

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

**Bethesda North Marriott Hotel and Conference Center
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Thursday April 19, 2007

INTRODUCTIONS AND WELCOMING REMARKS

Lawrence Agodoa, M.D., Director, Office of Minority Health Research Coordination (OMHRC), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH), Bethesda, MD

Dr. Lawrence Agodoa welcomed participants to the annual meeting of the Network of Minority Research Investigators (NMRI). He acknowledged and thanked all those who helped make the workshop possible. He introduced Dr. Griffin Rodgers, newly appointed Director of NIDDK.

Welcoming Remarks

Griffin Rodgers, M.D., M.A.C.P., Director, NIDDK, NIH

Dr. Rodgers welcomed participants and expressed how proud he is of the NMRI, and the excellent program developed for this workshop. He provided an overview of NIDDK and research opportunities that exist in a time of reduced resources. The mission of NIDDK is broad because of the wide range of activities, from basic research to clinical trials, and the number of conditions and diseases covered under the mission. NIDDK is working from the perspective of integrating research from “bench to bedside.” This idea may be exemplified by looking at the role of obesity in the etiology of type 2 diabetes, which in turn leads to increased risk for kidney disease. The trend for obesity is increasing in the American public and may be a major contributor to many chronic diseases. Understanding the molecular basis of obesity, and other factors such as gut microflora, may help reduce the prevalence of diabetes in America. If diabetes rates continue to increase, there may be as many as 50 million Americans with type 2 diabetes by the year 2050, compared to the current 21 million.

What has been encouraging is research that has shown progress against many diseases through prevention, diagnosis, and treatment. NIDDK-funded clinical trials, such as the Diabetes Prevention Program (DPP) and Diabetes Prevention Program Outcomes Study (DPPOS) have shown the effectiveness of lifestyle changes and treatment with metformin in delaying the onset of type 2 diabetes. Studies of glucose monitoring have shown promising results for maintaining beneficial glucose levels. Imaging studies of beta cell function are allowing researchers to make better quantitative assessments of the effect of prevention and treatment regimens. Genetic studies of a possible genetic phenotype for diabetes may lead to individual or customized treatment. Each of these areas of research requires support when allocating resources from the Institute.

Recent data show that end-stage renal disease (ESRD) rates are increasing more slowly, in contrast to the dramatic increases in incidence seen in the past decade. Although this is good news, an analysis of the data indicate that certain population groups, such as African Americans, are seeing higher rates of increase. These data exemplify the need to increase research in areas that affect minority or subpopulations.

Dr. Rodgers concluded his presentation by describing two education programs—the National Diabetes Education Program (NDEP) and the National Kidney Disease Education Program (NKDEP)—that NIDDK supports to disseminate and translate research findings to the community. The NIDDK also has mentoring programs, like the NMRI, to bring new investigators into research areas supported by the Institute.

Questions

A participant asked Dr. Rodgers to comment on the NIDDK budget. Dr. Rodgers responded that he is cautiously optimistic after participating in the recent House and Senate budget hearings. There has been a slight increase in funding for FY'07, which allowed NIDDK to maintain the payroll, and there is optimism about the level of funding for Fiscal Year 2008. He asked participants to do their part—to talk to their policymakers or work with voluntary health organizations—to engage them on funding issues and the importance of NIH research. Another participant asked if Dr. Rodgers could describe metrics being used for determining the level of NIDDK support for NMRI. Dr. Rodgers said that NMRI meets the mission of NIDDK, and with the need for more diversity among our investigators, there will be a discussion of expanding NMRI. Metrics such as the number of NMRI participants qualifying for grants and receiving promotions within their institutions are important metrics used to gauge NMRI success.

A few participants asked if NIDDK has programs to fund new investigators, such as adding points to the application. Dr. Rodgers said that there are programs and there has been talk of adding more incentives for those applying for funding. Dr. Judith Podskalny explained some of the definitions used for “new investigator.” To be a new investigator, the person can not have had an R01, but could have had fellowships, career awards, or many other types of awards.

To a question of whether women and/or minorities get special consideration by NIH in the awarding of grants or other funding, Dr. Rodgers commented that the Institute has a lot of flexibility to encourage awards to groups to foster diversity, although there is no fixed number of awards that go to one group or another.

A participant asked if there are programs for immigrant researchers. Dr. Podskalny addressed this issue by explaining that the new K99/R00 award can be given to immigrants or citizens, although the investigator receiving the award must be on a tenure track at an academic institution. Any R-award is available under this program. Dr. Rodgers added that the NIDDK website is being updated to make funding information more clear. Dr. Podskalny described the Computer Retrieval of Information on Scientific Projects (CRISP) database as an additional resource for information for selecting mentors. The CRISP database may be viewed at <http://crisp.cit.nih.gov/CRISP>.

A participant asked if grant application scores are available for those who submitted unsuccessful applications. Dr. Rodgers explained that the Center for Scientific Review (CSR) is responsible for doing that, and one concern that has been raised is that unscored applicants do not get adequate feedback. As for bridge funding, Dr. Rodgers said that the NIH is looking at investigators with grants up for renewal for the first time. This appears to be a critical time for investigators to drop out of the submission process. The bridge award is being targeted, in part, at these investigators. It is a 1-year award, and the nominations come from program staff within the institutes involved based upon criteria set forth by the Office of Extramural Research.

KEYNOTE ADDRESS ON LEADERSHIP

Honorable Louis Sullivan, M.D., Past Secretary of the U.S. Department of Health and Human Services

Dr. Sullivan thanked Dr. Agodoa for the opportunity to address the NMRI and said that it is an important program. He commented that Dr. Rodgers is the third African American to hold the position of Director at an NIH institute. The numbers of minority health professionals in many fields is increasing, but further progress is needed. This can be enhanced by developing leadership skills among minority researchers to have a maximum impact in the organizations represented in the workshop. The minority population in the United States represents approximately 25 percent of the population. Recent data show that among health professionals, only 6 percent of physicians, 9 percent of nurses, and 5 percent of dentists belong to a minority population. This is a disconnect with the number of minorities in the overall population. Dr. Sullivan asked participants to work to change this situation by working to bring more minority members of the population into the health professions.

Leadership characteristics required to achieve results include:

- **Vision** – The ability to see a new reality, a solution to a problem, and to dream of a better tomorrow.
- **Courage** – The ability to work to make your vision come true, to continue in the face of skepticism, criticism, and ridicule.
- **Focus** – The ability to clearly define your goals.
- **Determination** – To not be deterred by roadblocks or set backs; always finding a way around.
- **Persistence/Perseverance** – The ability to stick to your beliefs in the face of roadblocks.
- **Honesty/Integrity** – Your word is your bond; you say what you think; this is essential to develop people's trust.
- **Team Building** – Great goals require collaboration; the ability to sell your idea to others; the ability to recognize and utilize talents in others.

- **Commitment to Excellence** – Preparing thoroughly and thoughtfully; getting all information possible; planning well and then executing.
- **Ability to Communicate** – Being able to describe your vision and its compelling logic.
- **Ability to Motivate** – Inspiring others to follow your lead.
- **Ability to Listen** – Understanding and respecting others and their opinions.
- **Flexibility** – Being able to modify your approach and change it when required.

Dr. Sullivan offered his observations that he has found two common sayings to be true in his experience: (1) Chance favors the prepared mind—be well prepared, and (2) All great leaders were first followers but were mentored. He implored participants to keep working to improve the public health. As a cautionary example, he explained that some of the goals set in Healthy People 2000, a policy document of the Department of Health and Human Services that set goals for achieving a healthier society, were not met. There is a lot of work still to be done to meet the goals, now that it is almost time to begin setting goals for 2020.

Questions

A participant asked what Dr. Sullivan sees as the major health problems in the future. According to Dr. Sullivan, diabetes, drug use, and other problems common today will continue to be important in the future. Prevention still offers the greatest hope for improving public health, and this is being emphasized in more recent editions of Healthy People. Changing behavior to improve health will be critical to future progress against disease. In addition, health professionals need to address the issue of poverty and its impact on health. These are important issues for Healthy People 2020.

A participant asked Dr. Sullivan to discuss the role of globalization and migration of populations on health. Dr. Sullivan commented that this is an issue in the United States; among the poor health issues are the same as those seen in poor countries. The second issue is an issue of manpower. From 1956 to 1981, 46 new medical schools were opened in the United States; this represents one-third of the medical education programs in the United States. Today, we need nurses, physicians, and other health professionals and there is no word on this coming from our government. How this impacts globalization is that we import more health professionals from some countries than they have inside their country. This is draining resources from where they are needed.

A participant asked how current health professionals can inspire the next generation to pursue careers in science and medicine. Dr. Sullivan said that much can be done, such as instituting programs to increase diversity in health professions. He is working with a program that sends professionals into schools to encourage students to consider health professions. Much of the past success in directing students to medicine and science was provided by federal leadership, which is sorely missing today.

OVERVIEW OF THE DAY'S ACTIVITIES AND INTRODUCTION OF SENIOR MEMBERS OF THE NETWORK

Dr. Agodoa

Dr. Agodoa asked each senior member of the network to introduce themselves and describe their area of research. He emphasized that senior investigators in the network are the strength of the program because these are the individuals who will mentor the next generation of minority researchers.

