
The National Institute of Environmental Health Sciences (NIEHS) supports a diverse range of training programs to support the environmental health science workforce. A core foundation for these efforts is the Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Training Grant Program, often referred to as the T32 program. This report summarizes the outcomes of trainees supported through the program between 2001-2015.

NIEHS T32 Program Overview

The goal of the Institutional Training Grant Program is to prepare qualified trainees for careers that have a significant impact on the health-related research needs of the nation. A T32 grant enables colleges, universities, and other research-based institutions to recruit and select individuals for predoctoral and postdoctoral research training.

Why Track Trainees?

Training is a critical component of NIEHS strategic plan Theme 3: Enhancing Environmental Health Science Through Stewardship and Support. T32 grantees track their trainees for 15 years after the first appointment to better assess trainee outcomes and impacts during and after their training.

NIEHS leads this innovative trainee outcome tracking project with other National Institutes of Health (NIH) partners through the use of CareerTrac.

Scope of This Report

This report summarizes data entered by T32 principal investigators (PIs) into the CareerTrac database. A major CareerTrac data collection effort was completed in 2016, so the statistics reported here range from 2001 to 2015. The hope is that the data presented here inspires T32 PIs to continue adding data to CareerTrac.
**NIEHS T32 Trainee Background: 2001–2015**

Between 2001 and 2015, NIEHS T32 trainees attended and graduated from many different institutions, with the top 15 displayed here. The most common pipelines for predoctoral and postdoctoral trainees differ.

**NIEHS T32 Trainees: 2001–2015**

From 2001 to 2015, the NIEHS T32 program has supported an average of:

- 122 new predoctoral trainees per year
- 59 new postdoctoral trainees per year

**Number of Trainees, 2001–2015**

- Predoctoral: 1,873
- Postdoctoral: 914
- Total: 2,787
Trainee Disciplines

The 10 Most Selected NIH-Defined Fields of Training

Broad NIH-Defined Fields of Training

NIH defines about 80 major fields of training to cover all topics supported across all 27 Institutes and Centers. Toxicology is by far the most dominant field of training for NIEHS T32 trainees, representing 32 to 49 percent of NIH-selected fields each year between 2001 and 2015. Other fields of study rise and fall over time. On average, 75 percent of trainees are captured by just 10 of the 80 NIH major fields of training.

Detailed CareerTrac-Defined Scientific and Technical Emphases

In addition to the NIH-defined fields of training, CareerTrac collects up to six scientific and technical emphases per trainee. These are tailored to environmental health science topics and allow for a much more detailed understanding of topics being addressed.

The figure to the left shows that trainees who selected toxicology as their NIH field of training are actually studying a wide range of topics, approaches, and outcomes.

Greater detail and specificity to environmental health science also enables training program staff to track emerging science topics, such as data science or the microbiome.

The 10 Most Selected NIH-Defined Fields of Training
After Training: Employment

Trainees obtain jobs in all different employment sectors and emphases, though most trainees are employed in academia and industry, with an emphasis on research.*

*CareerTrac is the only system that collects detailed employment data.

Careers in Academia and Industry Dominate the Employment Sector for T32 Trainees

Of the 28 percent of NIEHS trainees employed by industry, 64 percent hold research positions.

Of the 54 percent of NIEHS trainees employed in academia, 77 percent hold research positions.

The proportion of academic jobs reported with tenure or as tenure track has decreased, while the proportion of academic jobs not on a tenure track has increased.

NOTE: Data on this page are from approximately 50% of the trainees (1,373 out of 2,787) supported by an NIEHS T32 grant between 2001 and 2015.
**Connections**

**Opportunities Prior to the T32 Program**

T32 trainees have experiences with other NIH training and fellowship programs prior to entering the T32 program, such as the R25 Summer Research Experience and R25 Undergraduate Research programs.

**Goals of the R25 program include:**

- Helping attract young students to careers in science.
- Providing opportunities for undergraduate students to gain valuable research experience.
- Helping prepare participants for graduate school.

**Opportunities After the T32 Program**

**ONES (Outstanding New Environmental Scientist) Award:**

ONES Awards are early-stage career grants awarded to scientists, often tenured faculty, conducting cutting-edge research on the health effects resulting from exposure to environmental contaminants, such as arsenic, air pollution, industrial chemicals, and pesticides.

