Training Opportunities from the NCI for Cancer Prevention, Disparities, Control and Population Sciences

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NCAB/BSA Subcommittee on Population Science, Epidemiology, and Disparities
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NCP Goal: Optimize the Workforce

NATIONAL CANCER PLAN

A plan to **end cancer as we know it**.

8 ASPIRATIONAL GOALS:

- Prevent Cancer
- Detect Cancers Early
- Develop Effective Treatments
- Eliminate Disparities
- Deliver Optimal Care
- Engage Every Person
- Maximize Data Utility
- **Optimize the Workforce**

Expand and extend the capacity for cancer research by engaging a diverse pool of talented learners in cancer research and supporting their pursuit of a career in cancer research

Eliminate barriers and facilitate entry for individuals historically excluded from or underrepresented in the cancer research workforce

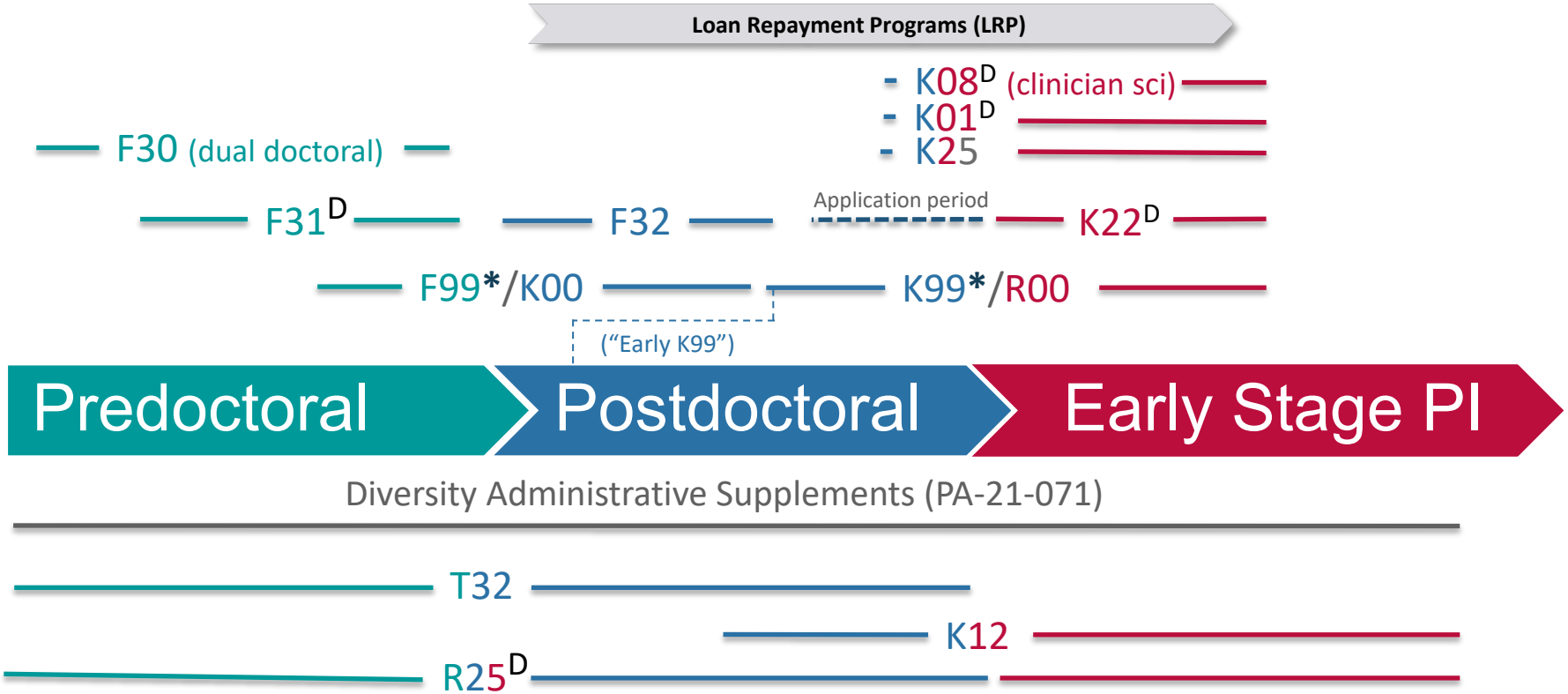
Develop funding initiatives to **address gaps** and needs and also increase the number and competitiveness of cancer researchers from underrepresented and underserved backgrounds

