SITC 2017

Mechanics of Grant Writing

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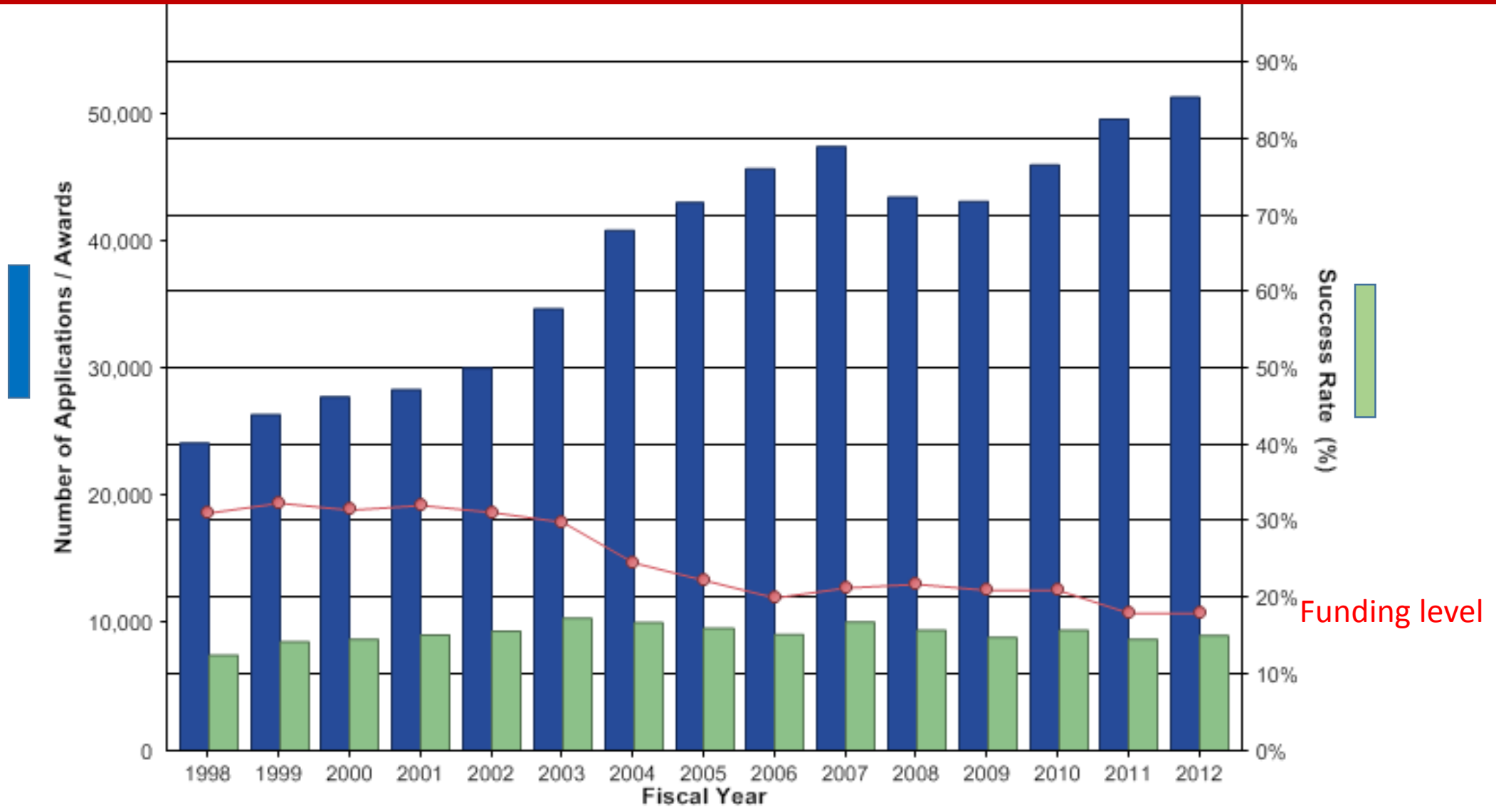
sitc

