

Institutional Research and Academic Career Development Awards (IRACDA) (K12) Outcomes Assessment

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Overview

The NIGMS Institutional Research and Academic Career Development Award (IRACDA) (K12) program funds postdoctoral training programs that combine a mentored research experience with an opportunity to develop additional academic and teaching skills. The program includes a teaching practicum at a partner institution that enrolls a substantial number of students from underrepresented groups.

The purpose of this analysis was to examine the career outcomes of IRACDA scholars from 1999-2014. Since inception, 25 research-intensive institutions have received IRACDA grants and more than 600 scholars have been supported, 450 of whom constitute the alumni pool included here. IRACDA scholars have research doctorates in a broad array of scientific disciplines and represent a diverse group, with 63 percent female, 17 percent Hispanic and 19 percent African-American participants. The current employer of each alumnus was determined through publicly available online data. This revealed 73 percent of IRACDA alumni are in academic research and/or teaching positions. Additional analyses and comparisons utilized a subset of National Research Service Award (NRSA) (F32) individual postdoctoral fellowship awardees from the same time period and at the same institutions as the IRACDA scholars. These data provide an important comparison of two distinct training models and additional context for understanding the contribution of the IRACDA program to preparing scholars for a variety of academic careers.

Methods

Study populations

IRACDA alumni – From 1999-2014, 23 Research Intensive Institutions have received IRACDA grants. All alumni and current scholars from these awards through November 2014 were

determined using materials supplied to NIGMS as part of the appointment process for new scholars, annual progress reviews and/or competitive renewal applications. This process resulted in identifying 450 alumni and 200 current scholars. Since the focus of this assessment is career outcomes, only the 450 alumni who had exited the program as of November 2014 are included in subsequent analyses.

NRSA (F32) awardees – Recipients of the Ruth L. Kirschstein NRSA F32 individual postdoctoral fellowship were included as a comparison group to provide more context for understanding the outcomes of postdoctoral training programs and the possible role of IRACDA program participation in influencing these outcomes. For this comparison, F32 awardees were matched 1:1 with IRACDA alumni based on being at the same institution as the IRACDA alumnus and the F32 being initially awarded in the same year the IRACDA alumni was first appointed to the IRACDA grant. Due to the variation in both IRACDA appointments and F32 awards by year, and varying sizes of IRACDA programs, not all IRACDA alumni were able to be matched with F32 awardees who were at the same institution at the same time. The final study population for matched comparisons contained 324 NRSA F32 awardees and 324 IRACDA alumni.

For both IRACDA alumni and F32 awardees, all information about race/ethnicity and gender was self-reported to NIH on trainee appointment forms or in the creation of online accounts for submission of applications to NIH. All individuals provided this information voluntarily, while some chose to decline. Since the F32 awards are to individual postdoctoral scholars, all applicants must create an account for submission of these applications. The IRACDA applications are institutional awards and, until recently, only the PI was required to have an account. Individual appointment forms for the IRACDA program were required beginning in 2010, therefore, demographic data are less complete for IRACDA scholars, especially for those appointed prior to 2010. For pre-2010 scholars, NIH online accounts associated with other grant/fellowship applications were identified and validated using information from biosketches.

Determining current employer – For IRACDA alumni, NIH records contained information on IRACDA institution, research mentor and department for each scholar, but did not contain current employment data. To elucidate current employment, a number of approaches were

utilized. Current employer listed in progress reports or competitive renewal applications served as a starting point for tracking individuals. These data were then supplemented by examining institutional websites, LinkedIn and conducting internet searches between November 2014 and early 2016 for publically available professional information to identify current employer. For NIH NRSA F32 awardees, no long-term data on post-F32 training employment are systematically submitted to NIH. Currently, employers for these individuals are determined using NIH records based on subsequent grant activity, and was supplemented using the same Internet sources listed for the IRACDA alumni. Matches using Internet sources for both the F32 awardees and IRACDA alumni were confirmed using full name and training history data. Current employer classification into broad employment sectors followed the categories outlined in the Biomedical Research Workforce Working Group Report, Advisory Committee to the Director, NIH (http://acd.od.nih.gov/biomedical_research_wgreport.pdf).

Classification of Academic Institutions

Academic institutions were broadly categorized using the basic definitions for the Carnegie Classification of Institutions of Higher Education (<http://carnegieclassifications.iu.edu/definitions.php>).

Academic institutions were further classified using the categories developed by the Department of Education for “institutions of higher education enrolling populations with significant percentages of undergraduate minority students, or that serve certain populations of minority students under various programs created by Congress (<https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>).” The institutions are grouped as: Historically Black Colleges and Universities (HBCUs); Tribal Colleges and Universities (TCUs); American Indian Alaska Native Serving Institutions (AIANSIs); Hispanic-Serving Institutions (HSIs), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs); Alaska Native and Native Hawaiian-Serving Institutions (ANNHs); and Predominantly Black Institutions (PBIs).

