Application for an Individual Fellowship

Ruth L. Kirschstein National Research Service Award

PHS 416-1

F30 – MD, PhD students
F31 – Ph.D. students

http://grants.nih.gov/grants/guide/pa-files/PA-11-111.html

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Overview of NRSA predoctoral awards and what's needed for application

NIH Ruth L. Kirschstein National Research Service Award (NRSA) program

- Ensure that diverse pool of highly trained scientists is available to address Nation's biomedical, behavioral, & clinical research needs.

- Provide up to 5 yrs support for promising doctoral candidates performing full-time dissertation research & training in scientific health-related fields relevant to the missions of NIH.

- Enhance fellow's understanding of the health-related sciences and extend his/her potential for a productive, independent research career.

- Training should provide applicant with the opportunity to <u>interact with members of the scientific community</u> at appropriate scientific meetings and workshops (including NIH-sponsored meetings, where available). Application should document need for the proposed research training and expected value of the proposed fellowship experience as it relates to the individual's goals for a career as an independent researcher.

Eligibility (Principal Investigator)

- Any applicant fellow with the skills, knowledge, and resources necessary to carry out the proposed research

- Must be a citizen or a non-citizen national of the United States or have been lawfully admitted for permanent residence (i.e., possess a currently valid Permanent Resident Card USCIS Form I-551, or other legal verification of such status).

- The applicant fellow must be at the dissertation research stage of their training and must show evidence of both high academic performance in the sciences and substantial interest in a research area of high priority to the participating Institutes.

- The applicant fellow must have a baccalaureate degree and be currently enrolled in a PhD or equivalent research degree program (e.g., EngD, DNSc, Dr PH, DSW, PharmD, PsyD, ScD), a formally combined MD/PhD program, or other combined professional/clinical and research doctoral (e.g., DDS/PhD) in the biomedical, behavioral, or clinical sciences at a domestic or foreign institution.
Students seeking support for pursuit of a combined degree program (e.g. MD/PhD, or DO/PhD, or DDS/PhD) also may be eligible to apply for the Kirschstein-NRSA for Individual Predoctoral MD/PhD Fellows (F30).

Sponsor / Mentor

- Sponsor should be active investigator in the area of the proposed research training and committed both to the research training of the Fellowship Applicant and to the direct supervision the applicant's research.

- The sponsor must document the availability of sufficient research support and facilities for high-quality research training (NIH support emphasized).

- The sponsor should have a successful track record of mentoring predoctoral students.

- Applicants are encouraged to identify more than one mentor, i.e., a mentoring team, if this is deemed advantageous for providing expert advice in all aspects of the research and training program.
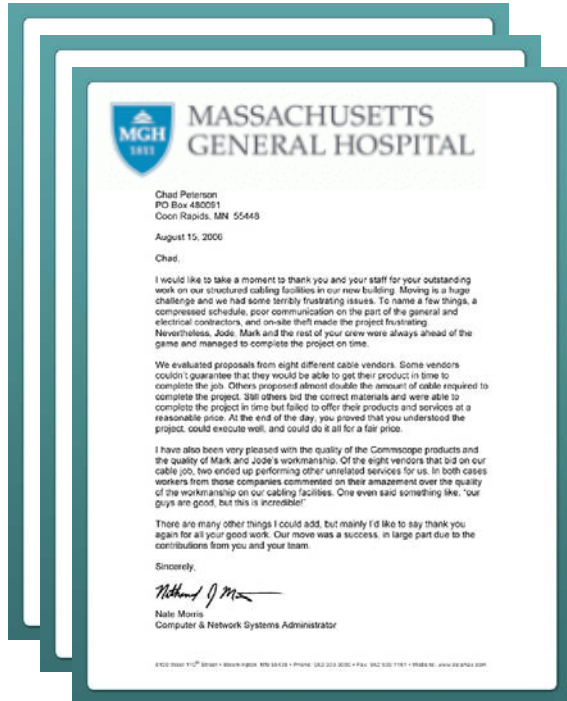
Sponsor / Mentor

- The sponsor should describe the research training plan for the applicant (coordinated with the applicant's research strategy).

