

# An Impact Assessment of KidneyCure's Transition to Independence Grants Program Final Impact Assessment Report

Prepared for

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# Executive Summary

## Executive Summary

The American Society of Nephrology's (ASN's) Transition to Independence Grants (TIG) program is a key initiative of KidneyCure, supporting early-career nephrology researchers since 1996.

To verify that the TIG program is achieving its objectives, of (1) strengthening the pipeline of nephrology researchers, (2) enhancing the workforce committed to advancing the understanding of kidney biology and diseases, and (3) accelerating and sustaining research that drives innovation in nephrology and improves patient outcomes, ASN engaged RTI International to conduct an external assessment of the program. By developing metrics and using program records, external databases, and alumni interviews, RTI examined how the TIG program contributes to ASN and to awardees' career advancement, research outputs, funding, technology development, and ongoing engagement in kidney research. The assessment provides insights on the TIG program's impact across three key dimensions: individual awardees, broader nephrology field, and ASN as an organization.

### Transition to Independence Grants

From 1996 to 2025, ASN awarded 246 grants worth \$48.5 million to early-career faculty in 100 institutions across 31 states through the KidneyCure TIG program for kidney research.

## Findings

### Impact to the Awardee

#### TIG awards supported long-term research careers

The TIG award is aimed to support the transition to independent researcher. For many, ASN support during this time was seen as vital for career progression and confidence-building.

The analysis of a sample of grantees showed that half of those grantees who were assistant professors at the time of award attained tenure within 5 years of completing the TIG award, and 100% were tenured after 10 years. Grantees interviewed asserted that, had they not received the TIG award, their careers would have progressed more slowly, or they might have shifted away from nephrology entirely.

#### TIG awards empowered researchers to pursue original ideas

Interviewees communicated that the TIG award served as the pivotal bridge that allowed them to establish independence, resist pressure from senior faculty, and pursue their own scientific ideas. Awardees interviewed described the TIG award as validation. Several alumni emphasized that the TIG award gave researchers the freedom to explore high-impact research questions that

### TIG Awardee Career Advancement

50% of tenured-track awardees were tenured within 5 years of the end of the TIG award, and 100% of TIG awardees were tenured after 10 years.

might otherwise have been discouraged by their institutions. Interviews show that the TIG program often supports research areas ahead of their time.

### **TIG awardees secured follow-on NIH funding**

TIG alumni obtained 648 National Institutes of Health (NIH) awards totaling \$1.2 billion following their TIG award, more than 24 times the TIG award funding over the same period. Thirty-seven percent of first R01 awards were obtained within 3 years of the TIG award, and 84% of awardees who ultimately received an R01 did so within 9 years.

### **Follow-On Funding**

Follow-on funding for TIG awardees totaled \$1.2 billion across all NIH mechanisms. R01 grants accounted for \$638 million (53%) of the total.

## **Impact on the Field of Nephrology**

### **Expanded nephrology research to improve patient outcomes**

From 1998–2025, 218 TIG awardees produced 12,018 peer-reviewed publications. Of these, 1,202 publications appeared in ASN journals. Across all publications, TIG grantees' work received 830,595 citations, including 91,232 citations in ASN journals.

Ninety-three awardees (39%) published highly cited papers, 16 of which were published in ASN journals and contributed 4,724 citations. TIG awardees also appeared as authors on more than 298 conference abstracts, indicating broad participation in scientific meetings. About 15% of these conference abstracts were presented at ASN's annual Kidney Week.

These contributions demonstrate that TIG awardees generate high-impact science with the potential to have an impact on patient care and lead to improved patient outcomes. Since receiving TIG awards, alumni have contributed to technology development through 91 NIH-funded clinical trials, focused on neonatal intensive care and pediatric and adult kidney disease management.

Alumni were granted 68 U.S. patents, covering imaging technologies, biomedical devices, diagnostics, and therapeutic approaches, including biomarkers and methods for diagnosing or treating kidney disease.

### **Research Productivity and Visibility**

TIG awardees produced 12,018 peer-reviewed publications, 298 papers at conferences, and over 830,595 citations.

Their collective research portfolio includes 91 clinical trials, 68 patents, and 6 biomarkers.

### **Strengthened kidney-related research infrastructure**

Research infrastructure refers to physical resources, human capital, and mentoring and training. Across interviews, TIG awardees noted that ASN funding allowed them to build critical research

infrastructure, including physical infrastructure and human capital, that would become the backbone of their scientific programs.

The TIG program provided funds to create labs that became training grounds for future nephrologists, basic scientists, and physician-scientists. Several alumni emphasized that it was the only mechanism available to help them stay in the field.

TIG awardees noted that KidneyCure funding allowed them to build research infrastructure that would become the backbone of their scientific programs.

### **Increased the pipeline of nephrology researchers**

As evidence of the grantees remaining in the nephrology workforce after their TIG award, the assessment provides evidence from publications 10 years after the end of the award and NIH grants received after the award. Ten years after the end of the TIG award, 82% of the TIG alumni (1996–2015) continued to publish nephrology-related research. Similarly, 40% of TIG awardees received at least one NIH grant after their TIG award end date, and 14% received at least one NIH grant 10 or more years after their TIG award, most (70%) for kidney-related research.

TIG-supported investigators consistently mentor new scientists, some of whom have obtained ASN grants themselves. This growing pipeline ensures the sustainability and innovation of kidney-related research.

## **Impact on ASN**

### **Strengthened ASN as a community**

The TIG program strengthens ASN by cultivating an engaged community of researchers who remain active contributors to ASN's mission long after their award period ends. Awardees described ASN as their “professional home,” “the community that believed in [them] and took a chance,” and “the sole reason [they] stayed in kidney research.” This connection translates into sustained participation and long-term involvement in the ASN community.

88% of TIG awardees have participated in one or more ASN meetings or programs since receiving their award.

Awardees remained engaged with ASN after the end of their award as evidenced by the 88% of TIG awardees who have participated in one or more ASN meetings or programs (i.e., Kidney Week) since receiving their award. Beyond just participating in ASN community events, over 50% of TIG awardees served as Kidney Week program chairs, moderators, or invited speakers.

### **Integrated new and diverse voices to the kidney research community**

Many interviewees emphasized that the TIG award was their entry point into the nephrology community, particularly for groups that do not have access or feel overlooked by traditional NIH pathways.

### **Created a pipeline of future ASN leaders**

Awardees frequently spoke about wanting to give back to ASN. Alumni now serve as grant reviewers, editorial board members, Kidney Week faculty, and committee leaders. Several awardees explicitly connected their ongoing service to ASN with their gratitude for having been funded at a pivotal moment. "ASN supported me, [and now] I owe it to the community to support the next generation," one noted.

TIG alumni showed pride in becoming lifelong contributors as leaders, reviewers, mentors, and ambassadors whose deep engagement was shaped at a critical moment in their careers by ASN's early support.

A similar number, 47%, also serve in leadership positions within ASN. Similarly, nearly half of all awardees have served on at least one ASN committee, and more than half of them have participated in two or more committees. Their contributions span editorial boards, educational committees, scientific review, and program development groups.

Alumni served on 56 distinct ASN committees, with higher concentrations on editorial boards, Kidney Week Education and Program Committees, and the Grants Review Committee.

### **Conclusions**

Overall, the assessment finds that the TIG program is achieving ASN's mission to strengthen the nephrology research pipeline, advance scientific understanding of kidney biology and diseases, and support research that could ultimately improve patient outcomes. TIG awardees progress rapidly to research independence, securing substantial follow-on funding from NIH and sustaining long-term engagement in kidney-focused research. Their collective contributions include high-impact publications, patents, clinical trials, independent laboratories, and training or mentorship of future kidney investigators, and they demonstrate meaningful and lasting impact in the field.

# Section 1: Overview

# 1. Overview

This section provides a brief overview of the KidneyCure Transition to Independence Grants (TIG) program and its objectives. It also provides a guide to the structure of the report and the aim of the report in providing American Society of Nephrology (ASN) leadership with evidence of the impact of the program.

## 1.1 Introduction

New doctoral graduates and postdoctoral fellows in biomedical sciences face challenges in acquiring funding to launch their careers. Government grants can be highly competitive and can sometimes take several years to obtain. To address this challenge, ASN created the TIG program as a core component of the KidneyCure initiative.

To ensure the program is achieving its objectives, ASN engaged RTI International to conduct an external assessment of the TIG program. The assessment aimed to provide insights into the program's support to early-career nephrology researchers in advancing their professional development, securing sustained research funding, and sustaining long-term engagement in kidney-focused research.

## 1.2 Report Structure

The report is structured as follows:

- **Section 1** introduced the TIG program, outlined the purpose and objectives of the impact assessment, and describes its scope and structure.
- **Section 2** details the methodology, including data sources, collection procedures, and analytical approaches.
- **Section 3** describes the development and application of indicators to measure program impact across three dimensions: on the awardee, on the field of nephrology, and on ASN.
- **Section 4** presents the findings including outputs, outcomes, and impact.
- **Section 5** offers recommendations for strengthening data collection, program management, and future assessments.
- **Appendix A** provides a detailed description of the procedures used to identify the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) K99 comparison cohort and extract their subsequent NIH funding, patent, and clinical trial data.
- **Appendix B** includes the instrument used to request information sent to grantees to obtain updated information about their careers, their CVs, and information about participation in ASN events and activities.
- **Appendix C** includes the instrument used during the interview to gather information on the TIG alumni career track, contributions to the field, and ASN engagement.

### 1.3 KidneyCure Transition to Independence Grants Program

The TIG program started in 1996 to provide early-career faculty with funding to bridge their postdoctoral appointments to their subsequent efforts to establish independent research careers.

The TIG program advances ASN's objectives to do the following:

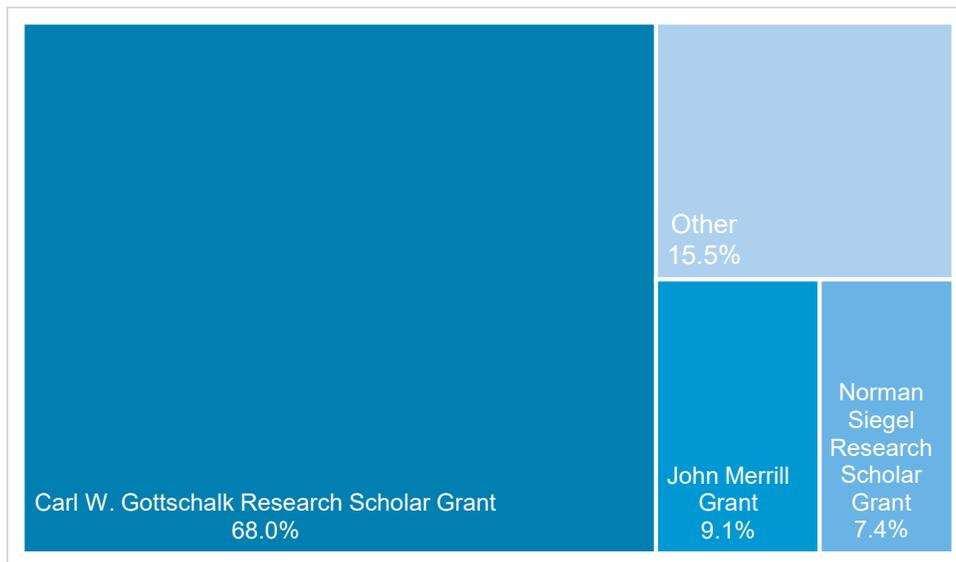
- Strengthen the pipeline of nephrology researchers and enhance the workforce committed to advancing the understanding of kidney biology and diseases.
- Accelerate and sustain research that drives innovation in nephrology and improves patient outcomes.

Administered by ASN, this KidneyCure program supports both basic and clinical research, preparing grantees to compete successfully for funding from major programs, such as R01 awards from NIH by the end of the grant period.

The TIG program provides up to \$100,000 annually for 2 years to applicants who hold a Doctor of Medicine (MD), Doctor of Osteopathic Medicine (DO), Doctor of Philosophy (PhD), Doctor of Veterinary Medicine, Doctor of Pharmacy (PharmD) or equivalent degree and who are working in North America, Central America, or the Caribbean during the grant period. The awards may cover salaries for staff, supplies, equipment, and travel.

From 1996 to 2025, KidneyCure awarded 246 grants, providing \$48.5 million in funding under several mechanisms, including the Carl W. Gottschalk Research Scholar Grant (\$33 million, 68%), John Merrill Grant in Transplantation (\$4.4 million, 9.1%), Norman Siegel Research Scholar Grant (\$3.6 million, 7.4%), and others (\$7.5 million, 15.5%). These mechanisms reflect donor names and activity focus.

