"I have always been fascinated by ______. I want to focus on ______ in my career and hope to improve ______ in the U.S. population."

Next wk: Mock Study Section

7/5/2016

*Don't overlook career development;

Grant says: U.S. Citizens should invest in my training b/c... In 20 yrs. I'll have potential to do great stuff.

What Does an F30/F31 Do?

- Does not make you rich or famous
- Does not make or break your research career
- Does provide an opportunity to start learning how to prepare grant applications
- Does make YOU think about your research direction and deliverables - publications – What will PhD be about
  - •What line can you write in a textbook – beyond a reasonable doubt
- Does provide initial feedback from peers on how you think about science & where you want to go
- Can make everyone happy! But if you live for funding success alone, you will be unhappy for extended intervals
  - I heard this from a friend

- Specific Aims – 2 or 3 highly-polished aims on final submission

  Now – whatever your current aim is
- Biosketch
- Rsrch Plan
- Revisit aims

Deadlines

April 8

Aug 8

Dec 8

Φ: 12/8/16 or 4/8/16.

↑ Would have to write now; need 6wks w/ everything written to fine tune it.

1) Deadline – Think it through carefully.

2) Budget – Who preps it? Dept. Chair? Justification?

Strength	Weaknesses
→ Advisor w/ NIH funding	– Mentor hasn't trained an MSTP.
Ideally:	→ Comentor – Make it clear who's in charge.

We're all perfect on paper – this is a grant you lose, not one you have to work to win.

National Institutes of Health

- 27 semi-autonomous Institutes & Centers (24 with grant-making authority) – Submit to one w/ highest payline
- Congress both authorizes the NIH & appropriates NIH funding
  - Elections, differences of opinion, etc. delay budget
  - Often appropriation is not known until well after Oct 1
- Review process is codified in Public Law
- ~80% funds extramural research, ~11% funds intramural research, rest for administration & training

Comentor: Animal Model

Study section

40 reviewers, 70 grants

They do not have sci. expertise and won't read your grant.

No contact with him – CSR – Secretary of a study section

Ferroptosis

Ask colleagues who they've had a good exp. with

SRO – Scientific Review Officer

↑

* PO – Prgm Officer * – 50-100 trainees across U.S.A. – Direct Contact

- Try to identify who this will be prior to submission
- They have extra clout to pull a grant over the payline.

↑ Assign to...

Admin. Checks

↑

Submit

Which one?

Institutes and Centers (ICs)

- NHLBI ≠ NCI ≠ NIAAA ≠ NIDCR ≠ NIEHS ≠ …
- Each IC has its own culture, organization, payline, processes, policies, etc.
- Advisory Council or Board conducts second level of review – except for Fellowships
- Review committees (study sections) for RFAs, contracts, and P, U, T, & K applications (Fs go to CSR)
- Program Officers (POs) & Grants Management Specialists live at ICs – do not be shy about contact

Call them: "I am ______, I'd like to submit an F30 to your attn. in a few mos." – They'll look at your specific aims ahead-of-time

Write a Cover letter – tell them to send it to reviewers that will be favorable. "We need reviewers w/ expertise in chem. biol."

Start-up: 3-5 yrs

- Assoc. Prof.
- $1-2 start-up package

Bakkenist = Rad-Onc; Assoc. Prof. (Hillman)

1) R01
2) Astra-Zeneca
3) R01

– He knows how to get funding

*Alex interacts w/ different set that funds R01s, etc.

FY	IC	# Applications Reviewed	# Applications Awarded	Success Rate[2]
2012	NCI	107	34	31.8%
	NHLBI	86	17	19.8%
	NIA	25	10	40.0%
	NIAAA	7	4	57.1%
	NIDA	15	7	46.7%
	NIDCD	5	1	20.0%
	NIDCR	20	10	50.0%
	NIDDK	49	28	57.1%
	NIEHS	7	2	28.6%
	NIMH	40	21	52.5%
	Total	**361**	**134**	**37.1%**
2013	NCI	110	50	45.5%
	NHLBI	81	13	16.0%
	NIA	36	15	41.7%
	NIAAA	7	5	71.4%
	NIDA	11	3	27.3%
	NIDCD	4	2	50.0%
	NIDCR	18	11	61.1%
	NIDDK	44	26	59.1%
	NIEHS	5	3	60.0%
	NIMH	46	16	34.8%
	Total	**362**	**144**	**39.8%**

Heart, Lung, & Blood

Mental Health

Cancer

Aging

!!! Alcohol

Deafness

Dental + Craniofacial

Diabetes + Digestive + Kidney Dz

Environmental

Paylines so good, everyone at an MSTP of this calibur should get an F30.

