at one's institution, such as research time, space, and staff resources; reward orientation; and the opportunities for promotion, key committee assignments, and mentoring.

Dr. Reede provided the following advice to improve the pipeline for URMs' research careers:
- Increase research collaboration and partnerships.
- Increase career evaluation and tracking.
- Provide more mentoring relationships.
- Broaden the knowledge of career opportunities.
- Increase exposure, skills, and the ability to succeed.

Welcoming Remarks—*Dr. Griffin Rodgers*

Dr. Rodgers welcomed veteran NMRI members and thanked the workshop speakers. He opened with a short video, *About the NIH*, which showed the importance of the National Institutes of Health (NIH) in the health improvements of the U.S. population throughout the 20th century. After the movie, he discussed the knowledge distribution process at NIH, from basic and clinical research through publication and research dissemination.

Dr. Rodgers noted that about 58.6 percent of the NIDDK budget was devoted to project grants, with the remaining covering such things as administrative costs and cooperative agreements. Since 1970 the NIDDK budget has grown from about $1 billion to about $28 billion and has leveled off since 2003. The paylines have changed since 2003, however, with type 1 applications increasing in number compared with type 2 applications. NIDDK is striving to maintain new investment awards, which increased from 2000 to 2004 but declined in 2005.

NIDDK's overarching principles are to maintain the investigator-initiated research portfolio, preserve a stable pool of new investigators, support pivotal clinical trial studies, foster exceptional training and mentoring opportunities, and ensure continued knowledge dissemination.

Electronic Submissions of NIH Applications—*Dr. Neal Musto*

Dr. Musto opened by stating that NIH is transitioning to complete electronic application process and that the well-known PHS 398 form and pink sheets will no longer be accepted, nor will Federal Express deliveries of one's application to NIH.

By September 2007, all grant applications will need to be submitted electronically, with the SF 424 replacing the PHS 398 for all grants. The transition, a public law signed by the President, will eliminate paper-based data collection; shorten the cycle from receipt to reward; improve data quality; reduce scanning, printing, and data entry costs; and allow reviewers to deal with clear, consistent grant images. The transition involves all grant types and multiple systems that need to work together, with each part of the system having its own regulatory requirements and validation process. NIH will transition in stages via individual research program or funding mechanism, with a PHS 398 still required for those that have not transitioned by the time a grant application is due.

An institution's business office will need to decide how to submit the grants. The decision is not up to the applicant, but he or she should know the process. Electronic submission will require specific software, which is available to institutions via a free download at Grants.gov. However, this downloading process is not yet complete for Macintosh users.

Other aspects of the new system are as follows:
- Continued use of Request for Applications (RFAs) and Program Announcements (PAs), which will be referenced as funding opportunity announcements (FOAs) at Grants.gov
- The need for a specific application package associated with an FOA
- The need for a DUNS no. from one's institution
- NIH only accepting attachments in Pure Edge or PDF formats
- Some forms not marked as mandatory on the Federal-wide form being mandatory for NIH applications
- The need for an eRA Commons user identification on the forms
- The need to submit the grant applications well in advance of the actual application date to allow business office staff members time to disseminate the applications that they receive from grantees
- The ability to receive information on the submission status via e-mails from Grants.gov or eRA Commons, with a 2- to 4-day postsubmission date being the ideal time to check whether an application has been received and/or was missing material
- Warnings—a problem that needs to be addressed but will not stop the application from moving forward
- Errors—a problem that must be addressed (through the business office, not directly) before an application can move forward.

The electronic submission Web site, http://era.nih.gov/electronicreceipt/, as well as other key Web sites, are available in the pamphlets provided to NMRI members at the workshop.

Non-Federal Funding Mechanisms—Perspectives From the Institutional-Sponsored Projects Office—*Mr. Harold Gollos and Mr. Matthew P. Sheehy*

The speakers discussed the following information concerning alternative funding mechanisms:
- Internal funding mechanisms at one's individual institution and external funding mechanisms outside that institution, such as Federal and State governments, nonprofit organizations, foundations, and professional associations, are available to investigators.
- Funding types and levels will vary depending on the institution.

- Many State and local grants can be located through Google and similar search engines, funding alert services, and word of mouth.
- Funding alert services cost money to join and include such services as the Community of Science (the largest of the services), Illinois Researcher Information Service, and Foundation Center.
- Foundation funding can be located via a Web search engine and a foundation's Web site. Foundation funding can be different than NIH funding, such as through lower indirect cost rates, mandatory cost-sharing, electronic submission requirements, and different reporting requirements for technical and financial reports.
- For-profit funding via a pharmaceutical company can be company-initiated or investigator-initiated.
- A Federal agency Web site can provide information on the type of awards provided over the past 3 years, allowing an applicant to tailor his or her application accordingly.

