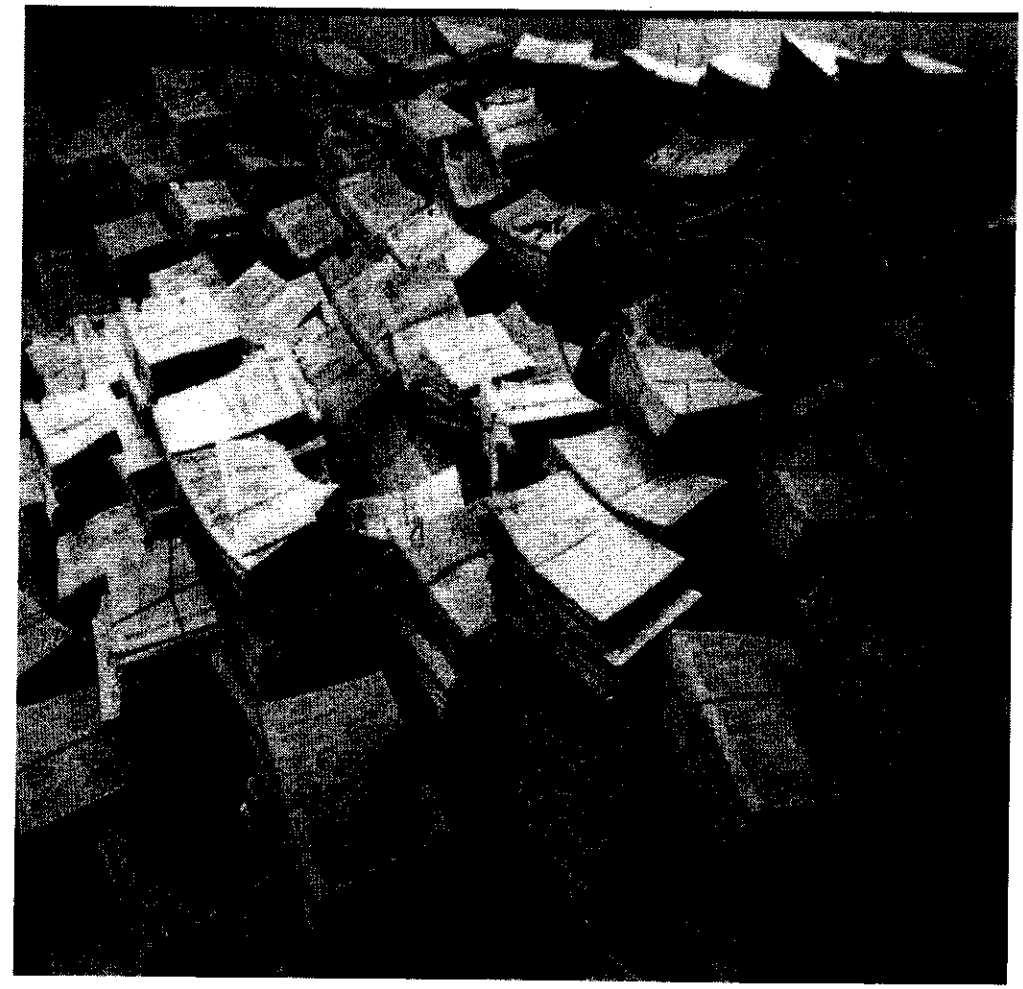
National Institutes of Health

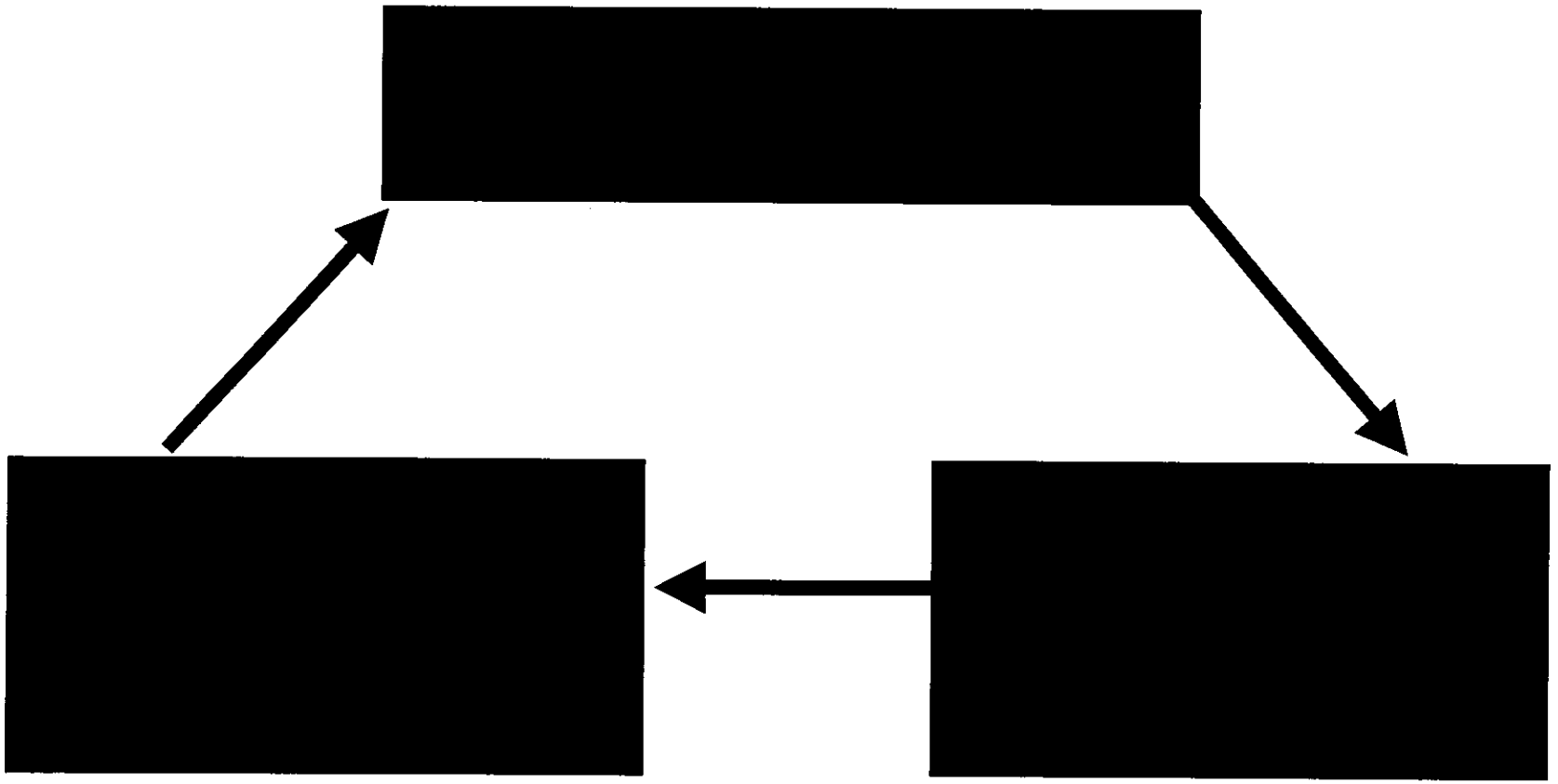
Much of the biomedical research in the United States i supported by the Federal Government primarily the National Institutes o Health (NIH)