NIGMS - Doesn't fund F30s.

(*) NIH Reporter - See what works/ what got funded. There are hundreds of good examples of abstracts that worked.

Center for Scientific Review (CSR)

- Center for Scientific Review refers applications both to IC & to review group (either at CSR or at the IC)
- Must find study section with reviewers who will be excited about your science – want to see it published (ask sponsor & PO, check CSR website)
- Watch CSR peer review videos, search study sections
- Hundreds of hours on research & application for <15 minute discussion
- Wait a day after study section meeting before obsessively refreshing eRA Commons every 10 minutes

"I'm going to meet Josh every week on Tuesdays at 11." - Alex Deiters

- We have lab mtgs, seminars (department)
- Will go to translational seminars in this clinical dept. every week as well.
- Integrated clinical training.

Key details of training plan.

(*) Can work on this now

- Pitt is great b/c of . . .
- Dept.
- Mentor is great b/c of . . .
  - ↳ He made a custom training plan for me, make it look like mentor spent 50 hrs. on this grant.

Office of Extramural Research

- Data
  - Project RePORTER – search for science, ICs, POs, study sections, sponsors/collaborators
  - RePORT – success rates, budget & spending, data book
- Funding opportunities
- Forms & deadlines
- Policy – pre & post submission
- Guidance

Friday

All About Communication

- Work with sponsor to prepare application (worst reviewer comment: "I can't believe the mentor read this.")
- Communicate with PO when you have draft aims
- Seek feedback on what you write – the reader is probably getting a different message than you think you are conveying
- Application itself sends meta-message to reviewers about you & the type of scientist you are
- Writing for the reviewer (generate excitement) & sponsor (fill their needs)

Sending the Right Message

- Value of this fellowship (vs just working on your sponsor's R01) to you & your training (beyond completing graduate program)
- Integrate research in training plan
- Integrate training in research approach
- Project was started by others – where do you want to take it, where will it take you, what is the public health relevance
- Differentiate yourself from sponsor & sponsor's research (personal statement on biosketch)

Biostatistician - Will . . .

1. Be necessary for zebrafish
2. Polish writing about what will prove hypotheses.

Sending the Wrong Message

- Research and/or training plans not well thought out (e.g., laundry list of equipment, seminars, etc. rather than tailored plan of how these are integrated in your training)
- Conflicting details in different application components
- Weak sponsors section, generic letters
- Ambiguity regarding career directions, missing test scores, unexplained gaps/weaknesses
- See sample review: http://public.csr.nih.gov/ReviewerResources/SpecificReviewGuidelines/Documents/Guidelines_F/f_critique_example083010jds.pdf

- We will publish a paper on ——— w/ Josh as first author.
  - Prove 1 thing beyond reasonable doubt.

Timing is Everything

- Work backward from submission date to prepare grant application timeline – you probably won't keep to it, but you will know when to start panicking
- Start now for December 8 (not Aug 8) – plan 4-6 months of prep time for any grant deadline
- Make checklist for you, sponsor, co-sponsors, referees – assign a due date for each component of the application
- Detailed table of Activities Planned Under This Award will lay out timeline for fellowship itself – helps in planning application, too

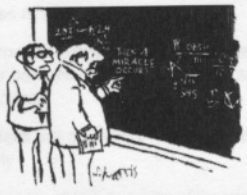
Can lay out budget & training plan now.

2 or 3 letters - Write for one another...