The best ways to find out about funding opportunities include reviewing foundation guidelines, attending national and international meetings, joining professional associations, publishing articles, and engaging in networking and mentoring opportunities.

Mock Study Sections 1 Through 4—*Drs. E. Dale Abel, Carlos Isales, Mario Ascoli, and Ricardo Azziz*

The Mock Study Section discussions yielded the following information for NMRI members:
- The parameters of a study section will include the number of grants to be reviewed, not including those that are triaged; conflicts of interest for any reviewers; the confidentiality of the grant information; and the process for getting grant questions answered.
- The significance and feasibility of the grant and the research environment of a particular Institute will be assessed along with the scientific information within the grant.
- The scoring parameters were discussed for use both during this mock section as well as for informational purposes as to how grants are assessed in actual study sections.
- The scores of the assessed applications should vary across the scale.
- Time constraints will limit the discussion time regarding any individual application, with three or four discussed per hour being a general guide.
- Most applications are completed now via Internet-assisted reviews, with one's initial review of an application typically being uploaded for the study section and compared with others as the discussion ensues and a reviewer's initial scores being adjusted as appropriate.
- The application's final score will be assigned at the study section. The inability to agree on a score is rare, but it happens.
- Scores never vary from the nearest 10th decimal (e.g., 1.5, not 1.55).
- A letter and biosketch from a collaborator is an important part of one's grant application.
- Reviewers can also judge one's projected budget as well as animal study concerns.
- A study section can recommend more money being provided for an application but cannot award it themselves.
- The projected budgets of about 18 percent of all grants are cut upon being awarded, which could be in addition to any cuts suggested by the study section reviewers.
- Reviewers will sometimes cluster new investigators and new grant applications together in a study section.

Parallel Sessions on Grant Funding and Career Development

NIH Funding Mechanisms—Dr. Judith Podskalny

Dr. Judith Podskalny opened her presentation by noting that NIH has developed about 120 mechanisms to provide funds for biomedical research, about 90 of which are grants. She noted the importance of an

investigator applying for grants that are appropriate both to his or her career level and to his or her research interests. It is advantageous to identify the NIH Institutes and Centers (ICs) most interested in a research area and then to access the individual Institute Web pages to obtain funding information. The NIH Guide for Grants and Contracts is the best source for information on current Program Announcements and Requests for Applications. Dr. Podskalny also noted that not all ICs accept investigator-initiated R03 and R21 applications; some ICs require that those applications be submitted in response to IC-specific PAs and RFAs. She then discussed many of the NIH grant funding mechanisms available to biomedical investigators.

K-awards are available for investigators transitioning to an independent career. All but the K99 award require that the applicant be a U.S. citizen or permanent resident. No K-awards may be issued to foreign institutions.
- K01 awards are used by many ICs for scientists reentering an investigative career. NIDDK uses this award to aid in the transition from postdoctoral researcher to independent investigator.
- K08 awards are provided to physicians to do basic or clinical research.
- K23 awards are provided to physicians to do hands-on, patient-oriented research.
- K24 awards are aimed at midcareer clinical investigators who need to free up time to mentor and to move their patient-oriented research projects forward.
- K18 awards are career enhancement awards that currently are only used in the area of stem cell research. They provide 1 or 2 years of support for a new investigator or for an experienced investigator to bring stem cell technology to his or her laboratory.
- K25 awards are provided to those investigators with a mathematical or statistical background who wish to apply their expertise to an area of biomedical research.
- The K99/R00 award (Pathway to Independence Award) is a two-phased award aimed at exceptional postdoctoral fellows and allows for 2 years of a mentored research experience followed by 3 years of independent support. Transition from the mentored to the independent phase requires obtaining a faculty position and good research progress during the first phase of the award.

R-series awards are reserved, mostly for independent investigators. There is no citizenship requirement for R-series grants, and foreign institutions are eligible to apply.
- R21 awards are exploratory, Institute-specific grants that are not renewable and are limited to $275,000 in direct costs over 2 years.
- R03 awards are small, nonrenewable grants limited to $50,000 per year for each of 2 years.
- R01 awards are the major NIH grant mechanism and are renewable for as long as the research progresses and is relevant to the research being supported by NIH. Applications include a modular budget when <$250,000 per year is requested or a detailed budget if >$250,000 per year is requested. R01s are not accepted electronically yet; therefore, potential grantees must still use the PHS 398 form until 2007.
- R56 awards are not available via the usual application process. These awards serve as bridge funding for applications that are highly meritorious but that fall beyond the payline for an Institute. Applicants are encouraged to reapply for their R01 to continue their work, and the R56 allows them to continue their work while their applications are being reviewed.

