A Quick Guide to NIH Grants for Early Stage and New Investigators

The Secret Life of the Study Section

The Application and Scoring

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A Quick Guide to NIH Grants for Early Stage and New Investigators

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(2008)
Ph.D. Career - NIAID

T32 - Institutional training grant (NRSA) - has pre- & postdoc slots
F31 - Individual minority predoc fellowship (NRSA)
F32 - Individual postdoc fellowship (NRSA)
F33 - Sr. postdoc fellowship (NRSA)
R03 - Small Grant
R21 - Exploratory/Developmental Research Grant
R01 - Research grant
K02 - Independent Scientist Award
K22 - Research Scholar Development Award
K99/R00 - Pathway to Independence Award
R37 - Merit award

Diversity Supplements

Graduate student — Ph.D. — Faculty Position — Independent PI
M.D. Career - NIAID

T35- Short-term Training Grant for Health Professional Students
F33- Sr. Postdoctoral Fellowship (NRSA)
K08- Mentored Clinical Scientist Development Award
K23- Mentored Patient-Oriented Research Career Development Award
K24- Mid-Career Investigator in Patient-Oriented Research
Plus all mechanisms from Ph.D. track
K22 Research Scholar Development Award

- Transition award for postdocs moving to positions of assistant professor
- Must have less than 5 years postdoctoral experience
- Two-phased application
  - Phase 1
    - Scientific merit
    - No institution yet
  - If applicant gets a fundable score, they have a year to find a position as assistant professor
  - Phase 2
    - Assistant Professor
    - Own lab
    - Significant start-up funds
    - Little teaching/no administrative responsibilities

K99/R00 Pathway to Independence Award

- Transition award for postdocs moving to assistant professor positions
- Must have less than 5 years postdoctoral experience
- Has mentored phase
- Citizenship and green card not required - new feature for any K award.
- Has a mentored phase (K99) and an independent phase (R00)
- NIAID committed to only six awards

K22 and the K99/R00 Award Features

**K22**
- 2 yr award
- No mentored phase
- Awardee gets funds at the time of becoming asst. professor
- $150K (year 1) direct costs + $100K (year 2) direct costs + 8% F&A

**K99/R00**
- 3 year award **only**
- Up to 1 yr mentored phase ($90K/yr)
- Awardee becomes asst. professor - No peer review
- 2 yr independent R phase ($249K/yr TC)
Timeline from Postdoc to Assistant Professor

- PhD or EOT for MDs
- Postdoc
  - Apply For K22 or K99
  - Re-apply If needed
- K22 or K99
- Assistant Professor
- R01
- Promotion Tenure
- 0 Yrs
- 5 Yrs
- ~11 Yrs
Career Award Selection

http://grants.nih.gov/training/kwizard/index.htm

Question 1

Is your terminal degree (generally a doctoral degree) one of the following?

- Research Degree
- Health Professional Degree
Average Age of First Time R01 Equivalent

Average age of first time R01 equivalent for MD-PhD, MD Only, and PhD Only from 1970 to 2006.
An ESI is a scientist who is within 10 years of either of the following:

- Terminal research degree
- Medical residency or equivalent

You can request an extension of your ESI status past the 10-year window due to special circumstances.

Keep in mind that on a multiple PI application, all PIs must qualify as new or ESI for the application to get either status.
New Investigator Status

A new investigator is a scientist who has not previously received a significant independent NIH Research Award. The following are grants that do not affect NI status:

- R00
- R03
- R15
- R21
- R34
- R56
- Fellowships (F)
- Career Development (K)
- Loan Repayment (L30, L32, L40, L50, L60)
- Training Grants (T32, T34, T35, T90, D43)

http://grants.nih.gov/grants/new_investigators/index.htm#definition
NIAID Success Rates by Mechanism in 2008

- **K22** – 19.2% (10)
- **R99** – 7.5% (6)
- **K08** – 49.3% (37)

- **R03** – 22.1% (58)
- **R21** – 21.3% (266)
- **R01** – 20.7% (533)

http://report.nih.gov/
Eligibility and Salary Questions

Q: If ESIs receive stimulus funding will they still have ESI status?
A: It depends on the mechanism of ARRA support.

Q: When you have a K award, what are restrictions of receiving salary with other NIH grants?
A: You cannot receive salary from any other source of federal funds.

Q: How can we apply for other NIH awards with no salary in the budget?
A: Some K awards allow for the potential to apply for R01s and obtain salary support in the last 2 years of the grant (i.e. K08). You can be on another PI’s grant with effort but no salary.