After the introductions, Dr. Agodoa acknowledged and thanked Ms. Winnie Martinez, Program Officer for NMRI; Dr. Podskalny for her work on the NMRI Executive Committee; Mike Edwards from the Review Branch; Dr. Frances Ferguson, Program Director for the Minority Supplement Program; and Dr. Frank Hamilton, Program Director for the Digestive Diseases Division at NIDDK.

Dr. Agodoa said that NMRI is a network for the participants. Although NIDDK provides resources for the Network, participants run and participate in it, as well as develop the program for meetings. This year's workshop was chaired by Dr. Carlos Isales, Professor of Medicine at the Medical College of Georgia, who helped develop the agenda.

Dr. Isales provided background on the evolution of NMRI programs at the annual workshop. There was an attempt to make the workshop more open for interaction among participants than in previous workshops. Outreach efforts have been expanded to encourage participation and scientific sessions have been scheduled to provide information on the types of research currently conducted by Network members. Dr. Isales asked that members think of other ways to encourage participation, and recruit new members.

A participant asked about opportunities for other minority Investigators to join NMRI. Dr. Agodoa said that for the present, membership will be restricted to those investigators carrying out NIDDK mission related research, although it may be expanded in the future to other NIH institutes. Dr. Isales added that, in the future, NMRI may expand funding opportunities to undergraduates or graduate students to encourage them to enter the science fields relevant to the Network.

SCIENTIFIC SESSIONS

Molecular Mechanisms in Diabetic Nephropathy

Mario B. Marrero, Ph.D., Medical College of Georgia

Dr. Marrero presented background information to show that renal failure is a common and serious complication of longstanding diabetes mellitus, which is the most common cause of end-stage renal failure requiring dialysis. Diabetes accounts for almost 40 percent of all new dialysis patients. The incidence of renal failure caused by diabetes is rising dramatically in the United States, especially in minorities (e.g., African Americans, Hispanics, and Native Americans). Diabetic nephropathy refers to a characteristic set of structural and functional kidney

abnormalities that occur in patients with diabetes, which lead to ESRD. These structural abnormalities include hypertrophy of the kidney, an increase in the thickness of glomerular basement membranes, accumulation of extracellular matrix components in the glomerulus, and tubular atrophy and interstitial fibrosis.

Dr. Marrero described research conducted on the vasoactive peptide angiotensin II (ANG II), which has been implicated in the pathogenesis of diabetic renal disease. Recent findings suggest that both high glucose and ANG II activate intracellular signaling processes leading to growth via the JAK/STAT pathway. It is possible that the JAK/STAT signaling cascade is important in the progression of diabetic nephropathy, possibly through its effects on the ANG II-mediated kidney mesangial cell growth. To test this hypothesis, an investigation was conducted to determine if the activation of the JAK/STAT signaling cascade by ANG II is altered by hyperglycemia in glomerular mesangial cells. Results of this study indicated that ANG II-induced activation of the JAK/STAT pathway was enhanced under high glucose conditions *in vitro*, and high glucose-induced growth, as measured by DNA and collagen IV synthesis, was blocked by JAK2 antisense. These results provide evidence that activation of the JAK/STAT pathway by high glucose and/or ANG II may be of importance in the increased accumulation of matrix proteins, collagen IV synthesis, and cell proliferation that is seen in diabetic nephropathy.

Further results from studies investigating the activation of the JAK/STAT pathway by ANG II *in vivo* (diabetic rat) and alterations caused by high glucose indicate that ANG II mediates the activation of JAK2, and that JAK2 phosphorylation is an important step in diabetic nephropathy.

Hypertension and Kidney Disease

Janice Lea, M.D., M.Sc., Emory University, Atlanta, GA

Dr. Lea presented information on the role of hypertension and kidney diseases among African Americans, and a review of the African American Study of Kidney Disease and Hypertension (AASK). The incidence rate of ESRD, which has hypertension as a critical risk factor, has continued to increase in the minority population. Interestingly, data from large national databases, such as NHANES III, shows that reduced kidney function in the early stages of kidney disease is higher in Caucasians; in later stages, African Americans and other minorities have higher rates. Dr. Lea reviewed the relationship between cardiovascular disease (CVD) and chronic kidney disease (CKD), and interventions (e.g., ACE inhibitors [ACE I]) that have been shown to stop progression.

Dr. Lea provided background information about the AASK study and data showing that ANG II blockers are effective in African Americans. The AASK study was conducted to investigate patients with hypertension as their cause of renal disease, and to see if lowering blood pressure would inhibit the progression to CKD. Results of the trial indicated that patients in the ACE I group had lower levels of progression to ESRD.

A mechanism for the AASK results may involve the reduction of proteinuria. Analyses of data from the AASK study indicated that changes in low levels of proteinuria (microalbuminuria) are predictive of ESRD in nondiabetic kidney disease. In addition, this analysis indicated that the association of early changes in proteinuria with subsequent renal outcomes suggests that the

effects of antihypertensive agents on proteinuria should be considered when selecting agents for their potential to slow renal disease progression.

Dr. Lea presented information on an ancillary AASK study to investigate the association between metabolic syndrome and the rate of CKD progression to ESRD in African-Americans with hypertensive renal disease. Results of this study indicated that none of the components of metabolic syndrome predicted outcomes, including ESRD and mortality. When the components were looked at cumulatively, there was an increased risk of progression to ESRD.

Dr. Lea provided the following summary:

- African Americans with CKD in the AASK Study have a prevalence of metabolic syndrome of 41 percent based on National Cholesterol Education Program (NCEP) standards.
- African Americans with hypertensive CKD and metabolic syndrome have a 37 percent higher risk of reaching the composite clinical endpoints of glomerular filtration rate (GFR) decline, ESRD, or death.
- These findings persisted after adjusting for other factors known to influence renal outcomes, except for proteinuria, including adjustments for the blood pressure goal group and antihypertensive therapy group.

This is the first prospective study reporting that metabolic syndrome predicts the rate of CKD progression; further studies are needed to confirm this association and should include more specific measures of insulin resistance; these findings may explain some of the variability observed in the progression to ESRD, and may provide a new target for treating CKD in a high risk group.

Dr. Lea suggested that strategies to reduce the risk of CKD in African Americans include education, early detection of kidney disease, adequate treatment of hypertension and diabetes, adequate access to health care, proper dietary habits, and more clinical research in African-Americans to better understand the increased risks. She said that her involvement with the NIDDK NKDEP has helped her address some of the needed strategies.

LUNCH TABLE TOPICS AND MENTORING

Concurrent sessions were held during lunch. Each participant was assigned to participate in one session. Brief summaries of these sessions are presented in this section.

Health Services Research and Epidemiology

The breakout group began by having each participant introduce themselves and discuss their area of research. There was a wide variety of backgrounds and experiences represented. For example, a participant discussed research on the widespread impact of *vibrio* bacteria, strains of which cause cholera and food poisoning. One participant suggested a study comparing the rates of *vibrio* infection between Caucasians and Hispanics in terms of morbidity by age group. This

could address many aspects of public health, including diabetes. Epidemiologic studies may be able to show some association between *vibrio* infection and diabetes.

Nephrology

Jesús López-Guisa, Ph.D., University of Washington

Choosing a mentor is a critical part of career development. Good mentors can provide advice not only on research, but also on matters personal, financial, and political—science has politics. A good mentor should have some knowledge of the mentee’s field of research, should be a good scientist, have a strong publication record, some standing in the community, and behave in an ethical and professional manner. Not all researchers excel at training others; information from others concerning a researcher’s ability and willingness to train young scientists is valuable.

It is important that young investigators are not used by their mentors as a “pair of hands.” This is a common occurrence, and it can be difficult for young investigators to speak against this at the start of the relationship and even more difficult to change. A mentor should be distinct from the supervisor, because it is difficult to speak honestly with the person who pays the salary.

Networking at meetings and other events can lead to development of important contacts and additional mentoring relationships. These events may be especially useful for finding mentors from other fields who may someday serve as collaborators on research projects. Recently, NIH has funded grants with multiple PIs who have different fields of expertise, in recognition that some projects may require different kinds of knowledge.

NIH staff advise that mentors not be included on R01 applications. This will help the young investigator appear independent.

BREAKOUT SESSION: MOCK STUDY SECTION

Study Section 1—Chair: *Janice Lea, M.D.*, Emory University

SRA: *Michael Edwards, Ph.D.*, NIDDK

Study Section 2—Chair: *Robert Ferry, M.D.*, the University of Texas Health Science Center

SRA: *Michele Barnard, Ph.D.*, NIDDK

Study Section 3—Chair: *Marco Cabrera, M.D.*, Case Western Reserve University

SRA: *Maria Davila Bloom, Ph.D.*, NIDDK

Study Section 4—Chair: *Mario Marrero, Ph.D.*, Medical College of Georgia

SRA: *James Hyde, Ph.D.*, NIDDK

Each Mock Study Session was held concurrently. The mock sessions were comprised of sample grant submissions presented to a study session for critical review. The following summary is a compilation of information taken from each of the sessions.