To determine what funding opportunities are available, Dr. Podskalny encouraged everyone to make use of the NIH Guide for Grants and Contracts. This is the one online resource for all PAs and RFAs.
- PAs have multiple receipt dates and usually remain active for 3 years.
- RFAs are issued by Institutes to foster research in certain limited areas, usually to "jump-start" research in that area. RFAs are also used to continue specialized research programs, such as Centers. RFAs have a single, or occasionally two, receipt date(s). The RFA will specify the type of grant

mechanism being used and the amount of funding available. Applications are reviewed by a panel set up specifically for the RFA.

Dr. Podskalny ended her presentation with the following general grant mechanism-related comments:
- An R-series application originally submitted in response to an RFA, but not funded, is considered a new grant application when resubmitted.
- In the cover letter accompanying a grant submission, applicants may suggest appropriate study sections to review their applications, but it is better to just list a few areas of expertise needed for the review. Any application can usually be reviewed by several different study sections in the Center for Scientific Review.
- There will probably be fewer RFAs in the near future due to a flat budget at NIH. PAs will continue to be used.
- The CRISP database can be a useful tool in helping determine whether a research topic fits within the research focus of a particular Institute.
- Applicants were cautioned that, once a grant is funded with Federal dollars, the abstract will be made public via the CRISP database. Therefore, proprietary information should never be included in that part of a submitted application.

Role of the NIH Program Officer—Dr. Marva Moxey-Mims

Dr. Marva Moxey Mims opened with an explanation as to the Program Officer's (PO) role, such as releasing PAs and RFAs in certain research areas within an IC, deciphering the summary statement of an application, calming the applicant upon his or her hearing of the rejection, providing answers to grantee questions concerning that rejection, and keeping the grantee accountable for the grant money once he or she is awarded funding. Dr. Moxey-Mims then discussed numerous grant application ideas and suggestions with NMRI audience members:
- Potential grant applicants should talk with people at an IC or look at the IC portfolio of research to assess its research focus.
- Potential new research directions are vetted through the NIH Advisory Council, as a concept proposal that can be approved. Once approved, ICs may commit funds to the research area through PAs and RFAs.
- The grant application must be responsive to a research initiative. The PO may be able to answer certain application-related questions, but applicants should not look to the PO for specific scientific review regarding their applications.
- An unscored grant is not necessarily beyond reclamation, as it may be near the top of that study section's grants not receiving a score and could be resubmitted once the applicant fixes some of its perceived problems.
- An applicant may resolve to keep parts of the application as they are, despite study section criticism, by providing a scientific rationale for holding to his or her position.
- An applicant receiving a good score but no funding could receive a special emphasis review. For instance, if his or her grant was above the payline, but the research was focused in a high-priority area and the criticisms could be dealt with relatively easily, then funding could be approved at a reduced dollar amount.
- Applicants should respond quickly to a PO's request for further information—for example, institutional review board approval, animal study approval information, and/or an update of other support information—once an application has been approved for funding, because the applicant will receive no money without providing the requested information.
- If an applicant receives a better job offer in the interim between submitting an application and receiving a positive response, he or she may need to relinquish the grant, because the awards are

made to the institution, not to the applicant. That applicant's current institution would need to relinquish the grant for the applicant to take it to the new institution.

- The PO helps keep a grantee accountable regarding the grant money through annual grant progress reports and helps with navigating the NIH bureaucratic system, through which one may find out about other grants, such as an R01 for a current K01 recipient.
- A person may apply for a supplemental to an existing grant, such as someone reentering the job market after taking extended leave to raise a family or care for a sick relative.
- IC Web sites contain useful grant-related information.
- There are two types of specialty centers. P50 centers promote individual projects within a center, and P30 core centers provide funding for cores that provide services to those who already have grant funding. As of January 2005, NIDDK decided to emphasize funding for the P30 centers.
- Potential applicants should heed the specificity of RFAs when applying for grant funding via this mechanism, as opposed to the more general research needs of a PA, which usually allows investigators to attack a research problem in multiple ways.

Negotiating a New Position/Transitioning From a Postdoctoral to a Faculty Position—Dr. Gregory Florant

- Your negotiating position improves if you find out that you are a department's first choice for a research/teaching position.
- The art of a great negotiation involves not leaving any possible negotiable items "under the table"— negotiate everything that you consider important to getting your career started.
- You should negotiate for salary, space, startup money, research time (i.e., no committee or teaching time during your 1st year), and staff and equipment resources.
- Grant money that you can bring with you to an institution improves your negotiating position.
- Your primary job in a tenure-track position is to publish journal articles, which provide you with an opportunity to present your ideas at meetings, receive more grant money, and be competitive for tenure or a promotion.

