How to Compete for Pre and Postdoctoral Fellowships

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Principal Investigators Association™
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Best Regards,

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Fellowship Application Tips

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The First Step...
Find the right funding mechanism:
- Many fellowships are available; more for US citizens.
- New NIH fellowship coming for international students.

Is there already a training grant in your department or center?

Who funds your mentor?
NIH institute? NSF? DOD?

Deciding Where to Send Your App.
- Depends on Mentor’s research
- What agencies already fund your type of research
- Find out how many apply/how many are funded
  - This might not be online
  - If you call administrator, you may find out
Everything is Online!!

- Research funding possibilities online
  - NIH Ruth L. Kirschstein National Research Service awards
    - For Ph.D. students (F31s for some institutes; NIA, NIAAA, NIDCH NICDR, NIDA, NIDH, NINDS, NCCAM, ODS)
    - F3x for under-represented Ph.D. students (all institutes)
    - For post-doctoral fellows (F32s; all institutes)
  - Some NIH institutes have specialized awards
    - F3x applications from NHLBI
    - NIGMS IRACDA for post-docs (US citizens)
      - apply to institutions with IRACDA programs

Online Possibilities

- HHMI opportunities:
  - HHMI-NIBIB for interdisciplinary graduate research training
  - Other programs
    - support training for med students
    - early careers for medical scientists
    - several programs for HHMI campus research or courses at MBL or CSHL
      - does not directly support graduate student research

Other Possibilities

- Department of Defense
  - Specific areas of research - open to internationals
  - National Defense Science and Engineering Graduate Fellowship
    - Biosciences is one area; But there is competition from other science
- SMART Scholarship
- Science, Mathematics and Research for Transformation
- NSF (Fellowships for early pre-docs; 1st year Ph.D. study)
- NSF GK-12 (teaching in middle or high school + research)
Other Possibilities

- Your state might have special programs.
- Different foundations fund pre/post doc applications.
- Check with your office of research for a list
- There might be institutional awards or awards from foundations in your city.
- There might be specialized requirements for the type of student the foundation funds.

Specialized Categories

- Ethnic characteristics
  
  - Come from a specific state
  
  - Parent worked for some company
  
  - Clowns with red hair
What Do You Need to Find Out?

- When is the application due?
  - allow at least one month to work on it
  - two months is a better time frame
  - allow 2 weeks to get institutional approval

- What is new in the application process?
  - January 2010 - new NIH forms, timing, page lengths

- Each funding institute will be slightly different
  - pay attention to detail!!

Writing Proposals

- See if your institution or others in your city have workshops on writing proposals—office of research might know

- Proposals can be criticized because of no analysis plan
  - state clearly how the data will be analyzed
  - what statistics will you use?
  - will you need an expert in statistical analysis? (Get letter)

How are NIH Proposals Reviewed?

- New format (scored 1-9, with 1.0 highest)
- Bullet points on strengths & weaknesses
- Ranked in 5 categories (similar to those used by other review processes)
  - overall score - not a strict average
  - candidate (past performance, letters of rec)
  - sponsor and training environment
  - research training proposal and plan
  - training potential
How are Others Reviewed?

- Will need to look for this information in the application.
- Some require personal statement from both you and the mentor.
- All are likely to require letters of recommendation.
- Transcripts, other documents—grades from foreign institutions.

For NIH, 5 Areas are Reviewed

- Firstly—the Candidate.
  - That’s you—how good are you? Make sure your CV is strong and uses the new format (ie personal statement on the front page).
  - Background—education, training, research experience.
  - All of this will constitute you as a Candidate.

Personal Statement

- Indicate your past and future plans—how the past has helped you towards your goals AND
- How this training experience will further your goals.
- They should NOT be to become a teacher, etc
- Stated goals directed toward a research career.
Make a List of Your Strengths and Weaknesses

- Then highlight your strengths and indicate how the training will help your weaknesses.
- For example, you are weak in oral presentation skills—the plan indicates you will present at journal clubs and at data presentation meetings.
- For example, your writing skills are weak (welcome to reality). Describe what you intend to do to improve—should be something concrete!!!!

Recommendation Letters

- You likely will need at least 3 for these applications—plus one from your mentor. PAY ATTENTION TO HOW MANY WANTED!!!!!
- Try to only use those who know you well and who will give you a good one.
- Send them your CV to remind them of your accomplishments.
- Only send them a sample letter if they request it—for this type of application, its more authentic if they write it unscripted.

Recommendation Letters

- Many of these letters are not very discerning—very hard to tell from the letter the quality of the person.
- Ask another student if person X writes meaningful letters of recommendation.
- You likely will be asked to waive your right to see the letters—its up to you, but most waive this right.
Recommendation Letters

- If you worked for someone, but really it’s the postdoc or the technician that knows you best—suggest that they write the rec, but that the main person sign it, etc
- Better to have a person with a higher position write you a letter.
- DO NOT have your babysitter or your pastor write you a letter!!!
Include the Mentor’s Record

- The mentor’s record of training
  - MORE than just the CV
  - The mentor needs evidence that his/her fellows, students accomplished goals under their guidance
  - Comment on publications, awards, fellowships
  - Need update on the current status of all trainees
  - Can also list dissertation committees served on
  - What if the mentor does not have a long record of training? Example: less than 3 graduates
    - A co-mentor with more training experience should be engaged and provide a letter of support

Mentor’s Record

- Training—how many pre and post docs—what they are doing now.
- PAPERS!!!! AWARDS!!!!!