Conduct research to understand and address the unique needs and concerns of cancer researchers at **all career stages and in all disciplines**

DCP & DCCPS Workforce Vital to the National Cancer Plan

Goal	Strategy	DCP	DCCPS
Prevent Cancer	Increase understanding of cancer etiology	✓	✓
	Eliminate chronic infections that lead to cancer		✓
	Pursue effective vaccines to prevent cancers	✓	
	Increase focus on cancer prevention trials	✓	✓
	Promote risk-reducing behaviors and healthy lifestyles	✓	✓
	Identify ways to prevent cancer in cancer survivors	✓	✓
Detect Cancer Early	Develop new methods to detect cancer	✓	
	Develop novel imaging technologies for early detection	✓	
	Identify and eliminate precancerous cells while minimizing side effects	✓	
	Improve testing and adoption of effective cancer screening	✓	✓
	Reduce disparities in treatment of early stage cancers		✓
Eliminate Disparities	Intensify study of underlying causes of disparities	✓	✓
	Overcome inequities that prevent successful outcomes in underserved	✓	✓
	Enhance community engagement to promote prevention and wellness		✓
	Increase representation of all groups in cancer research	✓	✓
Deliver Optimal Care	Intensify research in cancer care delivery and implementation science		✓
	Increase communication and collaboration between NCI and other entities	✓	✓
	Promote widespread adoption and implementation of cancer research		✓
	Promote health literacy tailored to needs of relevant populations		✓

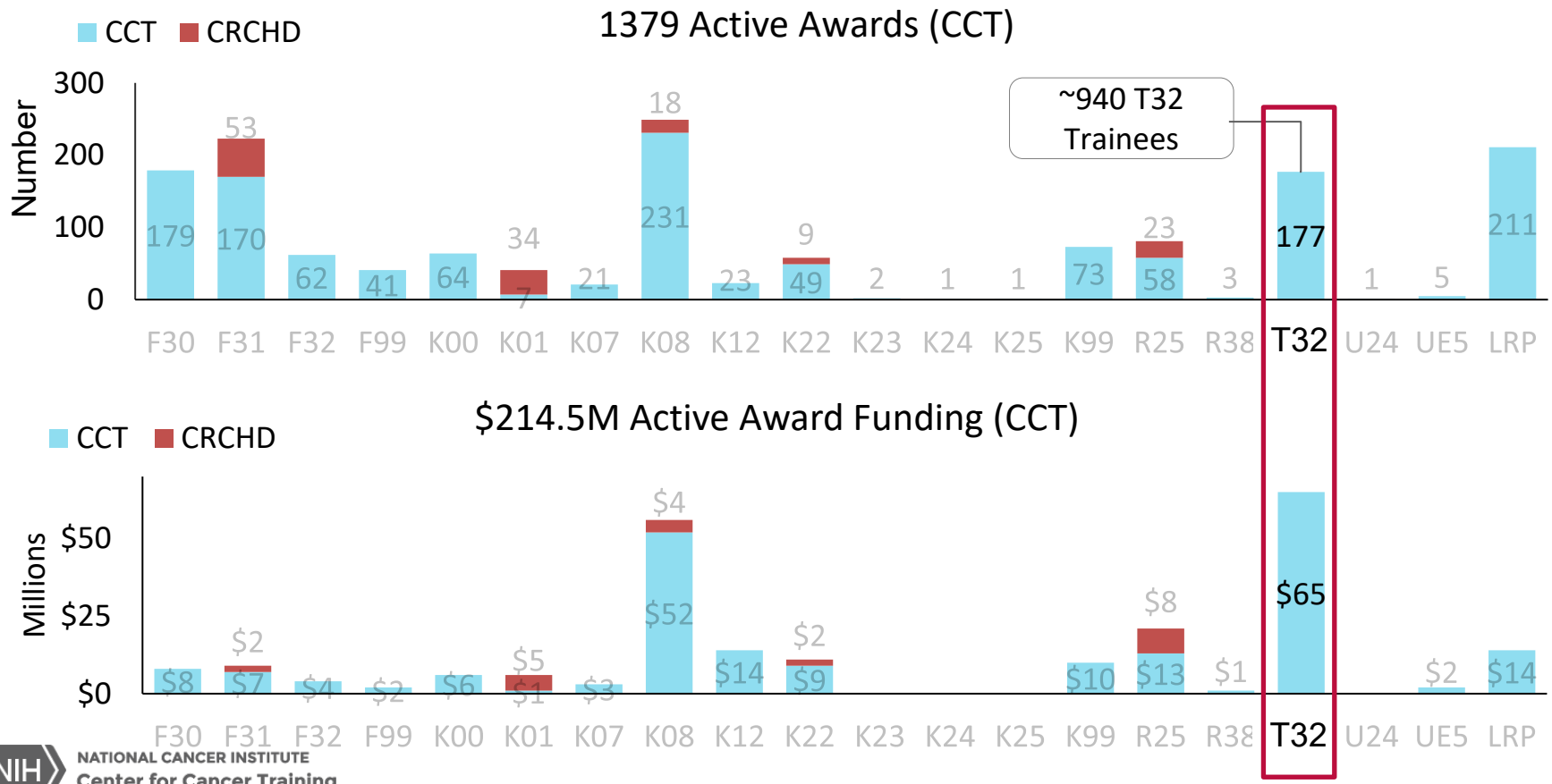
NCI Supports Cancer Training at Multiple Career Stages



