

Research Grants & NCI Initiatives in Imaging and Image-Guided Interventions

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AAPM
Aug 2, 2016

Outline

1. NIH Grant Application Process
2. NCI Initiatives in Imaging and Image-Guided Interventions

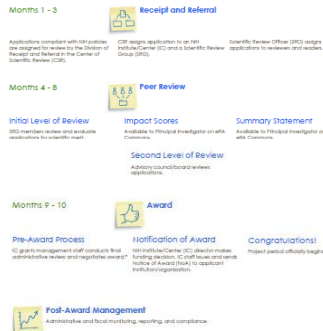
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2. NCI Initiatives in Imaging and Image-Guided Interventions

NIH Institutes and Centers



NIH Grant Process Overview



Online Resources

Google

Web Images News Videos Shopping More Search tools

About 531,000 results (0.34 seconds)

Grant Application Basics - NIH - National Institutes of Health
[grants.nih.gov/grants/grant_basics.htm](#) * National Institutes of Health *
 Feb 25, 2014 - NIH looks for grant proposals of high scientific caliber that are relevant to public health needs and are within NIH Institute and Center (IC) ...

NIH Forms & Applications | grants.nih.gov
[grants.nih.gov/grants/forms.htm](#) * National Institutes of Health *
 Standard Form 424 (Research & Related) Grant Application Forms Includes application guides and forms to be used with all competing applications for ...
 PHS 398 - PHS 2580 - RPPPH: Applying Electronically ...

How to Write a Research Project Grant Application: National...
[www.ncbi.nlm.nih.gov/](#) * National Institute of Neurological Disorders and Stroke *
 Jump to Strategy for Getting an NIH Grant: Assess competition in the field. Know the level of resources needed to compete. Do an organizational ...
 Introduction - Strategy for Getting an NIH Grant - Writing an Application for a ...

Sample Applications and Summary Statements -- NIAID ...
[www.niaid.nih.gov/](#) * National Institute of Allergy and Infectious Diseases *
 Jul 6, 2013 - Application - Peer Review - Grant Award and Management - PI and Grantee Institution, Application Resources ... Strategy for NIH Funding, particularly Strategy to Write the Research Plan--find help writing an R01 application.

QUICK GUIDE FOR GRANT APPLICATIONS
[search.ncbi.nlm.nih.gov/ncit/ncitsearch/ncitsearch.cfm](#) * National Institutes of Health *

The NIH Reporter

<https://report.nih.gov/>



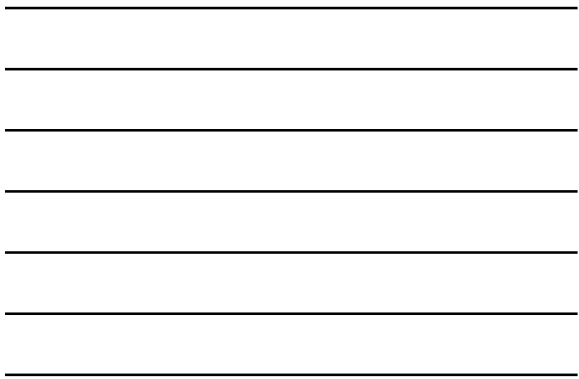
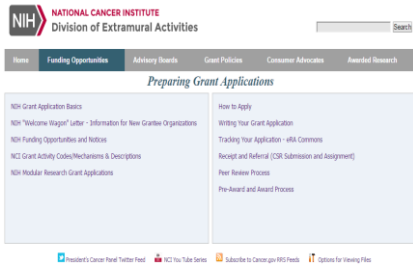
New Investigators Guide to NIH Funding



Online Guides

- **Grant Writing Tips Sheets**
https://grants.nih.gov/grants/grant_tips.htm
- **Tips for New Applicants**
<https://www.nigms.nih.gov/Research/Application/Pages/Tips.aspx>
- **Preparing Grant Applications**
<http://deainfo.nci.nih.gov/extra/extdocs/apprep.htm>
- **All about Grants: Tutorials and Samples**
<http://www.niaid.nih.gov/researchfunding/grant/Pages/aag.aspx>

