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NCI T32 Applications

DOs and DON'Ts of getting a T32 training program funded/renewed



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NCI T32 grants

1. NCI T32 training program must be **cancer focused, unique, and innovative**. Increasingly, grants are smaller and more specialized (chemical biology in cancer, data science in cancer etc....)
 2. The Principal Investigator (PD/PI) should have the **skills, knowledge, and resources** necessary to organize and implement a high-quality research program. The PD/PI must hold a peer-reviewed independent cancer-focused R01 at the time the T32 application is submitted and awarded.
 3. The faculty/mentors/preceptors are expected to have **peer-reviewed independent R01** (or equivalent). New/ESI with no such funding or training track record may serve as co-mentors.
 4. Budget (Direct costs)
 - **New Program may request up to 6 trainee slots.**
 - May request changes in types of trainee slots, i.e., may convert postdoctoral slots to predoctoral slots and vice versa at the time of competitive renewal.
 - **May not request more than 8 trainee slots in any budget year at the time of competitive renewal;** a program with more than 11 current trainee slots may request a stepwise reduction.
- Applicants requesting \$500,000 or more in direct costs for any year do not need to contact staff to submit the application.
 - T32 applications are reviewed by **Sub-committee F** that meets in October (last week, in-person for first time since 2019 – Zoom reviews have their benefits and challenges) for May 25th applications, February for September 25th applications and June for January 25th applications.

5 main review criteria

1. Training Program and Environment

2. Training Program Director(s)/Principal Investigator(s) (PDs/PIs)

3. Preceptors/Mentors

4. Trainees

5. Training Record – publications, fellowships, time to graduation

- **Recruitment & Retention Plan to Enhance Diversity**
- **Training in the Responsible Conduct of Research**

1. Training Program and Environment

- Make sure your T32 stands out as unique at your institution - avoid having too many preceptors who are also on other related T32s – particularly those who train the same kind of trainee and in same research areas
- Make sure your Letter of institutional support is detailed and **specific** – talks about your program and exactly how it is supported, providing specific financial commitments, not just some generic letter used for all T32s at the institution – this is key. Our EAB pointed out weaknesses in ours that were remedied ahead of submission.
- Emphasize **T32 specific activities** – critical to highlight “**added value**” provided by the T32, whether that be unique courses set up by the T32 program, a T32 retreat, T32 engineered seminars and career development activities unique to your program that not all other trainees participate in or at least is there only because of your T32
- Essential to have training activities in grant writing skills, computation/bioinformatics and also translational/clinical exposure, in addition to training in RCR and R&R
- Be sure to innovate over last time – **new components to coursework** - not good enough to go back in with the exact same program even if it was working well

2. Training Program Director(s)/Principal Investigator(s) (PDs/PIs)

- PI must have a **strong training record** and be **adequately funded** (preferably from NCI)
- If PI's funding is running out within a year of resubmission, will need a co-PI with funding, and a Multi-PI plan
- Having a **succession plan** is ideal – means having an Associate T32 director named and officially appointed
- Internal Advisory Board or Steering Committee should consist of faculty with strong training records
- External Advisory board is not required but **highly advisable** and can make a strong difference to perception that the program is soliciting feedback and ways to improve
- Strong administrative structure required – more and more places hiring admins to oversee T32s who have experience in training education and/or diversity

3. Preceptors/Mentors

- Important to have a good balance of faculty, not too many Full Professors, but a balance across ranks;
- Critical to have a good balance of female to male preceptors
- Faculty from diverse background are particularly valued
- Preceptors should have at least one NIH-like R01 grant, ideally from NCI
- Preceptors' research should be cancer-focused
- Preceptors should not be in too many other T32s and certainly not on other cancer-focused T32s for same type of trainees
- Preceptors should be involved in training activities
- Preceptors' **past trainees should have published well and gone on to research-intensive/research-related careers**
- Criteria for selecting and evaluating preceptors should be clear; good to show that you have brought new faculty on board since last renewal, and jettisoned others with poor training records/loss of funding;
- Co-mentoring of trainees is encouraged
- Must have a preceptor mentoring system in place, especially for junior faculty
- Make sure trainees are distributed widely across all the preceptors – grants where only a few PIs get most of the trainees not good

Better to have FEWER strong preceptors than too many with unimpressive training records/funding

4. Trainees

- Pool size of trainees should be at least 10x number of training grant slots allocated to your grant
- Pool of trainees should be geographically and culturally diverse
- Trainees appointed to the T32 should show higher GPA and/or level of accomplishment relative to other trainees in the pool
- Post-doc pools are notoriously difficult to monitor and quantify but a system needs to be in place to define this
- Criteria for appointment and re-appointment of trainees should be clear
- Make sure trainees are distributed widely across all the preceptors – grants where only a few PIs get most of the trainees not good
- Make sure you use all training grant slots – “use it or lose it”
- Demonstration of a commitment to a career in research is a strong criterion for selection
- If trainee pool is shared with other T32s, be careful how this is described – do not over-estimate the pool
- At least 10 – 20% of trainees should be from diverse or underrepresented backgrounds – especially important if located in an area with sizeable minority population