**Figure 1-1.** KidneyCure TIG Award by Type of Mechanism



Source: ASN Programmatic Data

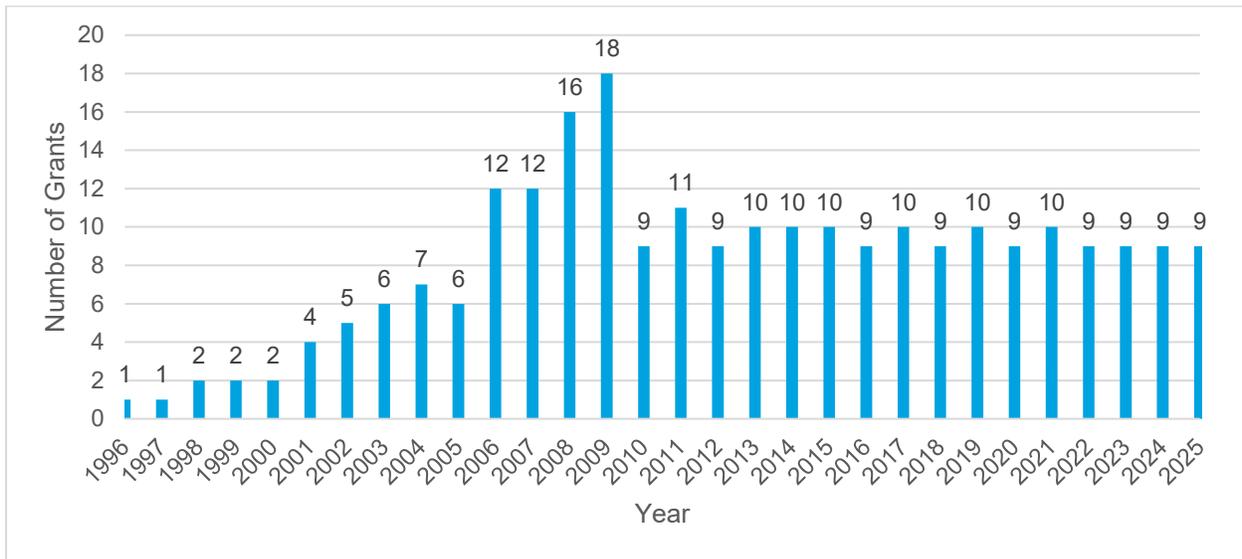
**Table 1-1. TIG Funding Mechanisms and Awards**

<b>TIG Mechanism Title</b>	<b>Years</b>	<b>Awards (N)</b>	<b>Amount Awarded (\$)</b>
Carl W. Gottschalk Research Scholar Grant	1996–2025	165	\$33 million
Norman Siegel Research Scholar Grant	2007–2025	18	\$4.4 million
ASN Foundation for Kidney Research-AAIM Junior Development Grant in Geriatric Nephrology	2003–2015	14	\$3.6 million
Alaska Kidney Foundation–ASN Research Grant	2006–2009	5	\$2.1 million
Halpin Foundation—ASN Foundation for Kidney Research Grant	2006–2013	5	\$1 million
NephCure Kidney International–ASN Foundation for Kidney Research Grant	2012–2016	5	\$1 million
Joseph V. Bonventre Career Development Grant	2018–2024	4	\$1 million
Kidney & Urology Foundation of America (KUFA)–ASN Research Award	2006–2008	3	\$800,000
Oxalosis & Hyperoxaluria Foundation (OHF)–ASN Foundation for Kidney Research Grant	2017–2021	3	\$600,000
John Merrill Grant in Transplantation	2001–2025	22	\$600,000
KidneyCure Diversity, Equity, Inclusion, and Justice Research Scholar Grant	2023–2025	2	\$400,000
<b>TOTAL</b>	<b>1996–2025</b>	<b>246</b>	<b>\$48.5 million</b>

Source: ASN Programmatic Data

At the beginning of the program, 1996–2000, one or two TIG awards were provided each year. In 2001 to 2009, the program expanded to provide more grants every year. At the peak, in 2009, the program provided 18 grants. After 2009, from 2010 to 2025, the program provided an average of 10 awards per year.

**Figure 1-2.** TIG Awards per Year



Source: ASN Programmatic Data

In terms of the awardee career paths, the 246 awards were provided to 245 individuals who received TIG grants (one individual received two grants) from 1996 through 2025. Of these, 100 were MDs or equivalent, 79 were PhDs (including two PharmDs), and two DOs at the time of award.

**Table 1-2.** Grantee Degrees at Time of TIG Award (N=245)

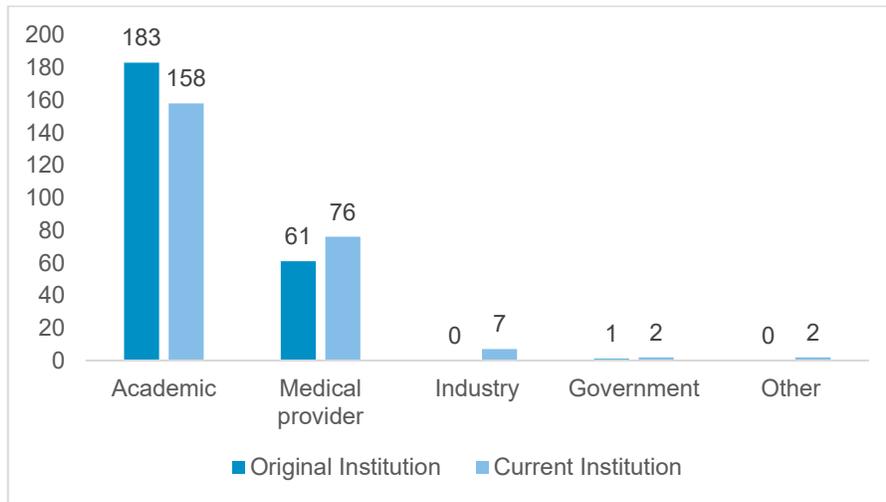
Designation	Percentage of Investigators (N=245)
MD or equivalent	41%
PhD (including PharmD)	32%
MD and PhD	26%
DO	1%

Source: ASN Programmatic Data

According to ASN programmatic data, grantees have moved type of institution over time. Data shows that 183 awardees (74.7%) were at academic institutions at the time of receiving the TIG award. Academic institutions include universities, medical schools, university health science centers, and research centers.

Currently, 158 awardees (64.5%) remain in academic institutions. TIG awardees in hospitals and health-related institutions focused on care delivery amounted to 61 (25%). Only one awardee (0.04%) was in government at the time of award. Post-award, 25 grantees (14%) moved from academic to other institutions. Fifteen grantees moved to medical providers post-award (6%). A small number of grantees moved from academic institutions and medical providers to industry (2.8%), government (0.4%) and other organizations including foundations and associations (0.8%). Figure 1-3 shows these changes.

**Figure 1-3.** Change in Institution Type of TIG Grantees



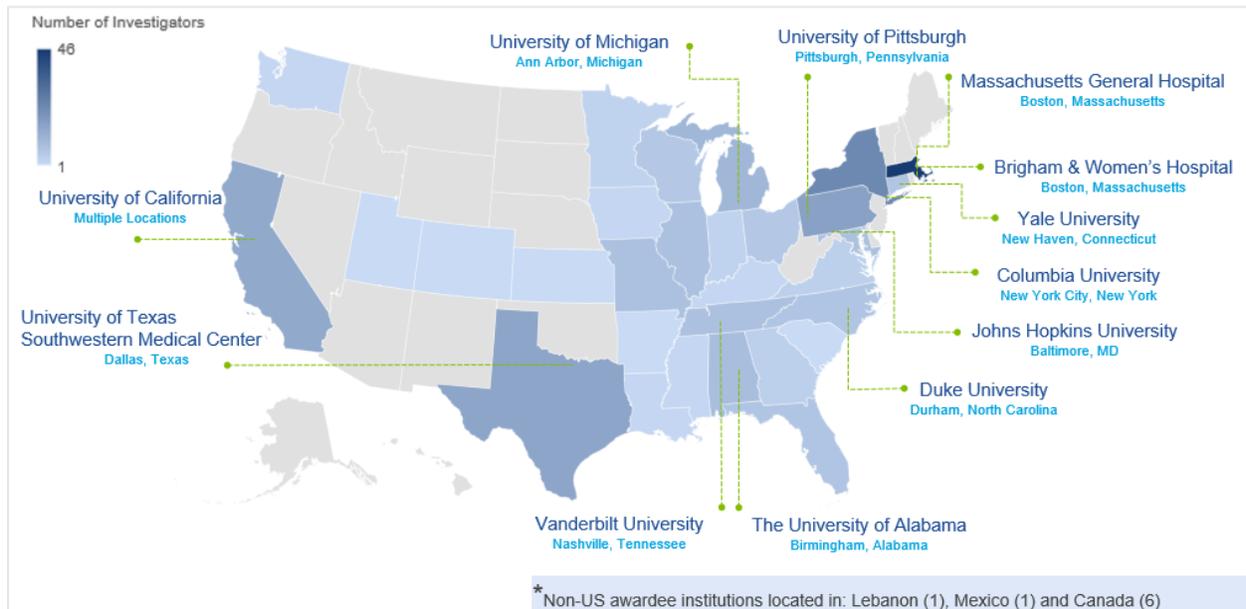
Source: ASN Programmatic Data

TIG grants have been awarded to a variety of researchers from 100 different institutions in 31 states and Washington, DC. The states with most awardees are Massachusetts (46), New York (24), Pennsylvania (17), Texas (16), California (15), and Michigan (11).

The top institutions receiving funding are Brigham & Women's Hospital (21), University of Pittsburgh (11), University of Michigan (10), University of Alabama at Birmingham (9), Yale University (7), Johns Hopkins University (7), University of Texas Southwestern Medical Center at Dallas (7), Massachusetts General Hospital (7), Vanderbilt University (7), Duke University (6), and Columbia University (6).

Figure 1-4 shows the breakdown of the geographical distribution based on the institution of the awardee. In addition to U.S. awardees, there are also awardees in institutions in Lebanon (1), Mexico (1) and Canada (6).

**Figure 1-4.** Geographic Distribution of TIG Awardee Institutions\*



Source: ASN Programmatic Data

## 1.4 Assessment Objectives

The impact assessment aimed to accomplish the following:

- Measure the main outputs and outcomes enabled by the TIG award since the program’s inception (1996–2025).
- Assess the program’s impact on three interrelated dimensions:
  - Impact on the awardees: Career advancement, professional opportunities, research support, and progression toward research independence.
  - Impact on the field of nephrology: Contributions to research productivity, research translation, and the broader scientific community.
  - Impact on ASN: Continued engagement through committee service, Kidney Week participation, and attendance at ASN events.

Through these objectives, the assessment seeks to provide evidence on the utility and benefits of the TIG program to ASN leadership.

This report presents findings from a mixed-methods assessment that integrates quantitative data from ASN programmatic records and external databases with qualitative insights from TIG awardee interviews. The results are intended to inform ASN’s leadership of the TIG program’s impact on its awardees, ASN itself, and the field of nephrology at large.

# **Section 2: Methodology**

## 2. Methodology

This section discusses methodology, detailing data collection procedures by source, and the approaches used for analysis and a discussion of limitations. By employing a mixed-methods strategy, the assessment integrates quantitative data from programmatic records, grantee CVs, and external databases with qualitative insights from interviews. Each data source is described to clarify its contribution to the overall evaluation.

In the analysis phase, we used the data collected and validated to assess outputs and outcomes, ensuring that findings reflect the diverse experiences and achievements of TIG awardees. However, there were limitations, including potential response bias in self-reported survey data and possible gaps in publicly available databases. These limitations are acknowledged to provide transparency and to contextualize the results of the assessment.

### 2.1 Methodology

RTI employed a mixed-methods approach to assess the impact of the TIG program, a core component of ASN's KidneyCure initiative. Data were collected from multiple sources, including programmatic records maintained by ASN; ASN's membership management database containing awardee information, NetForum; grantee CVs; and external databases such as Web of Science (WoS) and NIH RePORTER.

The programmatic records from ASN provided information on the 246 awards to 245 individual grantees (one grantee received two awards). The team also sent out surveys to collect data from the grantees, including CVs, which provided essential metrics on awardee career progression and participation in ASN events and leadership committees.

Awardees' nephrology contributions were measured using external databases. Although the TIG program began in 1996, outcomes were assessed starting in 1998 after the first award cycle. Most metrics use data from 1998–2025. To ensure transparency and accuracy, each indicator specifies the sample size and timeframe used.

In addition to the programmatic data and external databases, we gathered qualitative insights through interviews with TIG awardees to enrich the analysis with personal experiences and perspectives. We systematically analyzed the collected data to address key questions related to program outputs, outcomes, and broader impacts.

### 2.2 Data Collection by Source

#### 2.2.1 TIG Programmatic Data

##### **TIG awardee database**

ASN provided RTI with an initial database with information on the 245 awardees. The database includes names, contact information, designation, institutional affiliation (current and at the time of award), award information (project title, start date, end date), and related funding information.

