“How to Get Your Grants Funded and Your Papers Published”

Mark S. Klempner, M.D.
Associate Provost for Research
October 23, 2007
“How to Get Your Grants Funded and Your Papers Published”
Key Peer Review Elements

• Know Your Audience (and make sure it is an appropriate audience)

• Know The Technical Details: “Who, What, Where, When and How” for Grant and Manuscript Preparation and Submission

• Tell Your Story
FY 06 BUSM BMC Research Portfolio by Sponsor Type

Total Dollars = 215.1 M

- Federal: 86%
- Industry: 4%
- Private: 4%
- State/City: 6%
## BUSM-BMC Federal Research Sponsors

<table>
<thead>
<tr>
<th>Sponsor Name</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency for Healthcare Research &amp; Quality</td>
<td>1%</td>
</tr>
<tr>
<td>Centers for Disease Control</td>
<td>2%</td>
</tr>
<tr>
<td>Department of Education</td>
<td>1%</td>
</tr>
<tr>
<td>Department of Justice</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Department of Health &amp; Human Services</td>
<td>2%</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>4%</td>
</tr>
<tr>
<td>Environmental Protection Agency</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Food &amp; Drug Administration</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Health Resources &amp; Services Administration</td>
<td>5%</td>
</tr>
<tr>
<td>National Institutes of Health</td>
<td>83%</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>1%</td>
</tr>
<tr>
<td>Substance Abuse &amp; Mental Health Services</td>
<td>1%</td>
</tr>
<tr>
<td>U.S. Department of Agriculture</td>
<td>&lt;1%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Charles River Campus Federal Research Sponsors
FY07
4 Major Sponsors = 92%, All Others = 8%
Identifying “Potential Audiences” (Funding Sources)

• Lists of Federal Research Sponsors
• NIH Guide:
  – Updated every Friday
  – RFA = request for application (grant or cooperative agreement)
  – RFP = request for proposal (contract)
• Institutional Research/Grants Administration Offices:
  – Web sites have links to research sponsors
  – Electronic mailing lists send program announcements
• Sponsor web sites
Key Peer Review Elements

• Know Your Audience (and make sure it is an appropriate audience)

• Know The Technical Details: “Who, What, Where, When and How” for Grant and Manuscript Preparation and Submission

• Tell Your Story
Funding Mechanisms

• ASSISTANCE
  – What the **INVESTIGATOR** wants to do or study
  – Awards are grants or cooperative agreements
  – Sponsors generally government or non-profit

• PROCUREMENT:
  – What the **SPONSOR** wants to purchase or study
  – Awards are contracts
  – Sponsors are generally government or for-profit
GRANTS (Assistance)

• Transfer of funds, equipment, etc. from sponsor to recipient for a public purpose

• Lack of substantial involvement between sponsor and recipient once award is made
CONTRACTS (Procurement)

- Primary purpose is to acquire goods & services for the direct benefit of the government or other sponsor
- Substantial involvement between sponsor and recipient
- More stringent criteria for deliverables
- Federal contracts subject to Federal Acquisition Regulations (FAR)
COOPERATIVE AGREEMENTS

• Transfer of funds, equipment, services, or other commodities from sponsor to recipient for a public purpose

• Substantial involvement between sponsor and recipient

• More stringent criteria for deliverables

• A Hybrid: federal cooperative agreements not subject to Federal Acquisition Regulations
## NIH Award Types