Planning for Promotion and Tenure—Dr. Sidney Golub

- Know that hard work does not guarantee a tenure position or a promotion, especially if one's research interest does not result in publications and grants.
- Ask what an institution expects from you by talking with key people and try to be comfortable with their expectations. (Do you or the institution need to change expectations? Do your priorities coincide with the research direction of an institution or department?)
- Realize that an institution may have an agenda(s), and it is important to know those priorities. They can be discovered through talking with a mentor, collaborator, and/or senior person within the department or institution whom you trust.
- Get published in respected journals and present at meetings.
- Network as much as possible while attending meetings.
- Avoid the problem of mismanaging grant funds, which can hurt your career; alternatively, know that spending grant funds wisely will not necessarily help your ability to be awarded future grant funds.
- Do not purposely underspend your grant funds to spend later in the grant period.
- Pick committee work carefully so as not to overextend your time commitments. Volunteer for a committee that is interesting to you and has a good profile within a department and use it to stave off requests to join other committees.
- Where possible, avoid open-ended, time-consuming committees, such as a strategic planning committee, and look for openings on task-oriented committees, such as an admissions committee.

Scientific Presentation/Career Narrative: Senior NMRI Member—*Dr. E. Dale Abel*

Dr. Abel presented his research career as an example to the minority investigator Network members in attendance. He presented the following career-related information:

- His key research interests, such as cardiovascular disease in diabetes, which is a major cause of morbidity and mortality
- Key research tasks, such as studying diabetic hearts in mice; the effects of fatty acid; and mitochondrial function and susceptibility to oxidative damage, which may cause weight gain
- A description of the work done at the laboratory that he oversees at the University of Utah
- His career path, including his M.D., Ph.D., residency, and fellowship
- Various choices he made while on his career path, such as selecting his mentor; choosing his research focus; and receiving a 4-year grant from the Robert Wood Johnson Foundation to undertake a "risky" research project
- New investigators must assess their career paths, such as transitioning out of one's postdoctoral position, staying with a local institution or moving to one in another location, negotiating with potential institutional employers, choosing a research direction, dealing with personal issues and prioritizing them with regard to career issues, and handling the problems that arise with running a laboratory.

Dinner Meeting—*Keynote Speaker: Dr. Norka Ruiz Bravo, Deputy Director, Extramural Research, NIH*

Dr. Rodgers introduced Dr. Norka Ruiz Bravo, providing audience members with a chronological history of her accomplishments. Dr. Ruiz opened by stating NIH Director Dr. Elias Zerhouni's strategic vision for the Agency—predict disease, personalize treatments and interventions, and preempt disease processes from beginning. She noted that the next 3 to 5 years will see constrained budgets, with the possibility of only small increases in most programs.

The Roadmap for Biomedical Research will be completed. The roadmap began a process for NIH to manage its future directions, and it is important to the extramural biomedical community because of the resources that it can provide. The Office of Portfolio Analysis and Strategic Initiatives (OPASI) will help NIH think broadly about the science it undertakes and think strategically about the way it manages its portfolio and decides on future directions. The OPASI will allow NIH to continue with the roadmap process and will be supported by a set-aside amount of funds from the NIH ICs.

New investigator funding remains a continuing concern in the wake of constrained budgets. Dr. Zerhouni has made this a top priority, even saying so in public forums. The NIH Pathways to Independence Award (about 150 to 200 will be available at first) was recently announced in response to a National Academy of Sciences report, which expressed concern that the crucial transition from postdoctoral researcher to independent investigator was not being given a high enough priority at NIH. The average age of new independent investigators funded by NIH has been increasing in recent years, and this new award is an attempt to reverse that trend. The new award will begin as a mentored Career Development Award and will end as an Independent Research Support Award (R-award) that can be transferred to an institution at which the investigator receives a faculty position.

Dr. Ruiz Bravo closed by thanking Drs. Agodoa and Rodgers and stating that her remaining time would be spent answering audience questions.

FRIDAY, APRIL 21, 2006

Introduction and Welcome—*Dr. Lawrence Agodoa*

Dr. Agodoa urged workshop attendees to complete and turn in their evaluation forms and noted that part of the afternoon would be spent assessing ways to increase the number of Network members and increasing the influence of NMRI in the biomedical research community.