These data served as the foundation for subsequent analyses of career progression and for linking to external databases.

### **ASN event participation and committee membership**

ASN also provided data on the awardees' participation in ASN activities, including attendance at Kidney Week and other educational conferences, involvement in workshops, and service on leadership committees. We used this data to assess ongoing engagement and professional leadership within ASN following receipt of the TIG award.

## **2.2.2 Funding Data**

### **NIH RePORTER**

We used data from NIH RePORTER to identify NIH-funded research projects awarded to TIG alumni following their TIG grant. These data included the type and mechanism of awards (e.g., R01, R21, U01), the timing of subsequent funding relative to the TIG award, and associated outcomes such as clinical trials, patents and biomarkers. These data provided insight into the sustained research activity and federal funding trajectories of TIG alumni.

To contextualize TIG awardee funding and technology development outcomes, RTI constructed a comparison sample of NIDDK K99-funded investigators, the closest funding mechanism to TIG supporting a similar career stage of investigators. This sample included 207 individuals who received NIDDK K99 awards between 1998 and 2025. Like TIG awards, NIDDK K99 are 2-year awards and provide approximately \$85,000 a year (TIG awards are \$100,000 a year). The procedures used to identify this cohort and extract data are detailed in **Appendix A**.

## **2.2.3 Publication Data**

### **Web of Science**

WoS, maintained by the firm Clarivate, stores the bibliographic records of articles and other content published in scholarly journals and in academic conference proceedings. These data are then used to trace patterns in scientific communication, including citation counts for articles, authors, and journal titles.

### **Open Researcher and Contributor ID (ORCID)**

We used ORCID profiles to cross reference and validate WoS research IDs, institutional associations, and other information to ensure accurate tracking of publications and citations.

## **2.2.4 Career and Professional Data**

### **Grantee survey**

RTI created and distributed an online survey to TIG awardees to collect updated and self-reported information on their professional status and ongoing engagement with ASN. The survey was emailed to 234 TIG awardees with valid email addresses and was open for 2 weeks in August 2025. The response rate was 30% and included 70 complete responses. The survey gathered data on current position title, institutional affiliation, and continued participation in ASN

activities, including committee membership, Kidney Week faculty roles, and publications in ASN journals. We also asked respondents whether they would be willing to participate in a follow-up interview, to share any professional or departmental webpages featuring their work, and to upload a current CV.

The survey responses provided contemporary information on awardee careers, validated existing data sources, and facilitated identification of participants for qualitative interviews. See **Appendix B** for instrument.

### **Grantee curricula vitae**

RTI used the survey to request that grantees provide their individual CV. Of the 245 grantees emailed to provide information, 42 grantees submitted their CVs. The RTI team then extracted information about awardees' professional activities and advancement from the CVs, including current position, affiliation, and tenure status.

### **Professional networking sites**

RTI consulted LinkedIn, a professional networking platform, personal and professional information including career path and job history, academic background, research interests and publications, professional engagement and leadership, publications, and contact information to supplement records missing indicator data.

## **2.2.5 Grantee Personal Observations**

### **Grantee interviews**

To complement quantitative findings, RTI conducted 10 semi-structured interviews in September and October 2025. The TIG awardees interviewed represented a range of TIG award years, career stages, and affiliations. The sample was selected from those who responded to the online survey and indicated interest in participating in a follow-on conversation. Interviewees discussed their professional background and path to their TIG award and the influence of the TIG award on their career trajectory. We analyzed qualitative data thematically to identify common patterns, illustrative examples, and contextual factors that help explain quantitative findings. See **Appendix C** for instrument.

## **2.3 Analysis**

Quantitative data were cleaned, verified, and merged across sources to construct a comprehensive data set describing grantee trajectories, outputs, and outcomes. Analyses included descriptive statistics, frequency distributions, and trend analyses to examine patterns over time. Data visualizations were developed to highlight key findings from indicators.

Qualitative data from interview notes were coded and analyzed thematically, using inductive and deductive approaches to identify recurring themes related to the TIG program's influence on awardees' career trajectory and progression, research independence, and engagement with ASN and the field of nephrology. Triangulation across quantitative and qualitative findings provided a holistic understanding of program outcomes and impacts.

## 2.4 Limitations

This study faced several limitations in data availability and analysis that should be considered when interpreting the findings of this assessment.

Concerning the TIG programmatic data, including data on applicants and grantees, the current KidneyCure program data has not necessarily been managed consistently over time. For example, the project team did not have access to current contact information for all grantees. Because the project had finite resources and time, certain outputs, outcomes, and impacts have likely been underestimated due to missing data.

Data and operational limitations also affected the analytical methods available for the project. Although the findings trace the outcomes and impacts generated by the program and its grantees, there is no way to determine the degree to which the impacts are attributable specifically to the program. The qualitative interviews provided evidence of how the TIG program helped grantees achieve specific outcomes. Also, when searching some public databases (NIH RePORTER and WoS in particular), there were issues in properly matching grantees' names to funding and authorship records (as some grantees' names are very common and may be shared with other individuals in those databases). The project team took measures to disambiguate these records retrieved. Also, inconsistencies in individual's names, commonality of names, institutional affiliations, and ID numbers, which occasionally require subjective judgment to confirm identity.

The following issues complicated the use of the specified data sources:

**NIH RePORTER.** In addition to NIH funding records, this database links those records to patent data and to clinical trials. The patent data set and clinical trials data set have known deficiencies and may not be comprehensive.

**Web of Science.** Grantees were matched to publication records using the "Researcher ID" generated within WoS. That identifier has known defects (e.g., some publications are not linked to the proper Researcher IDs) that affect data quality.

**Grantee Survey.** The grantee survey was in the field for a limited time, and not all grantees responded. The respondents are not necessarily representative of the population of grantees. Also, responses may be subject to recall bias or selective reporting.

**Grantee CVs.** Through the survey, grantees were requested to submit their CVs for analysis. The 42 CVs received represent a small share of all TIG recipients and may not be representative of the population of grantees.

**Grantee Interviews.** A small number of grantees were interviewed to provide additional context to the results of the data analysis and to supplement information on outcomes and impact. The interview results are indicative of the program's impact but are not representative or comprehensive and may not be generalizable to the larger set of grantees.

Despite these limitations, the integration of multiple data sources and use of the selected analytical methods provide a robust foundation for evaluating the TIG program's impact and influence the professional activities and achievements of awardees.

# Section 3: Indicator Development

### 3. Indicator Development

This section outlines the systematic process of identifying, evaluating, and selecting indicators to capture the outputs and outcomes of the KidneyCure TIG program. It also outlines the framework used to evaluate potential indicators, ensuring each is reliable, precise, replicable, sustainable and comprehensive and aligns with program objectives. Through a structured selection process, the most meaningful and actionable indicators were identified to assess outputs, outcomes and overall program impact.

#### 3.1 Dimensions and Initial Indicators

The key dimensions that guided the indicator selection were impact to the awardee, impact on ASN, and impact on the field. Indicators were developed to describe the effects of TIG awards in each dimension.

Some individual indicators were initially proposed, and additional indicators were identified and explored through the framework. The indicators initially proposed are presented in Table 3-1.

**Table 3-1.** Initial Indicators Proposed for Testing

Dimension	Metric	Illustrative Indicators
Impact on the Awardee	Career advancement	<ul style="list-style-type: none"> <li>Number of awardees who secure promotions, tenure, or leadership positions at their institutions following their award</li> </ul>
	Institutional prestige	<ul style="list-style-type: none"> <li>Percentage of awardees who transitioned to more-prestigious or research-intensive institutions</li> </ul>
	Collaboration	<ul style="list-style-type: none"> <li>Number of invitations for awardees to collaborate with renowned researchers or participate in high-profile projects</li> </ul>
	Follow-on funding	<ul style="list-style-type: none"> <li>Number of awardees earning competitive grants like R01s or equivalent funding after receiving initial support</li> <li>Number and types of major grants (e.g., NIH R01) awarded to researchers after receiving their initial funding</li> </ul>
Impact on the Field	Research productivity	<ul style="list-style-type: none"> <li>Number of peer-reviewed publications</li> </ul>
	Research visibility	<ul style="list-style-type: none"> <li>Number of citations</li> <li>Number of highly cited papers</li> </ul>
	Technology development	<ul style="list-style-type: none"> <li>Number of clinical trials, patents, or biomarkers developed by funded researchers during and after award</li> </ul>
	Contribution to research workforce	<ul style="list-style-type: none"> <li>Percentage of funded researchers remaining in research roles after their award period, including transitions to research-intensive academic or industry positions</li> </ul>
	Collaboration and network expansion	<ul style="list-style-type: none"> <li>Number of collaborations initiated post-award, including joint publications or grants with other researchers, and involvement in interdisciplinary research</li> </ul>

Impact on ASN	Community participation	<ul style="list-style-type: none"> <li>Number of presentations, posters, or panel participations by awardees at ASN events such as Kidney Week</li> </ul>
	Leadership within ASN	<ul style="list-style-type: none"> <li>Proportion of awardees who take on leadership roles within ASN</li> </ul>

### 3.2 Indicator Testing

To determine the suitability and robustness of each indicator in answering the impact assessment questions, each indicator was evaluated using the following criteria:

- Reliability: Are the data sets underlying each indicator sufficiently valid and trustworthy?
- Precision: Does the indicator accurately measure the phenomenon of interest, or is it too narrow or too broad?
- Replicability: Is the indicator generated using a process that can be readily documented and repeated?
- Sustainability: Can the indicator be generated at regular intervals into the future? For example, is it based on a one-time data collection or on a data source that is regularly updated?
- Comprehensibility: Will the indicator be understood, and properly interpreted, by end-users without the need for highly technical explanations?

Although indicators did not need to comply with all these criteria, we analyzed and decided whether indicators were useful in answering the impact assessment questions for each dimension.

### 3.3 Selected Indicators

The process evaluated 19 indicators against the framework to ensure that outputs, outcomes and impact could be accurately assessed by the indicator (precise, reliable and comprehensive) and was feasible to be tracked over time (replicable and sustainable). Of the 19 indicators tested, 14 were selected. We identified four indicators to assess the impact to the awardee, seven indicators to measure the impact to the field of nephrology, and three indicators to assess the impact to ASN. Five indicators were not selected.

**Table 3-2.** Indicators Selected to Measure the Impact of the TIG Program by Dimension

Dimension	Selected Indicators (n=14)	Data Sources
Impact on the Awardee	<ul style="list-style-type: none"> <li>▪ Number of awardees securing tenure</li> <li>▪ Number and types of grants received since TIG award</li> <li>▪ Total grant funding since TIG award</li> <li>▪ Time from TIG award to first R01 grant</li> </ul>	<ul style="list-style-type: none"> <li>▪ ASN database</li> <li>▪ CVs</li> <li>▪ Interviews</li> <li>▪ University websites</li> <li>▪ LinkedIn</li> </ul>
Impact on the Field	<ul style="list-style-type: none"> <li>▪ Number of peer-reviewed publications by TIG awardees</li> <li>▪ Number of clinical trials by TIG awardees</li> <li>▪ Number of conference presentations, posters, or panel participations by TIG awardees</li> <li>▪ Number of citations to TIG awardee publications</li> <li>▪ Number of patents filed by TIG awardees</li> <li>▪ Number of biomarkers discovered by TIG awardees</li> <li>▪ Awardees remaining in nephrology research</li> </ul>	<ul style="list-style-type: none"> <li>▪ WoS</li> <li>▪ NIH RePORTER</li> <li>▪ Interviews</li> </ul>
Impact on ASN	<ul style="list-style-type: none"> <li>▪ Participation in ASN events</li> <li>▪ Faculty participation at Kidney Week</li> <li>▪ Participation in ASN committees</li> </ul>	<ul style="list-style-type: none"> <li>▪ ASN events data</li> <li>▪ ASN committee data</li> <li>▪ RTI survey</li> <li>▪ Interviews</li> </ul>

Table 3-3 shows the indicators that were tested but not selected and the rationale for excluding them from the analysis. These indicators could be re-assessed for future studies.