The study session chair presented background information, key points, and advice for developing a successful grant, which is “a reward for past productivity and the likelihood for future success.” They highlighted particular review criteria that must be strong for a winning proposal.

General Advice

- Read and understand the instructions for a given grant. If the rules are not followed, the grant might not get scored and, therefore, not get funded.
- Present information clearly and justify what is planned and why it is necessary. A grant is an investment, and only if the reviewers understand what the grant is about can they be convinced that the project is doable and holds promise to produce a return on the investment.
- Ensure ease of readability. Use a large-sized font and add emphasis where appropriate. For example, statements such as “We propose” and “My hypothesis states” could be placed in bold font. Color also is useful for emphasis and differentiation, such as in figures.
- Figures help to convey complex information. Legends should be explained clearly to permit the figures to stand alone from the body text. A visual project timeline is a good complement to the text to show when specific aims will be completed.
- Avoid typos and other errors and explain information as explicitly as possible. If jargon is used, spell it out; the clearer and easier the grant is to read, the better.
- A newspaper style format, with four or five lines per paragraph, separated by one blank line, makes for an easy read.
- It can be helpful to have a friend or someone unfamiliar with the topic read the grant to ensure that it is understandable; thus, preparing the grant well ahead of submission time is essential. It also is useful if the investigator reads a copy of a successful grant application in the same research category, and to read the reviews that the grant received.
- For new investigators, demonstrating the independence of their research can be an issue. To document independence, a letter from the mentor indicating that the research is independent, but the mentor is willing to provide advice as a colleague, can be included in the grant application. A letter from the department chair confirming that the applicant has independent research and/or office space and status similar to that of a faculty member also could be included.
- The NIH grant review process begins with assignment of the grant application by referral officers. The grant is assigned to an Institute for funding purposes (grants are assigned primary Institutes, and also may be assigned to one or more secondary Institutes) and to a study section for scientific review. The grant is then sent to the Scientific Review Administrator, who organizes and runs the study section meeting. A copy of the grant also is sent to the relevant Institute and assigned to a Program Officer.
- Study sections and the names of reviewers on each section can be found at the Centers for Scientific Review website (www.csr.nih.gov). Study sections have standing members and also individuals who serve as invited guests for each round of applications. A video that shows (mock) study section proceedings also is available at the NIH website.

- Advice on grant preparation, submission, and the application process also can be obtained from the Program Officer or Scientific Review Administrator in charge of the grant.
- On the cover letter accompanying the grant, it is permissible to name peers who should not review the grant. However, specifically requesting a reviewer will ensure that that person will NOT review the grant.
- If an applicant believes his grant was assigned to the wrong Institute, the applicant should contact a Program Officer at the desired Institute, who then will contact the assigned Institute to discuss if the assignment should be changed.
- Reviews include primary and secondary reviewers and one or two readers. The primary and secondary reviewers submit extensive comments on the grant, the readers submit briefer comments. The applicant will receive these comments nearly verbatim in the summary statement, which is provided by the Scientific Review Administrator.
- Applicants have three chances to receive an R01 grant. After submission, 2 revisions are permitted. Reviewers will receive the new application and the summary statement from the original application; thus, re-submissions should address the issues raised in the summary statement. Program Officers are present at the study section meetings and receive the summary statements. Applicants are permitted to discuss their summary statements with Program Officers, who may be able to provide additional advice concerning the summary statement suggestions.
- If an applicant has not previously received an R01, he is considered a New Investigator. Grants submitted by New Investigators have more generous paylines. There is a strong emphasis across NIH to fund new investigators during these challenging financial times.

Areas of Coverage in the Grant

- **Budget:** Supply a reasonable budget that details and justifies all expenditures. Typically, 80 percent of the budget will be directed toward personnel.
- **Specific Aims:** State the Aims carefully, treat them independently from one another, and relate each one to the overall project hypothesis. Young investigators tend to focus their attention on producing a very impressive first Aim, with subsequent Aims receiving increasingly less attention. State the results that are expected from each experiment and indicate next steps to be taken with the anticipated results. Include information on potential problems and provide alternative approaches.
- **Preliminary Data:** Include convincing preliminary data to support the research plan. Nonsignificant results should be presented only with reason; for example, the finding of an nonsignificant number of animal deaths from a compound safety trial is a positive result to include.

- **Innovation:** Convince the reviewers that the work being proposed is novel. It is the reviewer's job to determine if a study is significant and warrants funding. The reviewer also will gauge if the proposal is trendy or if it is truly innovative. A study can be innovative without challenging an existing paradigm with an ultra-risky proposal. Any risk in the proposal should be mitigated. Another "fatal flaw" is to propose research that is undoable or already has been done.
- **Plans:** Spell out all details with plans. For example, if a particular reagent is necessary, explain how and where it will be obtained and include that information in the budget.
- **Human Subjects and Vertebrate Subjects:** For each category, explain in detail how pain and suffering and all relevant, associated aspects will be managed appropriately.
- **Future Research:** Give an indication of the directions in which the research will move if the Aims are achieved.
- **Statistical Analyses:** Have a statistician review the statistical analyses. Correct analyses particularly are important if the study involves a set of human subjects; in such studies, power analyses are critical to justify the inclusion of a certain number of patients. Statisticians who conduct analyses for the grant can be paid for their work and/or receive coauthorship on the grant.

Career Development Awards (K Awards)

- K Award applications are rated one-third on the investigator, one-third on the research plan, and one-third on the mentor and environment. The review committee will take into account that a junior investigator has less experience than someone more senior; however, listing more experienced co-investigators on the application will provide cachet. Those seasoned researchers will be viewed as people who can provide guidance. The proposed research must be different enough, innovation-wise, from that of the mentor, to hold promise to sustain the applicant for a future independent career.
- In general, an investigator completing a fellowship or postdoctoral term should apply for a K Award; however, more experienced investigators (e.g., a faculty member who might already have received past awards) also can apply for these awards. K Awards provide up to 5 years of support until an individual becomes an independent investigator, at which point he or she can apply for an NIH Research Project Grant (R01). Some individuals will apply for an R01 without having gone through the K Award process; it is a personal decision.

Other Awards

- There are numerous types of fellowships for which independent investigators can apply. Foundation awards also provide another funding mechanism.
- **Exploratory Centers Grant (P20) and Cooperative Clinical Research Grant (U10):** Each type of collaborative effort-based grant has its own set of rules. For community outreach grants,

the investigator will need 20 to 30 letters of support from the city, health department, local churches, and schools to demonstrate their plan to reduce health disparities in the community.

- New investigators must be given the benefit of the doubt that they will accomplish what it is they set out to do in their proposal. On the other hand, senior investigators have less to prove or explain in their proposal because they already have demonstrated themselves through past research. Each NIDDK division has a review group that assesses K Award and Institutional Research Training Grant (T32) applications. These grants are intended for applicants who have completed doctoral training fairly recently (usually within the last 5 years). An investigator should explain in their application the reasons for any gaps between award applications; for example, time devoted to beginning a family or serving an Army commitment.

Scoring the Grant

It was explained that being a reviewer has prestige because the role is viewed as “contributing to something larger than you.” Serving on a review committee also is beneficial because it affords the chance to hear about common mistakes made in grant applications (e.g., being too ambitious or having an unrealistic timeline or workload). The following points were reviewed related to the application scoring process:

- During the study section, each reviewer will vote on the grant and provide a rating. The ratings will be averaged to provide a final score.
- If there are 50 grants and 20 reviewers, each person will review at least 10 to 15 grants, being a primary reviewer on one grant, a secondary reviewer on another, and likely a discussant on a third. A discussant does not necessarily prepare a critique, but reads the grant more thoroughly. A concise review should not be more than three pages in length.
- It is important that investigators respond constructively and directly to criticisms of their work, just as one would respond to a journal article critique.

Resources

The Career Development Workshop, hosted by The Endocrine Society, provides a venue through which trainees can examine their own career paths. This year’s workshop will be held in Toronto, Ontario, Canada (<http://www.endo-society.org/endo/development/career.cfm>). Approximately 120 trainees attend each year, learning about topics such as how to select a mentor and how to teach an undergraduate course.

There are helpful books for career development, including *At the Bench: A Laboratory Navigator* by Kathy Barker. This book discusses how to run a research project, manage people, and handle personnel issues.

MEMBERS SCIENTIFIC PRESENTATIONS

Function-Promoting Anabolic Interventions: Diet and Exercise

Carmen Castaneda-Sceppa, M.D., Ph.D., Tufts University

Loss of lean muscle mass can be caused by aging (sarcopenia), disease, or disuse. Sarcopenia occurs in 15 to 35 percent of older persons. Recent studies indicate that skeletal muscle is a pool for amino acids (i.e., protein), and that loss of this pool influences morbidity and mortality. Morbidity occurs at the loss of 5 percent skeletal muscle mass; mortality can occur at the loss of 40 percent or more of skeletal muscle mass. Adequate protein intake can alleviate loss of muscle mass and increase muscle size as well as muscle function.