- This is single biggest mistake training applications make—ie they don’t put in this info—but let the reader infer it from the CV
- DON’T make the reader work!

Describe Training Environment

- Summarize in words AND provide a table
  - classes
  - journal clubs
  - seminars
  - access to specialized instruments
  - access to specialized training
  - skills workshops
    - Grad School and Post-Doc Assoc
  - other courses
  - lab meetings
  - retreats
  - other mentors
  - collaborators
  - opportunities for teaching/tutoring; outreach

- Remember: State this explicitly
  - DON’T assume the reader knows this information.
  - Point out areas that need strengthening and how the training plan will provide opportunities to achieve
Make a List of the Features of Your Training Environment

- Put in detail about classes, didactic instruction.
- Lab meetings
- Seminars
- ANY enriching activity  TEACHING
- THINK outside the box and point it out to the reviewer.

Co-mentoring

- If you need this co-mentoring, it can be delicate to convince your PI that you need this.
- Think of the collaborations your PI has—maybe one of those could be acceptable
- Think of your teachers or other established faculty that know you—approach them—maybe they can talk to your mentor about this need.
- Talk to office of research.

Third Criteria: Research Training

- Make sure that the proposal includes specialized training to be provided.
- Mention specialized techniques that will make you more competitive in the future
Key to Selling this Section is Impact!

NIH guidelines for review focus on Impact that the science will have.
IMPACT is not the same as SIGNIFICANCE.
Significance is the importance of the problem
Impact is that if the study gets completed it will make a big difference.
Impact scores of 1-3 are those with a chance of funding.

Science

• Problem should be important to solve: Tell the reader this!!!!
• Approaches should be doable and likely to yield information.
• Expectations and pitfalls for each aim should be discussed.
• Data analysis plan needed.

Writing the Science

• Follow Elements of Style—use words wisely
• Let someone else read it—that doesn’t know your subject well (neither may the reviewer)
• Should make sense to them
• Get some help writing/editing, etc.
Fourth Criteria: Training Potential

Since this is a separate judged category on the NIH form—you can restate what this training will mean for the future career of you as a student or Post-doctoral fellow.

This is a mix of the candidate quality, mentor quality, how good the project is and the environment that provides the training.

I've written the scientific proposal. What else do I need to consider?

Special Considerations to Finish the Proposal

- Ethics training should be described
- Human subjects use
  - requires training
  - IRB application
  - added to your mentor’s investigators list
- Animal use
  - requires training
  - application for use and care of animals
- Remember: provide justification for numbers of people/animals used; other info from IRB
Budget Information

- You will need a budget form/page
  - For many applications the budget is fixed (stipend, fringe)
  - there may be some monies for travel, supplies (computer), and/or tuition
  - A few fellowships (DOD) require a research budget
  - will need to estimate actual cost of doing research
  - be sure to include costs of animals, if to be used

Post-Doctoral Fellowship Specifics

- Research, awards, fellowships and publications from your dissertation should be emphasized.
- Travel awards and presentations at meetings should be stressed.
- Research plan should be higher level and more exploratory than the pre-doctoral applications
- Training environment
  - include the postdoctoral association and their enrichment activities, workshops
  - training in an outside lab or a course that enhances your professional abilities should be mentioned

Emphasize Your Past Work

- In my dissertation, this is what I accomplished
- Now I am working on this and I need this training to accomplish my goal of becoming ......
- Spell this out for the reader—they need to see that you plan a career in science
Postdoctoral Application Specifics
- Go Beyond your research proposal
  - leadership skills emphasized
  - tutoring, other teaching, should be mentioned
  - mention how you mentored others in your previous lab and in this new lab
- Career Development
  - how does this new lab give you desirable training both scientifically and in terms of career development?

Post-Doctoral Fellowship Advice
- Future Plans
  - include a statement about your future plans
  - how will the present experience will help you meet your future goals?
  - emphasize how specific aspects of the training will enhance your success in the future
  - this is in addition to the mentoring plan
- Project 5 and 10 years into the Future
  - your mentor’s statement should do the same thing

Tell the Reader More About It
- Science is good, but many of these fellowships go to people who become leaders.
- Point out those you have helped, taught or organizations you have led, etc.
- Put in whatever would impress the reviewer that you have THE RIGHT STUFF.
Coordinate Application

- Get on same page with your mentor!!
- The reader will be able to tell if the application is poorly organized.
- If the mentor says one thing—ie the person will do this type of science and you say another!
- Be consistent!!!

Find Specialized Research/Teaching Programs at Your Institution!

- US citizens for both programs
- NSF GK-12 Program
  - Combines research with teaching responsibilities in middle or high school
- NIH NIGMS IRACDA Program (3 year support)
  - Research (75%) and teaching at local colleges (25%)
  - Offered at approximately 18 Research 1 institutions
FYI: NIH Loan Repayment Program for Post-doctoral Fellows

- Extramural and intramural; whether at NIH or not
- Extramural NOT-OD-09-107
- Apply Sept 1 - Dec 1 of each year
- US citizens
- With terminal degree (Ph.D., MD, DDS, etc)
- Educational debt > than 20% of annual salary, including undergrad loans
- Pay up to $105K over three year period
- Other requirements see announcement

Final Words

- Training environment needs to be emphasized in these applications as well as the science.
- Research training is a mix of the quality of the candidate, the mentor and the enrichment activities
- TELL the reader this!!!!
- GOOD LUCK!!!