*Open to Applicants with U.S. Visas
D Diversity NOFO available CRCHD

- https://www.cancer.gov/grants-training/training/funding
- https://www.cancer.gov/about-nci/organization/crchd/diversity-training/cure

NCI Training Portfolio Snapshot – June 2023



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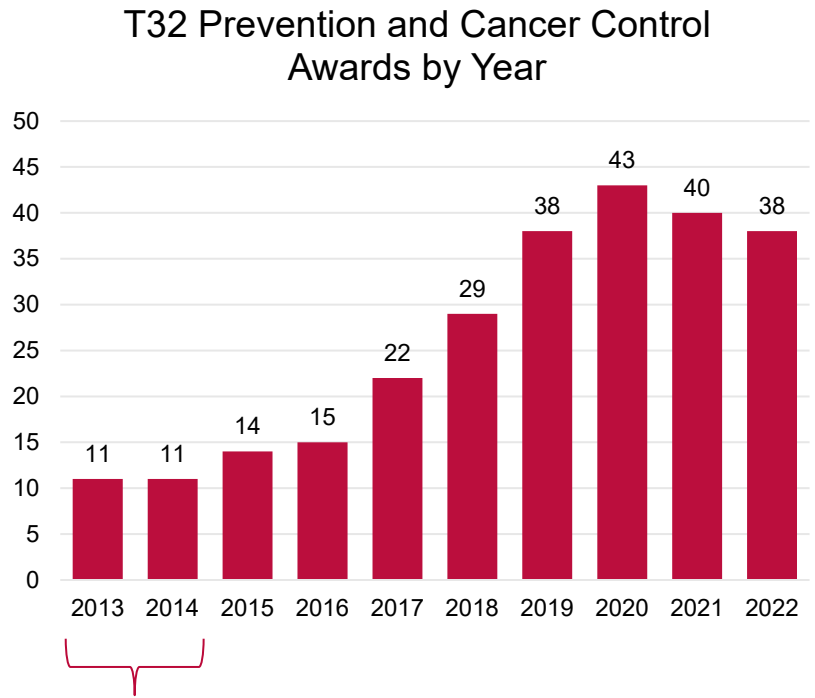
NRSA Award Summary for DCPPS & DCP (FY13-FY22)

				Applications (% of NCI Apps)		Awards (% of NCI Awds)		Success Rate	
Mechanism	Description	NCI Apps	NCI Awards	DCCPS	DCP	DCCPS	DCP	DCCPS	DCP
F31	Individual Predoctoral	3,684	1,002	146 (4.0%)	42 (1.1%)	38 (4.0%)	7 (0.7%)	29%	18%
F32	Individual Postdoctoral	1,947	402	59 (3.0%)	11 (0.5%)	14 (3.5%)	3 (0.7%)	19%	21%
T32	Institutional Pre- and/or Postdoctoral	1,964	1,513			261 (17.3%)			