8. Activities Planned Under This Award

Activities		%					
		2014	2015	2016	2017	2018	2019
Course Work	Biology of Aging CSBL 6048	2	-	-	-	-	-
	Graduate Colloquium CSBL 5089	1	-	-	-	-	-
	Ethics in Research INTD 6002	0.5	-	-	-	-	-
	Scientific Writing CSBL 5077	1	-	-	-	-	-
	Practicum in IACUC Procedures MEDI 6100	-	1	-	-	-	-
	Responsible Conduct of Patient Oriented Clinical Research MEDI 5070	-	-	1	-	-	-
	Research CSBL 6097	84	77	-	-	-	-
	Dissertation CSBL 7099	-	-	85	81	-	-
Seminars/ Journal Clubs	Cellular and Structural Biology Departmental Seminar Series (weekly)	1	1	1	1	-	-
	Biology of Aging Seminar Series (weekly)	1	1	1	1	-	-
	Biology of Aging Journal Club (weekly)	1	1	1	1	-	-
	MD/PhD Bench to Bedside Seminar (monthly)	0.5	0.5	0.5	0.5	0.5	0.5
	Medicine Grand Rounds (weekly)	1	1	1	1	-	-
	Research Ethics Roundup (bi-monthly)	0.5	0.5	0.5	0.5	-	-
Meetings	Lab (bi-weekly)	0.5	0.5	0.5	0.5	-	-
	Mentors (weekly)	2	2	2	2	-	-
	Dissertation Committee*	-	0.5	0.5	0.5	-	-
Conferences	Experimental Biology	2	2	2	2	-	-
	MicroRNAs & Human Disease Keystone Symposia	2	-	-	-	-	-
	International Society for Stem Cell Research	-	2	-	-	-	-
	Tissue Repair & Regeneration Gordon Conference	-	-	2	-	-	-
	Myogenesis Gordon Research Conference	-	-	-	2	-	-
Other	Qualifying Exam*	-	5	-	-	-	-
	Dissertation Proposal*	-	5	-	-	-	-
	Dissertation Defense*	-	-	-	5	-	-
	Manuscript Preparation	-	-	2	2	2	-
	Clinical Clerkships					93.5	99.5
	Totals	100	100	100	100	100	100

Telling Your Story Well



"I think you should be more explicit here in step two."

Balance clinical and scientific passion

Telling Your Story Well

- Goal: motivate assigned reviewers to advocate for you & your application during discussion
- Generate excitement & enthusiasm in all reviewers
- Convey substantive participation of sponsor & co-sponsors (as evidenced by thoughtful plans)
- Convey why fellowship is so important to your training as a physician scientist (other than $)
- Recognize limited time for review
  - Make reviewers' job as easy as possible
  - Write for entire panel (not all experts)

Reviewers 1 & 2 are your advocates – they will present you. Help them make you look good. They don't want to look stupid, so you need to make it easy for them to present you.

∴ Feed them 20 well-positioned sentences they can use in part of your grants.

Telling Your Story Well

- Demonstrate commitment to career in academic research with clear goals that the fellowship training as proposed will help you achieve
- Demonstrate how fellowship training plan fills gaps in your education & skill set
- Demonstrate ability to put together an logical, well-planned application & propose an appropriate (vs overambitious) project as a learning platform
- Demonstrate project will be publishable before you leave med school (& pieces presented as posters/talks at conferences before then)

Telling Your Story Well

- Sponsor is critical to your success as a physician-scientist – & the success of your application
- So is your sponsor's funding … if grants are ending soon, reviewers may be concerned if no alternative sources of funds are described
- Be sure all letters are perfect & detailed & enthusiastic – draft them early
- Best qualified applicants have already performed 1-2 years of research – your sponsor should have a strong publication record with trainees

Specific Aims

- Draft Specific Aims first, revise as prepare Approach
- Specific Aims = most important page in application (*)
  - May be only page read by all study section members
  - Must capture attention & generate excitement
  - Must tell entire story
  - Don't get bogged down in details – focus on story
- Show Specific Aims page to as many people as possible – especially PO – to get good perspective on what you are communicating & whether it is a compelling, feasible (as F30) story

(*)

1. Only page that EVERYONE on the study section will read.
   It talks to the 37 people in study section
2. First thing everyone on study section will read.
   Don't put them off - Must bring reader in with first ¶.

Specific Aims

- Set the stage for your story – why the focus of your research is important
- Highlight knowledge gap to be filled by your work
- Lead up to theory (based on data, whether yours or others) & hypothesis (your proposed assumption)
- Logical flow funneling reader to your Aims (next slide)
- Brief paragraph labeled "Overall Impact"
- Brief paragraph labeled "Contribution to Training"

Specific Aims

- Aims themselves describe the effort to be taken to address the hypothesis
  - Verb/action-based statement ("Determine xyz in abc")
  - Brief summary of approach
  - Sentence on anticipated results & implications
- Aims should be related but independent (not conditional on each other)
- Aims should not assume hypothesis is correct

April 8 | Aug 8 | Dec 8

Research Strategy

- Significance = why the work is important to do
- Goal: Generate desire for your project
- Make reviewer's job easier by labeling sections based on review criteria (e.g., "Importance of the Project", "Scientific Knowledge to be Gained")
- Look at your study section roster
  - Write for them, cite research of interest to them (maybe even theirs …)
  - Do not avoid discussing conflicting/alternative theories

Big figures with Controls.
Have every single ctrl and a good description of why it's there to show that you understand how to do a Controlled expt.