Society for Immunotherapy of Cancer

John Barrett

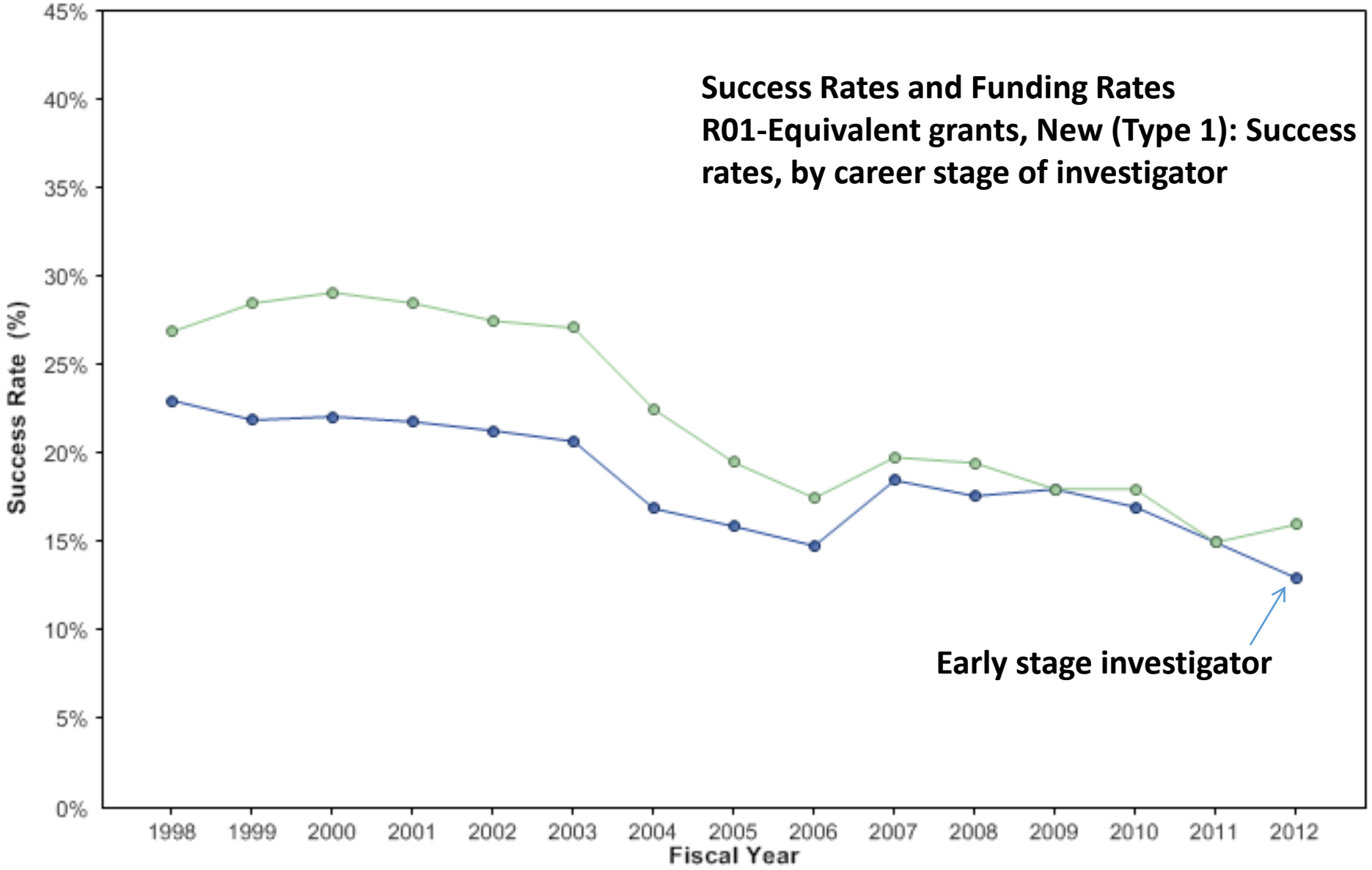
No relationships to disclose

Sobering Statistics



Funding level

- also for early stage investigators



Learning the route to success reduces pain and disappointment

Get up to date with your field

Select a novel idea