<table>
<thead>
<tr>
<th>NIH Activity Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Individual Fellowship</td>
</tr>
<tr>
<td>K</td>
<td>Career Development</td>
</tr>
<tr>
<td>M</td>
<td>General Clinical Research Center</td>
</tr>
<tr>
<td>N</td>
<td>Contract</td>
</tr>
<tr>
<td>P</td>
<td>Center/ Program Project</td>
</tr>
<tr>
<td>R</td>
<td>Investigator Initiated Research</td>
</tr>
<tr>
<td>S</td>
<td>Research Related Programs</td>
</tr>
<tr>
<td>T</td>
<td>Institutional Training Grant</td>
</tr>
<tr>
<td>U</td>
<td>Cooperative Agreement</td>
</tr>
<tr>
<td>NIH Institute</td>
<td>NIH Award Type</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>FIC</td>
<td></td>
</tr>
<tr>
<td>NCCAM</td>
<td></td>
</tr>
<tr>
<td>NCI</td>
<td></td>
</tr>
<tr>
<td>NCRR</td>
<td></td>
</tr>
<tr>
<td>NEI</td>
<td></td>
</tr>
<tr>
<td>NHLBI</td>
<td></td>
</tr>
<tr>
<td>NIA</td>
<td></td>
</tr>
<tr>
<td>NIAAA</td>
<td></td>
</tr>
<tr>
<td>NIAID</td>
<td></td>
</tr>
<tr>
<td>NIAMS</td>
<td></td>
</tr>
<tr>
<td>NICHD</td>
<td></td>
</tr>
<tr>
<td>NIDA</td>
<td></td>
</tr>
<tr>
<td>NIDCD</td>
<td></td>
</tr>
<tr>
<td>NIDCR</td>
<td></td>
</tr>
<tr>
<td>NIDDK</td>
<td></td>
</tr>
<tr>
<td>NIEHS</td>
<td></td>
</tr>
<tr>
<td>NIGMS</td>
<td></td>
</tr>
<tr>
<td>NIMH</td>
<td></td>
</tr>
<tr>
<td>NINDS</td>
<td></td>
</tr>
<tr>
<td>NLM</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>
Determining Which Research Office Submits Your Proposals

Generally …

• You submit your proposal through the institution which owns the space in which your research is carried out.

• Exception: the sponsor will not make an award to that type of institution.
NIH Review Process

• Center for Scientific Review triages applications

• Study Section reviews & assigns priority score, provides written critique

• Advisory Council provides secondary review
# NIH Priority Scores

<table>
<thead>
<tr>
<th>Numerical Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 to 1.5</td>
<td>Outstanding</td>
</tr>
<tr>
<td>1.5 to 2.0</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.0 to 2.5</td>
<td>Very Good</td>
</tr>
<tr>
<td>2.5 to 3.5</td>
<td>Good</td>
</tr>
<tr>
<td>3.5 to 5.0</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>
Key Peer Review Elements

• Know Your Audience (and make sure it is an appropriate audience)

• Know The Technical Details: “Who, What, Where, When and How” for Grant and Manuscript Preparation and Submission

• Tell Your Story
Telling Your Story For Grants

• Follow sponsor application instructions

• Key Elements of Telling Your Story
  – What Question(s) Are You Trying to Answer-Be Specific
  
  – Why is the Answer to the Question Important-Be relatively narrow
  
  – Don’t Overstate the Importance
  
  – Tell me what is known about the topic, including how your work has contributed to that knowledge, and build to the gap in knowledge that your work will fill (Significance and Preliminary Data)
Telling Your Story For Grants

• Key Elements of Telling Your Story
  – Tell me how you are going to answer the question. Be precise in your method for obtaining the results and, more important, how you will analyze/interpret those results.
  
  – If appropriate work into the story why you are in an advantaged position to answer the question
  
  – What do you anticipate might be some problems in acquisition of your data or analysis of the results.
  
  – How will you overcome these problems; Plans A,B,C for acquiring and confirming the data; Plans A,B,C for analyzing and interpreting the results.
Telling Your Story For Grants

• Resources and Environment-linked to your story

• Budget & justification-linked to your story
  – Direct cost: allocated to specific project
  – Indirect cost: institutional infrastructure
Management of Research

• Intellectual Property
  – Patents
  – Licensing – commercial viability
• Compliance
  – Human subjects
  – Animals
  – Biohazards
  – Privacy
  – Conflict of interest
Use Institutional Resources

• Mentor or senior faculty to critique research plan

• Research or Grants Administration to review budget & sponsor requirements

• Allow sufficient time for revisions
BU-BMC Grantsmanship Websites

• Charles River Campus Sponsored Programs:
  http://www.bu.edu/osp/

• Medical Campus Research Administration:
  http://www.bumc.bu.edu/Departments/HomeMain.asp?DepartmentID=279

• Hospital Grants Administration:
  http://www.internal.bmc.org/grants/

• Associate Provost Research Resources:
  Ext: 87654
  http://researchresources.bumc.bu.edu/
Office of the Associate Provost for Research