- Each K award is slightly different. Check the K Kiosk website for details or contact a program officer with questions:
  
  http://grants.nih.gov/training/careerdevelopmentawards.htm
The secret life of the study section
Where are applications reviewed?

**CSR**
- Study Sections

**INSTITUTES**
- Scientific Rev. Grps.

**CSR**
- Research Project Grants (R01s)
- AREA Grants (R15s)
- Fellowships (F32s & F31s)
- SBIRs
- Shared Instrumentation Grants
- Small Grants (R03s)
- Exploratory/Developmental Grant (R21s)

**INSTITUTES**
- Program Project Grants (P01s)
- Center Grants (P30s)
- Training Grants (T32s)
- K Grants
- RFAs (some of which will be for R01s)
- Contracts
What happens to my application at NIH?

Submission of application

CSR

CSR Referral Office

CSR Study Section - review

Institute Review

Advisory Council

INSTITUTE FUNDING DECISION

NGA
Objectives

1. What is a study section and how they arranged?
2. How are members selected for a study section?
3. How does your grant get assigned to a specific study section?
4. What is the duty of the reviewer?
5. What does the review entail?
6. How are scores assigned?
7. What is a good grant?
What is a study section and how are they arranged?

Study sections are arranged by NIH (or federal/state/private organizations) for the purpose of reviewing grant applications for funding.

The members of a study provide a review of a grant application based on established criteria. The review is “translated” to a numerical score for the purpose of ranking from exceptional to poor.
What is a study section and how are they arranged?

http://grants.nih.gov/grants/peer/peer.htm
What is a study section and how are they arranged?

The initial step of the peer review process takes place in Scientific Review Groups (SRGs) that are managed by the Institutes and Centers that are components of the NIH. The Center for Scientific Review (CSR) is one of the NIH components that manage the scientific review groups that evaluate investigator-initiated applications. The CSR homepage provides a complete listing of Rosters for the Scientific Review Groups (SRGs) managed by CSR. The Awarding Institutes and Centers also manage many Scientific Review Groups that evaluate applications submitted in response to special solicitations such as Request for Applications (RFAs), and for unique programs. The listing below provides access to both membership rosters and meeting dates. Where available the subsequent links provide:

- The full name and complete description of each study section
- The name of the Scientific Review Administrator (SRA) for each study section
- Scientific Review Group meeting schedules.

Special Emphasis Panels (SEPs) are listed by Institute or Center (IC). Within each IC there is an alphabetic listing of specific SEPs. The listing of the specific SEPs contains the roster for each SEP as well as contact information for the designated Scientific Review Administrator.

**Important Notice Of NIH Policy To All Applicants:** All rosters are provided for information purposes only. Applicant investigators must not communicate directly with any review group member about an application either before or after the review. Failure to observe this policy strictly will create serious breaches of confidentiality and conflicts-of-interest in the peer review process. All questions must be directed to the Scientific Review Administrator in charge of the review group. The roster below is a working document and should not be considered as complete until the meeting date. A final and complete roster will be provided with the summary statement.

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<tr>
<th>Awarding Institute and Center Standing Committee</th>
<th>Roster Information</th>
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<td><strong>AWARDING INSTITUTE AND CENTER STANDING COMMITTEE ROSTER INDEX</strong></td>
<td><strong>Committee Name</strong></td>
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<tr>
<td>CSCR</td>
<td>Center For Scientific Review</td>
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<tr>
<td><strong>CSR STANDING COMMITTEES</strong></td>
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<tr>
<td>AA.1</td>
<td>NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM Biomedical Research Review Subcommittee</td>
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<tr>
<td>AA.2</td>
<td>NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM Epidemiology, Prevention and Behavior Research Review Subcommittee</td>
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<tr>
<td>AA.3</td>
<td>NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM Clinical, Treatment and Health Services Research Review Subcommittee</td>
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<td>AA.4</td>
<td>NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM Neuroscience Review Subcommittee</td>
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<tr>
<td>AIDS</td>
<td>NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES Acquired Immunodeficiency Syndrome Research Review Committee</td>
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<tr>
<td>NIC</td>
<td>NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES Allergy, Immunology, and Transplantation Research Subcommittees</td>
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<tr>
<td>NIDR</td>
<td>NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN DISEASES Arthritis and Musculoskeletal and Skin Diseases Review Committee</td>
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</table>
What is a study section and how are they arranged?