Resistance training, a non-pharmacologic anabolic therapy, is an exercise modality also known to reverse the loss of muscle mass and strength. For people with diabetes, resistance training (e.g., weight lifting) can increase lean body mass and improve glycemic control, as well as insulin sensitivity. Studies of resistance training, muscle wasting, and chronic kidney disease indicate improved total body potassium levels, body cell mass, and reduced levels of IL-6 associated with inflammation.

Currently, diet and exercise are the most beneficial lifestyle interventions to counteract sarcopenia and muscle wasting. However, future studies are needed to better characterize the structural and functional consequences of sarcopenia, as well as its mechanisms, in the setting chronic disease conditions leading to muscle wasting.

Proton ATPases in Angiogenesis and Diabetes

Raul Martinez-Zaguilan, Ph.D., Texas Tech University Health Science Center

This basic research study investigated the role of proton ATPase (H^+ -ATPase) in cancer and diabetes complications. Cells have H^+ -ATPases at the plasma membrane (pmV-ATPases) that allow cells to maintain an alkaline environment conducive to growth, angiogenesis, and metastasis. When the density of pmV-ATPase is decreased, cells become poorly metastatic and microvascular endothelial cells become poorly angiogenic. Dr. Martinez-Zaguilan described a study to investigate whether pmV-ATPases determine proton gradients and proton waves that are important for the acquisition of a more invasive and angiogenic phenotype.

In the study, microvascular endothelial cells from diabetic BB rats (a model for type 1 diabetes) were used to determine the fusion of pmV-ATPases in the plasma membrane. Gain and loss of function experiments were conducted to under- and over-express proton ATPases. Results indicated that pmV-ATPase is important for the acquisition of a more angiogenic and metastatic phenotype.

Ectopic Expression of the Glycoprotein Hormone α -Subunit in Lung Cancer

Virginia Sarapura, M.D., University of Colorado Health Science Center

The glycoprotein hormone α -subunit is produced in the pituitary in gonadotropes and thyrotropes and in the placenta. Ectopic secretion of α -subunit from solid tumors (e.g., pancreas, lung, and

colon) has been observed. The normal free α -subunit is thought to play a role in lactotrope differentiation in the pituitary, prolactin production in the placenta, testosterone production in the testes, and inhibition of stromal cell differentiation to smooth muscle cells in the prostate.

The free α -subunit is present in approximately one-third of lung cancer tumors. In ChaGo cells (human lung cancer-derived cell line), its expression has been found to be influenced by butyrate and cyclohexamide. Molecular biology studies of the α -subunit promoter have been conducted to identify the regions that are important for expression. Ectopic α -subunit expression in ChaGo lung cancer cells does not require elements important in eutopic sites, but appears to require the -307/-270 region. The -307/-270 region specifically binds ChaGo nuclear proteins and contains sequences homologous to Ets-1 and PEA-3 consensus binding sites. In addition, Ets-1 expression appears to be inversely correlated with α -subunit expression in lung cancer, and may be a repressive factor. Conclusions drawn from these results include the following:

- Ectopic α -subunit expression in lung cancer, and probably also in other malignant tumors, occurs by unique mechanisms that appear to be different from those in eutopic sites.
- Elucidating this is important because α -subunit expression may impact tumor growth and responsiveness to treatment.

Familial Barrett's Esophagus

Yvonne Romero, M.D., Mayo Clinic

Dr. Romero provided background on phenotypes of reflux including reflux esophagitis, hiatal hernia, Barrett's esophagus and esophageal adenocarcinoma. She provided evidence for familial aggregation of gastroesophageal reflux disease (GERD) symptoms, reflux esophagitis, and Barrett's esophagus (BE). Dr. Romero presented unpublished results from a family study showing that despite the usual independent predictors for Barrett's esophagus (male sex, advanced age, GERD symptoms of prolonged duration), there first degree relatives of patients with Barrett's has a 2-fold increase in BE. The prevalence of BE does not appear to be increasing. The increase in reported cases stems from increased access to endoscopy and physician recognition.

Dr. Romero and her team have completed their first linkage analysis in familial Barrett's esophagus kindreds. They have identified susceptibility loci for Barrett's esophagus and esophagus cancer, and on separate chromosomes, loci for familial GERD symptoms, hiatal hernia and reflux esophagitis.

Dr. Romero provided a description of the Esophageal Adenocarcinoma and Barrett's Esophagus (EABE) Registry, a large bank of prospectively collected fresh-frozen and formalin-fixed tissue, blood, demographic, symptom, and risk factor data. Its purpose is to facilitate the identification of: (1) genetic pathways important in the neoplastic transformation from BE to adenocarcinoma of the esophagus (ACA); (2) novel biomarkers of risk, early detection, and response to treatment; and (3) novel therapeutic or chemoprevention targets.

Altered Renal Handling of Calcium and Aromatase Deficiency

Orhan Öz, M.D., Ph.D., The University of Texas Southwestern Medical Center

The prevalence of calcium stone disease is higher in men until approximately 55 to 60 years of age, at which time the prevalence becomes equal by sex. This change in prevalence among women is brought on by menopause, which is responsible for a lack of estrogen to facilitate the reabsorption of calcium in the renal tubules. Hormonal control of calcium reabsorption primarily occurs in the distal tubule cell; the majority of the calcium reabsorption may occur in the proximal tubule, but this is mostly passive.

Dr. Öz described a model of aromatase deficiency in mice. Aromatase is the only protein in the body that converts androgens to estrogens, and is a member of the cytochrome P450 superfamily and a product of the *CYP19* gene. A study using wild type (WT), aromatase deficient mice (ArKO), and ArKO mice treated with estradiol showed that ArKO mice have increased urinary calcium levels compared to WT mice. Estradiol-treated mice had normalized calcium excretion. Expression analyses were conducted to determine the changes in expression brought on by differences in estrogen level.

Further studies on the glycoprotein klotho, which is predominantly expressed in distal tubule cells of the kidney, were described. Aberrantly low levels of this glycoprotein lead to multiple disorders, including arteriosclerosis, skin atrophy, abnormal calcium homeostasis, and shortened life span. These expression experiments indicated that estrogen down-regulates klotho in the kidneys of mice. Concerns raised by these findings are that patients taking aromatase inhibitors may be at risk for hypercalciuria. Further studies are needed to address these concerns.

DINNER MEETING: WHY IS IT IMPORTANT FOR MINORITIES TO PARTICIPATE IN BIOMEDICAL RESEARCH?

Keynote Speaker: Roland A. Owens, Ph.D., Chief, Molecular Biology Section, Laboratory of Molecular and Cellular Biology, NIDDK, NIH

Dr. Owens opened the talk by pointing out that minorities are fighting a war on two fronts. First, it is crucial that people in power believe in the importance of including minorities in research. And second, minorities have to work to convince young adults in the community that, despite the difficulties they may encounter along the way, becoming contributing members of the biomedical research community is worthwhile.

There were two overarching themes in this presentation:

- Health disparities research is good science that leads to good medicine.
- It's important for "us" to be "in the room."

While the first point is widely accepted, it is often more difficult to convince people of the importance of the second. Why is it so important for minorities to be "in the room?" Dr. Owens shared two stories that highlight the importance of minority participation in health care planning and research:

- When the National Center for Human Genome Research was to become an institute, the first name proposed was the National Institute for Human Genome Research. An African

American friend of Dr. Owens pointed out that the acronym for this proposed name would be NIHGR. The new institute was named the National Human Genome Research Institute (NHGRI).

- Dr. Owens attended a gene therapy conference a few years ago and witnessed a philosophical discussion about the ethics of giving people gene therapies that may involve risk and what constitutes a treatment versus an enhancement. One participant suggested race change gene therapy as a potential enhancement. Another said changing a person from Black to White could be justified as a treatment if one considered the difference in life span between Blacks and Whites. Dr. Owens was one of two African Americans in the room.

Dr. Owens then discussed how training more minorities can help improve health disparities research:

- **Adds skills to motivation.** Those who have seen health disparities firsthand can do something to eradicate them.
- **Provides trainees with access to health information.** Trainees will know where to find credible health information.
- **Creates a cadre of minority individuals capable of truly informed consent in clinical research.** More minority PhDs means there are more minorities who truly understand consent forms and the risks associated with research.
- **Creates conduits through which health information can be disseminated.** Minority trainees will share health information with their friends and family.
- **Training a person for a good-paying job could be sufficient to improve their long-term health.** Numerous studies have shown that socioeconomic status is associated with health status.
- **Investigator-Driven Research.** Researchers develop new ideas for studies and then seek grant funding support.

Dr. Owens then discussed the work of some prominent minority researchers:

- **Griffin P. Rodgers, M.D.** Dr. Rodgers identified hydroxyurea as a treatment for sickle cell disease.
- **John D. Carpten, Ph.D.** Dr. Carpten's participation in a workgroup resulted in the inclusion of African American families in research to identify prostate cancer susceptibility genes. Because of this, researchers were able to identify genetic markers unique to African Americans.
- **James E. K. Hildreth, M.D., Ph.D.** Dr. Hildreth's research showed that cholesterol is important for the envelopes of HIV. Dr. Hildreth later found that a simple, inexpensive chemical can strip cholesterol out of the viral capsids. Dr. Hildreth is working to develop an ointment that a woman can apply vaginally to help protect herself from HIV.