Plan research for the next 3 years Find collaborators, materials

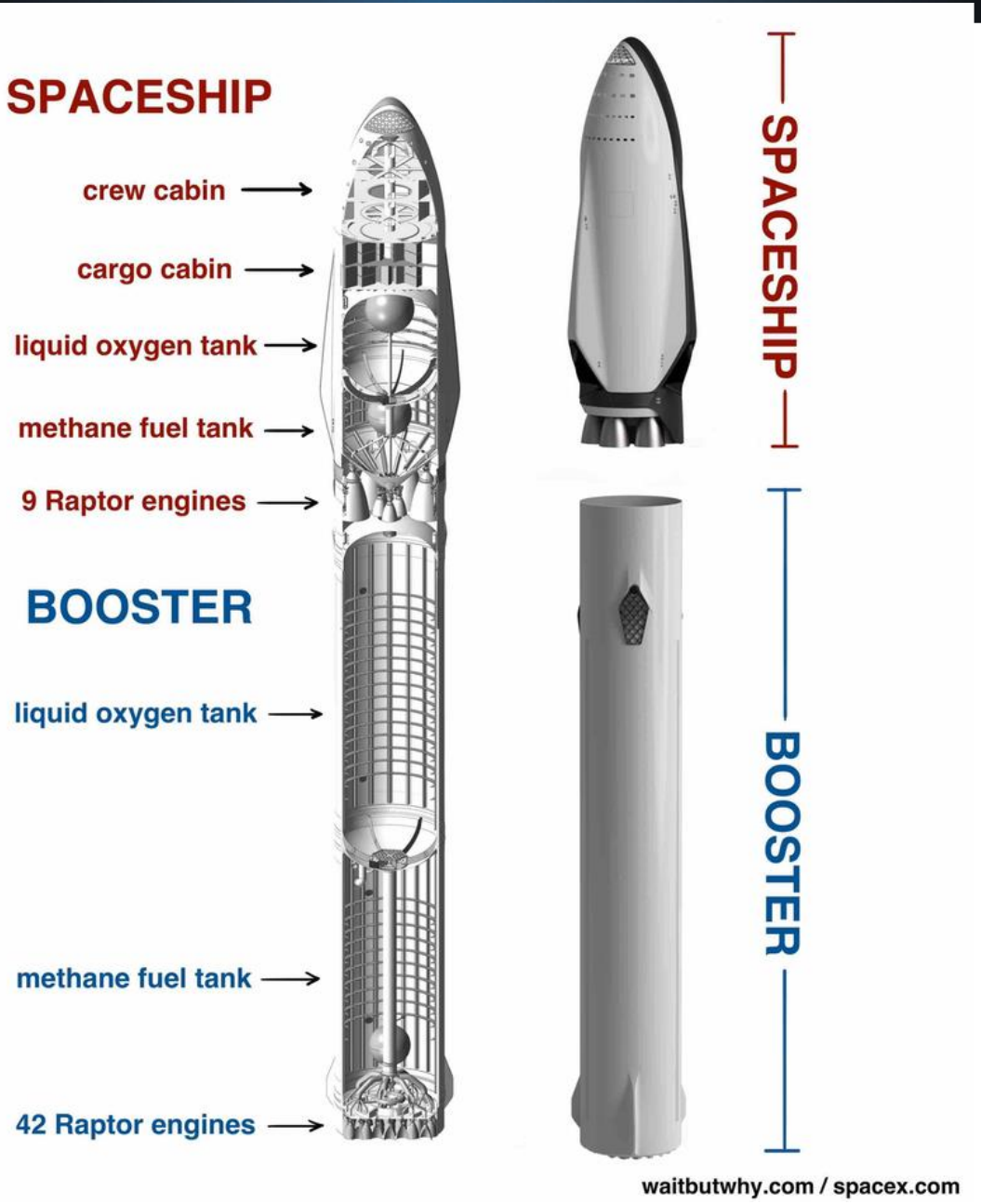
Select the right grants for your career situation

Allow 8 months - a rushed grant is likely to fail

Address all grant components – LOS, Budget, etc –
The grant is more than the idea it's a complete plan

Think like the reviewer!

