Topics to be Discussed

- **Types of Awards**
  - Fellowships (F’s), Training grants (T’s), Career Transition Awards, Research grants,

- **Funding Agencies**
  - Federal
    - National Institutes of Health
  - Voluntary Health Organizations, Professional Societies, Foundations, Industry, Other

- **Planning & Organizing a Research Proposal**
Topics to be Discussed

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- **Planning & Organizing a Research Proposal**
Not All Funding Opportunities Are the Same

- Different mission statements
  - Fellowships (F’s)
  - Research project (R’s)

- Different funding
  - Stipend/Salary
  - Comprehensive research costs

- Different time frames
  - Not renewable: 3 years (F’s)
  - Renewable: 4 years - 5 years (R01) each competitive period
Types of Awards

- Individual fellowships
- Training grants
- Career transition awards
- Career development awards
- Research grants
- Program Projects
- Loan Repayment Program
- Administrative supplements
- Cooperative agreements
- Institutional Clinical & Translational Science Award (CTSA)
- Subcontracts
- Contracts
Timeline of Funding for Junior Investigators

- Individual Fellowship Training Grant
- Mentor’s Research Grant
- Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

Graduate School | Post-doctoral Years | Instructor/Assistant Professor
Post-doc: Institutional Training Grant (NIH-T32)

- Post-docs selected by institution
- Research training in specific area
- Defined number of slots
- Stipend, health fees, tuition, travel
Post-doc: Individual Fellowship

- Supports specific individual
- Stipend, health fees, tuition, travel
- NIH: F32

Review criteria:
- Individual fellow
- Mentor
- Research project
- Research environment
Post-doc Fellowships (F32s) Applications, awards, and success rates
Topics to be Discussed

- Types of Awards
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- Planning & Organizing a Research Proposal
Post-doc: Individual Fellowships

Non-government, non-profit agencies

- Voluntary Health Organizations
- Professional Societies
- Private Foundations
The Helen Hay Whitney Foundation
Postdoctoral Research Fellowships

- Supports early postdoctoral research training in all basic biomedical sciences
- Candidates who hold, or are in the final stages of obtaining PhD, MD, or equivalent - candidates who have no more than one year of postdoctoral research experience
- 3-year fellowships
- Stipend: $49,000-$51,000; Research Allowance: $1,500
- US and foreign citizens
JDRF: Postdoctoral Fellowships

- Intended for those in a relatively early state in their career
- Designed to attract qualified, promising scientists in the T1D research field
- Applicant must have a doctoral degree (PhD, MD, DMD, DVM),
- Up to 3 years
- Stipend $39,264 - $54,180; Research Allowance: $5,500
American Heart Association (Founders Affiliate)  
Postdoctoral Fellowship Program

- Cardiovascular function and disease and stroke
- All basic disciplines as well as epidemiological, behavioral, community and clinical investigations

- Funding
  - Stipend/Salary: $38,000-$52,000; Fringe Benefits: $1,000

- Award Duration: 2 years

- Citizenship
  - U.S. citizen/ Permanent resident/ Pending permanent resident./Visas (e.g. F1, H1-B, J-1, O-1)
PhRMA Foundation

“...owes its success to the pharmaceutical companies that have provided their generous support...”

“...to support young scientists in disciplines important to the pharmaceutical industry by awarding them competitive research fellowships and grants...”

http://www.phrmafoundation.org/

Adherence, Health Outcomes, Informatics, Pharmacology/Toxicology, Pharmaceutics, Pharmaceutics
PhRMA Foundation - Pharmacology/Toxicology

“research that integrates information on molecular or cellular mechanisms of action with information on the effects of an agent observed in an intact organism, either in experimental animal or clinical studies or both.”

integrate “mechanism of action of a drug or chemical at the molecular or cellular level with the drug effect observed in a human or laboratory animal. An applicant is expected to describe the significance of a hypothesis being tested in the context of potential influences of biochemical, physiological, behavioral, or social systems.”
PhRMA Foundation - Pharmacology/Toxicology

- **Pre-Doctoral Fellowships**
  - Advanced Ph.D. candidates, stipend of $20,000 per year for a maximum of two years

- **Post-Doctoral Fellowships**
  - $40,000 annual stipend (for up to 2 years) to graduates of PharmD., M.D., and Ph.D. programs
Timeline of Funding for Junior Investigators