- The sponsor and any co-sponsors are also expected to provide an assessment of the applicant's qualifications and potential for a research career. The research environment and the availability and quality of needed research facilities and research resources (e.g., equipment, laboratory space, computer time, available research support, etc.) must also be described. The description should include items such as classes, seminars, and opportunities for interaction with other groups and scientists. Training in career skills, e.g. grant-writing and presentation skills are strongly encouraged.

Research Strategy

- Describe tailored research training plan, including a description of the research strategy (preferably hypothesis-driven) well-suited to the stage of his/her career development.

- Describe skills and techniques that applicant fellow will learn during the award period, and discuss the relationship of the proposed research training to the applicant fellow's career goals.

- Describe the background leading to the proposed research, the <u>significance</u> of the research, the research <u>approach</u> (design and methods) for achieving the Specific Aims, the <u>rationale</u>, and <u>expected/alternative outcomes</u> of the proposed studies.

- It is beneficial to include pertinent preliminary data obtained by the applicant fellow in the current or prior laboratory.

Reference Letters (3 required)

✓ **Plan ahead** - give people enough time before deadline

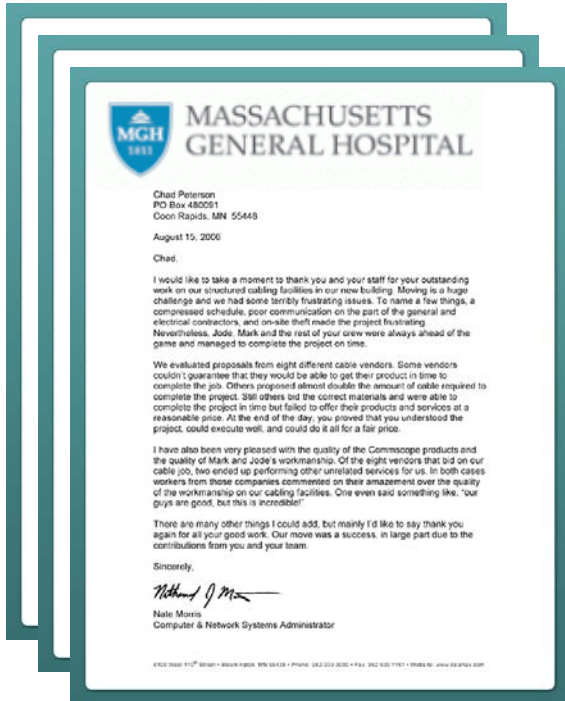✓ **Make it personal** - Ask people who _know_ you

✓ **Provide Title & scope of application, your biosketch & bullets points for idea** - highlight specific interactions
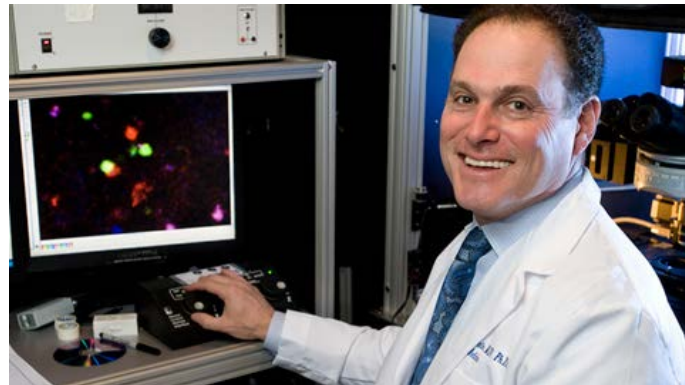
✓ References help build case that you are uniquely positioned to execute project

- Thesis committee chair (current accomplishments)
- Undergrad research mentor (establish commitment to research)
- Inside or Outside collaborator

Reference Letters (example from funded NRSA F30 award)

Kelvin Lee, MD
RPCI
Chair, Immunology Dept
Chair, thesis committee

Andrew Luster, MD, PhD
Harvard Medical School, MGH
Collaborator, provide chemokine
resources & expertise

Eric Phizicky, PhD
University of Rochester, Dept. Biochem & Biophysics
Post-undergrad research head – demonstrate long-standing commitment to research, publication

Additional Required Educational Information

- Scores for all standardized exams such as MCAT, GRE, and other relevant exams.