Before starting to seek support - Will your proposal fly?



What is the need?

How good is the idea?

How good is the proposer – track record?

How much data supports the concept?

Team, equipment, environment?

Timeline realistic?

Budget appropriate/realistic?

Don’t start without a really important question
no amount of grantsmanship can save a poor dull project

Successful funding depends on

The written grant

But also the inherent quality of the project

- The need
- The novelty
- The experimental approach
- The impact of the results

RO1 vs K: Scored review criteria

Discipline-based Study Sections

RO1: its about the project

Significance
Investigator quality
Innovation
Approach
Environment

Single K mechanism study section

K: Its about the candidate

Candidate **Career development plan**
career goals & objectives
mentoring plan
Research plan
mentors/consultants

Institute commitment to candidate
Institute environment

Other Alternatives to the RO1

- K23, K08
  - Data, publications,
- DOD fellowship
  - Prostate, breast, ovarian
- AACR/ASCO
  - 1-2 years, early money

- NRSA
- ACS
- Leukemia Society
- Komen Foundation
- ETC, ETC, ETC

Send one grant to multiple places

Be aware of the readership for your grant

Make the proposal specific for each grant mechanism

The K strategy

Weighted on mentor and candidate (5+ pubs)

Track record for candidate

Track record for mentor – choose wisely

What the mentor says about you: don't be shy write it for them!