CSR Study Section Roster Index

Notice of CSR policy to all applicants: All rosters are provided for information purposes only. Do not communicate directly with study section members about your application. Direct all questions only to the SRO in charge of the study section. Failure to observe this policy strictly will create a serious breach of confidentiality and conflict-of-interest in the peer review process. Likely actions include removal of the investigator's application(s) from immediate review, coupled with delay and deferral of evaluation to a different review group in the following review cycle.

Use the links below to navigate to the category of study section rosters of interest

CSR Regular Standing Study Section Rosters
These study sections review most of the investigator Initiated Research Grant (R01) applications (and sometimes review small numbers of R03, R21, AREA and K applications, amongst others).

Included within this section are several, on-going Special Emphasis Panels (SEPs) that meet regularly for specific scientific areas. These continuing SEPs are composed of temporary members only and do not have a permanent membership.

CSR Fellowship Study Section Rosters
These study sections review Individual fellowship grant applications - F30, F31, F32, F33.

CSR SBIR/STTR Study Sections
Small business innovation research and small business technology transfer grant applications. Review panels are assembled on an ad hoc basis for each meeting; therefore, their designations and scientific emphasis may change with each review cycle.

All Other CSR Study Sections
CSR runs a number of 'one time Special Emphasis Panel' meetings with rosters tailored to the applications under consideration. If you cannot find your panel by searching one of the above links, you will find it here. Only the current rosters are provided 30 days before the meeting.
**What is a study section and how are they arranged?**

The Scientific Review Officer (SRO) works in partnership with the scientific community to ensure that the scientific review group (study section) identifies the most meritorious science for funding by the Institutes and Centers.

Kenneth Roebuck, Ph.D.  
Division of AIDS,  
Behavioral and Population Sciences  
Scientific Review Officer  
AIDS and Related Research (AARR)  
AIDS Molecular and Cellular Biology (AMCB)  
NIH/CSR Center for Scientific Review,  
Room 5106 6701 Rockledge Dr. Bethesda, MD 2089

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<table>
<thead>
<tr>
<th>Study Section Acronym</th>
<th>Study Section Description</th>
<th>SRO</th>
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<tbody>
<tr>
<td>ACE</td>
<td>AIDS Clinical Studies and Epidemiology Study Section</td>
<td>HILARY SIGMON</td>
</tr>
<tr>
<td>ACTS</td>
<td>Arthritis, Connective Tissue and Skin Study Section</td>
<td>AFTAB ANSARI</td>
</tr>
<tr>
<td>ADDT</td>
<td>AIDS Discovery and Development of Therapeutics Study Section</td>
<td>EDUARDO MONTALVO</td>
</tr>
<tr>
<td>AED</td>
<td>Anterior Eye Disease Study Section</td>
<td>JERRY TAYLOR</td>
</tr>
<tr>
<td>AICS</td>
<td>Atherosclerosis and Inflammation of the Cardiovascular System Study Section</td>
<td>LARRY PINKUS</td>
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<tr>
<td>AIP</td>
<td>AIDS Immunology and Pathogenesis Study Section</td>
<td>SHIV PRASAD</td>
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<tr>
<td>AMCB</td>
<td>AIDS Molecular and Cellular Biology Study Section</td>
<td>KENNETH ROEBUCK</td>
</tr>
<tr>
<td>ANIE</td>
<td>Acute Neural Injury and Epilepsy Study Section</td>
<td>SEETHA BHAGAVAN</td>
</tr>
<tr>
<td>AOIC</td>
<td>AIDS-associated Opportunistic Infections and Cancer Study Section</td>
<td>EDUARDO MONTALVO</td>
</tr>
<tr>
<td>APDA</td>
<td>Adult Psychopathology and Disorders of Aging Study Section</td>
<td>ESTINA THOMPSON</td>
</tr>
<tr>
<td>ASG</td>
<td>Aging Systems and Geriatrics Study Section</td>
<td>JAMES HARWOOD</td>
</tr>
<tr>
<td>AUD</td>
<td>Auditory System Study Section</td>
<td>LYNN LUETHKE</td>
</tr>
<tr>
<td>BACP</td>
<td>Bacterial Pathogenesis Study Section</td>
<td>RICHARD KOSTRIKEN</td>
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<tr>
<td>BBM</td>
<td>Biochemistry and Biophysics of Membranes Study Section</td>
<td>NURIA ASSA-MUNT</td>
</tr>
<tr>
<td>BCHI</td>
<td>Biomedical Computing and Health Informatics Study Section</td>
<td>KATHERINE BENT</td>
</tr>
</tbody>
</table>
What is a study section and how are they arranged?