Applications Submitted to NIH

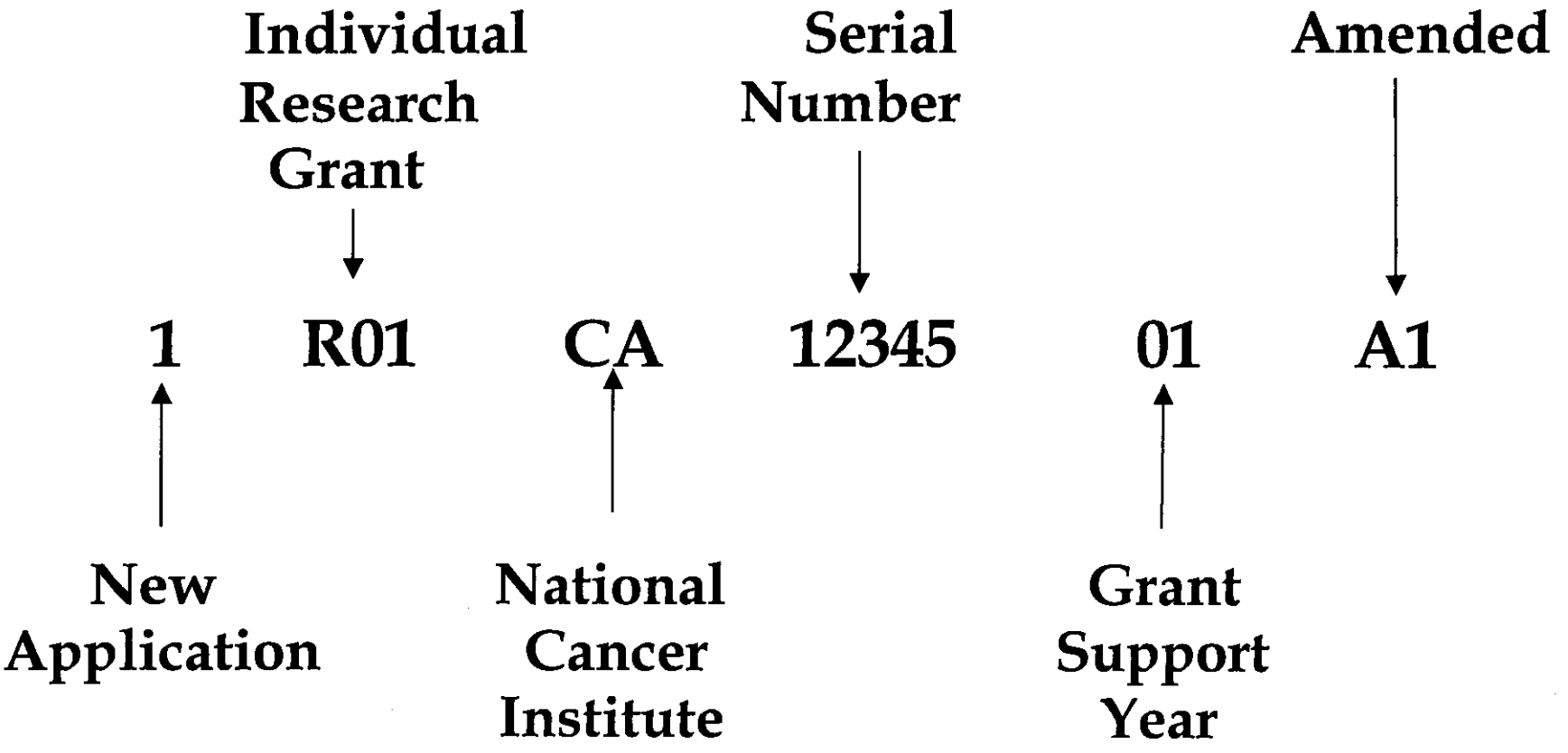
- **Approximately 40,000 grant applications are submitted to NIH each year, of which 25-30% are funded**
- **Competing grant applications are received for three review cycles per year**



Grant Application Cycle



Sample Application Number



Peer Review of NIH Support Mechanisms

CSR	Institutes
Research Project Grant (R01)	Program Project Grant (P01)
Postdoctoral Fellowship (F32)	Center Grant (P30, P50, P60)
Senior Fellowship (F32)	Institutional Fellowship (T32)
Fogarty International Center Fellowship (F05, F06)	Academic Career Award (K07)
Short-Term Training (T35)	Mentored Clinical Scientist Development Award (K08)
Small Business Grants (R41, R42 R43, R44)	Conference Grant (R13)*
Academic Research Enhancement Award (R15)	Marc Fellowships (F34, F36, T34)
Biomedical Ressearch Gupport Shared Instrumentation Grant (S10)	Minority Biomedical Support Grant (S06)
	Resource Grant (P40, P41, R24, R26, R28)
	Contract

*Reviewed by CSR upon request

Peer Review in CSR

- CSR Study Sections are managed by a Scientific Review Administrator (SRA) who is a professional, usually at the Ph.D. level, whose scientific background is close to the expertise of the study section

- Each CSR standing study section has 12 - 24 members who are primarily from academia