Or: Revise the letter – you are the only one to spend the time

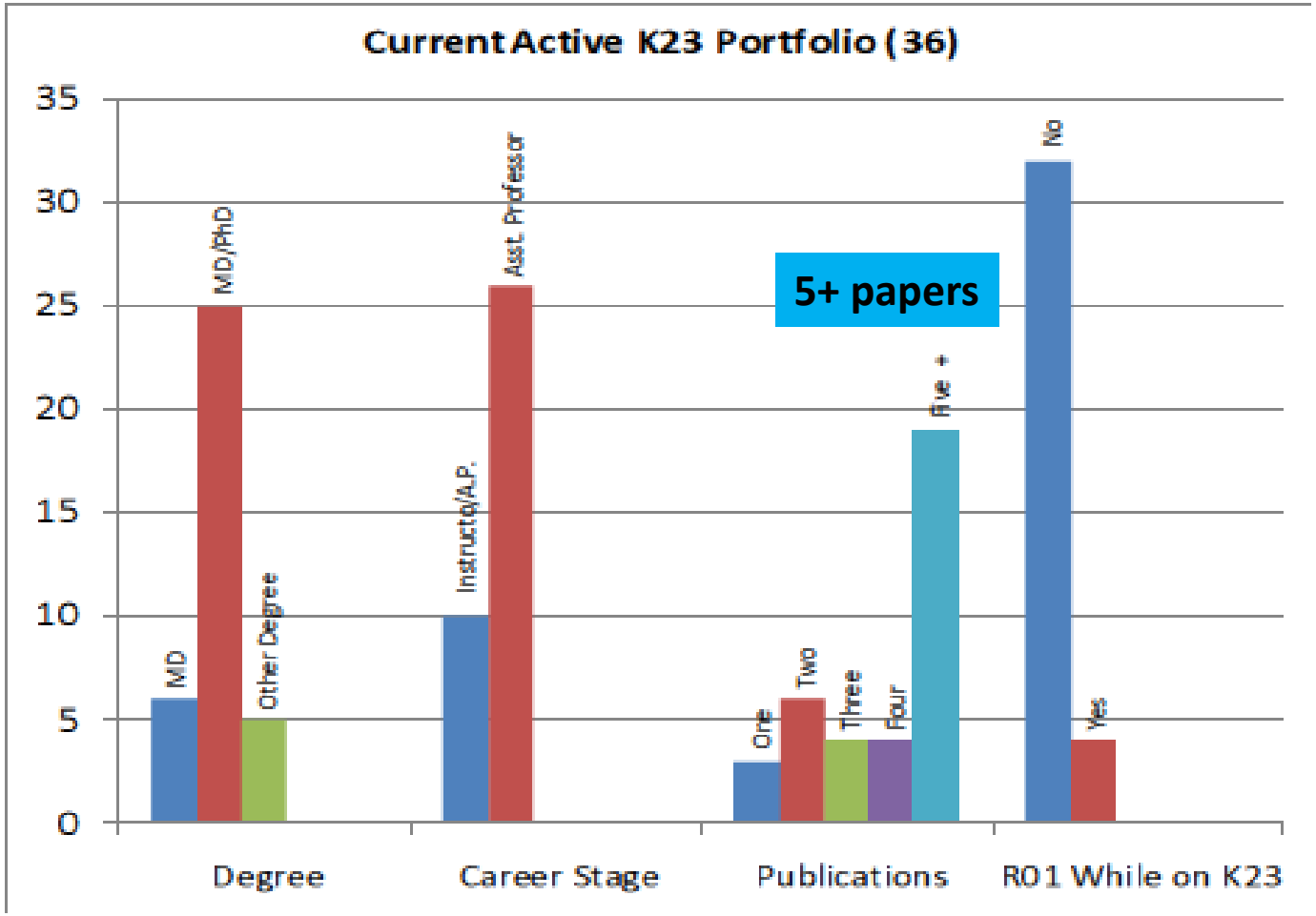
The key aspects of the mentor letter

- Not only a recommendation
- Mentoring plan
  - Meetings? Other mentors? Classes? Seminars?
- What is the mentor track record in mentoring?
  - How many? Where are they now?
- What type of support does the mentor have?
  - Would you be supported for new ideas, if your funding did not go through?
- After all this….then how wonderful YOU are!
- ADVOCATE FOR YOURSELF- no one cares more about your career than YOU!! Read all letters of support-if not good enough, revise and return.

Don't forget: Institutional Support-
You want them- do they want you?

K Candidate needs to show a track record!!