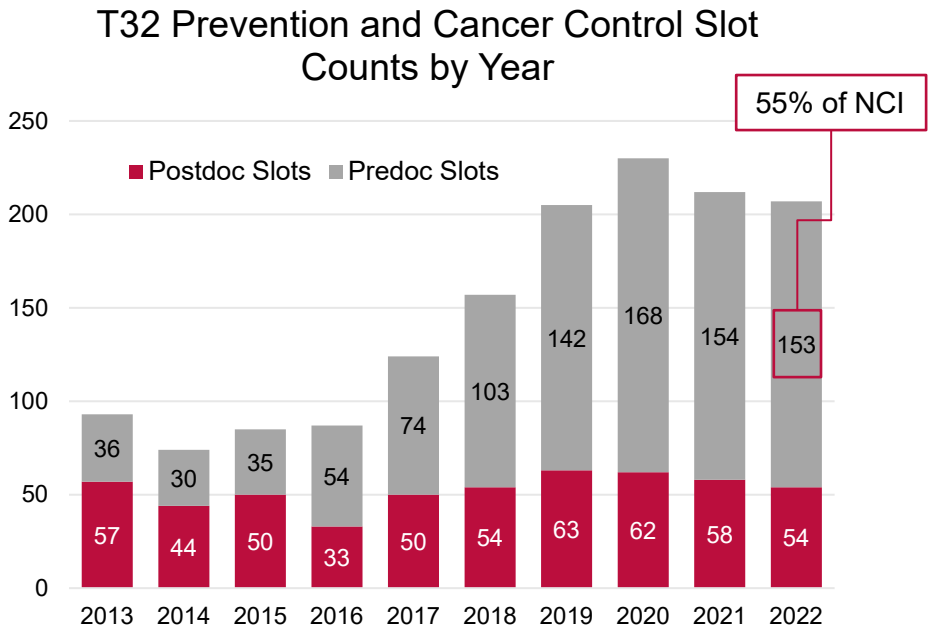
35.1% predoc slots
8.1% postdoc slots
25% of T32 expenditures

Dr. Tesauro & Dr. Faupel-Badger identified the grants included in this analysis.

Increase in DCP & DCCPS T32s over 10 years



R25T: last application date May 2013



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DCCPS and DCP FY22 RPG vs NRSA

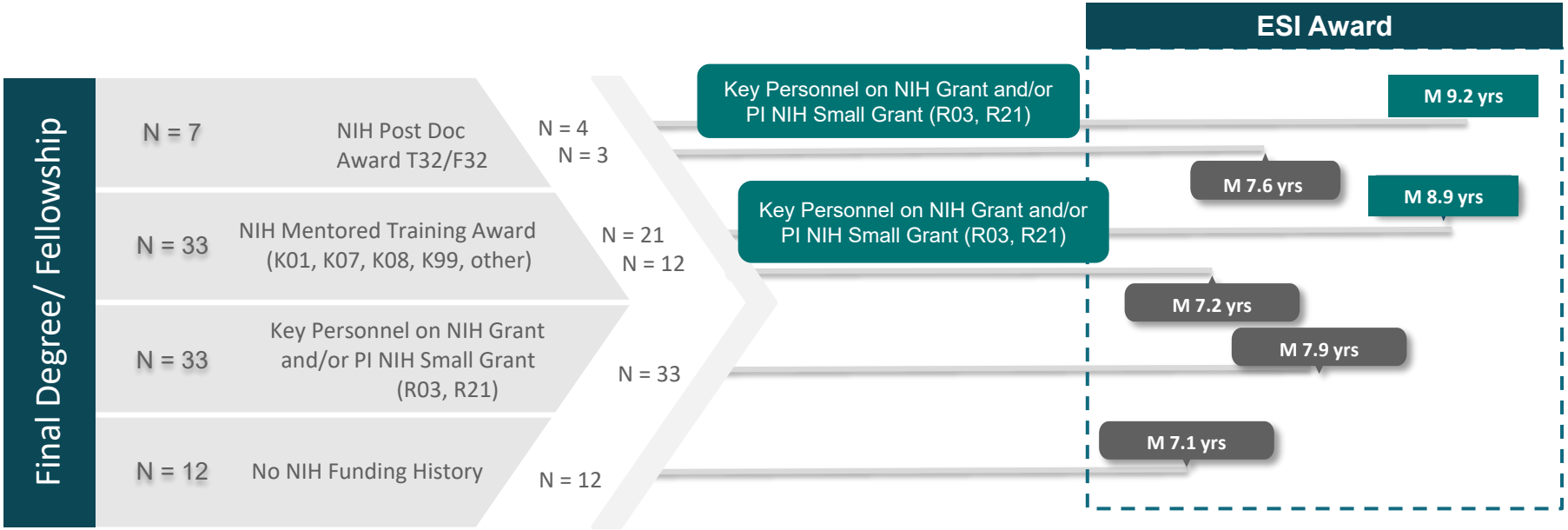
	RPG				NRSA		
	Unique Applicant PIs		Unique Awarded PIs*		data from previous slide (% awards of NCI FY13-22)		
	Number	% of NCI	Number	% of NCI	F31	F32	T32
DCCPS	1,482	17%	1,028	18%	4%	3.5%	17%
DCP	774	14%	538	9%	0.7%	0.7%	
NCI	8,581	-	5,670	-	-	-	-