5. Training Record

- Generally reviewers are accepting of trainees going into **research-related** careers where before there was the expectation of trainees going into **research-intensive** careers – be sure to highlight this in Table 8 – each trainee should be marked as having gone into one or other (or not);
- All trainees, irrespective of career outcomes, should have **at least one first author publication** arising from their training
- Important to encourage trainees to apply for additional extra-mural funding, fellowships or grants – make F31 and F32 applications mandatory for T32 supported trainees? F99/K00 awards for recent trainees should be highlighted. This is an important scoring element for training outcomes – do your best to encourage this for your trainees and talk about how you encouraged it in your renewal
- Other trainee successes or awards? Highlight these and talk about how the T32 facilitated this.
- Highlight trainee involvement in CRTEC/CC activities
- Trainees not completing the program are a big scoring negative, so important to have robust mentoring and remediation plans in place for trainees who are not thriving in your program
- For pre-docs, time to degree is important – your program needs to promote activities that encourages them to graduate in less than 5 years

For all these reasons above and if you want to renew successfully,
only appoint the very best trainees to your T32 in the first place

Challenges of a first renewal (years 6-10) – arguably the most difficult renewal.

- Very limited time to show success especially in terms of publications and career outcomes.
 - Publication issues are more significant for predocs since they are unlikely to have first author publications by year 3 or 4.
 - A predoc transitioning to a postdoc is a positive career outcome. Transition from a postdoc to academics/research position for postdocs can take more time.
 - Make sure to have recruited from UR groups and have a M/F balance.
- Focus on what worked well and acknowledge what did not. Show that you are responsive to evolving training needs. Talk about being pro-active, responding to feedback. Make sure you have an evaluation system.
- When do you submit?
 - Ideally when you have two cycles remaining, but this is only after 3.5 years. Highlight progress between A0 and A1 application.

Ways to Innovate an “Old” Program

- Develop a novel theme for your program – must be cancer-focused - avoid generic program activities. Good examples: “Cancer Epigenetics and Therapy”, “Cancer Metabolism & Public Health”, “Cancer Modeling and Translational Approaches”, “Multidisciplinary Approaches to Cancer Research”, etc.
- New training objectives - for example, add public health and prevention to a conventional cancer biology T32; new course in clinical trials - writing the scientific correlates, tracking oncologists, etc.
- New career development options – for example, set up internships for trainees
- Establish an external advisory board – can be really helpful in spotting gaps in your program and coming up with other new ideas
- T32 retreat to showcase trainee activities, etc.

Recruitment & Retention Plan to Enhance Diversity

- If you were criticized last time for poor recruitment from UR groups, make sure to have addressed it in the intervening 5 years.
- UR groups now also include economically disadvantaged groups, rural groups – play to your strengths and to the nature of your “catchment area”.
- Don’t ignore problems – address them head on, and be sure to explain how what you are going to do in the next 5 years will improve matters
- If intrinsically difficult to recruit UR locally, reach to the national level
- Attendance at ABRCMS, SACNAS, other events by Director/Preceptors/Trainees;
- Involve trainees in promoting diversity – e.g., GRIT, science fairs etc.
- Outreach to historically black colleges, connect with local PREP and pipeline/summer programs for undergrads and HS students
- Need to address recruitment of trainees with disabilities also.

***Failure to adequately address diversity problems
can kill an otherwise strong grant***

Training in the Responsible Conduct of Research

- 5 criteria – *Format, Subject Matter, Faculty Participation, Duration, Frequency* – **ANSWER these questions clearly** – do not make the reviewer go dig for this information – too many applications do not explicitly state number of contact hours or frequency
- Should have preceptors from your T32 involved in RCR training – do not be overly reliant on generic institutional programs
- Evidence of specific course on Rigor and Reproducibility (NOT same as RCR) - should be built into your training program, ideally as a means to encourage critical thinking; use this as a positive to explain how you are improving training outcomes

General Considerations and Most Common Problems

- **TABLES MUST BE COMPLETE AND ACCURATE!** Make sure the Tables are completed accurately, and MOST IMPORTANTLY align with the text – don't claim in the text that your trainees published in Nature etc. if that is not backed up in the Tables. NOTHING CAUSES DISCUSSION TO GET BOGGED DOWN MORE THAN INCONSISTENCIES BETWEEN TEXT AND TABLES. THIS CAN KILL YOUR GRANT'S CHANCE OF GETTING A FUNDABLE SCORE. Make the Tables as accessible as possible within allowed guidelines, eg. add footnotes, bold reference to trainee outcomes (Research intensive, Research-related etc) in Table 8.
- Presentation should be **clear and appealing** – use diagrams and flow charts to summarize plans and achievements; Important that the training program and training record shine through
- Make sure your program is **unique and innovative** – avoid overlap with other T32s at your institution; must have new T32-driven training activities since last time
- Only appoint the **best trainees** to your T32 to make sure outcomes stay strong
- Make sure you **respond effectively to any criticisms** that were in the last review 5 years ago
- Deal with problems head on – **do not paper over cracks** – admit the problem and explain how you will do better next time with a clearly drawn out plan. Leverage positive feedback from your evaluation system.