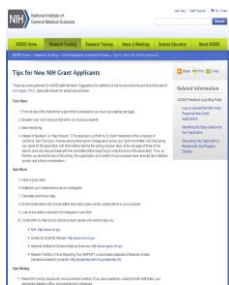
<http://deainfo.nci.nih.gov/extra/extdocs/apprep.htm>



https://grants.nih.gov/grants/grant_tips.htm



<https://www.nigms.nih.gov/research/application/pages/tips.aspx>



Review Criteria

- **Overall Impact**
 - Assessment of the likelihood for the project to exert a *sustained, powerful influence on the research field(s) involved*
- **Core Review Criteria**
 1. **Significance**
 2. **Investigator(s)**
 3. **Innovation**
 4. **Approach**
 5. **Environment**

Review criteria each scored from 1-9

Hints for writing a research grant proposal

- Start with an **original, compelling idea** that will generate excitement.
 - should not be incremental in nature
 - but should also not be over-ambitious
- Stay **focused** on a cancer problem
 - appropriate model
- Early in the proposal (abstract and body) **establish**:
 - **Significance** and **Innovation** of your project
 - research objectives should be presented early
- Present clear and direct hypotheses
- Present potential **pitfalls and alternatives**
 - carefully balance confidence in planned work with a rational well-conceived back-up plan
- Include **appropriate expertise** in your team
- Appropriate **Timeline**
- Request appropriate **budget**
 - too little or too much reflects poorly on the applicant

Budget Development

<http://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/develop-your-budget.htm>

The screenshot shows the NIH Grants & Funding website. The main heading is "Develop Your Budget". Below this, there are several sections: "On This Page" with a list of links including "Cost Considerations", "Budgets: Getting Started", "Estimating Direct vs. Indirect (F&A) Costs", "Molecular vs. Detailed Budgets", "Detailed Budgets", "Detailed Budget: Personnel (Sec. A, B, & C)", "Detailed Budget: Equipment, Travel, and Fringe Costs (Sec. C, D, and E)", "Detailed Budget: Other Direct Costs (Sec. F)", "Construction/Infrastructure", "Understanding the Out Years", and "Other Resources". There is also a "Helpful and Useful Subsequent Process" section with links for "Due Dates and Submission Dates" and "After Submission".

Pay attention to details

- Follow application instructions carefully
 - Fonts, margins, page limits, etc...
- Make the application easy to read
 - Figures appropriately sized
 - Poor grammar and text errors reduce scores
 - Avoid jargon and abbreviations
- Biosketch(s) and supporting documents up-to-date
- Letters of support that address the proposal
- Proofread (and re-check uploads)
 - Stuff happens when uploading
- No application should be submitted without internal review

Once you get the Summary Statement

Communicate with your Program Director

If fundable, prepare just-in-time information for submission

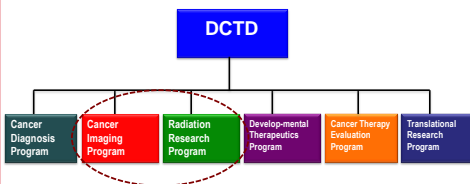
- IACUC, IRB approvals
- updated other support
- information must be current (< 6 mos)

If you must resubmit:

- Don't rush it
- Talk over review with your Program Director
- Carefully and succinctly address critiques
- If you rebut a review point, do so respectfully, with supporting evidence. Don't rebut the reviewer!
- Get external review of revised application prior to resubmission

Division of Cancer Treatment and Diagnosis (DCTD)

