Why the Emphasis on Research Grants?

**Money**

- **Salary**
  - Faculty: Expectation is 65% of effort
  - Fellows
  - Technicians

- **Lab Costs**
  - Animals
  - Reagents
  - Analysis
  - Lab tests
  - Imaging
  - Physiologic test
  - Travel

Galen B. Toews, M.D., August 19, 2008
Why the Emphasis on Research Grants?

Peer Review
Promotion
Tenure

Indirect Costs
Labs
Lights
Heat
Regulatory affairs

Grant Portfolio in Pulmonary and Critical Care Medicine

NIH
K08
K23
K24
R01
R21
RFP
RFA
U-10 Cooperative Agreements (COPD, IPFnet, Development)
N01 LOTT Contract
LTRC
Spiromics
NETT

VA
Merit Reviews
CDA
DOD
Foundation
ALA
ACS
ATS
Pharma
Biotech

Galen B. Toews, M.D., August 19, 2008
Opportunities for Beginning Investigators

Mentored Research Scientist Development Award (K01)
Independent Scientist Award (K02)
Mentored Clinical Scientist Development Award (K08)
Small Grant (R03)
Academic Research Enhancement Award (R15)
Exploratory/Developmental Grant (R21)
Career Transition Award (K22)

http://grants.nih.gov/oer.htm

Preparing Your Application

What do you want to do?
Why is it important?
Why do you think you can do it?
Has this area been studied before (and if so, what has been done)?
What approaches will you use, and why?
Why do you think it’s feasible?
What will you do if your initial approach doesn’t work as planned?
What resources and expertise are available to you from your institution?
Components of the NIH Grant Application

Research Plan: Abstract, specific Aims, Background (like a review article), and Significance
Progress Report (preliminary results and demonstration of relevant expertise)
Research Design and Methods
Resources and Facilities
Budget
Budget Justification

http://grants.nih.gov/grants/grant_tips.htm

Reviewers Focus on the Four Cs

Clarity. Cross-reference current literature in laying out your premises.
Content. Organize your ideas around associated aims linked to your central hypothesis. (The mission statement of each I/C sets forth its areas of emphasis.)

Coherence of concepts. Present a coherent set of ideas predicated on previous work.
Cutting edge. Be ready to take legitimate risks, preferably based on preliminary data, to move the science forward. NIH rates grant applications on innovation.
Criteria for Rating of NIH Grant Applications

**Significance:** Does it address an important problem? Will it advance scientific knowledge? Will it affect concepts or methods in this field?

**Approach:** Are the experimental design and methods appropriate to the aims? Does it acknowledge problem areas and consider alternative tactics (in other words, is there a thoughtful backup plan)?

**Innovation:** Does it employ novel concepts, approaches, or methods? Does it challenge existing paradigms or develop new methodologies?

Criteria for Rating of NIH Grant Applications

**Investigator:** Is the investigator appropriately trained to carry out the proposed work? Is the work appropriate to the experience of the PI and collaborators?

**Environment:** Does the institutional environment contribute to the probability of success? Is there evidence of institutional support?
Reasons for Poor Priority Scores

Lack of original ideas
Absence of an acceptable scientific rationale
Lack of experience in the essential methodology
Questionable reasoning in experimental approach
Diffuse, superficial, or unfocused research plan

Reasons for Poor Priority Scores

Lack of sufficient experimental detail
Lack of knowledge of published relevant work
Unrealistically large amount of work for the given time frame or funding level
Uncertainty about future directions
Committed Awards by Budget Year

Total Count of Awards

Galen B. Toews, M.D., August 19, 2008
Historical NIH Funding in Q1 & Q2 of FFY

<table>
<thead>
<tr>
<th>All Medical Schools:</th>
<th>Federal FY</th>
<th>$$ awarded by April</th>
<th>% of change from previous YTD</th>
<th>YTD $ as % of total eventually awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$33,860,066,156</td>
<td>(2004 not available)</td>
<td>33.3%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>$3,538,352,790</td>
<td>9.1%</td>
<td>31.1%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>$2,973,474,319</td>
<td>19.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For UM specifically:</th>
<th>Federal FY</th>
<th>$$ awarded by April</th>
<th>% of change from previous YTD</th>
<th>YTD $ as % of total eventually awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$67,866,485</td>
<td>(2004 not available)</td>
<td>26.0%</td>
<td></td>
</tr>
<tr>
<td>2006*</td>
<td>$76,662,562</td>
<td>15.9%</td>
<td>29.1%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>$62,306,580</td>
<td>26.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*FFY 2006 was adjusted by $0,003,738 for the 50/50 budget that had a large transfer payment in the first 1/3 of 2006 that doesn’t annually appear until later in the FFY. Otherwise UMMS decrease would look artificially high.

Success (through A2 Submission) of NEW Projects At UMMS

<table>
<thead>
<tr>
<th>FFY</th>
<th># Submit</th>
<th># Open</th>
<th># Fund</th>
<th>Success to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>88</td>
<td>0</td>
<td>58</td>
<td>67%</td>
</tr>
<tr>
<td>2003</td>
<td>86</td>
<td>0</td>
<td>60</td>
<td>70%</td>
</tr>
<tr>
<td>2004</td>
<td>93</td>
<td>1</td>
<td>54</td>
<td>57%</td>
</tr>
<tr>
<td>2005</td>
<td>96</td>
<td>10</td>
<td>47</td>
<td>49%</td>
</tr>
<tr>
<td>2006</td>
<td>101</td>
<td>33</td>
<td>44</td>
<td>44%</td>
</tr>
<tr>
<td>2007</td>
<td>103</td>
<td>94</td>
<td>8</td>
<td>8%</td>
</tr>
</tbody>
</table>

Galen B. Toews, M.D., August 19, 2008
Success (through A2 Submission) of Competitive Renewal Projects At UMMS

*2007 is projected based on previous activity

R01 Projects Per PI at UMMS

Galen B. Toews, M.D., August 19, 2008
"There is no grantsmanship that will turn a bad idea into a good one, but there are many ways to disguise a good one."

William Raub, Former Deputy Director, NIH