- Listing of the applicant's courses with grades from all undergraduate and graduate institutions in which the applicant is/has been enrolled must be included in the Fellowship Applicant Biographical Sketch Format Page. Do not include transcripts with the application (applicants may be asked to send transcripts prior to award). If trainee has poor undergrad/grad grades, GREs this may make application less competitive – need to offset with other strengths.

- Description of the graduate or combined degree program in which the applicant is enrolled must be included in the application.

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Guide to key points to consider while preparing application

Things to Keep in Mind

- Writing successful grant applications is a long process that begins with an idea.

- Money begets money! Go after fellowship grants

- Individuals awarded grants in the past are more competitive and thus more likely to receive funding in the future.

Preparing the Proposal

Outline project

↓

Get feedback (lab meeting)
Identify strengths/weaknesses
Revise

Draft proposal
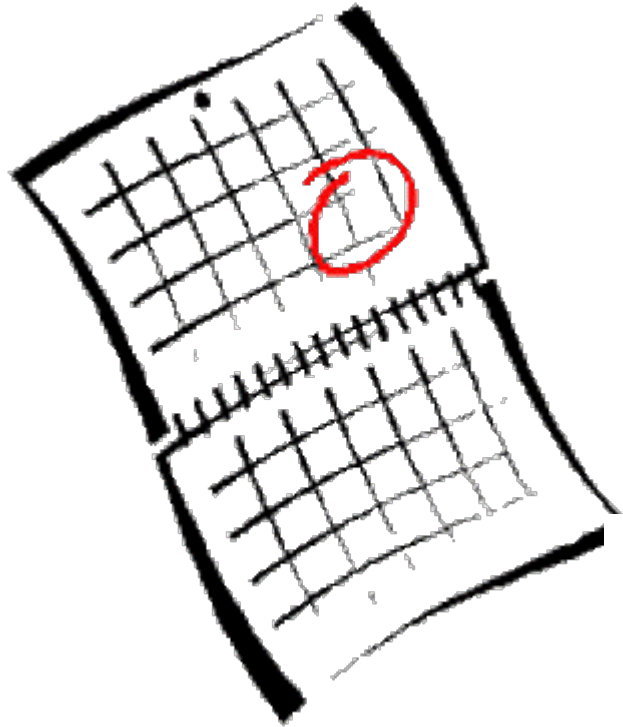
↓

Get feedback
Identify strengths/weaknesses
Revise

Submit

The Big Picture

✓ Is it new, not me-too?

✓ Is it practical?

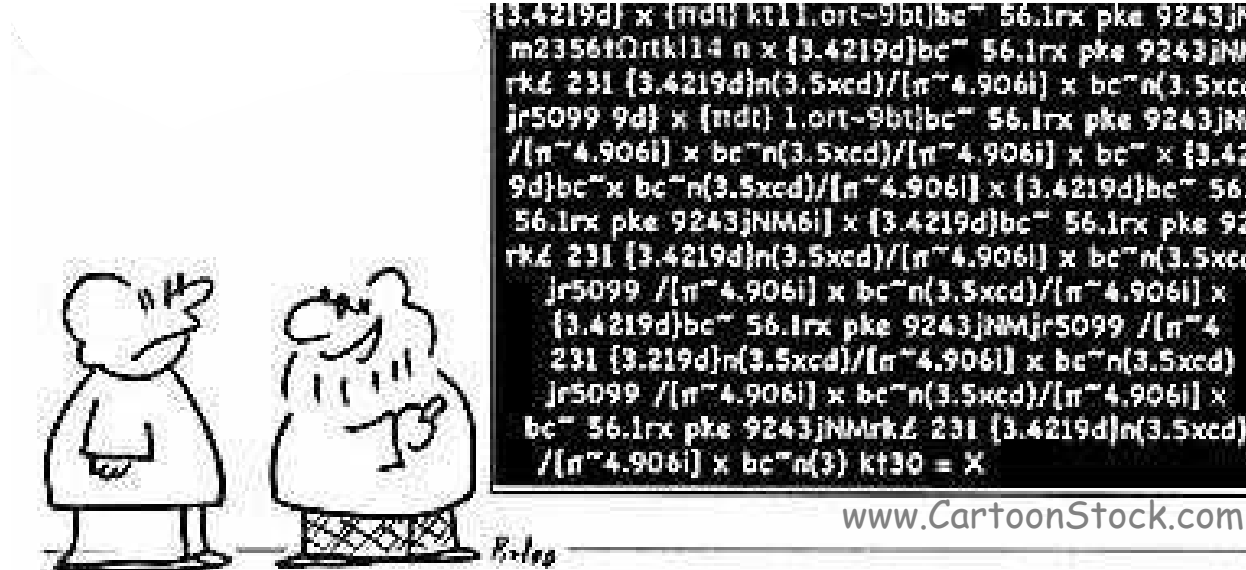✓ Can <u>you</u> do it?