**Table 3-3.** Indicators Tested but Not Selected for TIG Impact Assessment

Dimension	Indicators tested but not selected (n=5)	Rationale
Impact on the Awardee	Institutional prestige	<ul style="list-style-type: none"> <li>▪ Definitions for institutional prestige were subjective.</li> <li>▪ Reasons for changing institutions were varied and did not provide a clear indication of failure or success of the program.</li> </ul>
	Collaboration	<ul style="list-style-type: none"> <li>▪ More analysis would be needed to determine collaboration among grantees and within the network.</li> </ul>
	Recognition through honors, awards, or society fellowships	<ul style="list-style-type: none"> <li>▪ We could not identify these using existing data. A more-systematic data collection process would allow for self-reporting of recognition by the grantees in the future.</li> </ul>
Impact on the Field	Number of collaborations initiated post-award, including joint publications or grants with other researchers	<ul style="list-style-type: none"> <li>▪ More analysis would be needed to determine collaboration among grantees and within the network.</li> </ul>
	Involvement in interdisciplinary research	<ul style="list-style-type: none"> <li>▪ More analysis would be needed for a detailed review of each project as very frequently kidney research involved other disciplines.</li> </ul>
	Career Transitions	<ul style="list-style-type: none"> <li>▪ More analysis would be needed to determine career transitions within the field to research-intensive academic or industry positions.</li> </ul>
Impact on ASN	All indicators tested were selected	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>

# Section 4: Results

## 4. Results

This section provides data from the analyzed sources as evidence of the outputs, outcomes and impact of the KidneyCure TIG program. The outputs and outcomes are presented as themes guided by the selected indicators including career advancement, follow-on funding, research productivity, research visibility, technology development, contribution to the research workforce and ASN community participation and leadership. The impact is presented in three distinct dimensions: impact to the awardee, impact to the field of nephrology, and impact to ASN.

### 4.1 Outputs and Outcomes

To assess the outputs and outcomes of the TIG program, we provide data from selected indicators. Most indicators reflect outcomes, as they are indirect results of the program (i.e., tenure, funding, technology development). Some output indicators are considered, mainly in the research productivity and visibility section (i.e., publications). Table 4-1 shows the selected indicators used on this assessment to measure outputs and outcomes of the TIG program.

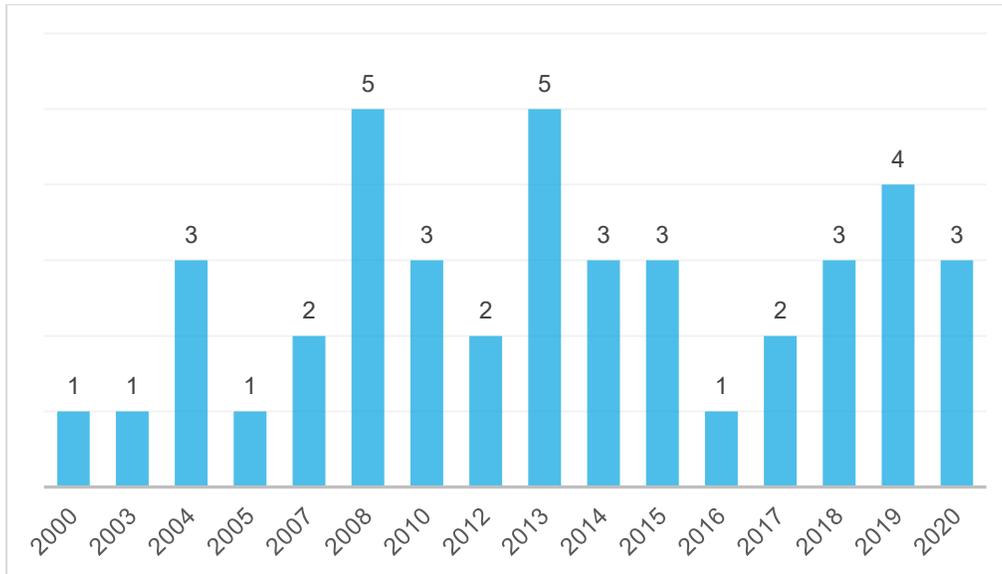
**Table 4-1.** Selected Indicators to Measure Outputs and Outcomes of TIG Program

Metric	Indicators (N=14)
Career Advancement	<ul style="list-style-type: none"> <li>Number of awardees who secured tenure after receiving their award</li> </ul>
Follow-On Funding	<ul style="list-style-type: none"> <li>NIH grants and funding</li> <li>Mechanisms of NIH grants secured by TIG alumni</li> <li>Total NIH grant funding since TIG award</li> <li>Time from TIG award to first R01 grant</li> </ul>
Research Productivity and Research Visibility	<ul style="list-style-type: none"> <li>Number of publications (outputs)</li> <li>Number of presentations, posters, or panel participation</li> <li>Number of citations</li> </ul>
Technology Development	<ul style="list-style-type: none"> <li>Number of clinical trials</li> <li>Number of patents filed</li> <li>Number of biomarkers developed</li> </ul>
Contribution to Research Workforce	<ul style="list-style-type: none"> <li>Awardees remaining in nephrology research</li> </ul>
Community participation	<ul style="list-style-type: none"> <li>Number by awardees at ASN events such as Kidney Week</li> </ul>
Leadership within ASN	<ul style="list-style-type: none"> <li>Proportion of awardees who take on leadership roles within ASN</li> </ul>

### 4.1.1 Career Advancement

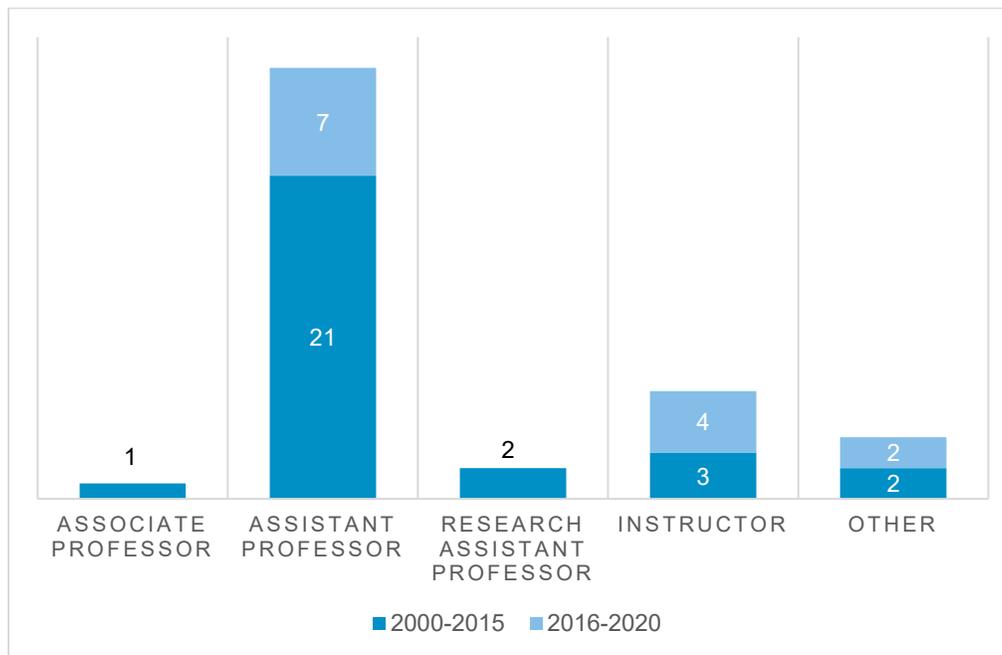
For this assessment, RTI reviewed 42 CVs to measure career progression in the field of nephrology by looking at the number of awardees attaining tenure at a university at the 5-year mark and at the 10-year mark. The sample was from grantees voluntarily providing CVs. Below is the distribution of the awardees who provided CVs by date of award.

**Figure 4-1.** Sample of Awardee CVs Received by Date of TIG Award (2000-2020)



Source: TIG Awardee CVs

RTI used a sample of 28 grantees who were assistant professors at the time of award with the assumption that all would be interested in obtaining tenure track positions. For the purposes of this indicator, the assumption is that a promotion from assistant professor to associate professor implies a successful tenure review. Figure 4-2 shows the distribution of the grantee sample of 42 who provided CVs. From 2000 to 2025, 21 identified as assistant professors at the time of award. Another seven from 2016 to 2020 identified as assistant professors.

**Figure 4-2.** Sample of TIG Awardees by Title at Time of Award (2000-2020)

Source: TIG Awardee CVs

### Tenure after 5 years of TIG award

Considering assistant professors in the sample from 2000 to 2020, RTI created a subgroup of 28 assistant professors. RTI found that 14 out of 28, 50%, were promoted from assistant professor to associate professor within 5 years of receiving their TIG award.

### Tenure after 10 years of TIG award

To measure ability and speed to secure tenure after 10 years of award, RTI used a smaller sample of 21 grantees. The sample included only grantees who received their grants between 2000 and 2015, providing at least a 10-year window since the award to date, to examine patterns of career progression for the 2000 to 2025 time period. Assistant professors in the 2016–2025 cohorts were not considered. Notably, within 10 years of the award, 100% of these assistant professors had achieved tenure through promotion to associate professor or professor.

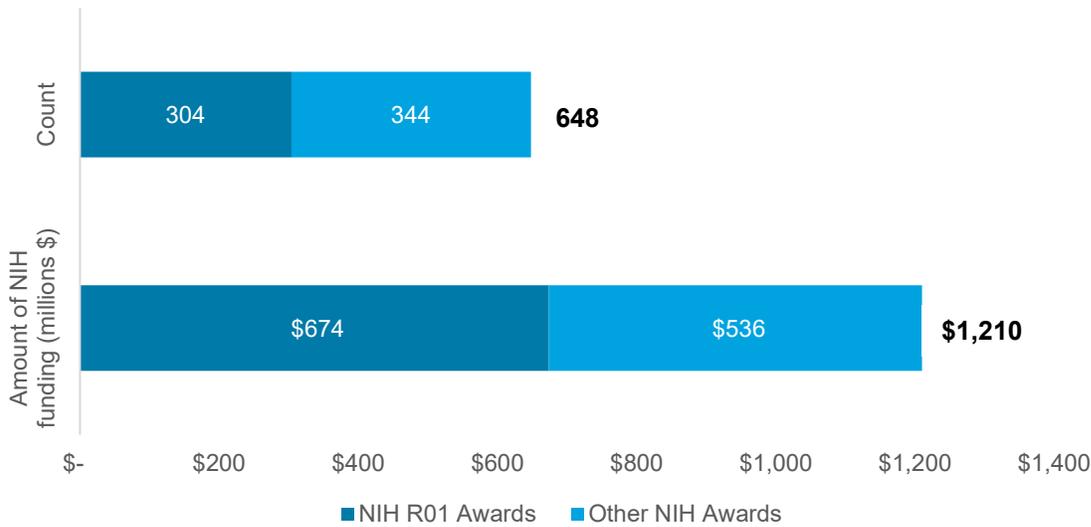
The ways to measure career progression of those not pursuing tenure were limited and would require more study to determine.

#### 4.1.2 Follow-On Funding

Follow-on funding serves as a critical indicator of success for TIG grantees, demonstrating their ability to transition effectively to independent NIH-supported research careers. Of the 245 TIG grantees, 177 (72%) secured NIH funding following their award. Those awardees won \$1.2 billion in funding across all NIH mechanisms, from 648 awards (including new, competing and non-competing renewals). Focusing specifically on NIH R01 awards, 174 TIG grantees

received 304 new (type 1) R01 grants (46% of the total NIH awards). R01 grants accounted for \$638 million, or 53% of the total follow-on funding. Thus, the \$46.3 million in total TIG award funding over this period led to over 24 times that amount in follow-on NIH research funds.

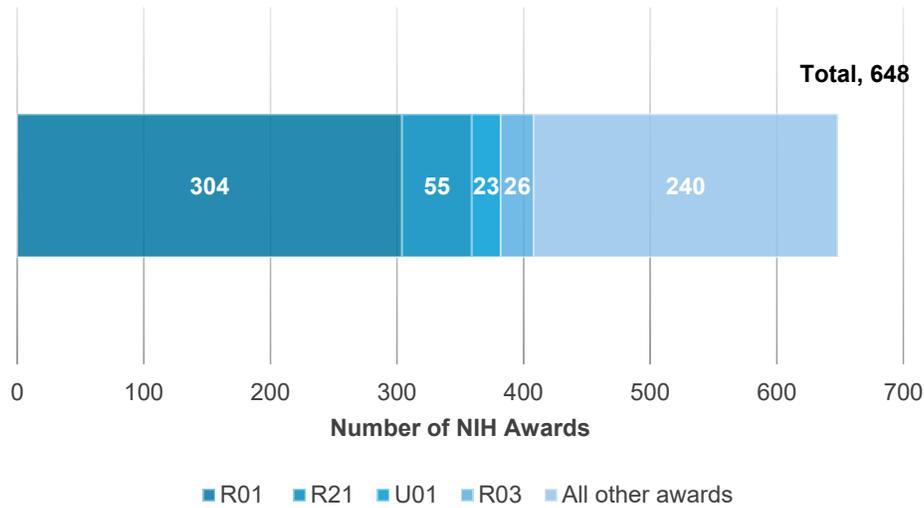
**Figure 4-3.** NIH Awards and Funding to Grantees Following Their TIG Award



Source: NIH RePORTER

These values can be contextualized through comparison to a similar cohort of NIDDK K99 awardees between 1998 and 2025 (N=207; see Appendix A). Of the K99 awardees, 110 (53%) received 327 follow-on NIH awards totaling \$588 million across all grant mechanisms. When only considering RO1s, 96 K99 awardees received \$405 million in R01 funding across 205 grants, accounting for 61% of the total number of grants. A higher share of all TIG awardees (72%) received follow-on research funding from NIH.