Profiles of successful applicants



R grants

Generic types of RO1 proposals

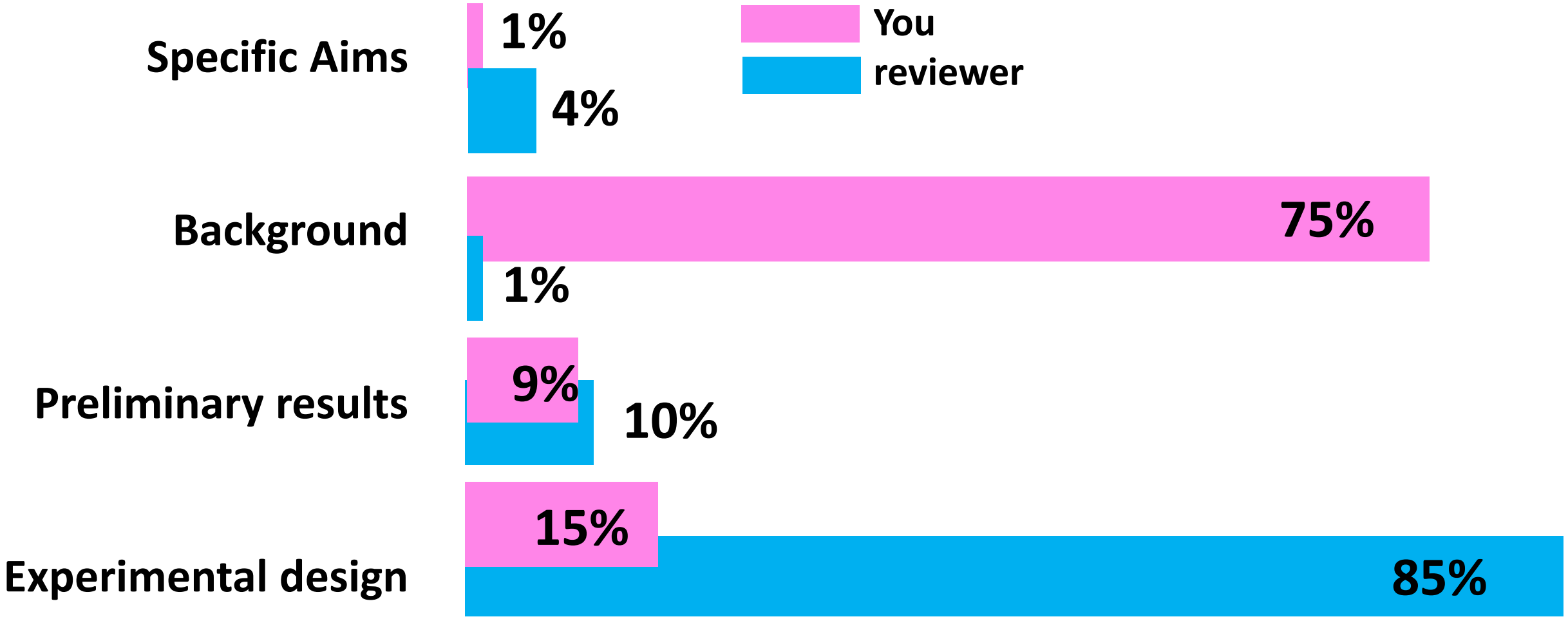
- R01 Research Project Grant: bread-and-butter grant for unsolicited research by one or more named investigators
- R21 Exploratory or Development Grant: small, time-limited grant to explore new ideas
- R03 Small Grant: time-limited and nonrenewable grant in a targeted area
- R00/K99 Pathway to Independence Award: intended to help post docs obtain R01funding earlier in their careers

R grants

Who reviews your R01 application?

- Fourteen to 20 scientists with expertise in your field of interest
- Within this "study section," only 2 or 3 scientists read application in detail and write formal critiques
- Recommendations of study section based largely on those critiques
- Include in your cover letter the names of any competitors who should not review your application (and why)

The reviewer focus may not be yours!!



Reviewers will Recognize Application Types

New and Early Stage Investigators (NI and ESI) -

- Consider career stage when evaluation investigator.
- Focus more on the proposed approach than on the track record; for ESIs, expect less preliminary data than from an established investigator.

Resubmission (A1) - read prior summary statement and consider response

Evaluate the application as now presented, taking into consideration the responses to comments from the previous scientific review group and changes made to the project.

Renewal (2R01) - consider progress

Consider the progress made in the last funding period.

Revision (3R01) – competing supplement

Consider the appropriateness of the proposed expansion and scope of the project.

The 5 criteria the reviewer uses

Overall Impact is evaluated on:

Significance

Investigator

Innovation

Approach

Environment

Significance Criterion Score and Overall Impact Score

Significance

- Assuming that all the aims are successful
- project address a problem or critical barrier to progress in the field *or* improves knowledge, technical capability, or clinical practice

- SCORED major (1-3), moderate (4-6) or minor (7-9)

- Overall Impact
- Influenced by all 5 criteria (significance, investigator, innovation, approach, environment) *weighted based on reviewer's judgment*

- SCORED high (1-3), medium (4-6) or low (7-9) likelihood that a project will have a sustained and powerful influence on the field

Investigator Criterion

Personal Statement:

How do investigators' experience and qualifications make them particularly well-suited for their roles in the project?

Publications:

Recommended: no more than 15---up to five of the best; up to five of the most relevant to the proposed research; up to five of the most recent. However, this format is not required.

Early Stage Investigators or New Investigators: - appropriate experience and training?

Established Investigators: demonstrated an ongoing record of accomplishments that have advanced their field ?

Leadership Plan needed for multiple Principal Investigator applications.