NIH Roadmap and CTSA Initiative—*Dr. Robert A. Star*

Dr. Robert Star stated that he would provide NMRI members with a practical look at the NIH Roadmap for Medical Research, which was developed to address public health challenges, such as acute-to-chronic care conditions, the health needs of an aging population, emerging diseases, and biodefense. The NIH Roadmap is based on NIH Director Dr. Zerhouni's vision of transformed medicine in the 21st century that can predict when disease will occur and then devise personalized approaches to intervene preemptively before symptoms appear. Dr. Star described the NIH Roadmap as a framework of scientific priorities that NIH must address as a whole and as a vision for turning a more efficient, innovative, and productive system of research into health, mechanisms of disease, and related behaviors.

Dr. Star broke the roadmap down into tools, teams, and community. The tool portion of the NIH Roadmap includes molecular libraries; rapid access to investigational drugs (NIH-RAID), which provides knowledge, expertise, and funds necessary to move an investigational drug from animal to human studies; a patient-reported outcomes measurement information system; and more coordinated clinical care research policies and regulations through a clinical research policy analysis and coordination program.

The research teams' portion of the roadmap is necessary to solve the "puzzle" of complex diseases and conditions and the challenges of interdisciplinary research. Multidisciplinary and interdisciplinary research teams include members with unique skills and career paths. The entire system needs ways to acknowledge each team member's contribution as relevant and valuable. NIH recognizes the value of team research and, thus, will allow multiple Principal Investigators on NIH grants. The stimulation of team science and interdisciplinary research will also require changes in the tenure and promotion processes within institutions so that those investigators embracing interdisciplinary team research projects are given sufficient credit for their contributions. NIH has set up a Multidisciplinary Career Development Program Award (K12 grant) to train postdoctoral fellows and young faculty members.

The newest part of the NIH Roadmap promotes the formation of a new community that will provide an accredited academic home and integrated resources to advance the academic discipline of clinical and translational science, create and nurture new investigators, and advance the health of the Nation. Clinical and translational scientists will be integrated within institutions, with their nearby communities, and across institutions. Through these initiatives, NIH hopes to speed the process of developing 21st century medicine—predictive, personalized, and preemptive.

Selling Your Science—Getting Published: Editorial Perspective With Invited Editors—*Dr. Paul W. Ladenson, Dr. Caren G. Solomon, and Dr. Hemai V. Parthasarathy*

Dr. Paul Ladenson discussed the process of how the *Journal of Clinical Endocrinology and Metabolism* assesses and decides which papers will get published in the journal, for which he serves as the Editor in Chief. He noted a 20- to 40-percent acceptance rate being typical for top-line medical and/or scientific journals and the importance of "impact factors," the number of times and places that articles are cited postpublication.

Dr. Ladenson discussed the following issues:

- The importance to the career of a midlevel faculty member if he or she becomes an editorial board member of a scientific and/or medical journal, which would involve a time commitment to read and review a certain number of papers per month
- Editorial board members being established or emerging contributors in their fields
- Associate Editors being recognized leaders in their fields and having served as respected editorial board members
- The value of knowing the scope of a journal's research interests—with reviewing a journal's Web site being one way to gain such knowledge—before sending a paper for publication
- The concept of blind reviews, which few journals undertake, as most reviewers know the name and institution of a paper's author(s)
- The value of a simple, straightforward cover letter accompanying one's paper
- Unwise practices for authors—the fine-slicing of data to increase the number of publications; overreaching conclusions; the failure to reference relevant, preceding research in the field; careless errors in text, tables, or figures; and poor English.

Dr. Caren Solomon, a Deputy Editor at the *New England Journal* of *Medicine (NEJM),* first discussed what makes a paper "good." *NEJM* publishes reports of many large randomized trials, but she noted that a study need not be a randomized trial to be of interest. Important factors would be that a study provides information that advances what is known in a given field, have sound methodology, be ethical, and contain conclusions that follow from the data.

Dr. Solomon's other key points included the following:

- The editors rely on input from external reviewer experts in given fields, but ultimately, editors not reviewers, make the decisions regarding publication.
- Original articles under serious consideration for publication undergo a statistical review.
- Three major reasons for rejection include the quality of the science, a study's novelty, and a decision that a given paper is better suited for a more specialized journal.
- Although there is a perception that negative studies are of lesser interest, Dr. Solomon emphasized that there is a clear interest in publishing negative studies that are adequately powered and that address an important clinical question.
- The process of preparing for submission, identifying the appropriate journal for your study, following all author instructions prior to submission, and meeting the authorship criteria was discussed. Instructions for submission and authorship criteria can be found on journal Web sites.