### AIDS MOLECULAR AND CELLULAR BIOLOGY STUDY SECTION
**Center For Scientific Review**  
**MEETING ROSTER**

#### CHAIRPERSON

SPEARMAN, PAUL W, MD  
PROFESSOR AND DIVISION DIRECTOR  
DEPARTMENT OF PEDIATRICS  
EMORY UNIVERSITY  
ATLANTA, GA 30322

#### MEMBERS

CANNON, PAULA M, PHD  
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DEPARTMENT OF PEDIATRICS AND BIOCHEMISTRY  
KECK SCHOOL OF MEDICINE  
UNIVERSITY OF SOUTHERN CALIFORNIA  
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CHOW, SAMSON A, PHD (*)  
ASSOCIATE PROFESSOR  
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UNIVERSITY CALIFORNIA AT LOS ANGELES  
LOS ANGELES, CA 90095

ENGELMAN, ALAN N, PHD  
ASSOCIATE PROFESSOR  
DEPARTMENT OF PATHOLOGY  
DANA FARBER CANCER INSTITUTE  
BOSTON, MA 02115

FARZAN, MICHAEL R, PHD  
ASSOCIATE PROFESSOR  
DEPARTMENT OF MICROBIOLOGY AND MOLECULAR GENETICS  
NEW ENGLAND PRIMATE RESEARCH CENTER  
SOUTHBOROUGH, MA 01772

GARCIA-MARTINEZ, J VICTOR, PHD  
PROFESSOR  
DIVISION OF INFECTIOUS DISEASES  
UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL  
CHAPEL HILL, NC 27599

GOODENOw, MAUREEN M, PHD  
PROFESSOR  
DEPARTMENT OF PATHOLOGY, IMMUNOLOGY

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How are study section members selected?

- Members are selected from the scientific community from all over the U.S. and undertake research in the area(s) that the study section focuses on for grant application evaluation.
- Members can be adjunct or permanent and permanent members are associate professors and above.
- Members serve for up to 6 years.
- There are standing study sections and special emphasis.
How does your application get assigned to a specific study section?

In your cover letter to NIH you request a specific study based on your research:

The AIDS Molecular and Cellular Biology [AMCB] Study Section reviews applications concerned with the molecular biology, cellular biology, structural biology, virology and genetics of HIV and related lentiviruses involving biochemical, pathophysiological and structural approaches. Emphasis is on molecular structure-function approaches to elucidating virus and host mechanisms of interaction and regulation. Specific areas covered by AMCB are:

- Role of host gene products in virus infection and replication including HIV host restriction factor interactions.
- Mechanisms of viral evolution and fitness and mechanisms of host resistance with an emphasis on virus-host cell responses.
- Structure-function studies of virus and host gene products and their mechanisms of interaction.
- Molecular and biochemical mechanisms of virus entry, genome integration, proviral transcription, and viral particle assembly and release.
- Viral pathogenesis studies in animal models with an emphasis on non primate models.

**Study sections with most closely related areas of similar science listed in rank order are:**

- AIDS Immunology and Pathogenesis (AIP)
- AIDS Discovery and Development of Therapeutics (ADDT)
- NeuroAIDS and other End Organ Diseases (NAED)
What is the duty of the reviewer? Information

http://enhancing-peer-review.nih.gov/guidance_reviewers.html
The members of a study provide a review of a grant application based on established criteria and their scientific expertise. The review is “translated” to a numerical score for the purpose of ranking from exceptional to poor.
All eligible (without Conflicts of Interest) Scientific Review Group (SRG: reviewer) members participate in the evaluation of an application.

SRO assignment is based on reviewer expertise and the subject of the application.

The reviewer assigned to a particular application include the primary, secondary, or tertiary reviewers; other contributing reviewers (e.g. mail reviewer); and discussants.

Primary Reviewer: “main reviewer”, responsible for the discussion of the application in study section.

Secondary Reviewer: Must have extensive knowledge of the application.

Discussant / Tertiary Reviewer: Reads and provides some comments.

The reviewer receives from 6 - 9 applications, including R01s, R21, F32s, etc. Reviewers assigned: 3 primary, 2-3 secondary, rest tertiary

Grants come to the reviewer up to two months before review date.
Reviewing the application

Read THEN review: TWO PASSES = DETAILS

Read AND review: ONE PASS = CLARITY

Usually takes 1-2 days for a review.

Can ask for help for technical points. Can’t discuss review/application with study section members before the meeting.

Assign score, move to next application.

Read through all reviews after finishing all application and rescore if needed.

After study section, can revise review.
The meeting

- Configuration of the group: SRO, Chair, reviewers, call in reviewers, and NIH people

- Conflict of interest: Must not be in the room or discuss the application, score, etc.