- **Georgia M. Dunston, Ph.D.** Dr. Dunston's research identified HLA region heterogeneity in American Blacks and contributed to a dramatic reduction in the organ rejection rate among African Americans.

Genetics and Race

While there is no genetic basis for race, it is important to remember that race as a social construct can have genetic and medical consequences.

Tips for advancement:

- 1) **Those who make their bosses look good get promoted.**
- 2) **Do not underestimate the social aspects of science.** Minority researchers need to put forth a greater effort than majority researchers. Minority researchers also need to maintain a professional network and a minority network.
- 3) **Be smart about your committee work and outside activities.** Don't do too much. If possible, stay in your areas of expertise. Work to support your boss and the boss of your boss, but no higher.
- 4) **When pushing for change, keep it positive and about the science.**

Questions

A participant asked how to respond if a superior, such as the president of your academic institution, asks you to take part in something for which you do not have the time. Dr. Owens explained that this actually was the case for him today. It is important to give a science-based answer, and respond by saying something such as, "I would love to participate, but my research is at a critical stage. I'm at a point where I'm going to be able to produce some publications, which will qualify me for a grant, which will bring more money into the university if I can focus on my research right now instead of being on this committee."

Friday, April 20, 2007

INTRODUCTION AND WELCOME

Dr. Agodoa

Dr. Agodoa thanked everyone for their active participation in the sessions and breakouts yesterday. He began by saying that one important aspect of NMRI is to see progress in promotions or new funding for Network participants. He asked that participants tell the group of promotions or new funding acquired during the year since the last NMRI annual meeting. Another area to stress in NMRI is to collect the number of publications authored by Network members. A list will be collected and made a part of the record.

At the end of the introductory session, the Network members were divided into two breakout groups, senior and junior investigators.

BREAKOUT SESSIONS FOR JUNIOR INVESTIGATORS

NIH Roadmap and Clinical and Translational Science Awards (CTSA) Initiative: Transforming Biomedical Research Into Clinical Practice To Improve the Health of Our Nation's People

Anthony Hayward, M.D., Ph.D., National Center for Research Resources (NCRR), NIH

Dr. Hayward described the CTSA Initiative as an enormous new venture that will transform the opportunities for clinical research in the US. Because clinical research is expensive, grant support needs to be cost-effective. NIH supported General Clinical Research Centers (GCRCs) in the past but found that these supported between a third and one-fifth of the human subjects' research at many awardee sites. This led to discussions regarding how to improve this situation and how to improve the needs of the research enterprise. What resulted was the CTSA, a joint effort between the NIH Roadmap and NCRR.

The CTSA was designed along the following four tenets. It was to be:

- Integrative (across health disciplines; between scientific areas; into the community; and foster engagement and participation)
- Translational (from the laboratory to clinic to community to laboratory)
- Educational (scientists, health care providers, and the community)
- Provide resource infrastructure (NIH funded research, non-NIH funded research, and public-private partnerships)

Goals of the CTSA included increasing research in chronic disease, especially to address the aging baby boomer population, co-morbidity, and a change in focus. It also addressed population diversity with a focus on minority health issues.

Dr. Hayward explained the timelines for release of RFAs for the CTSA Initiative and the funding levels. Each CTSA award can provide up to \$6 million in total costs per year plus combined

costs of certain NIH awards. Awards from NCCR may be K12, K30, and M01 (GCRC); from the NIH Roadmap, awards include T32 and K12. The goal is to make 60 awards by 2012 with an annual cost of around \$500 million. As of September 2006, the CTSA Consortium had been started with 12 awards and 52 planning grants.

Eligibility requirements for a CTSA include:

- Domestic institutions conducting clinical and translational research
- Graduate schools offering higher degrees in clinical research
- Outreach opportunities, such as those that a minority academic health centers could bring (note that Minority Institutions may apply independently or partner with other research institutions)
- A wide range of opportunities offered through a CTSA
- Participation by multiple schools (e.g., nursing, pharmacy, dentistry, engineering)

CTSA application guidelines require that the applications are designed around key functions and/or core elements; include educational opportunities, such as career development, degree granting, and mentor training; provide support for pilot studies in translation and other key functions; integrate basic and clinical sciences across disciplines; and facilitate access to the research infrastructure.

Dr. Hayward described the progress made in 2006 and early 2007 to develop the consortium. The first and second principal investigators meetings have been held, and a Steering Committee has been established to identify needs, goals, and priorities for the CTSA; serve as a forum to share experiences; and serve as a platform to adopt common standards.

Questions

A participant commented about the possibility of having interactions between the NMRI and the CTSA, since some of the goals appear to be similar. Dr. Hayward responded that the CTSA is a trans-NIH group and is focused specifically on having each of the training programs within NIH that work with CTSA's, to meet and share ideas.

Another participant asked Dr. Hayward to explain “community involvement.” Dr. Hayward commented that it would be different at each institution. The manner in which the grants were to be spent would be specified during the application process, and specific costs should be put into the application at the beginning.

Selling Your Science—Getting Published

Martin Frank, Ph.D., Executive Director, American Physiological Society

Keith Norris, M.D., Charles R. Drew University of Medicine and Science

Dr. Frank presented information on criteria for journals and the types of articles that are considered by journal editors. He offered his view of the role of publication from the perspective of an editor. He discussed the importance of choosing the right journal, reading and following the Author Instructions, proofing and editing the article before submission, and not being

discouraged if the article is rejected. He discussed the peer review process and its importance, and noted that most accepted articles are returned to authors for revisions before a final commitment to publish.

Dr. Frank suggested that it is appropriate to initially submit a manuscript to a highly prestigious journal. Although no one likes to be rejected, it is important to attempt to publish in the highest quality journal possible. He provided a list of reference books and websites that could be helpful to those completing a manuscript for submission.

Dr. Frank presented some of the pitfalls suffered by authors. He suggested the following helpful hints for increasing the likelihood of acceptance by journals and reviewers:

- Look at past editions of the journal to see what types of articles are being published. Make sure your topic has not been covered thoroughly in recent issues.
- Review the journal impact—how often articles from that journal are cited by other, top-notch journals, by visiting the following website:
<http://portal.isiknowledge.com/portal.cgi>.
- Carefully review the “Instructions for Authors”; following these instructions can have a positive impact on reviewers and editors.

Dr. Norris presented information on publishing or for those unsure about publishing. The main goal of publishing is to share research of value that ultimately will improve health care and advance understanding of biomedical science—good science will be published. Common reasons for failure include a weak hypothesis, lack of originality, poor study design and statistical analysis, a conclusion that does not match results, or the lack of a clear indication that the research is important and will advance the field. Otherwise good articles may fail to be published because they were submitted to an inappropriate journal, were poorly written (grammar and spelling errors, inconsistencies), have outdated references, or do not follow journal guidelines. Bad research is almost always rejected, sensational research is sometimes accepted even if badly written, but most research falls into a gray zone; thus, a well-written article increases the chances that the research will be published.

Journal articles usually are composed of an abstract, introduction, methods section, results, and discussion:

- Abstract: The abstract may be all that most people read; it should tell the whole story, influence the editor and reviewer, and set the tone for the entire article.
- Introduction: The introduction should include reasons the study is important, a selective review of pertinent literature, and a sharply focused hypothesis. The introduction can indicate if the research is novel or confirmatory, and if confirmatory, explain how the research may fill a gap in the existing knowledge base.

- **Methods:** The methods should specifically describe what was done, in a level of detail that allows replication or assessment of the validity of the findings. Any statistical analyses should be described precisely and completely. If new or extensive measures or procedures are used, these can be described in detail in the appendix.
- **Results:** The results section should begin with an overview of the findings. Any tables should be understandable without reference to the text.
- **Discussion:** This section should succinctly restate the main findings and move quickly to broader conclusions. Details around the major findings should be provided and related to the existing literature. Any limitations of the study also should be discussed in this section. The discussion section should be restricted to interpretation, not overstatement, of the results and should include implications for practice or research.

Tips for success include seeking input and criticism from co-authors, colleagues, and mentors. A well-written cover letter to the editor can help explain why a paper is significant, and point out important gaps in research that the data may fill. Authors also can suggest potential reviewers; authors should cite potential reviewers when appropriate and should be aware of who may have published recently in the journal on a related topic. If a paper is rejected, respond to reviewers' comments promptly and address suggested changes.

This session was repeated for senior investigators in another breakout. That session will be referenced to this summary.

BREAKOUT SESSIONS: CAREER DEVELOPMENT WORKSHOPS

Each participant chose two of five breakout sessions to attend during this time period.