Dr. Hemai Parthasarathy is the Managing Editor for *PLoS Biology*, an open-access journal that is available for anyone to try to get their work published. She opened by noting the importance of making scientific and medical literature a public resource, a process that began under the previous NIH Director, Dr. Harold Varmus. Dr. Parthasarathy discussed the following issues:

- NIH recommending that their investigators deposit their papers into PubMed
- Publications being thought of as part of the scientific research process
- Much of the money for journal subscriptions ultimately coming from NIH
- The need to realize that reviewers have tight schedules and job demands when submitting a paper, with a decision on publication expected within 7 to 10 days of a paper's review
- The fact that many journal editors are no longer involved with the research process and are not tied to a decision concerning whether to publish a paper or to award a grant
- Needed revisions to basic science papers often resulting in the need for more experiments for the submitter
- The concept of translational science serving as a key difference between basic and clinical journals, with the former having recognized the need to include the best of the translational research studies

- The importance of clarity in one's submission, such as precluding reviewers from having to guess your scientific intent and recognizing that reviewers are probably not experts in your field
- The need for the cover letter to note what is involved with the study without being too detailed in its description of the study.

Parallel Career Development Workshops: Senior and Junior Tracks

Grants: Going From an Idea to a Winning Proposal—Dr. E. Dale Abel

Dr. Dale Abel noted that before starting the grant-writing process, potential grantees should ask the following questions:

- Do I have the time to do this?
- Do I have preliminary data of the proper quality and in the proper quantity?
- Do I understand what the granting agency is looking for?
  —Requirements for a postdoctoral fellowship
  —Requirements for pilot or feasibility grants
  —Examples of RFAs.
- Do I have a good understanding of the strategic state of the field and the potential significance of this work?

Specific Aims
- The translation of one's idea(s) into a coherent series of specific aims is an important endeavor, because if this task is done correctly, the remaining areas of the grant should fall into place around these aims.
- Specific aims should be hypothesis-driven. In a few instances, technique- or technology-driven proposals might be written in response to specific RFAs.
- Specific aims should be interrelated to the overall hypothesis of the proposal, but should not be so dependent on each other that subsequent aims depend entirely on the success of prior ones.
- Especially in the early stages of the grant-writing process, be discreet with respect to the scope of the proposal. A common criticism of the grants from many junior investigators is that the proposals are often perceived as being too broad in scope and overambitious.

Research Plan
- Develop a research plan that is coherent and easy to follow. Remember that the reviewer of the proposal might not necessarily be an expert in the area of the proposal nor may he or she be as knowledgeable as the applicant.
- Ask a colleague to read the proposal. Especially valuable insight can be obtained from people who are not working in that specific area but who have been successful in getting funded.
- Know that mechanistic studies are generally better received than are descriptive experiments.
- Avoid jargon and nonstandard abbreviations. Use figures and diagrams, flow charts, and tables liberally throughout the grant application.
- Restate the hypothesis before describing the experimental plan.
- Provide a strong rationale for the experiments.

- Describe the research plan with sufficient detail and with attention to controls and consider putting the detailed methods and/or protocols in a separate section.
- Describe and discuss the expected results.
- Describe and discuss the potential pitfalls and alternatives. Reviewers may be reassured that one is already thinking laterally, as many hypotheses turn out to be incorrect.
- Provide sufficient methodological details to reassure reviewers that you can undertake this study. If the material has already been published, then refer to that published material in your application. Recruit suitably qualified collaborators if necessary.
- Produce a summary/perspective at the end of the proposal to put the work into perspective. It is usually well received by reviewers; in addition, a timetable is often useful.

Background and Significance
This section should set the stage for the grant proposal. It should not necessarily be a broad comprehensive review of the field but should give the reviewer sufficient understanding of the field so as to put one's research question into perspective. The applicant should use this section to highlight the knowledge deficiencies in the field and the reason why the proposed work is important and significant.

Preliminary Data
- Provide high-quality data that is clearly presented and contains adequate sample numbers. If such data are lacking, then acknowledge this fact rather than attempt to overinterpret it.
- Provide as much preliminary data as possible to convince the reviewer that the hypothesis is feasible and that the study can be performed (e.g., access to key assays, reagents, mice).
- Do not allow the research plan to simply confirm what the applicant has already done.
- Present the preliminary data in a way that helps, not hurts, the grant application. Do not show conflicting results if it will only serve to weaken the hypothesis or research plan.

Details, Details
- Pay attention to the administrative requirements.
- Do not wait until the last minute to obtain key parts of the application, such as administrative approvals or letters of collaboration.
- Proofread—cross the t's and dot i's.

Managing Laboratory Growth and Remaining Focused—Drs. Renty B. Franklin and Eddie Greene

Drs. Renty Franklin and Eddie Greene stated that the process of laboratory growth is a key aspect of a PI's career track. They noted the value of two books on the subject, *At the Helm: A Laboratory Navigator*, by Kathy Barker, and *Lab Dynamics: Management Skills for Scientists*, by Carl and Suzanne Cohen.