- Strategic Planning
- Program Project/Center grant planning & application development
- Training program grant planning & application development
- Research Resources Database Maintenance- http://researchresources.bumc.bu.edu/
- Funding source identification
- Proposal critique & editing
- Preparation of complex budget & financial tracking models, data tables (BU & BMC)
- Liaison to institutional Research Administration Offices
- Faculty & staff mentoring
- Investment in Core Facilities
- Core Implementation & Operations Committee: planning, staffing, oversight
- NEIDL Program and Administration
NIH Resources

• NIH Grants Policy Statement:

• NIH Activity Codes & Definitions Used in Extramural Programs:
  http://grants.nih.gov/grants/funding/ac.pdf

• NIH Forms Site:
  http://grants.nih.gov/grants/forms.htm
Helpful Resources

A Practical Guide to Scientific Management for Postdocs and New Faculty-2007
Howard Hughes Medical Institute
www.hhmi.org/resources/labmanagement

NIH Center for Scientific Review
http://cms.csr.nih.gov/ResourcesforApplicants/
Other Resources

• Making the Right Moves: Getting Funded - P 45

• Grant Application Writer’s Handbook
  Liane Reif-Lehrer, PhD – P 38
  Jones & Bartlett Publishers
“How to Get Your Grants Funded and Your Papers Published”
How do we choose the papers we publish?
Submissions in 2006 (n=12,537)

Original Research

Letters

Editorials

Perspectives

Images

Other

Review Articles
Assigning the Manuscripts

About 10% of papers are rejected at this stage
Assigned manuscripts are sent to the Associate Editors
Associate Editors

• Local experts in major areas of medicine

• 10 AEs:  Cardiology, Infectious Disease, Cancer, Gastroenterology, Maternal-Fetal Medicine, Endocrinology, Neurology, Office Practice, Health Policy, Vascular Disease
Associate Editors

- I decide whether to send the paper out for review or reject at that point.
- I make that decision using many of the same criteria that I use to review grant applications.
- I read the cover letter.
- I am inclined to be your advocate.
- I provide a list of potential reviewers (usually about 6-10) and welcome suggestions of reviewers from the authors (within reason)
Associate Editor reads manuscript. Is publication possible?

Yes

To Deputy Editor

Agree?

Yes

Reject
40% of submissions

No

Send Out for Peer Review

No
Editors use the Reviews

• Once reviews are in the editor reads the paper and the reviews
• The editor, not the reviewer, makes the decision about the paper
• We value the reviewers’ comments, but they are only consultants to our thinking process
Editors are looking for work that is…

- Important
- Informative
- Novel
- Ethical
What is Important?

• Important question
  - The answer will affect practice, or teach us about biology...
What is Informative?

- Study adds appreciably to available data
- Conclusions provide clear direction
- Conclusions follow from the data
  - Free from commercial or intellectual bias
What is Novel?

• Study breaks new ground, defines new treatments or resolves major controversies
What is Ethical?

• Adequate informed consent obtained
• Minimum number of subjects put at risk to gain needed information
Reviewers’ Grades of Rejected Papers

- A
- B
- C
- D
- F
- Unknown
Reviewers’ Grades of Accepted Papers
AE makes a decision

• Full consideration?
  – Manuscript is presented to all the editors

• Minimal consideration?
  – Manuscript is on the agenda but discussion is minimal
The Editors Meet
Before we make an initial commitment on most papers we obtain….

**Statistical Review**

About 1/5 papers fail at this step
Possible Decisions

- Initial Reject: 52%
- Reject After Peer Review: 42%
- Needs additional Experiments: 0.5%
- We’re very interested: 0.5%
- We’re interested: 5%
Three Major Reasons for Rejection

• Quality – the science is flawed

• Novelty – the science is good, but has previously been published or does not advance the field

• Specialty – it’s good, but not of general interest and belongs in a specialty journal
Revision Process

- Two examples show the extremes of behavior
  - Informed authors
  - Uninformed authors
“How to Get Your Grants Funded and Your Papers Published”

Mark S. Klempner, M.D.
Associate Provost for Research
October 23, 2007