Managing Laboratory Growth and Remaining Focused

Sherri-Ann Burnett Bowie, M.D., M.P.H., Massachusetts General Hospital

Managing a laboratory takes a leader (e.g., PI or senior investigator) who has a clear purpose, appropriate experience, and an approach that allows for efficient and competent leadership. The leader is responsible for creating a shared vision, culture, organizational rhythm, pride, and incentives that keep a laboratory focused on priorities and goals. Much has been written about leadership style; no single style is best for every laboratory or situation. Dr. Burnett Bowie reviewed characteristics of leaders described in a book by Daniel Golman. Leadership styles have a diversity that may be quantified according to management approach.

There are some commonalities among management styles that lead to effective management. These include communication, collaboration, and cooperation. How a leader approaches these aspects should be based on the vision and mission of the laboratory.

Many effective leaders espouse the importance of regular meetings with staff, a hands-on approach to completing tasks, and applying the same expectations to themselves as they apply to their staff. Other critical areas of effective leadership include maintaining an open door policy,

maintaining good relations with your own supervisors, involving staff in budget discussions, and making sure everyone understands hiring and termination policies.

An effective manager has a plan for conflict resolution in place before conflicts arise. The ability to negotiate during conflicts is critical for reaching resolutions that are deemed fair and equitable by all involved parties. An effective leader will recognize the conflict resolution style that suits them, will apply decisions fairly, and will conduct followup actions that were negotiated during the conflict resolution discussions.

There are critical questions that must be kept at the forefront of every management style. They include:

- How do I know when to take on more responsibilities or tasks?
- What is success and how do I know when it occurs?
- What goals (i.e., short-term, intermediate-term, and long-term) can be set that will make the best use of staff, but also push them for maximum growth?
- How is my day spent?

Good leaders understand the priorities for the operation of their laboratory, but also understand that priorities for the staff may differ. It is important to focus on the resources available to expand the experiences and skills of laboratory staff.

Dr. Burnett Bowie also recommended or referred to books by Kenneth Thomas and Ralph Kilmann (on conflict resolution), G. Richard Shell (on negotiations), and Kathy Barker (on management skills for a laboratory investigator).

Mentor: Finding or Being a Great One

Robert Ferry, M.D., The University of Texas Health Science Center

Mentors offer guidance by fostering and encouraging young minority investigators, so that they become known, publish quality manuscripts, and advance their careers. If this is not happening then there is a problem with the mentoring relationship. A structured mentoring support system and access to resources are needed for the success of this relationship. Mentors must provide the leadership, knowledge, and training to ensure new investigators possess the necessary skills to excel at public speaking on their science topic and grant writing. Mentors should anticipate potential pitfalls for their mentees.

An important part of the career development for the young minority investigator is finding a good, supportive mentor. As the investigator, having something in writing that states these are the expectations, (“this is what I am willing to do for you” and “this is what I want from you”, structure the mentoring relationship in many valuable ways. Structure sets time lines and milestones. Written expectations can reduce the adverse consequences of inevitable conflicts (which are usually minor, but often escalate when folks are stressed). Mentors may or may not be your role model(s). You need to identify their strengths and weaknesses as well as your own. Some mentors perform superbly at basic research, others at clinical investigation, community

outreach, fund raising (grant writing or philanthropy), or advocacy (for patients, for research themes, or for your career).

You need to examine the mentors around you and consider this a formal relationship and not simply a privilege or an honor to be working alongside someone. The mentor is usually more important than the project, because the mentoring relationship long outlives the project. Good support allows the investigator to grow. Your mentor(s) will probably change as your career changes (for examples, an expansion for a promotion or a retreat for chronic illness or to support a spouse's career). Written expectations (preferably signed and dated by both the mentee and mentor) always trump recollections of oral conversations and verbal commitments.

Great mentors are: savvy (not naïve), selfless (not predatory), patient (not harried), always available (not aloof despite time and distance), optimistic (not depressing), and trustworthy (not gossiping). Most mentors are over-extended and under-funded. Great mentees: are focused (not hummingbirds chasing trends or trendy people), are explicit (able to express their career goals), follow through on commitments (submit timely manuscripts and grant applications; execute research and clinical obligations with professionalism), respond maturely to constructive criticism (not petulant), and are emotionally stable. Most mentees are: developing multiple skills sets, occasionally unsure of themselves or the project, financially stressed, seeking affirmative guidance, willing to learn more, most distressed by disagreements of any kind (perceived or real) with mentors, and puzzled how and when to time their independent break from their mentor(s) in academic or geographic terms.

The workshop explored each of these themes in greater detail with discussion of individual situations posed by the participants. Confidential discussions were conducted at the conference (after the workshop) as initiated by participants.

Items for future meetings:

- Affordable professional speakers/trainers who are focused on public speaking, coaching, and grant writing (like NMRI, the Trainee Career Development Workshop of The Endocrine Society each June is a fantastic forum)
- Interactive/mock review sessions where participants give a 1-3 minute introduction to their research and see how other participants are engaged
- Presenter on electronic submissions for grants (common error review) (tutorial is on the website)
- More travel grants for trainees to attend workshops

Balancing Clinical Duties with Your Research Effort

Fiemu Nwariaku, M.D., The University of Texas Southwestern Medical Center

This group began its session by discussing how to balance their individual responsibilities. An important step in this process is to determine what the individual institution and/or department values are and then map out the process of balancing clinical, research, and administrative functions. When analyzing a department, look closely at who you interact with on a day-to-day basis. You want to make sure you know who your partners, nurses and technicians are, and

identify partners, nurses, technicians, and others. Most people recommend balancing their time among the various functions of their job by dedicating time by weeks (e.g., 2 weeks on and 2 weeks off) or days (e.g., every Monday for 8 weeks) to work in the lab, the clinic/hospital, or the office. Once a successful schedule is created, communicate this schedule to the nursing staff, so they can schedule patient consults appropriately. You can not be expected to be available all the time, but you also can not be gone for prolonged periods. Your patients and colleagues will not respond well to prolonged periods of clinical inactivity unless that is your job description in the Department or Division. You also must know what your individual goals are, how to prioritize, and when to get help; re-evaluate goals often and change when necessary. For clinic assistance, some recommend hiring a nurse coordinator to handle the day-to-day functions. This person can return patient calls, call patients with normal lab results, etc. For assistance in the lab, one should use lab assistants and mentors. Briefly mentioned was a book worth reading and implementing into individual departments titled “Academic Sciences at Work.”

A strategy for setting priorities includes dividing tasks into 4 categories. The categories, and examples of common tasks that may be classified in each category, include the following:

- **Not urgent and not important**—most emails; weekend plans of lab members; and the Super Bowl pool.
- **Not urgent but important**—ongoing experiments; preparing for a committee meeting; and next month’s grant deadline.
- **Urgent but not important** —“You’ve go mail” alert; ringing telephone; and inquiring colleague.
- **Urgent and important**—a lab fire and tomorrow’s grant deadline.

Suggestions for managing time in a way that improves the ability to be a productive researcher includes making time to teach so that young minds of students will challenge you to improve your research; serve on a few committees, but do not let them overwhelm you, and keep research focused, ask important questions or address important research problems, and make sure time is adequate to allow the focus to remain on scholarship.

BREAKOUT SESSIONS FOR SENIOR INVESTIGATORS

Committee Memberships: Orientation for Those Senior Members Who Would Like To Join the Network of Minority Research Investigators (NMRI) Oversight or Planning Committees
Carlos Isales, M.D.; Bessie Young M.D., M.P.H.; Eva McGhee, Ph.D.; Jesús López-Guisa, Ph.D.; and Mario Ascoli, Ph.D.

Dr. Isales explained the process for appointing NMRI committee members and chairs. Members of the Planning Committee serve for 2 years, with one-half of the members rotating off each year; the purpose is to allow almost everyone involved in NMRI to participate in these important committees. He reviewed the regions as designated by NMRI and upcoming meetings, including the NMRI Southern Regional Meeting in October. There will be monthly conference calls with South Region Planning Committee members before the October meeting.

Dr. Isales asked for a discussion of regional meetings and wanted members to consider where the

next regional meeting should be held after the Southern regional meeting. NMRI members from the Midwest and West regions indicated that they would begin thinking about where to hold their meetings.

Dr. Sarapura reported that the Oversight Committee has a mission of overseeing activities that are essential for maintaining the Network. Although the mission is broad, it includes the following.

- Promoting mentoring relationships
- Identifying new members and conducting outreach to societies
- Establishing groupings of Network members by interest and location
- Organizing informal gatherings at meetings or conferences of other organizations
- Evaluating the effectiveness of the Network
- Confirming that Network members are working in areas of interest to NIDDK

Dr. Sarapura reported that the committee met during the last annual meeting, but has not met in the ensuing year since the meeting. She asked for recommendations for the chair of the committee. This year current members may remain on the committee if there are no recommendations for new members. The committee is planning a few conference calls to discuss initiatives to increase participation in the Network. Of concern this year is the number of people who committed to attend the meeting but did not show up.

Ms. Martinez provided information about the regional meeting. She said that the Network would extend invitations to researchers in the region and offer to pay them to attend the NMRI regional meetings. They must, however, have NIDDK funding to take part. There may be some exceptions, but that decision will be made based on the needs of the NMRI.