Dr. Greene discussed the following issues:
- Effective mentoring in the time before a scientist becomes a PI will help that person in running a laboratory for the first time.
- It is difficult for one's supervisor to be an effective mentor, so choose someone from outside the laboratory in which you work.
- Peer-to-peer interaction will help you throughout your career.

- The elements of a good laboratory include quality science, politically savvy decisions, stable funding, smart and enthusiastic people, and effective PI leadership.
- A greater amount of political savvy is needed in a larger department than a smaller one.
- A PI needs to communicate with the department chair concerning his or her needs regarding gaining tenure, promotion, or more laboratory funds.
- A PI can never have too many grants.
- A PI needs to determine a laboratory's focus, such as basic science or clinical medicine.
- Graduate students who have completed writing their dissertations potentially make good laboratory workers, as they are not focusing on both the needs of the laboratory and their dissertations. Good hires improve the quality of a laboratory's work.
- Other key considerations would include your ultimate career goals; your goals regarding the size of the laboratory; and the long-term prospects of your laboratory with respect to your career prospects at your current institution.
- Key project considerations would include your relationship with other laboratory workers; the scientific, administrative, or personal aspects of running the lab; and data flow within the laboratory.
- Your core values should include scientific excellence, success, and independence; creativity; discipline; teamwork; innovative science; and the ability to keep learning.
- Ten commandments for investigators to use to identify the right research project(s), from an *NEJM* article (Kahn 1994).
- It is important to find the right balance between high- and low-risk projects and to avoid new areas or complicated problems without collaborators with different skill sets, as long as those collaborative relationships are mutually beneficial and symbiotic, but not exploitive.
- The budget needs of the laboratory take time but are important; the PI needs to deal with those who watch the budget.

Dr. Franklin discussed the following issues:
- Planning is the key to the success of a laboratory.
- Your scientific focus as well as that of the laboratory needs to be defined to allow yourself to be known in the field as an expert on a particular subject.
- A PI should create a mission statement; identify your laboratory's strengths and weaknesses; be wary of "project creep," that is, moving away from specific aims; and review a grant's timetable to assess if those aims are being achieved.
- When assessing whether to explore new research directions, a PI must determine who will generate the preliminary data and must look for potential collaborators.
- It is easier to get a grant renewed than to receive a new one. RFAs are time-consuming endeavors and should be chosen for submission carefully.

Administrative Issues: Being a Department Chair or Division Director—Dr. Ricardo Azziz

Dr. Ricardo Azziz discussed the following aspects of interacting with your department chair:
- Follow your instinct as to whether you will like or trust the people with whom you could work.
- Understand the expectations of your department or university bosses.
- Know that your spouse or significant other must be supportive of your career.
- Ensure that money is available within the department and that the department is not in deficit and has growth expectations.
- Understand the financial details of your grant, such as indirect costs and salaries.
- Take seriously your clinical and teaching responsibilities, which are considered in department reviews.

- Know that publications are important but that some institutions consider grant money to be even more important, as such funds can relieve that department of its fiduciary responsibilities regarding your salary.
- Understand that one's tenure position, although guaranteed, can be undermined if the department chair cuts your budget, which would restrict your academic growth potential at that institution.
- Be an active member of the academic community within an institution.
- Be a good representative for your chair and your department, be aware of future problems and warn your chair in advance, and be a leader within the department and take on issues to minimize the need for chair involvement regarding the issue.
- Understand a department's reporting structure to raise issues as well as the limits of a chair's power to resolve certain issues.
- Know that the overhead costs of a department employee are generally about 80 to 100 percent of his or her salary.
- Realize that threatening to leave one's position over a dispute with the chair is generally a losing proposition for both you and your chair.
- Minimize the need for the chair to deal with problems related to you and/or your study. The more that you are a burden to a department chair, the more likely you are to be replaced.

Dr. Azziz closed by noting that most academic departments lose money, except for surgery departments, and that inpatient revenue generates more money for an institution than does outpatient revenue. The job of a chair is to minimize such losses by gaining academic funds through clinical revenue, facility fees, grants, tuition, and endowments.