Extramural Programs in DCTD/NCI



Outline

1. NIH Grant Application Process
2. NCI Initiatives in Imaging and Image-Guided Interventions

Imaging-related Funding Initiatives

1. Image-Guided Drug Delivery (R01)
2. Academic Industry Partnerships (R01)
3. Quantitative Imaging Network (U01)
4. Early Phase Clinical Trials (R01)
5. Quantitative Imaging (U01)
6. Imaging and Biomarkers (U01)
7. Oncology Co-Clinical Imaging Resources (U24)
8. NCI Clinical and Translational Exploratory Studies (R21)
9. Informatics Technologies for Cancer Research (R21, U01 & U24)

Image-Guided Drug Delivery – R01 PAR-16-044

- Development of integrated platforms for multifunctional / multiplexed IGDD systems
- Development of quantitative in-vivo imaging methods in IGDD for cancer and other indications
 - interrogate tumor/drug interaction
 - imaging studies of biodistribution, PK/PD, Tx response
- Receipt dates: Nov & June (2/yr)

➤ <http://grants.nih.gov/grants/guide/pa-files/PAR-16-044.html>

Academic-Industrial Partnerships – R01
PAR-15-075

- **Purpose: Development and validation of technologies for cancer diagnosis and treatment**
- **Requires Partnership between academic and industrial Co-PIs**
- **Standard R01 Application Receipt Dates**
- **SEP Review (CSR)**

➤ <http://grants.nih.gov/grants/guide/pa-files/PAR-15-075.html>

Quantitative Imaging for Evaluation of Response to Cancer Therapies - U01

- **QI of response to therapies, including IGI, for prediction or measurement of Tx response**
- **Development and implementation of QI methods and tools and their applications to current or pending Phase I/II clinical trials**
- **Funded teams join the QI Network (QIN)**

➤ <http://grants.nih.gov/grants/guide/pa-files/PAR-14-116.html>

Early Phase Clinical Trials in Imaging & IGI – R01
PAR-14-166

- **3 yr clinical trials of novel imaging and IGI**
- **Intended to accelerate the development of imaging and IGI modalities, methodologies, and agents through the early stages of clinical development -such as trials evaluating safety and preliminary efficacy**
- **Phase I & II studies to establish treatment parameters and early therapeutic efficacy**
- **SEP Review (CSR)**

➤ <http://grants.nih.gov/grants/guide/pa-files/PAR-14-166.html>

Imaging and Biomarkers – U01 PAR-16-089

- Cancer screening, early detection of aggressive cancer, assessment of cancer risk and cancer diagnosis aimed at integrating multi-modality imaging strategies and multiplexed biomarker methodologies in a complementary approach
- Establish a Consortium for Imaging and Biomarkers (CIB) to perform collaborative studies, exchange information, share knowledge and leverage common resources
- SEP Review (CSR)
- <http://grants.nih.gov/grants/guide/pa-files/PAR-16-089.html>

Oncology Co-Clinical Imaging Resource – U24 PAR-15-266

- To encourage consensus on quantitative imaging methods and precision medicine
- Optimize pre-clinical quantitative imaging methods
- Implement the optimized methods in the co-clinical trial
- Populate a web-accessible research resource with data, methods, workflow documentation, and results collected
- Receipt dates: Nov & June (2/yr)
- <http://grants.nih.gov/grants/guide/pa-files/PAR-15-266.html>

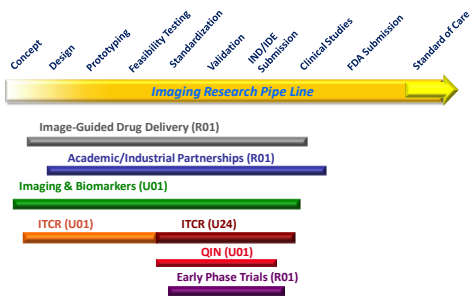
Informatics Technologies in Cancer Research – ITCR [PAR-15-332 & PAR-15-331]