- Individual Fellowship
- Training Grant
- Mentor’s Research Grant

- Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

Graduate School

Post-doctoral Years

Instructor/Assistant Professor

Career Transition Awards
Career Transition Awards

- NIH Pathway to Independence Award (K99/R00)
  - 1-2 years as a mentored K award for post-docs
    - Total/year: =$90,000 (salary and research expenses)
    - 75% effort
  - 3 years as an research support award for independent investigators
    - Total/year:=$249,000 (salary and research expenses)
    - Must have an independent research position
  - Fund 150-200 awards per year
Career Transition Awards

- JDRF: Advanced Postdoctoral Fellowships
  - Provides an opportunity to receive full-time research training and to assist awardees in transitioning from a fellowship to an independent (faculty-level) position
  - First degree (PhD, MD, DMD, DVM, or equivalent) received no more than 5 years before the fellowship
  - $90,000 per year for up to 3 years
  - Optional transition year in which awardees may request funding support for their first year as a faculty member
Career Transition Awards

- **American Heart Association (National) Fellow-to-Faculty Transition Award**
  - Provides funding for the crucial period of a physician-scientist’s career development which spans the completion of research training through the early years of the first faculty/staff position.
  - Training stage (1-3 yrs, $65,000 per year) and the first years of the first faculty/staff appointment ($132,000 per year), for a maximum of five years of support.
  - Citizenship: U.S. citizen/ Permanent resident/ Pending permanent resident, Visas (e.g. H1-B, O-1)
Topics to be Discussed

- **Types of Awards**
  - Fellowships (F’s), Training grants (T’s), Career Transition Awards, Research grants,

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  - Federal
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- **Planning & Organizing a Research Proposal**
# Scored Review Criteria

## 1. Fellowship Applicant

**Strengths**
- 

**Weaknesses**
- 

## 2. Sponsors, Collaborators, and Consultants

**Strengths**
- 

**Weaknesses**
- 

## 3. Research Training Plan

**Strengths**
- 

**Weaknesses**
- 


### 4. Training Potential

**Strengths**
- 

**Weaknesses**
- 

### 5. Institutional Environment & Commitment to Training

**Strengths**
- 

**Weaknesses**
- 

Overall Impact Write a paragraph summarizing the factors that informed your Overall Impact score.
1. Fellowship Applicant.

**F31, F31 Diversity, F32 and F33.** Are the applicant fellow’s academic record and research experience of high quality? Does the applicant fellow have the potential to develop as an independent and productive researcher in biomedical, behavioral or clinical science?

2. Sponsors, Collaborators, and Consultants.

**All Fs.** Are the sponsor(s) research qualifications (including successful competition for research support) and track record of mentoring appropriate for the proposed fellowship? Are there (1) evidence of a match between the research interests of the applicant fellow and the sponsor (including an understanding of the applicant’s research training needs) and (2) a demonstrated ability and commitment of the sponsor to assist in meeting these needs? Are the qualifications of any collaborator(s) and/or consultant(s), including their complementary expertise and previous experience in fostering the training of fellows, appropriate for the proposed research project?


**F31, F31 Diversity, F32 and F33.** Is the proposed research plan of high scientific quality, and does it relate to the applicant fellow’s training plan? Is the training plan consistent with the applicant fellow’s stage of research development? Will the research training plan provide the applicant fellow with individualized and supervised experiences that will develop research skills needed for his/her independent and productive research career?

**F31, F31 Diversity, F32, and F33.** Does the proposed research training plan have the potential to provide the applicant fellow with the requisite individualized and supervised experiences that will develop his/her research skills? Does the proposed research training have the potential to serve as a sound foundation that will lead the applicant fellow to an independent and productive career?

5. Institutional Environment & Commitment to Training.

**F31, F31 Diversity, F32, and F33.** Are the research facilities, resources (e.g. equipment, laboratory space, computer time, subject populations), and training opportunities adequate and appropriate? Is the institutional environment for the scientific development of the applicant fellow of high quality, and is there appropriate institutional commitment to fostering the applicant fellow’s training as an independent and productive researcher?
R01 Research Award

Independent Investigator

Funds research project
• Salaries of PI and other research personnel
• Supplies, reagents, etc
• Animal costs
• Patient care costs
• Core facilities
• Page charges for publications

Multi-Year (4yrs – 5yrs)
Renewable (e.g. original grant + 2 renewals = 15yrs)
R01 Research Grant