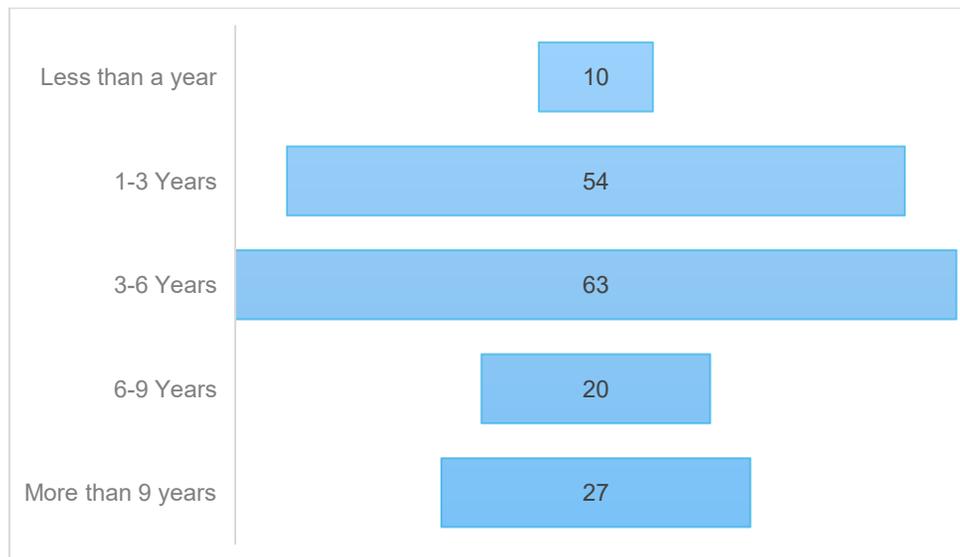
**Figure 4-4.** NIH Grants Received Post TIG Award (1998-2025)



Source: NIH RePORTER

An analysis of post-TIG NIH awards by mechanism shows that most of the funding awarded to TIG alumni is concentrated in R01, R21, U01, and R03 mechanisms. Nearly half of all follow-on NIH grants awarded to TIG alumni were R01 awards (N=304, 47%). When combined with R21 exploratory/development grants (8%), U01 grants (4%), and R03 small research grants (4%), these mechanisms together account for 64% of all follow-on NIH awards. The remaining awards span a wide range of NIH mechanisms, including career development (K series), training (F and T series), and program-level grants (P and U series). This distribution highlights both the concentration of TIG alumni in traditional R series research mechanisms and the diversity of funding pathways supporting continued advancement among TIG grantees.

As shown in Figure 4-5, most TIG alumni who received an NIH R01 grant did so within 9 years of their TIG award. More than a third, 37%, (N=64) obtained their first R01 within 3 years, with 6% (N=10) obtaining theirs within the first year of their TIG award. An additional 36% (N=63) did so within 3–6 years. Twenty grantees received their first R01 in 6 or more years after their TIG award. Of all awardees, 84% (N=147) received an R01 within 9 years, with the remaining 15% (N=27) requiring more than 9 years.

**Figure 4-5.** Distribution of Time from TIG Award to First NIH R01 Grant

Source: NIH RePORTER

In contrast, R01 timelines for the NIDDK K99 comparison group were longer. No investigators in this group received a R01 within 1 year of their K99 award, and only five awardees (5%) did so within 3 years. Most of the NIDDK sample (N=59, 61%) received their first R01 3–6 years after their K99 and an additional 22 investigators (23%) received their first R01 within 6–9 years. Ten investigators (10%) required more than 9 years to secure their first R01.

### 4.1.3 Research Productivity and Visibility

Research productivity refers to the scientific output generated by researchers. It includes peer-reviewed publications and presentations, posters, or panel participation after the award period. Research visibility refers to the impact of the grantee to the field evidenced by number of highly cited publications and overall number of citations of existing publications. Publication and citation data were extracted for TIG awardees who completed their award 1998-2025. Two awardees were excluded because they did not have Researcher IDs in WoS.

#### Number of peer-reviewed publications

Peer-reviewed publications are a measure of the grantees research production. Out of 245 grantees with TIG awards, 220 completed their award by 2025, and 218 had Researcher IDs in WoS. These 218 grantees produced a total of 12,018 publications. These publications encompassed all their work as authors and contributors in global journals in the field of nephrology from 1998 to 2025.

Over **12,018** scholarly publications, of which **10%** were published in ASN journals

The top five journals in which grantees published were Journal of the American Society of Nephrology (JASN; 657), American Journal of Physiology-Renal Physiology (596), Kidney International (435), American Journal of Kidney Diseases (420), and Clinical Journal of the American Society of Nephrology (CJASN; 408).

**Table 4-2.** Publications in Top 5 Journals, 1998–2025

Top Journals	Number of Publications	Percentage of Total Publications (N= 12,018)
JASN	685	6%
American Journal of Physiology-Renal Physiology	596	5%
Kidney International	436	4%
American Journal of Kidney Diseases	420	3%
CJASN	408	3%
<b>Total</b>	<b>2,545</b>	<b>21%</b>

Source: WoS

When looking at peer-reviewed publications in ASN journals, which include JASN, CJASN, and Kidney360, the total number of publications from TIG awardees was 1,202 (1998–2025).

**Table 4-3.** Publications in ASN Journals, 1998–2025

Top Journals	Number of Publications	Percentage of Total Publications (N= 12,018)
JASN	657	6%
CJASN	408	3%
Kidney360	137	1%
<b>Total</b>	<b>1,202</b>	<b>10%</b>

The top 5 grantees have authored 1,776 publications in total since they received their TIG awards. This represents about 15% of all TIG grantee publications.

**Table 4-4.** Top 5 Grantees with Peer-Reviewed Publications

Name of Awardee	End Date of TIG Award	Number of Publications
Wolfgang C. Winkelmayer	2004	470
Peter P. Reese	2009	406
Mara McAdams-DeMarco	2013	301
Arjang Djamali	2008	301
Lesley Inker	2008	297
<b>Total</b>		<b>1,775</b>

### Number of presentations, posters, or panel participation by awardees

Participation in presentations and conference panels can have an impact on researchers through creating opportunities for increased recognition. RTI determined the number of presentations by TIG awardees using count of abstracts by the awardee in academic conference proceedings found in WoS. RTI found that, from 1998 to 2025, TIG grantees presented more than 298 papers at conferences. Of these, 44 (15%) were presented at Kidney Week. This data are not comprehensive and represent a lower bound due to limitations of WoS is indexing conference proceedings.

### Number of citations

The 12,018 publications by TIG grantees were cited 830,595 citations over the same period, 1998–2025. Articles published in ASN journals between 1998 and 2025 garnered 91,232 citations, representing 11% of all citations received by TIG alumni papers. The ASN journals, which were also mentioned in the research productivity section, include CJASN, JASN, and Kidney360.

**Table 4-5.** Citations in ASN Journals, 1998–2025

ASN Journals	Number of Citations	Percentage of Total Citations (N=830,595)
CJASN	22,401	3%
JASN	67,642	8%
Kidney360	1,189	0%
<b>Total</b>	<b>91,232</b>	<b>11%</b>

### Highly cited papers

As indexed in the WoS, 93 grantees (39%) have published 226 highly cited papers. Highly cited papers are defined in WoS as publications that are among the top 1% of frequently cited articles published within their field in the year that they appeared and were published at least 2 years ago.

**39%** of grantees have published **226** highly cited papers.

Among the papers, several TIG grantees stood out by authoring highly cited works that contributed to TIG grantees research visibility. Figure 4-9 shows the 5 TIG grantees who appeared as authors on the most highly cited papers:

**Table 4-6.** Top 5 Grantees with Highly Cited Papers

Name of Awardee	Date of Award	Number of Highly Cited Papers
Katalin Susztak	2006	23
Wolfgang C. Winkelmayer	2004	18
Lesley Ann Inker	2006	17
David E. Leaf	2018	12
David M. Charytan	2010	11
<b>Total</b>		<b>81</b>

Of the highly cited papers, three were published in CJASN and 13 in JASN. Those 16 articles had received a total of 4,724 citations as of December 2025.

**Table 4-7.** Highly Cited Publications in ASN Journals, 1998–2025

ASN Journals	Number of Highly Cited Publications	Number of Citations
CJASN	3	742
JASN	13	3,982
Kidney360	0	0
<b>Total</b>	<b>16</b>	<b>4,724</b>

#### 4.1.4 Technology Development

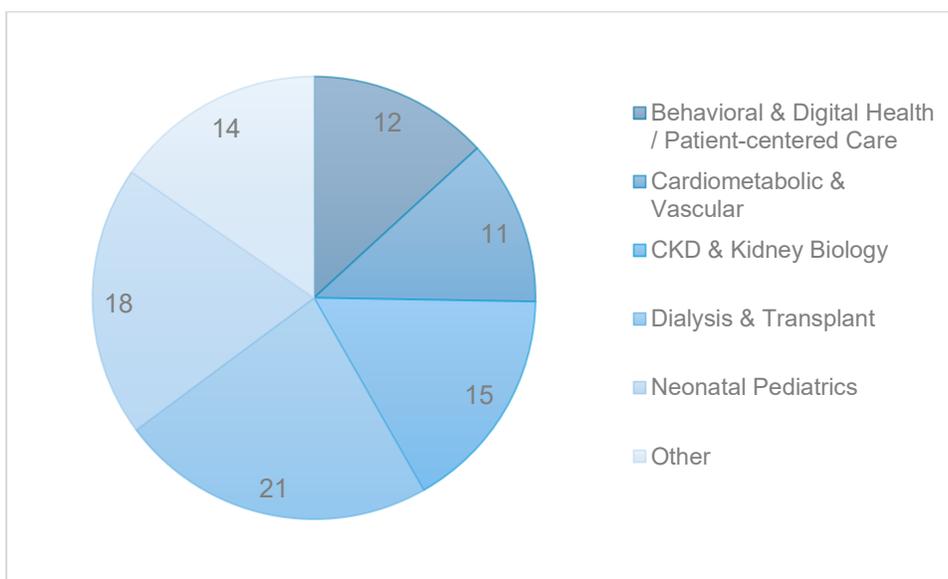
Biomedical research is translated into technology through several types of activity. Three examples are conducting clinical trials, patenting inventions, and developing new biomarkers. TIG awardees have been involved in all three activities.

**Number of clinical trials**

Since receiving their awards, TIG alumni have conducted 91 NIH-funded clinical trials, reflecting the program's success in supporting investigators who translate fundamental discoveries into patient-centered research. These trials span a range of topics within kidney care, including patient-centered care, cardiometabolic and vascular, chronic kidney disease (CKD) and kidney biology, dialysis and transplantation, neonatal pediatrics, and others.

TIG alumni have engaged in technology development activities since their awards, including **91** NIH-supported clinical trials, **68** U.S. patents, and **6** novel biomarkers between 1998 and 2025.

**Figure 4-6.** Clinical Trials by TIG Awardees by Topic



Source: NIH RePORTER data

Examples of clinical research by TIG alumni include studies directly addressing kidney pathophysiology and patient outcomes, such as *Fibroblast Growth Factor-23 reduction in pre-dialysis CKD* (NCT00843349), *Vitamin D supplementation in glomerular disease* (NCT01835639), and the *HiLo pragmatic trial evaluating serum phosphate targets in patients undergoing hemodialysis* (NCT04095039).

In contrast, NIDDK K99 awardees conducted six NIH-funded clinical trials since their K99 awards.

**Number of patents granted and biomarkers developed**

TIG alumni are translating foundational research into new discoveries. TIG investigators have developed 6 novel biomarkers through research they conducted with NIH funding. That funding also led TIG awardees to receive 68 U.S. patents. A review of the patent titles reveals diverse areas of technological innovation ranging from therapeutic strategies for kidney disease and injury, biomarkers and diagnostic methods for kidney diseases, stem cell and cellular

mechanisms, molecular targets and pathways, and pregnancy-related conditions. Several patents focused on novel treatment strategies for kidney injury and CKD, including antiangiogenic proteins; TRPC5 inhibitors; gamma-secretase and Notch pathway inhibitors; and therapeutic approaches targeting macula densa cells, proteinuric disease, renal cell carcinoma, and volume depletion-associated injury. Another set of patents advanced diagnostic capabilities, introducing biomarkers for early detection of renal injury, stress-associated kidney disease, and methods for distinguishing among types of kidney dysfunction. Multiple patents focused on NGAL variants for both diagnostic and therapeutic use in ischemic and nephrotoxic injury. Finally, patents describing mammalian siderophores, soluble uPAR in proteinuric kidney disease, and Gli1 as a marker for organ-resident stem cells in fibrotic tissue contributed novel insights into kidney pathophysiology.