How NIDDK Spreads the Word About Health—*Elizabeth Singer*

Ms. Elizabeth Singer began by emphasizing that NIDDK communication programs depend on a strong science base when developing programs and materials for health professionals, patients, and the public. She stressed that young investigators are the NIH's future; they need to keep at their work and to keep applying for grants, especially in this era of tighter budgets. Ms. Singer then discussed the three national information clearinghouses, the Weight-control Information Network (WIN), and its Sisters Together: Move More, Eat Better program. These programs provide brochures, factsheets and tip sheets, Web sites, and toll-free numbers for people who need information (in English and Spanish, with some programs available in various Asian languages) and reach millions of consumers each year. NIH is the no. 1 free, health-related Web site in the country according to *Consumer Reports.* The NIDDK clearinghouses and the National Library of Medicine are usually rated at the top of the list of providers of health information in data generated by commercial database evaluators.

The National Diabetes Education Program (NDEP) promotes a diabetes control message (*Control Your Diabetes for Life*) and a prevention message (*Small Steps, Big Rewards*) based on the results of the Diabetes Prevention Program clinical trial. This multicenter study included all the U.S. ethnic minorities and demonstrated that those who had a condition dubbed "prediabetes" and who lost a small amount of weight—mostly through moderate physical exercise, such as walking, and a lower fat diet—reduced their risk of type 2 diabetes. That message needs to be translated to the American public and to be tailored to certain groups within the population, such as the elderly, children, and ethnic minorities, through the media, Web sites, health fairs, and community outreach. NIDDK cosponsors the NDEP with the Centers for Disease Control and Prevention.

Ms. Singer noted that a campaign will be launched on April 25, 2006, that will warn women with gestational diabetes to be aware of the risks of then developing type 2 diabetes. She also noted that most people with kidney failure have diabetes and that drugs are available to stop, but not reverse, the kidney

disease. Health messages should be spread to family members at risk of, but not yet relegated to, receiving kidney dialysis concerning the availability of these drugs. NIDDK is also partnering with other NIH ICs, such as the NHLBI with the *We Can!* Program, which encourages physical activity for children through family activities in locations throughout the United States.

NMRI members made the following suggestions for NIDDK to improve their Web site:
- Improve outreach to young people concerning health issues by including such things as podcasting and streaming videos.
- Include a toll-free phone number with the e-mail address or URL to enable those without Internet access to receive health information.

Ms. Singer ended by providing a Web site, www.niddk.nih.gov/health, for feedback and kudos from NMRI members.

Business Meeting and Committee Reports

Dr. Agodoa and NMRI members discussed the following issues:
- Members attending other meetings could distribute NMRI-related news and flyers and spread the word about the Network.
- Regional NMRI meetings will begin in fall 2006, with a meeting during the 2nd week of November in Seattle, Washington, that is intended to draw potential members who cannot attend the annual workshop.
- The consensus among NMRI Workshop attendees was to continue with the annual workshop and not hold it biennially.
- The issue of attrition among senior NMRI members must be addressed, for example, by actively involving them in future meetings.
- The Office of Minority Health Research Coordination was asked to consider spreading membership in NMRI to include those who work in related fields not under NIDDK purview.
- Other suggestions included changing the poster format; discussing actual research topics in some sessions; recruiting new members from minority sections of other health-related societies; disseminating the agenda by e-mail as soon as possible; including new topics, such as translational research; setting up Network member collaborations throughout the year; and having NMRI develop a better online presence, such as providing material on the NIDDK Web site.
- The success of the Network can be demonstrated by showing the professional success of NMRI members and by noting their published papers.
- Members could suggest potential Network members and leave the names with a workshop person to contact over the next year. A list was distributed among workshop members for them to provide the names and institutions of one or two people who could be contacted by NMRI about joining the Network. NMRI members were asked to provide the e-mail addresses of their suggested Network member(s) to NIDDK as soon as possible.
- An Institute of Minority Health person and Dr. Yamada should be asked to present at the 2007 NMRI Workshop.
- NMRI needs a presence at society meetings, such as sponsoring a reception or an information booth.
- Mentorship relations should be built within NMRI by having potential mentees submit a biosketch and information about their research interests for potential mentors to assess and use to contact a young investigator with similar interests.
- The name badges should note that a person is a senior member of the Network.
- More posters should be sent for the presentation, and the posters should be set up earlier so that members can look at the posters during the various workshop breaks.

Dr. Agodoa noted that current members still require that a person be engaged in NIDDK-related research, but that person no longer needs to have their own funding. A suggestion to include those undertaking NIDDK-related work, but not research, will be discussed within the Executive Committee.

Wrap-Up

Dr. Agodoa closed the 2006 NMRI Workshop by thanking the Planning Committee members, Winnie Martinez, and MasiMax staff members and noted that the next workshop would tentatively be held April 19–20, 2007. The 2006 NMRI Workshop adjourned at 2:40 p.m.

James Libbey from MasiMax Resources, Inc., wrote this workshop summary.