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

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AAPM
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Outline

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

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NIH Institutes and Centers

NCI	NEI	NHLBI
NHGRI	NIA	NIAAA
NIAID	NIAMS	NIBIB
NICHD	NIDCD	NIDCR
NIDDK	NIDA	NIEHS
NIGMS	NIMH	NIMHD
NINDS	NINR	NLM
CC	CIT	CSR
FIC	NCATS	NCCIH
OD		

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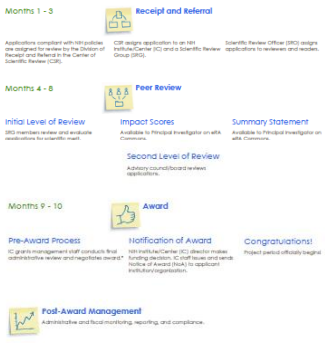
NIH Grant Process Overview



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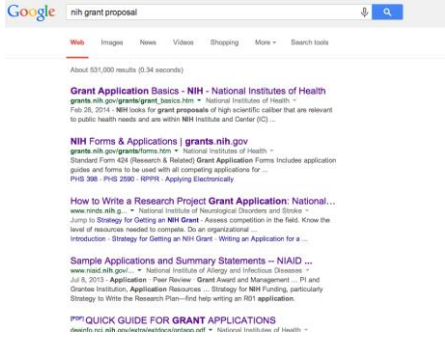
Online Resources



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The NIH Reporter

https://report.nih.gov/

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New Investigators Guide to NIH Funding

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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

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

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

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

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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

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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**

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Budget Development

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

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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

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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

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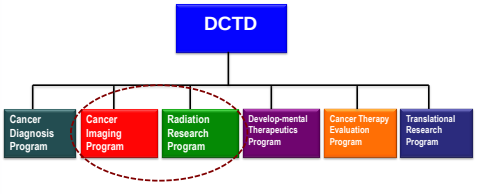
Division of Cancer Treatment and Diagnosis (DCTD)

Extramural Programs in DCTD/NCI



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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)

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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

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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

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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

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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

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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

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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

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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

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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**

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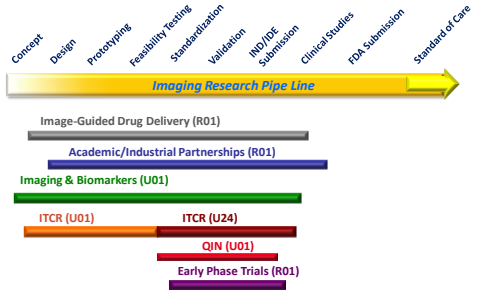
Imaging Research Pipeline



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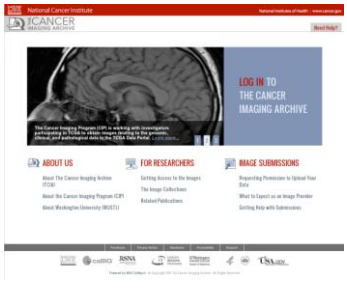
TCIA: The Cancer Imaging Archive

http://cancerimagingarchive.net



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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

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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.

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NCI Contacts

➢ **Cancer Imaging Program**

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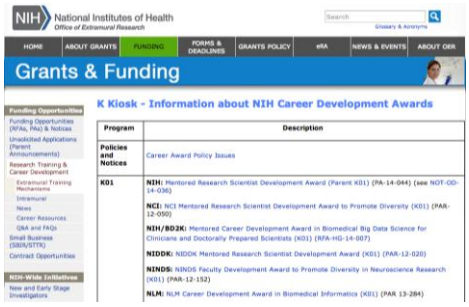
Training K Awards



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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

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