Innovation Criterion

- **Does application** challenge/seek to **shift current research or clinical practice paradigms** by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions?

- Are concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?

- **Are refinement, improvement**, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions **proposed**?

Approach Criterion

- **Well-reasoned** appropriate overall strategy, methodology. Analyses to accomplish the goal.
- **Well described potential problems**, alternative strategies, & benchmarks for success.
- **For proposals in the early stages of development**, *strategy to establish feasibility* and risky aspects of management is evident.
- Expect **experimental/methodological details to be brief**, while a general empirical approach is still required.
- **Preliminary Studies and/or progress report** may be presented as separate sections or embedded within Approach.

Environment Criterion

- limit to those resources directly applicable to the proposed work.
- Major items of equipment already available for the proposed studies listed under Equipment.
- Describes institutional investment, e.g., start-up funds and mentoring arrangements.
- For multiple sites, describe resources at each site.
- Include special facilities that handle biohazards, etc.

Human Subjects/Vertebrate Animals

- **For research involving Human Subjects, if not exempt, address:**
  - risk to subjects,
  - adequacy of protection against risks,
  - potential benefits to the subjects and others,
  - importance of the knowledge to be gained,
  - and data and safety monitoring for clinical trials.

  Include any use of human samples, even if coded "No Human Subjects."
- **For research involving Vertebrate Animals, 5 points:**
  - description of proposed use;
  - justification for the use of animals, appropriateness of the species and numbers used;
  - veterinary care;
  - procedures to limit discomfort or pain; and methods for euthanasia.

Criterion Scoring Chart

Criterion Strength	Score	Descriptor
High	1	Exceptional
	2	Outstanding
	3	Excellent
Medium	4	Very Good
	5	Good
	6	Satisfactory
Low	7	Fair
	8	Marginal
	9	Poor

Overall Impact Scoring

Overall Impact:
The likelihood for a project to exert a sustained, powerful influence on research field(s) involved

Overall Impact	High	Medium	Low
Score	1 2 3	4 5 6	7 8 9

Evaluating Overall Impact:
5 criteria:
significance,
investigator,
innovation,
approach,
environment

e.g. Applications addressing a problem of high importance /interest in the field.

May have some or no technical weaknesses.

e.g. Applications addressing a problem of high importance in the field,

but weaknesses in the criteria bring down the overall impact to medium.

e.g. Applications addressing a problem of moderate importance in the field, with some or no technical weaknesses

e.g. Applications addressing a problem of moderate/high importance in the field,

but weaknesses in the criteria bring down the overall impact to low.

e.g. Applications addressing a problem of low or no importance in the field, with some or no technical weaknesses.

5 is a good medium-impact application, and the entire scale (1-9) should always be considered.

Why was I not funded?

- Read reviews and list criticisms
- Respond to each critique remembering the reviewer is always right
- Never ignore a suggestion to remove an aim or add another form of analysis
- If conflicting points are raised, call and ask the review officer
- When you re-submit, do not ignore new findings in the field
- Do not turn the grant in at next cycle if reviews are substantial

Why was I not funded?

1. There are not CLEAR HYPOTHESES or WELL DEFINED GOALS
2. The SPECIFIC AIMS do NOT TEST the hypothesis
3. The SPECIFIC AIMS DEPEND on results from previous aims
4. The Proposal is: NOT MECHANISTIC, or NOT SCIENTIFICALLY RELEVANT
5. This application is not appropriate for the grant mechanism
6. The proposal is OVERLY AMBITIOUS
7. Preliminary Data is lacking
8. I'm not sure that the Investigator can do the PROPOSED EXPERIMENTS
9. The Background section is missing key publications and experimental findings
10. Experimental Details, Alternative Approaches, or Interpretation of Data are Inadequately Described

Take home messages

No amount of grantsmanship will compensate for a bad project

Finish preliminary work

Consider multiple applications

Give enough time to prepare ALL the aspects of the grant –
don't leave LORs / budgets / experimental timeline to the last minute

Put yourself in the reviewer's seat !