Dr. Isales stressed that one of the most important recruitment strategies is bridging gaps between NMRI and professional scientific organizations. He asked participants to recognize that they should be recruiting within their organizations and institutions.

Funding Opportunities: Orientation for Senior Members on Minority Research Funding Opportunities: R01 Minority Supplements, R25, K08, K24, or Volunteer for NIH Study Sections as Grant Reviewers.

Frank Hamilton, M.D., M.P.H., Branch Chief, Digestive Diseases Branch, NIDDK, NIH

Dr. Hamilton described the mission and goals of NIH and the resources and funding options available to investigators. NIH's mission is to uncover new knowledge that leads to better health for everyone. NIH's goal is to acquire knowledge to help prevent, detect, diagnose, and treat disease and disability. To this end, NIH supports peer-reviewed research, conducts research in intramural laboratories, trains new investigators, and develops and disseminates credible health information based on scientific discovery. The NIH budget for Fiscal Year 2006 was \$28.6 billion; \$23.8 billion of this supported extramural research. NIH's Web site provides health information for researchers and the public. PubMed Central/Medline, supported by the National Center for Bioinformatics at NIH, provides online access to scientific journals.

NIH funds research through grants, cooperative agreements, and interagency agreements. Grants are the most commonly used funding mechanism. It is important to recognize that NIH is undergoing a period of reduction in funding, which will impact the number and amount of grants and other awards given out by all the NIH Institutes. Dr. Hamilton explained funding mechanisms available through NIH, described their differences, and provided strategies for maximizing success in obtaining funding.

The R-series awards include:

- **R01s:** major research grant mechanism, budget is requested by the investigators, renewed in study sections in the Center for Scientific Review (CSR), renewable.
- **R21s:** solicited by program announcements (PAs) or Requests for Applications (RFAs), fund exploratory research, institute-specific, budgets are usually limited to \$275,000 over 2 years, reviewed in standard study sections in CSR, not renewable.
- **R03s:** small grants, usually \$50,000-\$100,000 per year for 2 or 3 years, renewed in Institute study sections, not renewable (R03s are being phased out by some Institutes and Centers). You are considered a new investigator when you apply for an R03, if you have not had an R01 before.
- Cooperative agreements (also called **U01s**) are large awards (up to \$1 million per center) that involve multiple sites; NIH staff usually is involved in the design of studies funded through cooperative agreements. Internal NIH clearance and review is required for U01 funding.

Advantages and disadvantages exist for each funding mechanism:

- **R01s (unsolicited):** receipt dates are 3 times per year; funding is based on priority score/percentile rank, program relevance and balance, and “new investigator” status; multiple CSR committees review the applications; applications are tailored to the investigator’s research interest; an investigator has 3 attempts to receive funding; highly competitive.
- **RFAs:** single receipt date, funding is based on funds available and the number of applications received; study sections are specific to the RFA; the RFA funds research of interest to the Institute (restricted areas of research); only one chance to be funded; competition depends on the number of applicants. An advantage of the RFA is that there is a set amount for the award, a set number of awards to be given, and expertise on the panel that will review the submission.
- **PAs:** receipt dates are 3 times per year; funding is based on priority score/percentile rank, program relevance, and balance; reviewed through CSR; funds research of interest to the Institute; funding is tied to the usual payline.

Some relevant NIDDK R21 and R03 programs that are current include R03s for K08/K23 awardees; R21 Health Disparities in NIDDK Diseases (PA-06-182); and R21s for pilot studies to support the divisions (e.g., DDN, DEM, and KUH) (PA-06-181). Contact program staff in the relevant division before submitting these applications. Based on the current funding climate at NIH, it may be best to apply for an R01 rather than these grants.

Applicants can request more than one Institute to review their application, request a specific study section, indicate areas of expertise needed for adequate review, and indicate individuals or groups with a major conflict of interest. Applicants should never name desired reviewers. It also is beneficial to find out what is currently being funded by visiting the CRISP database at <http://crisp.cit.nih.gov>.

Dr. Hamilton also described strategies to increase the chances of success in obtaining funding:

- Apply in response to an RFA, because these are “set-aside” funds and scores are not percentile ranked;
- Apply for small grants (R21s) because Institutes are more willing to take a chance if the cost is not high, and fewer senior investigators apply for small grants;
- Apply for pilot and feasibility funds, if available; as a co-principal investigator; or as part of a program project;
- Apply for non-NIH grants (private foundations, professional societies, drug companies, etc.);
- Write clearly and have a coherent study design with a significant purpose.

Dr. Hamilton concluded with an overview of review criteria for a successful grant:

- **Significance:** Does the study address an important problem? How will scientific knowledge be advanced?
- **Approach:** Are design and methods well-developed and appropriate? Are problem areas addressed?
- **Innovation:** Are there novel concepts or approaches? Are the aims original and innovative?
- **Investigator:** Is the investigator appropriately trained?
- **Environment:** Does the scientific environment contribute to the probability of success? Are there unique features of the scientific environment?

Dr. Hamilton encouraged participants to sign up for the NIH GUIDE ListServ at: <http://grants.nih.gov/grants/guide/listserv.htm>, which provides a Table of Contents with links to

Program Announcements, Notices, and RFAs, and is updated weekly. He also referred participants to www.grantsnet.org, which provides information on sources of funding outside of NIH.

Internal Promotion and Tenure Committee

Carlos Isales, M.D., Medical College of Georgia

Greg Florant, Ph.D., Colorado State University

Senior investigators reviewed three examples of promotion applications from assistant professor to associate professor and from associate professor to professor. After discussing personal experiences of those who have achieved full professorship, it was determined that most academic centers require extensive experience in each aspect of importance to academic life: teaching, research, and service. Applications for promotion and/or tenure are generally reviewed by a faculty committee that spends significant time reviewing the application. Other key points included the following:

- At some schools, the chance of being promoted from associate to full professor is increased if letters of recommendation are submitted indicating that the person has an international reputation; for moving from assistant to associate, the department may only require that one submit letters indicating a national reputation.
- Put together a complete application, including documentation showing that the applicant has participated in a wide range of committees, grants, and other activities that show commitment to a field of study.
- Many of the reasons for receiving or not receiving a promotion are out of the applicant's control (e.g., lack of funding or lack of an open position). Knowing when to apply is critical.
- Know the institution and its expectations for promotion and tenure. All universities and medical schools have a faculty handbook or manual that carefully outlines the procedures and timeline for promotion to associate or full professor. In addition, maintain communication with your department chair and/or Dean regarding your chances of being promoted.
- Publications in good journals are very important in some academic centers. If this is the case, make sure those expectations are met. Being a first author is important to show responsibility for the research or study, even if the manuscript is a review article.
- Participating in national and international meetings, as a speaker or planning member, can enhance reputations in a particular field of interest.

Journal Review and Editing: Opportunities for Journal Reviewers and Editors.

Keith Norris, M.D., Charles R. Drew University of Medicine and Science

Martin Frank, Ph.D. Executive Director, American Physiological Society

[NOTE: This presentation is a repeat of a session for Junior Investigators (see pages 21-23). Only specific information unique to the discussion of the session is provided here.]

Dr. Frank discussed the new paradigm in journal publishing—Open Access through PubMed Central (<http://nml.gov/rsdd/ejournals/>)—that allows free access to journal articles after a set amount of time (e.g., 3 months or 6 months). This is having a significant impact on small journals that depend on subscriptions, although all journals could suffer loss of subscription. In addition, the impact on authors is likely to be significant. Open Access journals often must charge significant fees for publication of manuscripts. For example, NIH estimates that fees to publish the approximately 65,000 articles produced regarding NIH research could cost more than \$200 million per year. Although not a large percentage of the overall NIH budget, this \$200 million is likely to be more than is budgeted for publications in most grants and awarded funding, and could go toward funding more research.

Dr. Frank also provided tips for serving as a reviewer. A good review should provide clear, concise, consistent, useful, and constructive recommendations to the author and the editor of the journal. Reviewers should read the manuscript carefully, note its potential value and strengths, and describe any concerns. Reviewers should agree to review only those manuscripts they can complete on time, maintain confidentiality, review manuscripts in their own area of expertise only, and review manuscripts in a constructive and collegial manner. Plagiarism, conflicts of interest, and biases should be avoided.

LUNCH BREAKOUT SESSIONS

Chairs for the Breakout Session

Healani Chang, Dr.P.H., University of Hawaii

Mario Ascoli, Ph.D., The University of Iowa

Eva McGhee, Ph.D., University of California at San Francisco

Leah Tolosa, Ph.D., University of Maryland, Baltimore County

Each of the breakout sessions was given the following questions to address during discussions at lunch:

- How can the annual workshop be improved?
- What topics should be covered in future workshops?
- How can the network become more active and viable (outside of the context of the annual workshop)?
- How can we recruit additional members to the network?

Each facilitator met with a small group and led a breakout session. The compilation of ideas developed in each of the breakout sessions is presented below. This compilation also was

presented by facilitators during the afternoon plenary session.

How can the annual workshop be improved?