Research Strategy

- Preliminary data (if you have any) go wherever they strengthen the story
- Approach needs to achieve the aims – organize by aim to guide the reviewer
  - Focus on overall design (especially rationale) & knowledge gained rather than procedural details
  - Discuss analysis & interpretation, including potential pitfalls & alternative approaches
  - Avoid the most common pitfall: TOO AMBITIOUS (can't propose to do everything in the hope the reviewers will like something)

- Show that you're being trained in addressing the hypothesis with more than one technique
- State-of-the-art
- Be clear on how you'll prove each hypothesis

Comply w/ NIH mandates (e.g., mice 50:50 M:F unless you have a very good reason)

Cover Letter

- Request IC assignment
- Request SRG assignment (essential to get this right!)
- Identify areas of expertise needed to review the science (no names)
- Name the PO with whom you have been working
- Identify referees

Science of Communication: Visual

- Format for readability
  - Ragged right margin easier to read & follow text than full justification
  - Use bold, italics, underline, color, etc. sparingly
  - Figures and flow charts should be simple & easily followed at a glance (not shrunk to fit)
  - More white space is always better than more words
- Reviewers have many applications to read – picture them with yours at 2 am with a sick child crying & their own grant applications to write

- Bigger figures, fewer words

Science of Communication: Rhetoric

- Use active tense, first-person voice "I" will do this
- Keep sentences concise & clear "We" will do this
- Avoid use of modifiers (except scientifically descriptive), jargon, abbreviations
- Do not overstate: puts reader on guard, diminishes the narrative (reviewer uses Missouri state motto: show me)
- Consider whether each detail is necessary to message
- Important information (new, exciting) at end of sentence in stress position vs buried in middle

My projects build on ____ from previous trainee. Preliminary data that you designed and carried out w/ your mentor.

Things You Can Do Right Now

- Draft multiple hypotheses for possible projects
  - Determine best fit for training needs & career goals
  - Do so with enough time to generate preliminary data & fine-tune proposal
- Read instructions at least twice
- Read successful proposals
- Activities Planned Under This Award
  - Draft table that visually lays out entire training program & how it moves you toward achieving goals
  - Modify as you develop & tweak your training program

Things You Can Do Right Now

- Biosketch
  - Concentrate on drafting Personal Statement that gives reviewers full picture of you
- Letters & biosketch personal statements for consultants & referees
  - See http://www.pitt.edu/~gsiegle/Siegle-f31hints-BehaviorTherapist10_fordistrib.pdf
- Responsible Conduct of Research
  - Some boilerplate – but tailored to your research focus
- Facilities and Other Resources
  - Ditto

Things You Can Do Right Now

- Other components can be drafted early
  - Additional Education Information
  - Goals for Fellowship Training and Career
  - Doctoral Dissertation and Other Research Experience
  - Respective Contributions
  - Selection of Sponsor and Institution
- Consider title – whether to focus on approach or underlying hypothesis/mechanism
- ALWAYS easier to have draft on hand to tweak rather than a blank document when the deadline draws near

Resources

- Project RePORTER (funded applications): http://projectreporter.nih.gov/reporter.cfm
- Office of Extramural Research (data, forms, grants policy): http://grants1.nih.gov/grants/oer.htm
- CSR (study section search & videos, review criteria): http://public.csr.nih.gov/Pages/default.aspx
- NIAID grant tutorials (all good, here is section on Fs): http://www.niaid.nih.gov/researchfunding/traincareer/pages/advice.aspx#F

- Send review in a day early
- Be ready to speak about grant for 5 min.

Write a Draft training plan in 2 wks. - Merits of Pitt
Same 1st 2 Aims about Pitt's curriculum (MSTP)
15 min. disc. of each one.

Selected pubs
1. Illustrate that a novel technique was done

Biostats consult for ~~Zeb~~rafish work?
YES - You need one!

? Resubmission
Developing new technologies vs. applying them in Zebrafish translationally

 1 sentence/pg.

NOW

1) ID institute, Prgm Officer, study section members and their interests — are any chemists?
Tailor the research plan to their expertise

2) Who does budgets for our lab/department?

3) Ask dept. chair for letter - they often want to meet you to know who you are.

Cover letter: "We respectfully request review by ~~instit~~ / study section / reviewers w/ expertise in..."

Other letters - Biostatistician, Clinician you'll shadow monthly/f/u with

- "Learning good Scientific method will impact my Clinical practice." ~~because~~

4) Think about training plan

5) Biostatistician

Training plan: (Applicant writes that ish)
"I have personally developed an individual training plan for ____ who is in the top ____% of ~~applicants~~ grad students I've mentored."
No negativity allowed

Most reviewers are PhD's; don't go on-and-on about clinical dekel.
- What you want to become
- How will it help America
Write for Scientists.