✓ Is it fundable?

Beginning to Write

✓ Allow enough time

✓ Make a schedule for each section – stick to it!

Magic Formula for Success

Work hard at it!

"It's a foolproof formula for writing grant applications."

Pay Attention to Format

```
I. Title
  1. Subject
     a. Item 1: Description
     b. Item 2: Description
     c. Item 3: ...
  2. Subject 2
II. Title 2
...
```
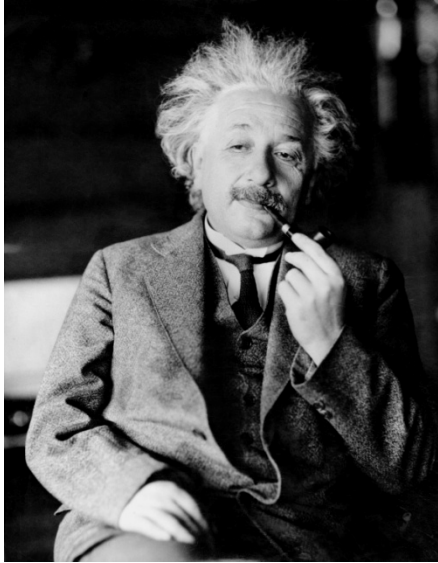
✓ **Follow NRSA guidelines _exactly_:** Critical to follow instructions; conformance to requirements is strictly enforced and non-compliant applications can be rejected.

✓ Use subheadings – function as 'mini-headline'

✓ Make sure there's lots of white space – don't overcrowd the page

✓ Make sure figures large enough to be legible with concise legends

Know Your Target Audience

✓ Assume you are addressing a colleague who is knowledgeable in the general area, but who does not necessarily know the details about your research question.

✓ Most reviewers are overloaded and will not respond well to a poorly organized, poorly written, or confusing proposal.

✓ Remember that reviewers learn a lot about you from your application.

Clear Communication is Critical

✓ Make everything as **simple as possible**, but not simpler.
    – *Albert Einstein*

✓ Need exciting, accessible, cohesive narrative to generate enthusiasm

✓ Spend more time on application strategy before writing.