**Alumni of the T32 Program Apply for NIH Grants and Receive Awards From Many NIH Institutes**

![Graph showing award status of applications submitted from 2000 to 2015](chart)

**Table: ONES Awardees**

<table>
<thead>
<tr>
<th>Total number of awardees:</th>
<th>63</th>
</tr>
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<tbody>
<tr>
<td>18 (29 percent) were T32 trainees</td>
<td></td>
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<tr>
<td>Average number of years from first T32 appointment to ONES Award: 9.5 years</td>
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</tbody>
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**Institutes Funding Grants Awarded to T32 Alumni 2000-2015**

<table>
<thead>
<tr>
<th>Institute</th>
<th>Number of Grants</th>
</tr>
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<tbody>
<tr>
<td>National Institute of Environmental Health Sciences</td>
<td>482</td>
</tr>
<tr>
<td>National Cancer Institute</td>
<td>254</td>
</tr>
<tr>
<td>National Institute of General Medical Sciences</td>
<td>140</td>
</tr>
<tr>
<td>National Heart, Lung, and Blood Institute</td>
<td>123</td>
</tr>
<tr>
<td>National Institute of Diabetes and Digestive and Kidney Diseases</td>
<td>105</td>
</tr>
<tr>
<td>National Institute of Allergy and Infectious Diseases</td>
<td>62</td>
</tr>
<tr>
<td>National Institute of Neurological Disorders and Stroke</td>
<td>60</td>
</tr>
<tr>
<td>Eunice Kennedy Shriver National Institute of Child Health and Human Development</td>
<td>54</td>
</tr>
<tr>
<td>National Institute on Aging</td>
<td>49</td>
</tr>
<tr>
<td>Division of Occupational Health and Safety</td>
<td>49</td>
</tr>
<tr>
<td>National Institute on Alcohol Abuse and Alcoholism</td>
<td>33</td>
</tr>
<tr>
<td>National Institute on Drug Abuse</td>
<td>33</td>
</tr>
<tr>
<td>National Center for Research Resources</td>
<td>26</td>
</tr>
<tr>
<td>National Institute of Arthritis and Musculoskeletal and Skin Diseases</td>
<td>23</td>
</tr>
<tr>
<td>National Institute of Mental Health</td>
<td>21</td>
</tr>
</tbody>
</table>
CareerTrac Data on Display

CareerTrac generates many reports so that NIEHS T32-funded researchers can see data on their trainees and compare them to the aggregate of all NIEHS T32 trainees with data in CareerTrac.

Comparison Reports

CareerTrac generates reports that compare the employment sector and emphasis between one grant and all NIEHS T32 grants.

Employment Sector Comparison Report

Employment Emphasis Comparison Report
CareerTrac Data on Display

Publications

• 11,420: Total number of trainee publications in CareerTrac
• 1.77: Average number of publications per trainee

Number of Publications in the 10 Journals Most Published in by T32 Trainees

- Toxicological Sciences: An Official Journal of the Society of Toxicology
- Environmental Health Perspectives
- Toxicology and Applied Pharmacology
- The Journal of Biological Chemistry
- Proceedings of the National Academy of Sciences of the United States of America
- Chemical Research in Toxicology
- PLOS ONE
- Carcinogenesis
- Cancer Research
- Drug Metabolism and Disposition: The Biological Fate of Chemicals

The Next Generation
22 T32 alumni became PIs of T32 grants

Types of Products or Policies Recorded for Trainees

- Policies or Regulation: 23%
- New Research Tool: 26%
- New Drug: 45%
- Medical Device: 3%
- Diagnostic Test: 3%

Products and Policies
49 Recorded, including 25 patents
CareerTrac Data Collection

The CareerTrac database allows for the measurement of long-term trainee outcomes by collecting data on a variety of measures. The data is used by NIEHS grantees in reports and renewals, and to track their trainees over time, and by NIEHS to track trends in trainees’ fields of training, employment, publications, and more.

CareerTrac collects the data in the following fields:

- Research Project Title
- Field of Training (NIH-defined)
- Scientific and Technical Emphasis (NIEHS-defined)
- Career Highlight (narrative)
- Posters
- Honors
- Publications
- Later NIH Grants
- Students
- Policies and Products
- Employment Data
  - Position Title
  - Organization
  - Sector
    - Academia, Government, Industry, Not for Profit, Other
  - Major Emphasis
    - Administration, Clinical, Policy, Research, Teaching, Other
  - Tenure Track
  - Postdoc

“CareerTrac has been an effective tool to understand the past, present, and future of our training programs. We know more about where our trainees come from, their work during training, and where they go after they leave our programs. We see the value in long-term outcome data. It helps us think about how to further shape and improve our training programs. We very much appreciate the data PIs enter in CareerTrac and encourage updating it regularly.”

Gwen Collman, Director, Division of Extramural Research and Training

This report provides an overview of the many accomplishments of the NIEHS NRSA T32 program for the past 15 years. Unless otherwise stated, figures represent data from 2001 to 2015.

We look forward to your comments and feedback. For more information, contact Carol Shreffler, Ph.D., at shreffl1@niehs.nih.gov or 984-287-3322

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