- As many as 60 - 100 applications are reviewed by each study section

Criteria For Selection of Peer Reviewers

- **Demonstrated Scientific Expertise**
- **Doctoral Degree or Equivalent**
- **Mature Judgment**
- **Work Effectively in a Group Context**
- **Breadth of Perspective**
- **Impartiality**
- **Interest in Serving**
- **Adequate Representation of Women and Minority Scientists**

Review of Research Grants

REVIEW CRITERIA:

- **Significance**
- **Approach**
- **Innovation**
- **Investigator**
- **Environment**

Review Criteria (continued)

- **Significance: Does the study address an important problem? How will scientific knowledge be advanced?**

- **Approach: Are design and methods well-developed and appropriate? Are problem areas addressed?**

- **Innovation: Are there novel concepts or approaches? Are the aims original and innovative?**

- **Investigator: Is the investigator appropriately trained?**

- **Environment: Does the scientific environment contribute to the probability of success? Are there unique features of the scientif environment?**

Scientific Review Group or Study Section Actions

- **Scored, Scientific Merit Rating (priority scores and percentiles)**
- **Unscored (lower half)**
- **Deferral**

Action

- **Unscored**

  Application is unanimously judged to be in the lower half of applications reviewed by the study section or scientific review group. No priority score is assigned. The summary statement provided to the applicant is a compilation of reviewers' comments prepared prior to the meeting.

Action

- **Deferral**

  The study section cannot make a recommendation without additional information. This information may be obtained by a project site visit or by submission of additional material by the applicant.

NIH Opportunities for Young Investigators

- National Research Service Individual Fellowship (F32)
- Mentored Research Scientist Development Award (K01)
- Independent Scientist Award (K02)
- Mentored Clinical Scientist Development Award (K08)
- Small Grant (R03)
- Academic Research Enhancement Award (R15)
- Exploratory/Developmental Grant (R21)

Mechanisms for Preliminary Studies

- **Small Grants (R03)**
  - Feasibility/New Technology/Innovative High Risk Ideas
  - Short Term, usually $25,000 - $50,000
  - Extremely variable in detail - Example:
    - NCRR: 1 year, $35,000, non-renewable
    - NIDDK: 3-6 months, $12,500 - $25,000
    - NCI: 2 years, $50,000
  - Institute Review
- **Exploratory/Developmental Grants (R21)**
  - Feasibility (for those without preliminary data)
  - $100,000/2 years
  - Increasing use
  - CSR Review

Career Awards for Young Investigators

K01: Mentored Research scientist Development Award

For research scientists who need an additional period of sponsore research experience to gain experience in an area new to the candidate or in an area that would demonstrably enhance the candidate's scientific career

K02: Independent Scientist Award

Provides support for newly independent scientists who can demonstrate the need for a period of intensive research focus as a means of enhancing their research career

K08: Mentored Clinical Scientist Development Award

Supports development of outstanding clinician research scientists by providing specialized study for clinically trained professionals committed to a career in research and with the potential to develo into independent investigators. Focus is on progression to independence.

When Preparing an Application

- **Read instructions**
- **Never assume that reviewers "will know what you mean"**
- **Refer to literature thoroughly**
- **State rationale of proposed investigation**
- **Include well-designed tables and figures**
- **Present an organized, lucid write-up**
- **Obtain pre-review from faculty at your institution**

Common Problems in Applications

- Lack of new or original ideas
- Absence of an acceptable scientific rationale
- Lack of experience in the essential methodology
- Questionable reasoning in experimental approach
- Uncritical approach
- Diffuse, superficial, or unfocused research plan
- Lack of sufficient experimental detail
- Lack of knowledge of published relevant work
- Unrealistically large amount of work
- Uncertainty concerning future directions

Information on the World Wide Web

Selected Sites of Interest

National Institutes of Health (http://www.nih.gov)

- **Office of Extramural Research (http://www.nih.gov/grants/oer.htm)**
- **Grants Policy (http://www.nih.gov/grants/policy/policy.htm)**

Center for Scientific Review (http://www.csr.nih.gov)

- **Referral and Review (http://www.csr.nih.gov/refrev.htm)**
- **Overview of Peer Review Process (http://www.csr.nih.gov/review/peerrev.htm)**
- **CSR Study Section Rosters (http://www.csr.nih.gov/review/ssroster.htm)**
- **NIH Peer Review Notes (http://www.csr.nih.gov/prnotes/prnotes.htm)**