Grant Writing Wisdom

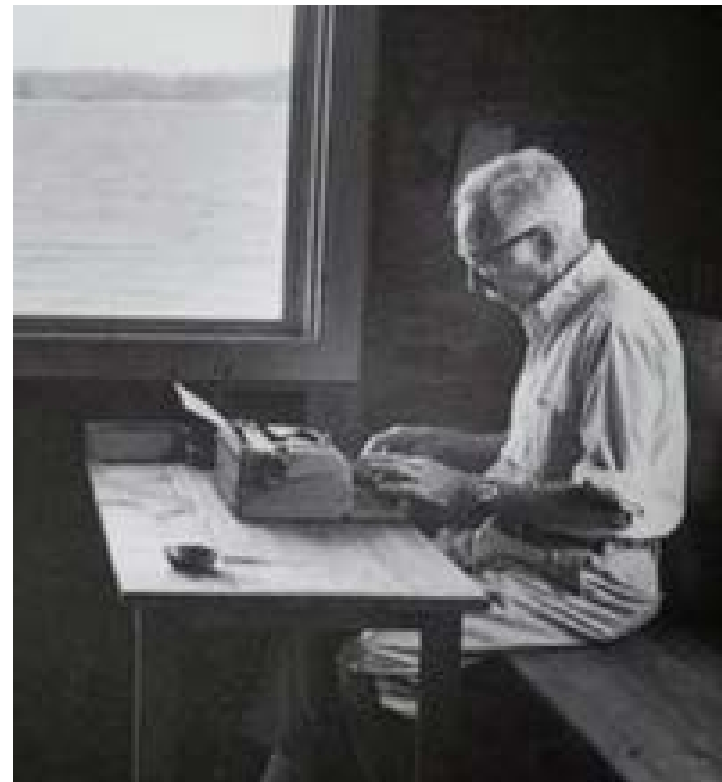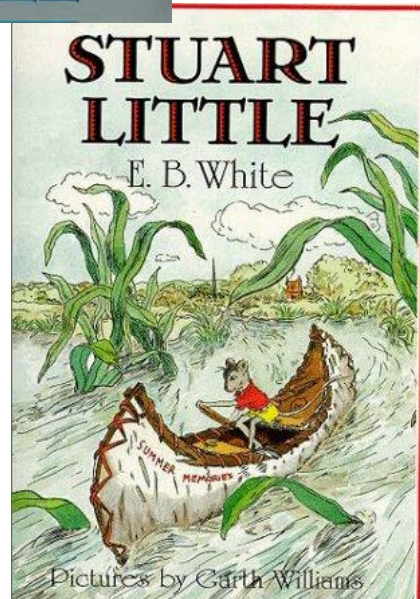Impact, impact, and impact.........
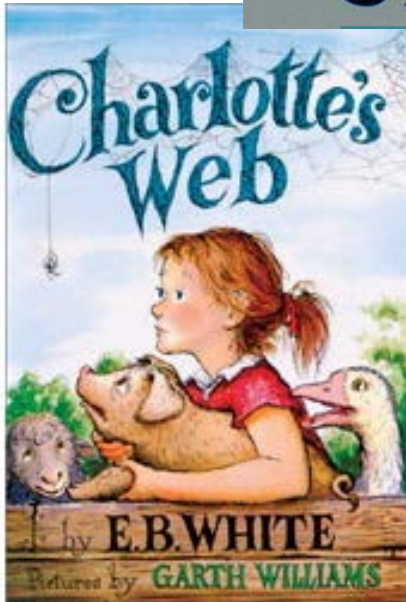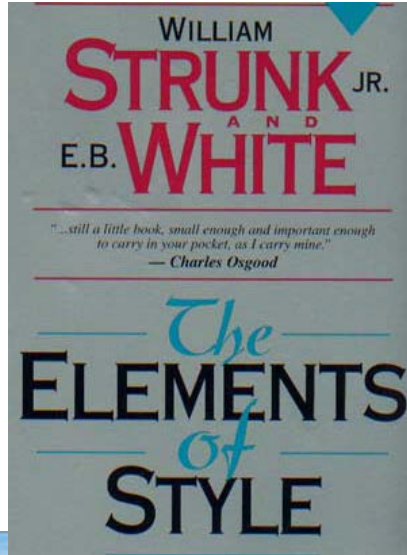
Essence of success

Get Feedback and Revise

The best writing is re-writing.
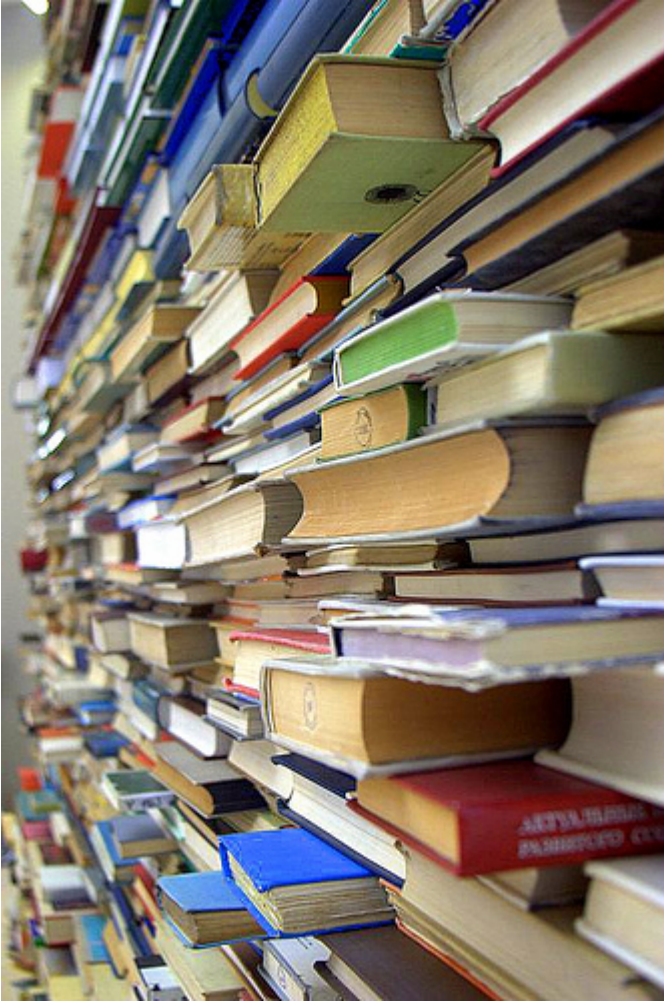
E.B. White