Within the NIDDK K99 comparison group, we located six U.S. patents associated with awardees' subsequent NIH grants, most of which involving genetic engineering and stem cell differentiation.

#### 4.1.5 Research Workforce Contribution

One of the main objectives of the TIG program is to strengthen the pipeline of nephrology researchers and enhance the workforce committed to advancing understanding of kidney biology and disease.

**82%** of awardees were still publishing kidney-related peer-reviewed articles 10 years after their TIG awards.

To measure permanence in the field, RTI analyzed publication data for a cohort of 127 awardees. To maximize attribution, the publications are counted after the end date of the TIG grant. The data considered only grantees whose awards ended between 1998 and 2015, and RTI used WoS to obtain the publications by author in that timeframe.

The data showed that 104 of 127 (82%) grantees continued to publish kidney-related research 10 years after the end of the TIG awards.

Another aspect of permanence in the field is evidenced by obtaining of NIH funding. Of the 245 total awardees in our sample, 97 grantees (40%) received a subsequent NIH award. Of those, 35 (14% of the total) received an NIH grant 10 or more years after their TIG awards.

Looking at the NIDDK K99 comparison group, of the 207 unique awardees in our sample, 109 (53%) received an NIH award at any time after they received their K99 awards. Of those who received a subsequent NIH award, 44 (21%) received an award at least 10 years after their K99 awards, 19 of which were funded by NIDDK.

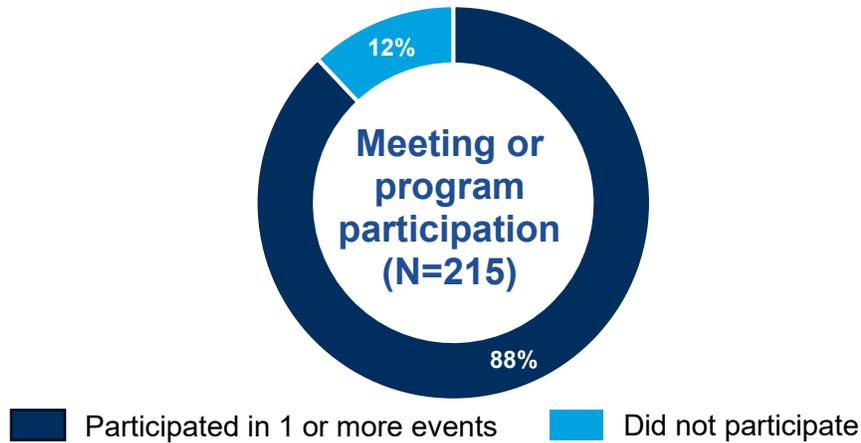
#### 4.1.6 ASN Community Participation and Leadership within ASN

##### ASN community participation

Most TIG awardees maintained active engagement with ASN during and after their award period. As shown in Figure 4-7, 88% of awardees (215 of 245) participated in one or more ASN

meetings or programs (i.e., Kidney Week), demonstrating strong ongoing involvement with the ASN's professional development and networking opportunities.

**Figure 4-7.** TIG Awardees Participating in ASN Meetings or Programs, 1998–2025



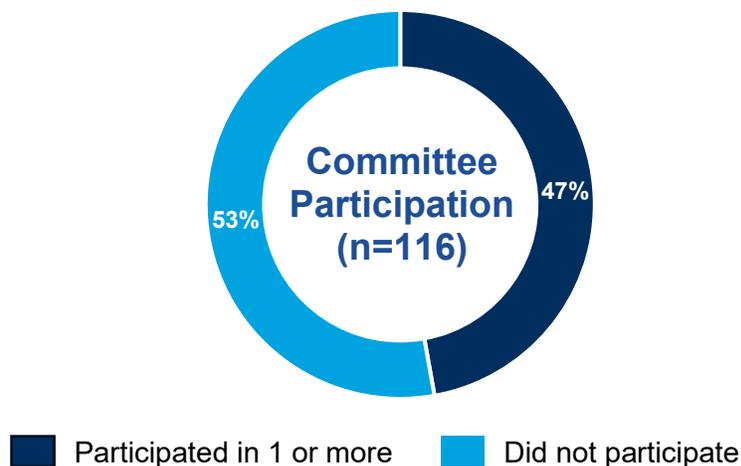
Source: ASN Programmatic Data

Notably, 129 TIG awardees (53% of the cohort) have participated in Kidney Week in a faculty role, serving as program chairs, moderators, or invited speakers. This level of engagement reflects substantial scientific contribution to ASN's flagship Annual Meeting.

**Alumni leadership at ASN**

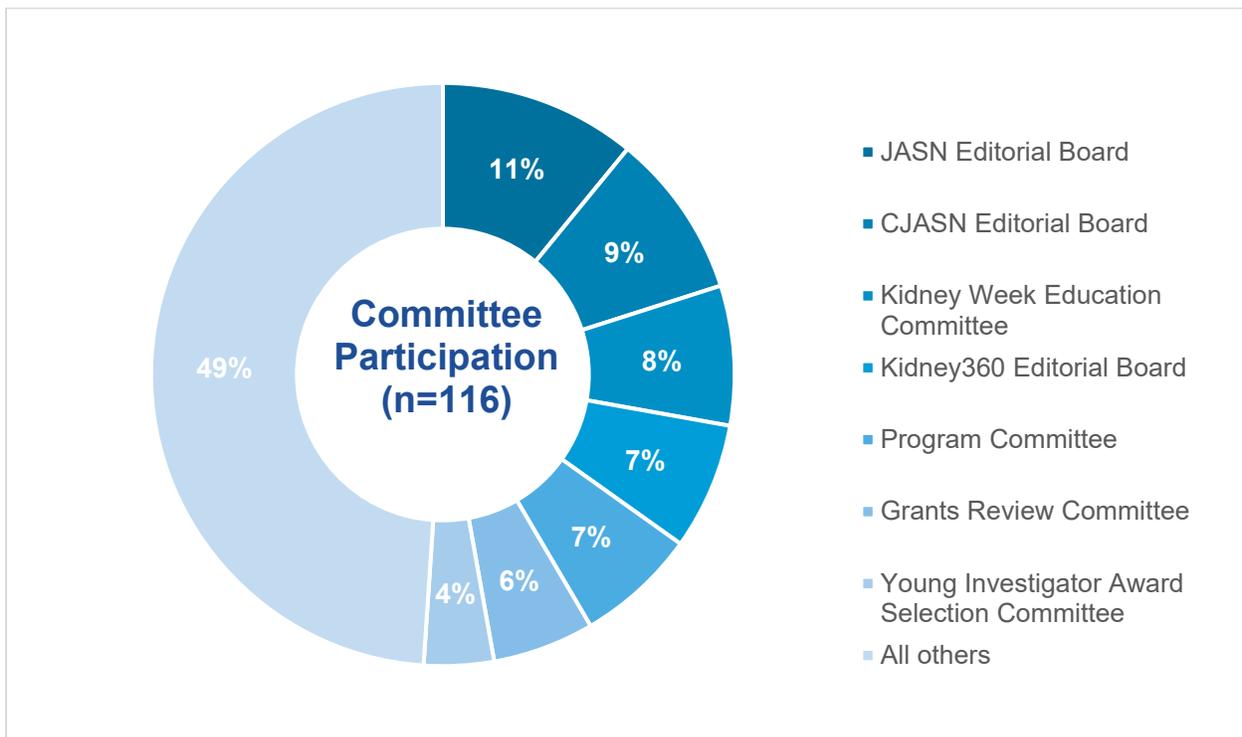
Nearly half of all TIG awardees (116 of 245; 47%; Figure 4-8), have served on at least one ASN committee, demonstrating leadership and service within the organization. Among these individuals, more than half (64 of 116, 55%) have participated on two or more committees, reflecting sustained engagement across multiple leadership roles. Their contributions span editorial boards, educational committees, scientific review, and program development groups.

**Figure 4-8.** ASN Committee Participation, 1998–2025



Source: ASN Programmatic Data

**Figure 4-9.** Participation Among TIG Awardees by ASN Committee



Source: ASN Programmatic Data

Figure 4-9 shows ASN committees with the highest levels of participation by TIG alumni. Across ASN, TIG awardees have collectively served on 56 committees, with many individuals contributing to multiple committees over time. As reflected in the figure, participation is concentrated in a core set of committees—the JASN Editorial Board (11%), CJASN Editorial board (9%), Kidney Week Education Committee (8%), Kidney360 Editorial Board (7%), Program Committee (7%), Grants Review Committee (6%), and Young Investigator Award Selection Committee (4%)—which together account for more than half of all committee service by TIG alumni. This pattern indicates that awardees contribute most prominently through editorial, educational, and scientific review activities that draw on their research/subject matter expertise. Beyond these core committees, participation tapers across a wide range of additional committees, indicating diverse but less-concentrated involvement among TIG grantees.

## 4.2 Impact of the TIG Program

This section incorporates qualitative evidence from interviews, to examine how the program shaped awardees' careers, accelerating their trajectory, enabling scientific independence, validating their ideas, and seeding subsequent NIH R01 funding. It also explores the TIG program's broader contributions to the field of nephrology, including advancing new areas of research, building foundational infrastructure, and informing patient care. Finally, this section

highlights the program's impact on ASN itself, from strengthening the community and diversifying the voices represented in kidney research to cultivating a pipeline of ASN leaders.

#### 4.2.1 TIG Program's Impact on Awardees

The impact on the awardees is captured through metrics and experiences of grantees on career trajectory, freedom to pursue original ideas, recognition received in the field, and R01 funding capture the impact of the TIG program on awardees.

##### Supported long-term research careers

Interviewees shared that the transition from post-doc to faculty is challenging, particularly for women and international scholars. For many, ASN support during this time was seen as vital for career progression and confidence-building.

Across interviews, awardees emphasized that this award arrived at "the most fragile stage of a career." Many grantees received the award at a time when they had to decide whether to remain in academic research.

Among foreign nationals and other scientists who cannot access traditional NIH funding, the TIG award was described as "a hand reaching out to lift [them] up" and, for some, "the only lifeline" keeping them in academic research.

CV analysis from a sample of grantees showed that half of grantees who were assistant professors at the time of award attained tenure within 5 years of completing the TIG award, and 100% were tenured after 10 years. Grantees interviewed perceived that, had they not received the TIG award, their careers would have progressed more slowly, or they might have shifted away from nephrology entirely.

##### Empowered researchers to pursue original ideas

Interviewees communicated that the TIG award served as the pivotal bridge that allowed them to establish independence, resist pressure from senior faculty, and pursue their own scientific ideas.

One TIG grantee, who was told she was too inexperienced for other funding streams, said the TIG award was the first time anyone said yes to her ideas.

Awardees repeatedly described the TIG award as validation. For some grantees, the TIG award felt like a message from the kidney research community that their ideas were valid, interesting, and worth pursuing. One recipient noted that the psychological impact was as important as the funding: "It told me my ideas were meritorious."

Grantees interviewed perceived that, had they not received the TIG award, their careers would have progressed more slowly or they might have shifted away from nephrology entirely.

"It gave me the flexibility to pursue the science I believed in."

—TIG Awardee

Another shared that being selected by nephrology peers made her feel she “belonged in this community.” TIG alumni often described the award as the moment they stopped doubting whether their careers would move forward. Some examples provided by awardees include using TIG funding to hire their first research assistants and build mouse colonies to generate crucial preliminary data and establish research identities separate from their mentors; key milestones that directly fueled their transition to independence.

Several alumni emphasized that the TIG award gave researchers the freedom to explore high-impact research questions that might otherwise have been discouraged by their institutions. One described how TIG support allowed him to resist pressure from senior colleagues: “It gave me the flexibility to pursue the science I believed in.” Interviews show that the TIG program often supports research areas that are ahead of their time.

### **Leveraged NIH funding**

TIG alumni's follow-on success is evident by the amount of NIH funding obtained after the TIG award. TIG alumni secured 281 new NIH awards, totaling \$523 million, including 138 R01 awards.

Importantly, 61% of R01 awards were obtained within 3 years of receiving a TIG grant. Many grantees explicitly attributed their first R01 to data obtained through TIG-supported research, with several stating they would not have secured R01 funding as quickly, or at all, without the award. “Without this grant, I would have left research and gone to industry,” one awardee said. Another shared, “Someone else would have needed to step in, and I'm not sure anyone would have.”

Many grantees explicitly attributed their first R01 to data obtained through TIG-supported research.

Among those interviewed, the TIG program did far more than fill a funding gap. It stabilized careers; nurtured confidence; affirmed scientific identity; and enabled promising investigators, many underrepresented in federal funding, to remain in the nephrology research pipeline.

### **4.2.2 TIG Program's Impact on the Field of Nephrology**

The impact on the field of nephrology is captured through metrics for research to improve patient outcomes, strengthening research infrastructure and increasing the pipeline of researchers.