*competing and non-competing

Data provided by the Center for Research Strategy

NCI Data Source: Demographic data from NIH OER with analysis by NCI Center for Research Strategy. **Method: Percent rounded to nearest 0.5%.** Percentages are calculated using the number of PIs with available self-reported demographic data (~91% for gender; ~87% for race/ethnicity). Hispanic or Latino may be any race; race categories exclude Hispanic or Latino origin. **Applicants** include all PIs with a reviewed, competing NCI grant application (Types 1, 2, 9) in a given FY. **All Current Awardees** PIs include all PIs with an administered NCI award in a given FY (all types excluding supplements; parent projects only).

Career Trajectories for ESI R01e recipients in FY20-FY22 (DCCPS)



DCCPS ESI reach their R01e sooner than basic bench scientists & by a variety of paths.

R01e = R01 equivalent (R01, DP1, DP2, DP5, R01, R37, R56, RF1, RL1, U01 and R35)

Comparing Training Award Rates for ESI from DCCPS, DCP & NCI

	DCCPS	DCP	NCI
ESI Award	R01e	R01e	R01
Time Span	FY20-22	FY13-22	FY20-21
Prior Award Types	F, T or K	F, T or K	F or K
Prior Award Rate	47%	67%	38%
Proportion of these awards from NCI	60%	54%	97%

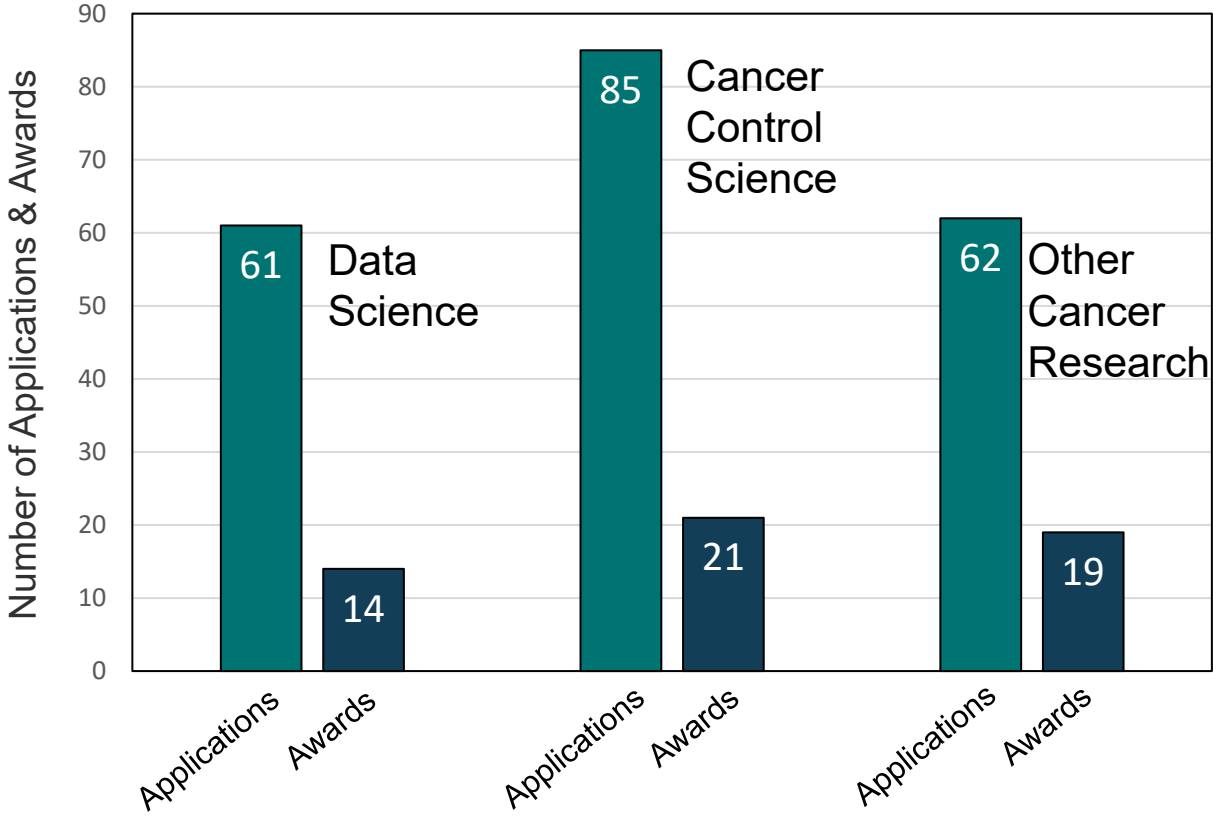
Note – some individuals had multiple awards prior to R01e