- Everyone enjoyed the mock study section but suggested organizing them the way it was organized last year, with participants receiving the proposals in advance.
- Guidelines should be given to facilitators before their session to make sure their presentations or directions are geared to the existing audience. This is especially true for breakout sessions.
- There should be a third track in the organization of the meeting, aside from seniors and juniors, that allows individual mentoring for people working on manuscripts, grants, and promotion packets. The third track could run concurrently with other sessions.
- It was strongly suggested that the NMRI should continue to have nationally-known speakers to raise the profile of the Network, and to encourage more people to attend.

What topics should be covered in future workshops?

- Keep these topics on the agenda at each meeting—tenure, funding, mentoring.
- Have more scientific presentations but make them shorter. Use the concept of a theme for each meeting, such as diabetes or gastrointestinal studies.
- It was stressed that scientific sessions are valuable. Suggested scientific sessions included genetics, stem cells, and physical activity.
- Guidance on post-award management of funds to assist new investigators in budgetary efficiency would be useful.
- Information and discussions on cost extensions and no-cost extensions were requested.
- Include a session on team organization and how to keep everyone happy once the research grant is being implemented.
- Include a session on time management (i.e., Dale Carnegie).
- Include a session on conflict resolution.
- A session to provide guidance on electronic submission for grants and other funding would be helpful.

How can the network become more active and viable (outside of the context of the annual workshop)?

- The NMRI committees need to become more active and supportive of the Network. It appears that the organizational structure of the NMRI is adequate to ensure more activity if the committees become more active.
- Much discussion took place regarding investigators who commit to come to the NMRI meetings but do not. This is an important issue and strategies need to be developed

How can we recruit additional members to the network?

- Include mentors who may not be minorities, but who may have research geared toward underrepresented minorities or who are willing to mentor minority investigators. An important place to look for these individuals is among those investigators who have minority supplements.
- Consideration should be given to include post docs or **graduate students** as attendees.

AFTERNOON PLENARY SESSION

Update on NIDDK Outreach Efforts

Elizabeth Singer, M.S., NIDDK, NIH

Ms. Singer presented outreach efforts by NIDDK and NIH to inform the public about important research results. The public has shown that they are desperate to find out about legitimate research that can impact their health. If results of NIDDK do not reach their intended audiences, there is little point in conducting research. NIH has a number of audiences, including patients, health professionals, science reporters, Congress, and the general public. NIH communicates with these audiences through publication of research manuscripts, and also through social marketing approaches involving the mass media, partnerships with the public and private sectors, and community outreach programs.

NIDDK has three national clearinghouses for disseminating information: the National Diabetes Information Clearinghouse, the National Digestive Diseases Information Clearinghouse, and the National Kidney and Urologic Diseases Information Clearinghouse. Each of these resources provides web information, toll-free numbers, electronic newsletters, and print copies of information. NIDDK also has started the Endocrine and Metabolic Diseases and Hematologic Diseases clearinghouses to address increased requests for information in these areas. In addition, the Weight-Control Information Network (WIN) has been funded by NIDDK for the past 13 years, and has become very important in disseminating information about obesity.

The NIDDK information network would have little to disseminate without results from clinical trials that inform health care professionals on how to prevent, diagnose, treat, and manage disease. Results from NIDDK-funded trials such as the Diabetes Control and Complications Trial (DCCT) for type 1 diabetes and the Diabetes Prevention Program (DPP) for type 2 diabetes are examples of clinical trials that produced important findings that have been, and continue to be, translated to the public. Much of the translation occurs through social marketing through NIDDK programs, such as the National Diabetes Education Program (NDEP). This program has three target audiences: people with diabetes and their families; health care providers; and payers, purchasers, and health care policymakers. Focus group research led to the development of four media campaign themes: 1) importance of family support, 2) being around for family as a motivation for better care, 3) reminders to patients that diabetes is a serious condition, and 4) diabetes is a manageable disease. Media campaign products are developed in this effort by *ad hoc* work groups, who provide a framework for to develop messages to communicate research results to specific target audiences; these work groups also provide a built-in dissemination apparatus. Language-appropriate materials for controlling diabetes also were developed to promote diabetes control. In addition, NDEP has developed a variety of educational materials including websites for health care professionals, and work site wellness programs for employers.

An example of a prevention public campaign based on the DPP results is “Small Steps, Big Rewards: Prevent Type 2 Diabetes.” The goals of the campaign were to create awareness that type 2 diabetes can be delayed or prevented in people with pre-diabetes; identify those at risk for pre-diabetes; define the term “pre-diabetes;” describe indications for testing patients at risk for pre-diabetes; and describe how providers can help patients with pre-diabetes. The GAMEPLAN

Toolkit provided materials for health care providers, including a risk assessment tool, materials describing the program “Walking...A Step in the Right Direction,” a food diary, and a calorie counter. Targeted publications were designed to reach high-risk populations, including African Americans Hispanic/Latinos, Asian American/Pacific Islanders, American Indians, older Americans, children and pregnant women.

The Centers for Disease Control and Prevention (CDC), which co-sponsors the NDEP with NIDDK has diabetes prevention and control programs in each of the 50 states, and each one is tasked with communication in communities.

Alarming recent research findings have been reported that describe an “obesity epidemic” in the United States. There is a clear connection between obesity and type 2 diabetes. Data indicate that increasing obesity in U.S. children is leading to increasing type 2 diabetes. To help address these issues, NIDDK participates in the trans-NIH *Strategic Plan for NIH Obesity Research* which sponsors basic, clinical, translational, and behavioral research. NIDDK’s Weight-control Information Network (WIN) develop materials about improved nutrition and physical activity. WIN also sponsors outreach activities, such as *Sisters Together: Move More, Eat Better* which reaches out to African American women through local hair salons after school programs, Parent Teacher Associations, recreations centers and community health centers to provide information and advice on weight control.

Another program co-sponsored with the National Heart, Lung and Blood Institute and the National Institute of Child Health and Human Development is *We Can! Ways to Enhance Children’s Activity and Nutrition*. Close to 200 locations in the United States participate in this program, which provides technical assistance and materials to community programs housed in doctor’s offices, parks and recreation departments, and the YMCA; the program works with parents and children to promote the goals of enhanced physical activity and better understanding of nutrition. Although there are no magic bullets regarding weight control, the best advice is “Move More; Eat Better.”

Another significant clinical trial with results that have been disseminated through the NIDDK information network is the African American Study of Kidney Disease (AASK) whose results are disseminated through the National Kidney Disease Education Program. The message from AASK is that kidney failure is an important problem among African-Americans, and that there are strategies to treat kidney disease and prevent End Stage Kidney Failure

Additional information on any of the programs or clinical trials described are available at NIDDK’s website, <http://www2.niddk.nih.gov/>, and at the NDEP website, www.ndep.nih.gov. Ms. Singer offered to work with the NMRI if members would like information or support in developing a communication plan.

BUSINESS MEETING AND COMMITTEE REPORTS

Oversight Committee Report

Dr. Sarapura

Dr. Sarapura, chair of the NMRI Oversight Committee, provided information on the committee and its role in outreach to recruit and maintain membership in NMRI. She said that anyone was interested in being on the committee should contact her.

Update on Western Region Meeting and Plans for Southern Region Meeting

Dr. Isales

Dr. Isales reported that the NMRI Western Regional Meeting was held in Seattle, WA, on November 6–7, 2006. This was a pilot for regional meetings to see if these would encourage more participation.

The next regional meeting will be the NMRI Southern Regional Meeting in Atlanta, GA, on October 3–5, 2007. A planning committee has been established and has been making progress in developing the agenda and outreach efforts for recruiting speakers and attendees. Dr. Isales indicated that the next regional meeting after the Southern Region will be the NMRI Midwest Regional Meeting. He asked for input on suggestions for a location and volunteers for a planning committee.

Summary of Lunch Meeting Feedback and Discussion of Future Goals for NMRI

During this session, facilitators from the breakout groups held during lunch summarized their discussions around each of the presented questions. The compiled summary of these breakout sessions may be found on pages 30-31.

Other Business

Dr. Ferry announced that the Endocrine Society has programs for training that have been in place since 1998. There will be a career development workshop held the day before the Endocrine Society's annual meeting in Toronto in June 2007. There are travel grants available, and he asked those interested in attending to contact him using information in the program book.

WRAP-UP

Dr. Agodoa

Dr. Agodoa thanked everyone for attending the meeting. He asked that those completing the evaluation form list changes in position or tenure, as well as grants received or manuscripts published, since the last annual meeting.

He commented that he would like suggestions from participants on how to make sure those who have committed to attend do in fact attend. The NMRI will need to address this problem, and he

asked for anyone with suggestions to let him know. A short discussion ensued that generally was supportive of being corrective; although the Network is voluntary, financial commitments are being made by NIDDK that could be better used for someone else to attend. One participant did suggest that many other NIH meetings require the individual to buy their own airline or train ticket, and guarantee their hotel room on their credit card, and request reimbursement after the meeting.

Dr. Agodoa concluded that he would draft a letter to notify members that they will need to attend the meeting if they make the commitment. This also will be placed on the NMRI website after passing the language past the chairs.

Adjournment

The meeting adjourned at 2:45 p.m.