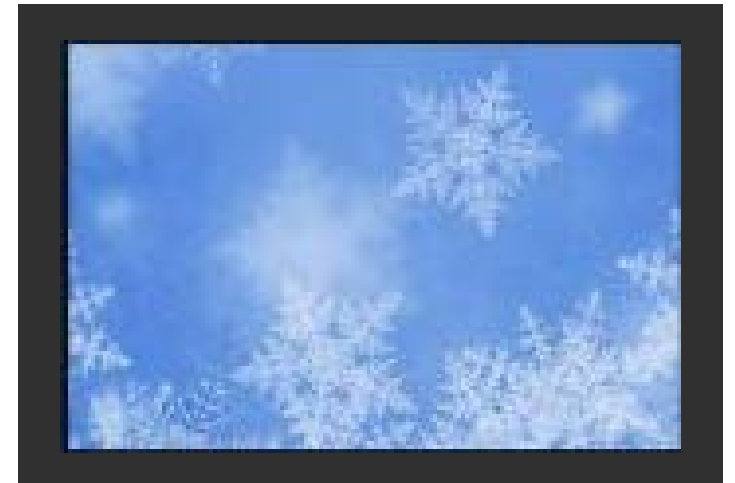# Grab the Reviewer's Attention Up Front

Find creative ways to separate your proposal from the pack

Linecraft TR

Context, Context, Context

✓ It is essential to frame ideas in the context of current dogma

✓ Demonstrate knowledge of field, expertise; be wary of jargon, cookie-cutter narrative

✓ Express your individuality & personality

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Carefully consider scoring criteria of
reviewers to prepare successful application

Scored Review Criteria for F30/F31 NRSA NIH Predoctoral Fellowships:

Overall Impact / Priority Score reflects likelihood that the fellowship will enhance the candidate's potential for, and commitment to, a productive independent scientific research career in a health-related field, in consideration of the scored and additional review criteria.

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

Reviewers consider that the F programs are training awards and not research awards. Major considerations in the review are the applicant fellow's potential for a productive career, the applicant fellow's need for the proposed training, and the degree to which the research training proposal, the sponsor, and the environment will satisfy those needs.

Note: An application does not need to be strong in all categories to be judged likely to have major scientific impact.

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

1. Fellowship Applicant

- Are the applicant fellow's academic record and research experience of high quality? <u>This score-driving criterion</u>.

- Does the applicant fellow have the potential to develop as an independent and productive researcher in biomedical, behavioral or clinical science?

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

2. Sponsors, Collaborators, and Consultants

- Are the sponsor(s) research qualifications (including successful competition for [NIH] 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 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 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

3. Research Training Plan (this is often where scores fall down)

- 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? Goldilocks' principle – make it in-depth, cutting-edge but not too ambitious ('just right')!

- 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?

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

4. Training Potential

- Does the proposed research training plan have the potential to provide the applicant fellow with the requisite individualized & 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?

Game Plan for Training

- Develop well designed game-plan to describe training plan & education; it should be *customized & unique* to applicant (avoid appearance of 'boiler-plate' writeup).

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

5. Institutional Environment & Commitment to Training

- 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?