- The process of triage: Bottom 50%, usually not reviewed at the study section. Application can be rescued or if vastly different scores, then reviewed at the study section.

- Presentation of critique and score.

- Usually one day meeting.
The Application and Scoring
Components Of The Application

1. Project Description = Abstract

2. Specific Aims (1 page)

3. Research Strategy (Total = 12 pages)
   3A. Significance (1 page)
   3B. Innovation (1/2 to 1 page)
   3C. Approach (10 pages)
      3C.1. Preliminary Findings
      3C.2. Experimental Design

4. Human Subjects

5. Vertebrate Subjects
Scored Review Criteria

• **Overall Impact (score 1-9):** It is not the average of the five criteria, but rather assess the feasibility of the project and its potential long-term influence on the field

• **Five Core Criteria (each one score 1-9):**
  1) Significance
  2) Investigator
  3) Innovation
  4) Approach
  5) Environment
# Percentiles Associated With Scores And Descriptors

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<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
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<tr>
<td><strong>High Impact</strong></td>
<td>1</td>
<td>Exceptional</td>
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<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
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<td></td>
<td>3</td>
<td>Excellent</td>
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<tr>
<td><strong>Moderate Impact</strong></td>
<td>4</td>
<td>Very Good</td>
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<tr>
<td></td>
<td>5</td>
<td>Good</td>
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<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
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<tr>
<td><strong>Low Impact</strong></td>
<td>7</td>
<td>Fair</td>
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<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
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<tr>
<td></td>
<td>9</td>
<td>Poor</td>
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 Often ~15\textsuperscript{th} percentile
Score Descriptor (NIH Guidelines)

Exceptional (1): Exceptionally strong with no weaknesses
Outstanding (2): Extremely strong with minimal weaknesses
Excellent (3): Very strong with only very few minor weaknesses
Very Good (4): Strong but with various minor weaknesses
Good (5): Strong but with some moderate weakness
Satisfactory (6): Some strengths but also some significant weaknesses
Fair (7): Some strengths but with at least one major weakness
Marginal (8): A few strengths and several major weaknesses
Poor (9): Very few strengths and numerous major weaknesses
NIH Review Template

OVERALL IMPACT

<table>
<thead>
<tr>
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<tr>
<td>Strengths</td>
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<td>Weaknesses</td>
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SCORED REVIEW CRITERIA

<table>
<thead>
<tr>
<th>1. Significance</th>
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<td>Strengths</td>
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<td>Weaknesses</td>
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<th>2. Investigator(s)</th>
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<tr>
<td>Strengths</td>
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<td>Weaknesses</td>
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Significance

Assuming the proposed research would be successfully completed what are the implications for advancing basic science and human health

Applications viewed as lacking any significance are unlikely to do well regardless of the quality of the approach

Very important to clearly and convincingly present the significance of your application
Does the Personal Statement in Biosketch indicates the PI has the appropriate background and skills

Is the PI’s track record indicative of success

Contribution of the enlisted collaborators and overall qualifications of the research team
Innovation

• Does the application proposes the use of novel (or refinements) approaches, methods or concepts that could be also more generally applicable:
  - Conceptual advances that influence general thinking about the problem.
  - Identification of new pathways, mechanisms, etc. that may uncover new research avenues.
  - Novel, or improved, experimental procedures.

• However, a project does not need to be considered innovative to be deemed meritorious. A project may use standard methodologies by generate essential information to advance the field.
Approach

• Focus of the application: aims should be distinct but connected to the central idea (s) being explored in the application

• Ideally the feasibility of each aim should be independent of results obtained from previous aims

• Provide a rationale for the studies proposed in each Aim

• Provide preliminary data (could be your own work or that done by others) that support the rationale and feasibility

• Discuss predicted outcomes, potential problems and how they will be addressed
Environment

• Provide a clear description about how the resources and environment available at your Institution, and if pertinent also neighboring institutions, will facilitate the successful development of the project.

• Important to describe no only the facilities (infrastructure, cores, etc) but also the scientific environment of the Institution.
Suggestions For Writing An R01 Application

1) Read grant applications that have been successful, including A1 versions (resubmission) and summary statements

2) Follow the specific instructions provided by NIH for the type of application you are submitting

3) Work on an outline that is easy to follow (different sections and subsections; spaces between sections)

4) Careful consideration of the figures

5) Get input from more senior investigators in your field and from someone outside your field, specially about Abstract and Specific Aims (critical components)
Good luck with your applications!