

Workshop: How to Write a [Successful Training] Grant

American College of Cardiology

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Writing a [Successful Training] Grant

- ❖ What is a Grant & Why Bother?
- ❖ Overview of the Peer Review Process
- ❖ Structural Anatomy of a Typical Training Grant (NIH)

"Currency" for Advancement



- ❖ Research productivity
 - ◆ publications &
 - ◆ authorship

Topics

- ❖ What is a Grant & Why Bother?
- ❖ Overview of the Peer Review Process
- ❖ Structural Anatomy of a Typical Training Grant (NIH)

Overview of the Peer Review Process

- ❖ Institute specific!
 - ◆ Not all institutes offer the same menu of training grants
 - ◆ Check web sites & call institute program representative!
- ❖ 1st Level of Review – Peer Review
- ❖ Training Grant Study Section
 - ◆ Primary, secondary & tertiary reviewers
 - ◆ “Regular members” with diverse areas of scientific expertise
 - ◆ Ad hoc members, mail-in reviewers & teleconference reviewers
 - ◆ Roster of the members is in the public domain and can be found on the internet

Overview of the Peer Review Process

- ❖ Triage (depending on the mechanism) - applications in the lower 50% are not discussed
- ❖ Summary statement (“pink” sheet) of the reviews and discussion (if any) generated and mailed within 6-12 weeks after review
- ❖ Score
 - ◆ 0.1-1.5 Outstanding
 - ◆ 1.51-2.0 Excellent
 - ◆ 2.1-2.5 Very Good
 - ◆ 2.6-3.5 Good
 - ◆ 3.6-5.0 Average

Overview of the Peer Review Process

- ❖ 2nd Level of Review: Program Considerations
- ❖ Resubmission - total of 3 versions of the same proposal
 - ◆ Resubmission dates one month later than the submission dates for new applications

Topics

- ❖ What is a Grant & Why Bother?
- ❖ Overview of the Peer Review Process
- ❖ Structural Anatomy of a Typical Training Grant (NIH)

Structural Anatomy of a Typical Training Grant

Criteria by which most applications for training awards are organized & scored:

1. Candidate
2. Career Development Plan
3. Research Plan
4. Mentor & Mentor's Statement
5. Environment & Institutional Support
6. Letters of Reference

Structural Anatomy of a Typical Training Grant

K08 Model Application:

<http://www.nhlbi.nih.gov/funding/training/redbook/k08model.htm>

K23 Model Application:

<http://www.nhlbi.nih.gov/funding/training/redbook/k23models.htm>

Structural Anatomy of a Typical Training Grant

1. Candidate: The Candidate's Statement

- ❖ Commitment to a career in research
- ❖ Potential to develop into an *independent* investigator
- ❖ Commitment of a certain percentage of effort (generally ~75%) to his/her career development activities
- ❖ Letters of Recommendation (depending on the award type): addressing the candidate's potential for a research career, sealed, from individuals who are not the candidate's current mentor(s)

Structural Anatomy of a Typical Training Grant

2. Career Development Plan

- ❖ Clear statement of candidate's goals and prior experience
- ❖ Specifically tailored to the specific goals of the individual candidate
- ❖ Systematic plan to reach independence:
 - ◆ Didactic component: theoretical & conceptual background
 - Coursework & degree programs (e.g. M.P.H., Ph.D., etc.)
 - ◆ Experiential Component: research experience & skills
 - ◆ "Survival Skills"

Structural Anatomy of a Typical Training Grant

2. Career Development Plan

- ❖ Training in the responsible conduct of research
 - ◆ Proposed subject matter
 - ◆ Format
 - ◆ Frequency
 - ◆ Duration of instruction

Structural Anatomy of a Typical Training Grant

3. Mentor & Mentor's Statement

- ❖ Qualifications in the area of research proposed by the applicant
 - ◆ Peer-reviewed funding (e.g., NIH RO1, VA MERIT, AHA National Award, etc.)
 - ◆ Record of research productivity
- ❖ Qualifications as a mentor
 - ◆ Past experiences in training
 - ◆ Accomplishments of prior trainees (e.g., faculty positions, awards, peer-reviewed funding, etc.)
 - ◆ Mentoring Awards

Structural Anatomy of a Typical Training Grant

3. Mentor & Mentor's Statement

- ❖ Quality and depth of the mentor-trainee interactions
 - ◆ Type of interactions
 - Formal such as individual meetings, lab meetings, seminars, journal clubs, national meetings, etc.
 - Informal/social such as retreats, graduate student support groups, etc.
 - ◆ Frequency & duration
 - ◆ Purpose and content

Structural Anatomy of a Typical Training Grant

3. Mentor & Mentor's Statement

- ❖ Quality and depth of the mentor-trainee interactions
 - ◆ Guarantee of protection of the requisite amount of the candidate's time for the career development activities outlined in the career development plan
 - ◆ Metrics by which the mentor will monitor the candidate's progression through the career plan
 - Grades in didactic work
 - Abstracts & manuscripts
 - Applications for peer-reviewed support

Structural Anatomy of a Typical Training Grant

3. Mentor & Mentor's Statement

- ❖ Quality and depth of the mentor-trainee interactions
 - ◆ Resources provided - space, equipment, access to laboratory technicians, nurses, data bases, core facilities, other institutional resources such as a NIH K30 award, etc.
 - ◆ Clear statement of the expectations of the mentor for the candidate
 - ◆ Plans for the candidate after the completion of the award
 - ◆ Instruction in the "survival skills" necessary for a successful career including grant writing, oral presentations, teaching skills, mentoring skills, etc.