- To improve acquisition, management, analysis, and dissemination of data and knowledge across the cancer research continuum, incl. cancer biology, cancer and diagnosis, cancer prevention, treatment, and evaluation
- U01: Early stage development
<http://grants.nih.gov/grants/guide/pa-files/PAR-15-332.html>
- U24: Advanced development
<http://grants.nih.gov/grants/guide/pa-files/PAR-15-331.html>

Small Grants

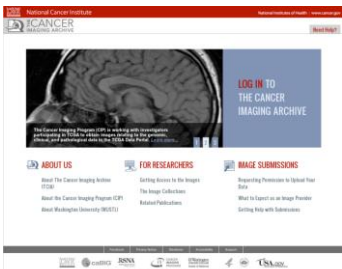
- **R21 (NCI and EBRG)**
 - Exploratory / Developmental Research
 - 2 years
 - \$275,000 direct costs
- **Omnibus R03**
 - Pilot studies, secondary analysis, etc.
 - 2 years
 - \$100,000 direct costs
- **Omnibus R15**
 - Academic Research Enhancement Award (AREA)
 - Eligibility criteria
 - 3 years
 - \$300,000

Imaging Research Pipeline



TCIA: The Cancer Imaging Archive

<http://cancerimagingarchive.net>



TCIA: The Cancer Imaging Archive

- Funded by CIP/NCI, is a large archive of clinical images of cancer accessible for download.
- TCIA de-identifies, organizes, and catalogs the images for use by the research community.
- The archive is already home to high value data sets including a growing collection of cases that have been characterized in the Cancer Genome Atlas (TCGA)
- Community activities: Imaging Genomics, Imaging Proteomics, Computational Challenge Competitions
<http://cancerimagingarchive.net>

Final Points

- Contact an NCI Program Director to discuss a potential - 6 months ahead of receipt date
- Include Cover Letter with suggestion of Study Section and 2-3 key areas of expertise (Review) and Program Director (Program) assignment
- The budget situation is fluid and is limiting funding for science across the board.
- Program prioritization of near payline scores for potential funding increases scrutiny of overlap and impact.
- Program Directors advocate for strong grants internally through this process.
- Many clear and compelling proposals in all fields continue to be funded.

NCI Contacts

➤ Cancer Imaging Program

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➤ Radiation Research Program

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Training K Awards

The screenshot shows the NIH website's 'Grants & Funding' page. A search bar is at the top right. Below the navigation menu, the 'Grants & Funding' section is highlighted. The main content area features a table titled 'K Kiosk - Information about NIH Career Development Awards'. The table has two columns: 'Program' and 'Description'. The 'Program' column lists various award types like 'K01', 'K05', etc. The 'Description' column provides details for each program, such as 'NIH: Mentored Research Scientist Development Award (Parent K01) (PA-14-044) (see NOT OD-14-036)'.

Program	Description
Policies and Notices	Career Award Policy Issues
K01	NIH: Mentored Research Scientist Development Award (Parent K01) (PA-14-044) (see NOT OD-14-036)
	NCI: NCI Mentored Research Scientist Development Award to Promote Diversity (K01) (PAR-12-050)
	NIH/BDX: Mentored Career Development Award in Biomedical Big Data Science for Clinicians and Doctorally Prepared Scientists (K01) (RFA-HQ-14-007)
	NIDDK: NIDDK Mentored Research Scientist Development Award (K01) (PAR-12-020)
	NINDS: NINDS Faculty Development Award to Promote Diversity in Neuroscience Research (K01) (PAR-12-132)
	NLM: NLM Career Development Award in Biomedical Informatics (K01) (PAR-13-284)

Some Important Websites

NIH Office of Extramural Research:
<http://grants.nih.gov/grants/oer.htm>

NIH RePORTER:
<http://projectreporter.nih.gov/reporter.cfm>

NCI Division of Extramural Affairs:
<http://deainfo.nci.nih.gov/>

Cancer Imaging Program:
<http://imaging.cancer.gov>

Radiation Research Program:
<http://rrp.cancer.gov>