- Supports a discrete, specified project
- “Comprehensive” funding
- Modular budgets up to $250,000/year
- Multi-year
- Flexibility
- Most of the research that NIH supports is through this funding mechanism
R01-Equivalent grants: Applications, Awards, and Success Rates
<table>
<thead>
<tr>
<th>Challenging Times for All Researchers</th>
<th>1999</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall success rate for NIH RO1* Proposals</td>
<td>32%</td>
<td>24%</td>
</tr>
<tr>
<td>Success rate on first submission</td>
<td>29%</td>
<td>12%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Especially for Young Investigators</th>
<th>Then 1990</th>
<th>Now 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at first Ro1* grant</td>
<td>39</td>
<td>43</td>
</tr>
<tr>
<td>% of Ro1s* that go to first-time investigators</td>
<td>29%</td>
<td>25%</td>
</tr>
</tbody>
</table>

*R01 Equivalents: RO1, R29, R37
Source: National Institutes of Health
Figure 1. Average Age of Principal Investigators with MD, MD-PhD, or PhD at the time of First R01 Equivalent Award from NIH, Fiscal Years 1980 to 2011

http://nexus.od.nih.gov/all/2012/02/03/our-commitment-to-supporting-the-next-generation/
Age Distribution of NIH RPG Investigators: 1980

Average Age New R01 Investigator: 37.2

Sources: IMPAC II Current and History Files
Age Distribution of NIH RPG Investigators:
2006

Average Age
New R01 Investigator: 42.2

Sources: IMPAC II Current and History Files
Preliminary Projection of Age Distribution of NIH RPG Investigators: 2020

Percent of PIs

Age

Sources: IMPAC II Current and History Files and Preliminary Demographic Projection Model
Early Stage Investigators

- No previous “significant NIH independent research award”
  - e.g. R01’s
  - Does not include: F’s, K’s, loan repayment program
- Within 10 years of terminal research degree/completion of medical residency
- Extensions permitted
  - Additional clinical training
  - Family responsibilities
# Early Stage Investigators: NHLBI

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Percentile</th>
<th>Priority Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>10.0</td>
<td>15</td>
<td>Research Project Grant</td>
</tr>
<tr>
<td>ESI</td>
<td>20.0</td>
<td>25</td>
<td>Early Stage Investigator</td>
</tr>
<tr>
<td>P01</td>
<td></td>
<td>19</td>
<td>Program Project Grant</td>
</tr>
<tr>
<td>P01 Subproject</td>
<td></td>
<td>15</td>
<td>Program Project Grant: Subproject</td>
</tr>
<tr>
<td>K awards</td>
<td></td>
<td>20</td>
<td>Career Development Awards</td>
</tr>
<tr>
<td>T32/T35</td>
<td></td>
<td>19</td>
<td>Institutional NRSA Training</td>
</tr>
<tr>
<td>F30</td>
<td></td>
<td>15</td>
<td>Pre-doctoral NRSA</td>
</tr>
<tr>
<td>F31,F32,F33</td>
<td></td>
<td></td>
<td>Pre and Post-doctoral NRSA</td>
</tr>
</tbody>
</table>

FY12
http://www.nhlbi.nih.gov/funding/policies/operguid.htm
For FY 2012 NIDDK is establishing a nominal “payline” for new (Type 1) and renewal or competing continuation (Type 2) R01 applications of 13th percentile. Most R01 applications which have a primary assignment to NIDDK and which request less than $500,000 direct cost per year and score at or better than the 13th percentile will receive an award establishing a nominal payline for R01 applications submitted by ESIs at the 18th percentile.
R01-Equivalent grants, New (Type 1)
Success rates, by career stage of investigator
Topics to be Discussed

- **Types of Awards**
  - Fellowships (F’s), Training grants (T’s), Career Development awards (K’s), Research grants (R’s), Loan Repayment Program

- **Funding Agencies**
  - Federal
    - National Institutes of Health
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- **Planning & Organizing a Research Proposal**
When Preparing an Application:

- Read instructions
- Never assume that reviewers “will know what you mean”
- Refer to literature thoroughly and thoughtfully
- Explicitly state the rationale of the proposed investigation
- Include well-designed tables and figures
- Present an organized, lucid write-up
Elements of a Good Proposal

- Feasible
- Relevant
- Unique
- Innovative
- Clear
- Brief
- Consistent
Anticipate Questions
and
Answer them before they are asked
Investigator

- Competent
- Enthusiastic
- Thorough
- Professional
Common Problems with Grant Applications from New Investigators

- Overly ambitious
- Not independent of previous mentor’s research
- Fishing expedition
- Not hypothesis driven
- Descriptive, not mechanistic project
- Unfocussed
- No or insufficient preliminary data
- Unrealistic budget
- Methodologies beyond the expertise of investigator or research team
Good Luck!