Structural Anatomy of a Typical Training Grant

3. Mentor & Mentor's Statement

- ❖ Oversight of the mentor-trainee relationship - Advisory Committee
 - ◆ External/Internal
 - ◆ Roster and the relationship of the members to the candidate and the mentor
 - ◆ Frequency of meetings
 - ◆ Metrics by which the candidate and the mentor will be evaluated
 - ◆ Form of feedback (e.g., written reports)
 - ◆ Contingency plans for handling problems with components of the career development plan or the mentor-trainee relationship

Structural Anatomy of a Typical Training Grant

4. Research Plan

- ❖ Hypothesis driven with specific aims that are predictions of the overall hypothesis. Schematic representation or “cartoon” of overall hypothesis useful, if possible.
- ❖ Background & Significance
 - ◆ Supporting the reasonableness of the hypothesis
 - ◆ Significance to a clinically relevant problem
- ❖ Preliminary Data from the applicant and/or the mentor’s research program
 - ◆ Supporting the reasonableness of the hypothesis
 - ◆ The feasibility of the experimental approach & methodology

Structural Anatomy of a Typical Training Grant

4. Research Plan

❖ Research Methods & Design

◆ Research Design

- Organized by specific aims
- Rationale for each experiment
- Description of each experiment (experimental conditions)
- Anticipated results
- Potential problems and/or confounding issues
- Contingency plans should any or all of these issues be encountered

Structural Anatomy of a Typical Training Grant

4. Research Plan

❖ Research Methods & Design

◆ Research Methods

- Description of experimental methods, procedures, statistical analysis, etc.
- Explicit description of limitations and how those may or may not alter the results

Structural Anatomy of a Typical Training Grant

5. Environment & Institutional Commitment

- ❖ Evidence of a strong, well-established research training program related to the candidate's area of interest
 - ◆ Existing institutes, centers of excellence, departments, divisions, training programs (e.g., NIH T32, K30 programs, etc.)
 - ◆ Faculty & staff capable of productive collaboration with the candidate

Structural Anatomy of a Typical Training Grant

5. Environment & Institutional Commitment

- ❖ Clear statement of commitment to the candidate's development into a productive independent investigator
 - ◆ Guarantee that the requisite amount of the candidate's time will be devoted to the activities outlined in the career development plan
 - ◆ Release of the candidate from normal clinical, teaching and administrative duties for this commitment
 - ◆ Commitment of a faculty position to the candidate that is ***NOT*** contingent on the receipt of this award

Structural Anatomy of a Typical Training Grant

5. Environment & Institutional Commitment

- ❖ Commitment to protect the candidate's mentor for the time required for adequate training and supervision of the candidate

Structural Anatomy of a Typical Training Grant

6. Letters of Reference

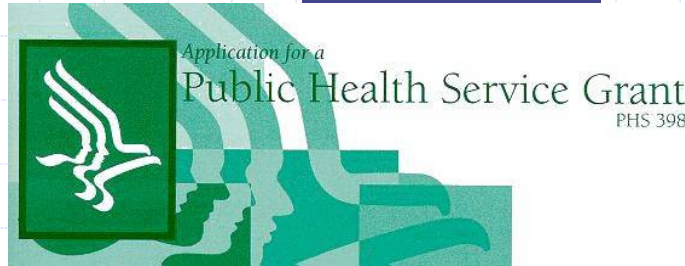
- ❖ Forms & narrative
- ❖ Pick potential referees who can and will speak to your abilities and credentials
- ❖ Acquaint your potential referee with the details of the specific NIH training mechanism & level of competitiveness

General “Rules” for Most NIH Grant Applications (Including Training Grants)

- ❖ Write clearly – avoid passive voice
 - ◆ “It was determined that a cardiac stress test would be performed on 50% of the participants.”
 - ◆ “We will conduct cardiac stress tests on half the participants.”
- ❖ Readable
 - ◆ “It was determined that a cardiac stress test would be performed on 50% of the participants.”
 - ◆ “We will conduct cardiac stress tests on half the participants.”

General “Rules” for Most NIH Grant Applications (Including Training Grants)

- ❖ Follow the NIH guidelines EXACTLY for SF 424/PHS 398



- ◆ Font type and size (true type)
- ◆ Recommended: Helvetica, Tahoma or Arial 12 point, 15 characters per inch, 6 lines per vertical inch
- ◆ Not Recommended: New Times Roman
- ◆ Margins: minimum ½ inch in all directions
- ◆ Page length for Research Plan: **25 pages** including text, figures, charts, tables & diagrams. Does not include human subjects, animal subjects or literature cited.

General "Rules" for Most NIH Grant Applications (Including Training Grants)

❖ Deadlines - Variable

February 12th

June 12th

October 12th

❖ Eligibility

- ◆ Citizens or non-citizen nationals of the United States
- ◆ Permanent Residents (Alien Registration Receipt Card I-551)
- ◆ Individuals on temporary or student visas are ***NOT*** eligible.
- ◆ Doctoral level degree (some awards limited to clinical doctoral level degree): Ph.D.s, M.D., D.O., some Ph.D.s (e.g. nursing, rehabilitation, audiology, clinical psychology, etc.)
- ◆ Completion of clinical training (both specialty & subspecialty) at time of award activation

General “Rules” for Most NIH Training Grant Applications

❖ Eligibility

- ◆ ***Ineligible:*** current & former PIs on NIH R01, FIRST awards (R29), comparable career development awards (K01, K07, K08, etc.), sub-projects of PPG or SCOR grants

Importance of Picking the Right Mentor

- ❖ The quality of postgraduate training is the single most important predictor of success and longevity in a scientific career.
- ❖ The mentor-trainee relationship is the single most important component of this training experience.



Choose Wisely!



Laboratory peer pressure