R01e = R01 equivalent (R01, DP1, DP2, DP5, R01, R37, R56, RF1, RL1, U01 and R35)

K99/R00 Awards active at NCI

	"Early" K99/R00	Parent K99/R00
Mentored vs non-mentored (independent)	Mentored phase / Non-mentored phase	
Citizenship	U.S. citizens or non-U.S. citizens	
Eligibility Window for Application	≤ 2 years postdoc research experience	≤ 4 years postdoc research experience
Application Process	Nominated submissions in specific areas of science 1/year	Open submissions 3/year
Duration of Award	1-2 years K99 1-3 years R00 (5 years max combined)	
Budget	K99: Salary up to $100K + Fringe benefits + Research $30K R00: up to $249K	

Pilot NCI Early K99/R00 RFA: Applications & Awards by Field of Science (FY 20-23)



Dr. Radaev presenting on this PAR 6/14/2023 2:15pm at BSA/NCAB

Possible K Career Development Awards

	K01*	K02
Mentored vs independent	Mentored	Independent
Purpose	For postdoc or early career needing advanced training and experience	For early to mid-career with funding in need of protected time
NIH Parent Award?	Yes PA-20-176 & 190	Yes PA-20-174 & 173
NCI signed on?	No	No
Eligibility Window for Application	Not eligible if a current or former PI on R01, P01, etc	Must be PI on an active R01, etc**
Budget (specific limits for each ICO)	$100K salary Fringe benefits Research Support: $30K	Varies by IC, $75K to $150K Fringe benefits Research Support varies: $8K - $50K

* i.e. parent K01 in addition to the existing Diversity K01, accepting applications in cancer prevention, control, epidemiology & population sciences

** Except for NINDS, where candidates are not eligible if they are a current or former PI on R01 etc.

CURE as a Model

- CRCHD's CURE suggests that additional elements could be considered:
  - Support including mentoring, and professional development workshops, networking opportunities etc
  - In collaboration with DCB, CRCHD established an R21 Diversity (basic science) in 2013.
    - Aims to provide support for New Investigators and ESI from diverse backgrounds conducting basic cancer research studies but without substantial preliminary data
    - Allows awardees to become fully competitive at the R01 level in all areas of interest to the NCI
    - During the last 10 years, we have supported 89 R21 Diversity awards, and below is the summary of outcomes for the recipients:
      - 67 subsequent NIH awards totaling over $61.3 Million
      - 19 subsequent non-NIH awards totaling $7 Million
      - 1400 publications (271 cited R21 as a funding source)
      - 444 patent awards

Division of Cancer Prevention Initiatives

- Request for Information (RFI): Strategies to Expand and Enhance Development of the Molecular Cancer Prevention and Cancer Interception Research Workforce
  - https://grants.nih.gov/grants/guide/notice-files/NOT-CA-23-053.html
- Notice of Special Interest (NOSI): Career Development Opportunities for Research Within the Mission of the Division of Cancer Prevention at the National Cancer Institute
  - https://grants.nih.gov/grants/guide/notice-files/NOT-CA-23-035.html

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Summary

- Cancer prevention, control, and population sciences are essential to meet NCI's stated goals for the next 25 years
- We need to attract more early-stage investigators into the these areas of cancer research to meet the needs of the nation and the National Cancer Plan
- While there are training opportunities in these areas supported by some NCI mechanisms (e.g. T32, early K99) there are opportunities to expand the reach of others (e.g. F series, K series)
  - The career path of scientists working in the areas of cancer prevention, control, and population sciences often differ from those of other disciplines, particularly in terms of the prevalence and duration of post-doctoral training
- Improved approaches to training, as exemplified by CURE, could be considered to address these needs

Possible Next Steps

- What other data would be useful for the subcommittee to see?
- What can this group work on together?
- Where do we go from here? How do we move forward?
  - An NCAB/BSA Working Group to examine further and make recommendations?

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