Environment

- Emphasize unique resources, equipment

- RPCI – NCI-designated Cancer Center Support Grant

- Immunology Program – NIH/NCI T32 Predoctoral Training Program

- Unique features of training program, opportunities (regional/national meetings; embedded in cancer institute)

- Describe _intellectual environment_ – 24 faculty focused on tumor immunology, etc.

F30/F31 NRSA NIH Predoctoral Fellowships: Scored Review Criteria

Additional Review Criteria

- Protections for Human Subjects

- Vertebrate Animals

- Biohazards

These aren't trivial, pay attention to how this is written up.

What Boosts an Application?

✓ Originality

✓ Clarity of message & approach

✓ Your credentials (GPA, meeting presentations, publications, commitment to research, service, leadership)

✓ Clear and testable hypothesis

✓ Potential for impact on field: fill a gap!

✓ Presubmission review

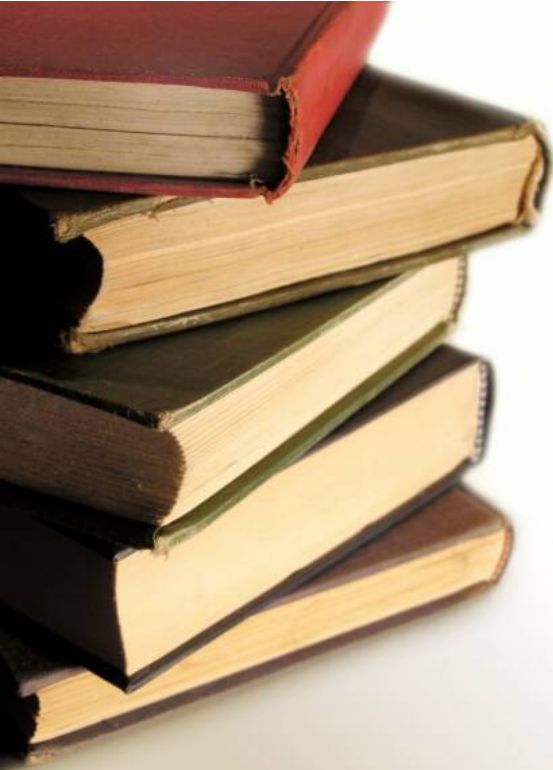✓ Understanding the criteria for evaluation

What Sinks an Application?

- ✓ Lack of originality and/or significance
- ✓ Poor knowledge base
- ✓ Lack of clear hypotheses and approaches, over-ambitious plan
- ✓ Essential expertise and/or resources not demonstrated
- ✓ Inadequate communication

NIH Grantsmanship Resources

http://grants.nih.gov/grants/guide/pa-files/PA-11-111.html

http://public.csr.nih.gov/ReviewerResources/SpecificReviewGuidelines/Pages/default.aspx

- NIH Grant Cycle Explained & Grant Tutorials
  - www.niaid.nih.gov/ncn/grants/cycle/default.htm
  - www.niaid.nih.gov/ncn/grants/default.htm
- NIH Grant Basics
  - grants.nih.gov/grants/grant_basics.htm
- Clinical Research Toolbox
  - www.nia.nih.gov/Researchinformation/CTtoolbox/

Grantsmanship Resources

- Cambronero JG et al, Writing a first grant proposal. *Nature Immunol* 13:105, 2012.

- Preparing Competitive NIH Applications for Enhanced Peer Review (NIAID)
  - http://writedit.wordpress.com/grantsmanship-downloads/

- Kenneth M Blumenthal, PhD, Associate Dean for Research & Education, University of Buffalo
  - http://medicine.buffalo.edu/faculty_and_staff/nih_grant.html

- Market Your Science LLL, 601D W Main St, Carrboro, NC 27510, Morgan Giddings; Implement the "Bucket brigade' in your proposal.

Grantsmanship Resources

- The Chronicle of Higher Education: Manage Your Career, David A Stone

  ⽊http://chronicle.com/article/How-Your-Grant-Proposal/47471/

- Grant Proposals (or Give me the money!), U North Carolina

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- Grant Writers' Seminars and Workshops, The Grant Application Writer's Workbook, Stephen W. Russell and David C. Morrison