### **Expanded nephrology research to improve patient outcomes**

TIG-supported scientists are contributing to the field of nephrology by driving discovery and leading breakthroughs in the field. Quantitatively, TIG awardees produced 12,018 peer-reviewed publications with over 830,595 citations. TIG grantees produced impactful and novel research, evidenced by 39% of grantees publishing at least one highly cited paper. Their collective research portfolio includes 91 clinical trials, 68 patents, and 6 newly developed biomarkers.

“I feel like I was part of something new that altered our understanding of kidney function.”

–TIG Awardee

Many TIG alumni pursued research that was considered unconventional. One awardee, studying the systemic consequences of acute kidney injury (AKI), recalled that “only two investigators in the entire field” were interested in this line of inquiry. TIG funding enabled pursuit of this work, which eventually helped reshape nephrology’s understanding of AKI as a multisystem disease. “I feel like I was part of something new that altered our understanding of kidney function,” they shared.

Another alumnus used TIG support to explore kidney–heart crosstalk, a move that later led to the discovery of a new therapeutic target and raised \$21 million for first-in-human testing. Clinician–scientists leveraged TIG-supported data to design clinical studies, including a 350-patient AKI trial expected to shape future standards of care.

These contributions demonstrate that TIG awardees generate high-impact science with the potential to affect patient care and lead to improved patient outcomes. They push the field forward by expanding nephrology’s translational footprint and by attracting, training, and supporting the next generation of kidney researchers.

### **Strengthened kidney-related research infrastructure**

Research infrastructure refers to physical resources, human capital, and mentoring and training. Across interviews, TIG awardees noted that ASN funding allowed them to build research infrastructure that would become the backbone of their scientific programs.

The TIG program provided funds to create labs that became training grounds for future nephrologists, basic scientists, and physician-scientists. Basic scientists used TIG funding to launch independent labs, purchasing essential equipment; generating preliminary data; and building the technical capacity needed to compete successfully for R01-level grants, core elements that are critical for a long-term research career. Several alumni emphasized that it was the only mechanism available to help them stay in the field.

TIG awardees noted that ASN funding allowed them to build research infrastructure that would become the backbone of their scientific programs.

### **Increased the pipeline of nephrology researchers**

Many TIG alumni reported that TIG funding allowed them to build their research teams, support trainees, and create opportunities for students and postdocs who later entered the field of nephrology. TIG-supported investigators consistently mentor new scientists, some whom have gone on to obtain ASN grants themselves. This growing pipeline ensures the sustainability and innovation of kidney-related research.

Furthermore, the TIG award ensured that researchers stayed in the field of nephrology by providing the necessary bridge funding to obtain NIH funding. Of the 245 awardees, 40% received a subsequent NIH award, and 82% of TIG grantees continued to publish kidney-related research 10 years after the end of their TIG awards.

The continued engagement of TIG-supported scientists in mentoring activities, leadership roles, and collaborative projects demonstrates the program's lasting impact on the retention and growth of workforce in kidney-related fields.

### **4.2.3 TIG Program's Impact on ASN**

Assessing the engagement of alumni with the ASN community and progress toward diversifying the voices represented in kidney research to cultivate a pipeline of ASN leaders captures the impact of the TIG program on ASN.

#### **Strengthened ASN as a community**

The TIG program strengthens ASN by cultivating an engaged community of researchers who remain active contributors to ASN's mission long after their award period ends. Awardees described ASN as their "professional home," "the community that believed in [them] and took a chance," and "the sole reason [they] stayed in kidney research." This connection translates into sustained participation and long-term involvement in ASN leadership.

TIG grantees also perceived that the award enhanced ASN's reputation as a premier scientific society.

Awardees described the award as "one of the most prestigious grants in nephrology," "a huge point on [their] CV," and "a career-defining achievement."

TIG awardees described ASN as their "professional home," "the community that believed in [them] and took a chance," and "the sole reason [they] stayed in kidney research."

#### **Integrated new and diverse voices into the kidney research community**

By supporting investigators who pursue varied scientific pathways and career trajectories, the TIG program helps ASN maintain a broad and dynamic scientific base. Awardees now hold leadership roles in academia, health systems, startups, industry, and government research agencies. Their ongoing engagement with ASN brings new perspectives, cross-sector partnerships, and emerging scientific priorities into ASN's orbit. One awardee who moved into

industry emphasized that ASN funding “opened the doors” to translational and clinical trial leadership roles that now inform high-impact drug development.

Many interviewees emphasized that the TIG award was their entry point into the nephrology community, particularly for groups who do not have access or feel overlooked by traditional NIH pathways. One scientist shared that the TIG award was the first time they felt “seen by nephrology.” Another said that, after receiving the award, they “walked a different walk at Kidney Week.”

### **Created a pipeline of future ASN leaders**

Awardees frequently spoke about wanting to “give back” to ASN. Alumni now serve as grant reviewers, editorial board members, Kidney Week faculty, and committee leaders. Several awardees explicitly connected their ongoing service to ASN with their gratitude for having been funded at a pivotal moment. “ASN supported me, [and now] I owe it to the community to support the next generation,” one noted.

TIG alumni showed pride in becoming lifelong contributors as leaders, reviewers, mentors, and ambassadors, whose deep engagement was shaped at a critical moment in their careers by ASN's early support.

# **Section 5: Opportunities for Future Program Assessments**

## 5. Opportunities for Future Program Assessments

This section provides suggestions for data collection and management, future data collection and strategies, and support for future program assessments.

### 5.1 Data Collection and Data Management

The current ASN database contains essential information for each awardee, including their names, the years they received the award, the amounts granted, their professional titles at the time of the award, and the institutions with which they were affiliated during that period. In addition to these core data points, we have supplemented the database by reviewing awardees' CVs and consulting external databases. This approach enabled us to gather further relevant details about the recipients' professional activities and achievements. The following are some lessons learned from the data used for this assessment:

#### **ORCID numbers**

To improve the comprehensiveness and accuracy of future data collection, ORCID numbers should be requested from all grantees. ORCID numbers are unique identifiers for researchers and scholars used to track publications and career progression. ORCID numbers can be provided by the grantees part of the application process or intake form. Collecting these identifiers will facilitate the tracking of scholarly output and career progression.

#### **DOI for articles**

To ensure that peer-reviewed publications are accurately captured, collect digital object identifiers (DOIs) for articles published by grantees. Incorporating DOIs into the database will enhance the ability to accurately track and verify scholarly publications, streamline data management, and support comprehensive analysis of awardees' research output. This practice will also facilitate future assessments by providing a reliable way to access and reference specific publications.

#### **Contact PI IDs**

To improve the accuracy and efficiency of collecting research outcomes, ASN should collect and maintain the unique contact PI ID assigned to each investigator in NIH RePORTER. These identifiers provide a stable, individual-specific reference that remains consistent across an investigator's career, regardless of name changes, institutional moves, or variations in how names are recorded in RePORTER. Incorporating contact PI IDs into the TIG database would greatly reduce errors introduced by name-based searches, streamline retrieval of grant histories, and enable more-comprehensive and -precise assessments of awardees' NIH funding trajectories.

### **Updated record date**

Certain fields like current institution and titles can change. Indicating when the record was last updated can provide clarity when assessing career progression and when linking individuals with institutions.

### **Establish taxonomies for type of institutions**

Some institutions, for example Department of Veteran Affairs hospitals, are challenging to classify as universities or medical providers or government entities. Determining how each is identified will enable accurately tracking this information over time.

### **Track participation in ASN activities**

The current internal tracking system, Netforum, was moderately valuable for assessing TIG alumni engagement in ASN programs; however, participation data are not consistently updated across years, which limits the ability to capture a full record of each awardee's ongoing contributions. To strengthen future assessments, ASN should implement a standardized annual update process that confirms recent participation in ASN events and invites updates on major professional milestones.

These recommendations will help get a full picture of the awardees' research, publications, and how their careers grow over time. Capturing this additional information will streamline future assessments and facilitate analysis for programmatic decisions.

## **5.2 Recommendations for Future Evaluation Activities**

In conducting this assessment, we identified several processes, additional data needs, and analytic opportunities that could strengthen future understanding of the TIG program's impact and support broader strategic planning for KidneyCure and ASN as a whole.

Although the indicators selected for this assessment provided meaningful insights, several potentially valuable metrics could not be fully analyzed due to limitations in available data or challenges in validating existing records. These areas, such as training and mentorship and interdisciplinary research collaborations, represent potentially important avenues for future evaluation.

We also identified mechanisms, including regular alumni surveys, targeted focus groups, and exit interviews, that could support more-robust, systematic data collection.

To guide the implementation of these efforts in the future, we recommend the following strategies for evaluation design, additional metrics, and data collection mechanisms:

### **5.2.1 Evaluation Strategy and Framework**

#### **Evaluation strategy**

A central lesson from this assessment is the importance of grounding future data collection and analysis within a clearly articulated program design. We recommend that ASN revisit and clarify the overarching goals, objectives, and strategy that connect the TIG program to KidneyCure's

broader mission and further, to ASN's organizational priorities. Establishing a shared understanding of how the TIG program is intended to support short, intermediate, and long-term change will strengthen indicator development, guide data collection priorities, and ensure that future evaluations align with program intent.

### **Evaluation framework**

When this work was proposed, the evaluation plan included the development of a logic model or an expanded evaluation framework. We recommend incorporating these elements into future planning. A properly constructed logic model will organize the inputs, activities, outputs, outcomes, and intended impacts of the TIG program to provide a clear foundation for selecting appropriate indicators and tracking progress over time. This framework would also support consistency across evaluation cycles, improve the interpretability of findings, and help ASN communicate program impact.

## **5.2.2 Additional Metrics to Consider**

### **Training and mentorship**

Awardee CVs and interview data offered meaningful but incomplete insights into the training and mentorship contributions of TIG alumni. Future evaluation efforts should explore the broader impact of TIG-supported laboratories including the number and types of trainees, their subsequent academic or professional roles, and contributions to institutional capacity. These metrics would provide evidence to the downstream effects of TIG support and would capture how alumni shape the next generation of kidney researchers.

### **Interdisciplinary research and collaboration**

Interviewees consistently highlighted interdisciplinary collaboration as a hallmark of nephrology research. Although preliminary analysis of co-authorship networks demonstrated the potential for deeper insights, future evaluations could include more-systematic analyses such as social network mapping, collaboration clusters, or cross-field citation linkages to better understand how TIG-supported science influences and intersects with other research domains.

## **5.2.3 Mechanisms for Data Collection**

### **Post-award survey/exit interviews**

Post-award surveys or structured exit interviews would allow ASN to gather immediate feedback from grantees while their experiences remain fresh. These instruments could capture process-related metrics, perceived value of the award, early indicators of independence or research direction, and grantees' short-term progress.

### **Alumni surveys**

Because major outcomes such as tenure, R01 funding, publications, and patents often emerge years after the TIG award, regular alumni surveys represent a low-burden and high-value mechanism for tracking longitudinal impact. This assessment demonstrated that alumni are willing to share updated CVs and indicator data and would therefore likely be amenable to a

formalized annual survey, which would substantially enhance the completeness and consistency of future data sets.

### **Case studies of profiles of strong performers**

Analysis of the indicators included in this assessment highlighted several TIG alumni with particularly notable achievements (e.g., publications, high-impact research, patents, clinical trials, leadership roles within ASN). Developing formal case studies or profiles of these individuals would provide compelling narrative evidence of program success, illustrate diverse pathways to impact, and offer inspirational examples for current and prospective TIG participants. These profiles could also support ASN storytelling, fundraising, or strategic communications.

# Appendices

# Appendix A: Comparison of TIG Grantee to NIH NIDDK K99 Outcomes

## Overview

This appendix presents descriptive data on National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) K99-funded investigators between 1998 and 2025, used as a contextual comparison group for interpreting TIG awardee results. These data were compiled from NIH RePORTER, and variables include project details; award date; grant type and activity; institution; funding information; and associated publications, patents, and clinical trials. The purpose of this comparison group is to provide a reference point for evaluating TIG awardees' research productivity, NIH funding trajectories, and career progression.

## Data Source and Definitions

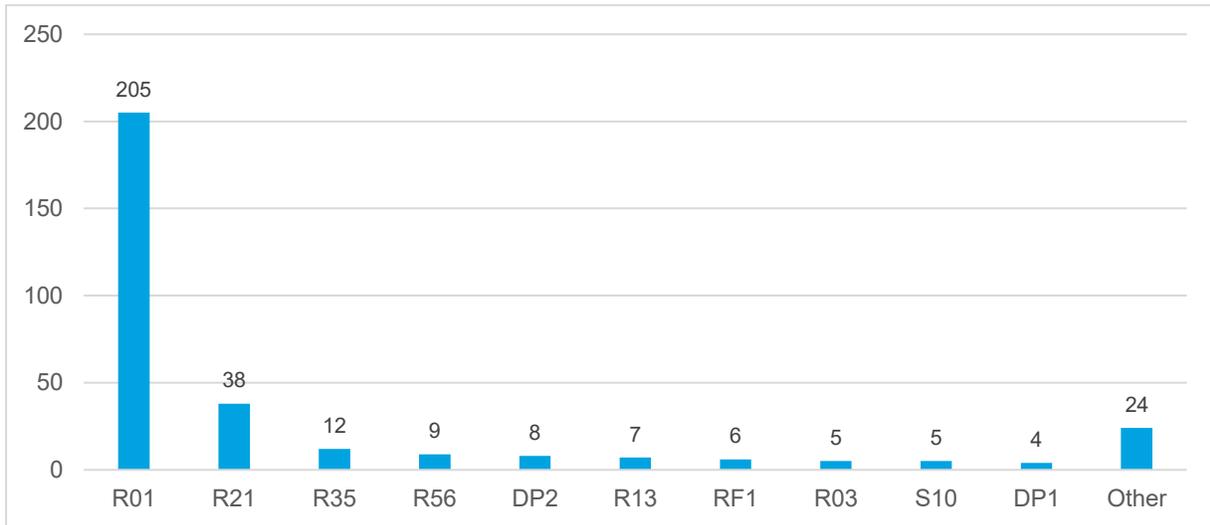
Data for the comparison group were extracted from NIH RePORTER. The search strategy first identified all NIDDK-funded K99 investigators between 1998 and 2025, to align with the TIG awardees who completed their TIG awards over the same period. This generated an appropriate comparison group of 207 NIDDK grantees to TIG grantees over the same period.

We extracted contact PI ID numbers for both groups and used them to conduct a subsequent RePORTER search to compile data on each investigator's available research productivity, funding trajectories, and career progression. From the sample, 109 K99 investigators, comprising 52.7% of the sample, had NIH follow-on funding.

## Results

Analysis of NIH RePORTER records identified 327 follow-on NIH awards associated with 109 individuals from the NIDDK K99 comparison group. The distribution of awards by mechanism was heavily weighted toward R01 awards, which accounted for 63% of all follow-on awards in this sample. Other frequently awarded mechanisms included R21 (11.6%), R35 (4%), R56 (2.8%), DP2 (2.5%), and R13 (2.1%). Figure A-1 illustrates the relative distribution of the top 10 mechanisms awarded to this cohort.

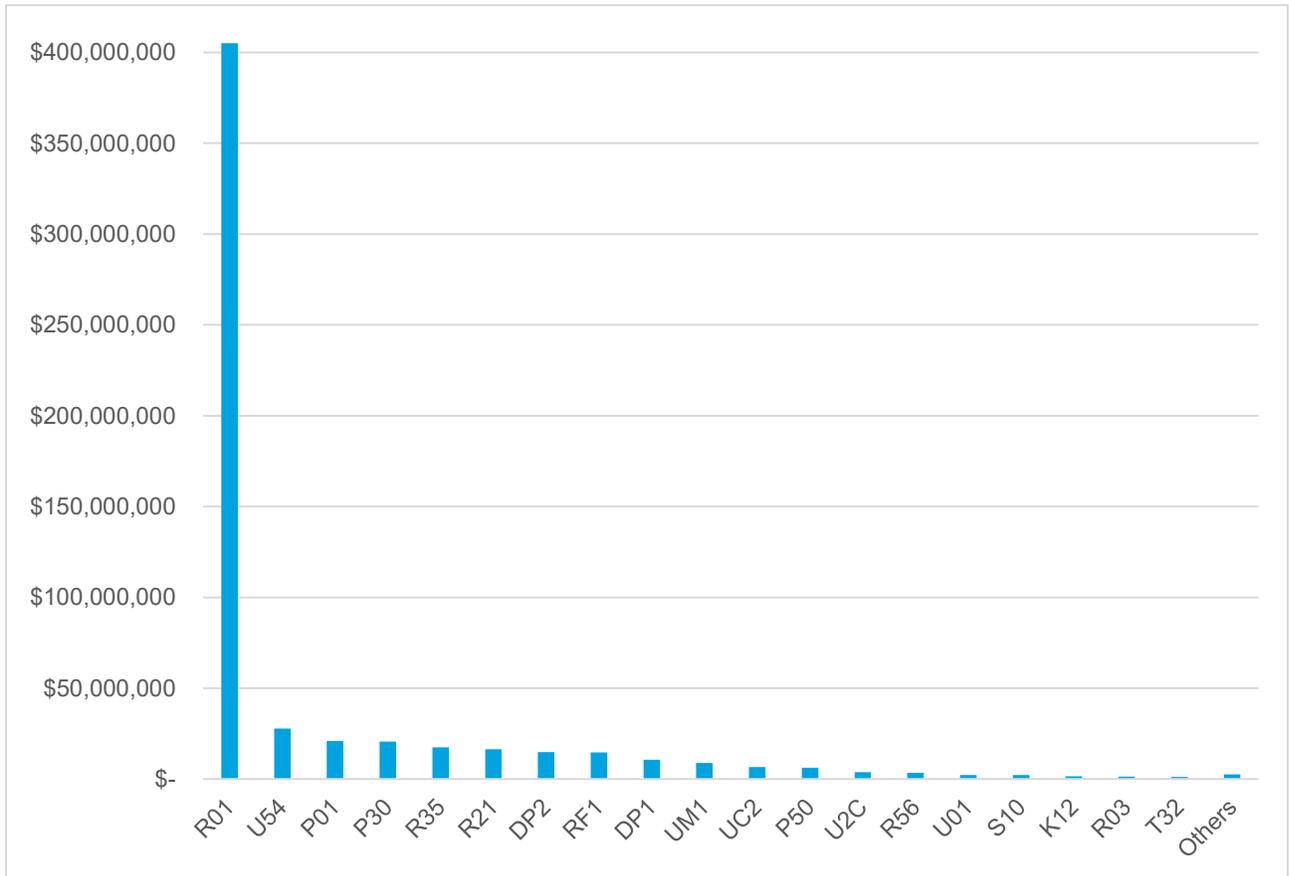
**Figure A-1.** Follow-On NIH Awards Received by NIDDK K99 Awardees



Source: NIH RePORTER

These 327 awards collectively totaled \$588 million in follow-on NIH funding, including \$405 million in R01 support.

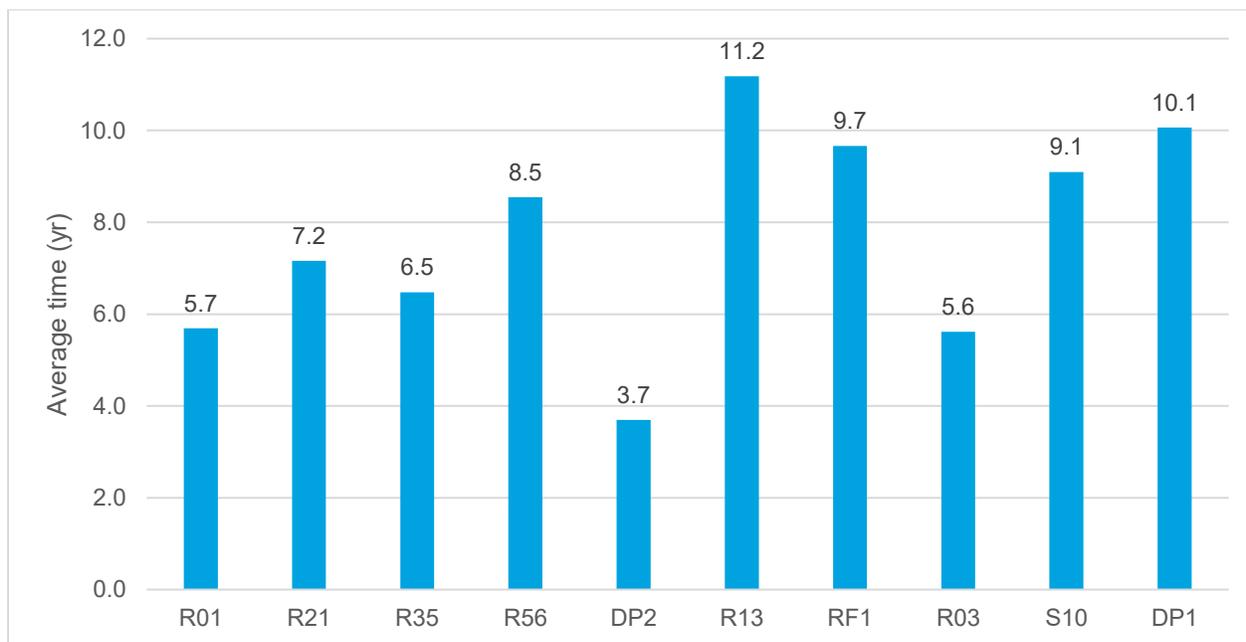
**Figure A-2.** Follow-On NIH Funding Received by NIDDK K99 Awardees



Source: NIH RePORTER

Across activity codes of the 10 most-awarded grant mechanisms among this cohort, the average time elapsed between investigators' K99 award and subsequent NIH funding varied: R01 (5.7 years), R21 (7.2 years), R35 (6.5 years), R56 (8.5 years), DP2 (3.7 years), R13 (11.2 years), RF1 (9.7 years), R03 (5.6 years), S10 (9.1 years), DP1 (10.1 years).

**Figure A-3.** Average Time (yr) to First Instance of Follow-On NIH Awards for NIDDK K99 Awardees



Source: NIH RePORTER

Research activity included six U.S. patents and six clinical trials linked to NIH-funded subsequent projects. Peer-reviewed scholarly output included 3,341 publications attributed to subsequent NIH awards.

## Appendix B: Grantee Survey

# ASN KidneyCure TIG awardees—CV & Interview Request

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## KidneyCure Transition to Independence Grantee Information Request

### 1) Contact Information

Your First Name\*: \_\_\_\_\_

Your Last Name\*: \_\_\_\_\_

Your Title: \_\_\_\_\_

What is your current affiliation?

(e.g., name of university, company, or organization):

\_\_\_\_\_

Your Phone or Mobile Number (optional):

\_\_\_\_\_

URL

*Please provide LinkedIn or similar webpage, if available.:*

\_\_\_\_\_

2) Since the end of your KidneyCure Transition to Independence Grant (TIG) award, which option(s) best describe your continued engagement with the American Society of Nephrology (ASN)? \*

I have not been engaged with ASN since the end of my TIG award

As ASN council member

As committee member

As application reviewer

As Kidney Week faculty

As a participant in ASN activities

As a participant in ASN publications

[ ] Other - Write In: \_\_\_\_\_

3) Are you willing to be contacted to participate in a brief, informal interview as part of our evaluation? \*

Yes

No

4) CV/Biodata Upload

Providing your CV will greatly enhance our ability to capture accurate and comprehensive information to support accuracy and relevance of the evaluation.

5) Additional Information

Please share any information you would like our team to know about your contributions to kidney-related research, involvement with ASN, and any impact the award may have had on your career progression.

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**Thank You!**

# Appendix C: Interview Guide

## Interview Guide

### ASN KidneyCure Transition to Independence Grant (TIG) Program Awardees

#### Overview

I'm Rossana Zetina-Beale, and my colleague Marisa Eastman is also on the call today. We are researchers from RTI International working with ASN to gather the impact of the Transition to Independence Grants program. Thanks so much for taking the time to talk with us today. We're really interested in hearing about your experiences, how the award may have influenced your career, your involvement with ASN, and your work in nephrology.

Marisa will watch the time to keep this meeting to ~30 minutes in respect of your time. The last thing we want to underscore before we get started is this is really just a conversation; there are no right or wrong answers, and Marisa and I will both be asking questions and following up with prompts throughout.

You may see us taking some notes so we can capture your insights, but mostly we just want to hear your story in your own words.

#### Interview Questions

1. Can you briefly share your journey into nephrology and what inspired your focus on kidney research? [Background]
2. How did you hear about the Transition to Independence funding opportunity?
3. Have you applied for other ASN awards either before or since your TIG award? [Background]
4. Where were you in your career when you applied for the TIG award and received funding? [Background]
5. What specific opportunities did the award create that contributed to your career advancement and tenure? [Awardee]
6. Could ASN have done anything different or additional, to better support your career path? [Background]

7. Imagine you had not received the TIG award, how might your career trajectory have been different, if at all? [Awardee]
  
8. How has your research impacted your clinical practice? [Field]
  
9. How has the body of work that grew from your TIG award impacted the field of nephrology? [Field]
  
10. How has the award shaped your engagement with ASN through conference attendance, journal submissions, committee participation, or leadership roles? [ASN]

#### Closing

Thank you again for taking the time to share your experiences today. The insights you've provided will help us illustrate the impact of the TIG program and inform how ASN supports researchers in the future.

Everything you've shared will remain confidential, and when we share findings with ASN, they'll be presented in a way that does not identify individual participants.

If you think of anything else you'd like to add after we finish, please feel free to reach out. I really appreciate your time, and it's been a pleasure speaking with you.