Results

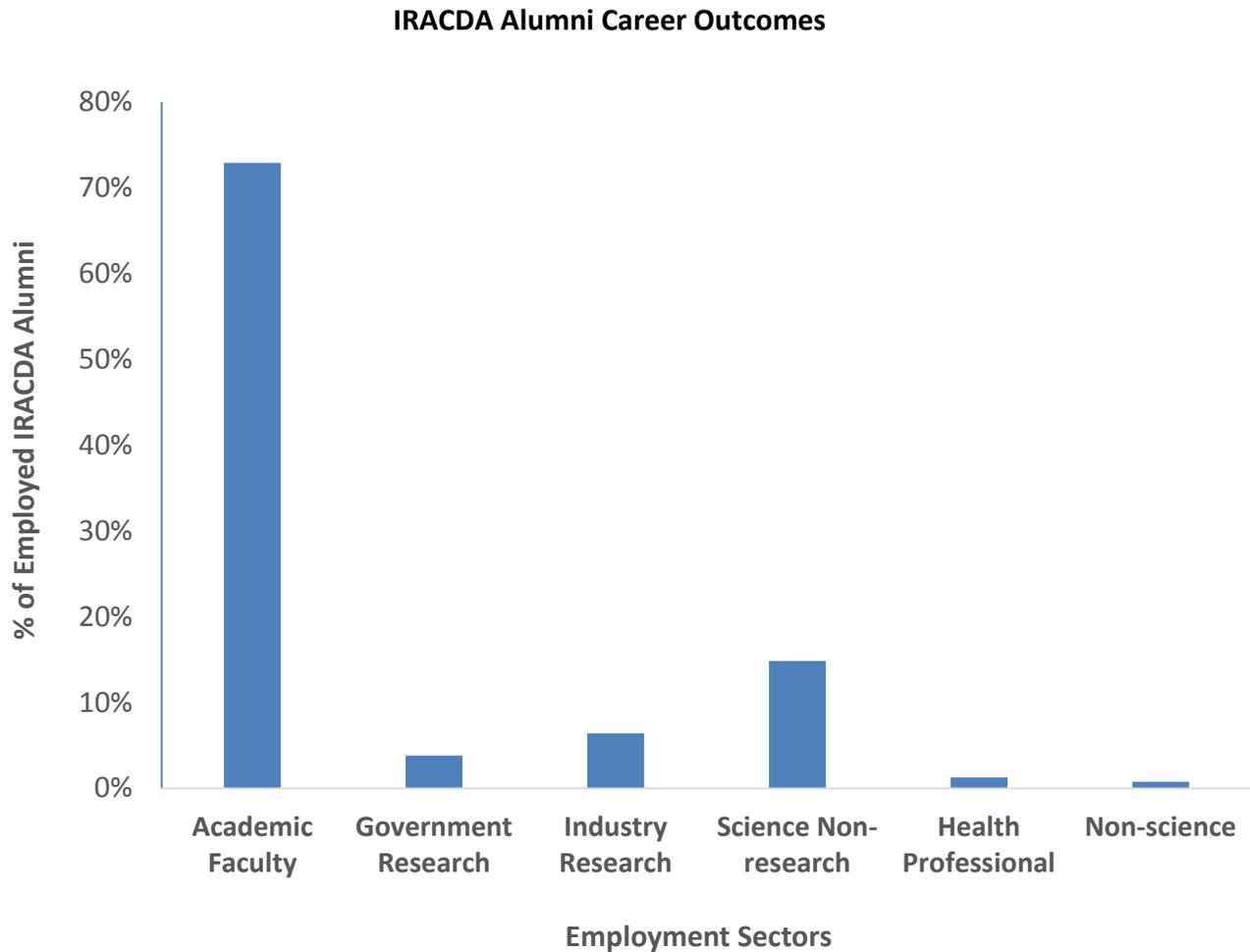


Figure 1. IRACDA Alumni Career Outcomes. Current employer classification followed the categories and definitions outlined in the Biomedical Research Workforce Working Group Report, Advisory Committee to the Director, NIH (http://acd.od.nih.gov/biomedical_research_wgreport.pdf). Percentages are calculated from a total of 391 IRACDA alumni with post-training career outcomes. Individuals categorized as “still in training” (e.g. postdoc) and those for whom we could not locate a current employer were excluded from this figure. Here, 73 percent of IRACDA alumni are employed in academic research and/or teaching faculty positions.

Academic Institutions Employing IRACDA Alumni

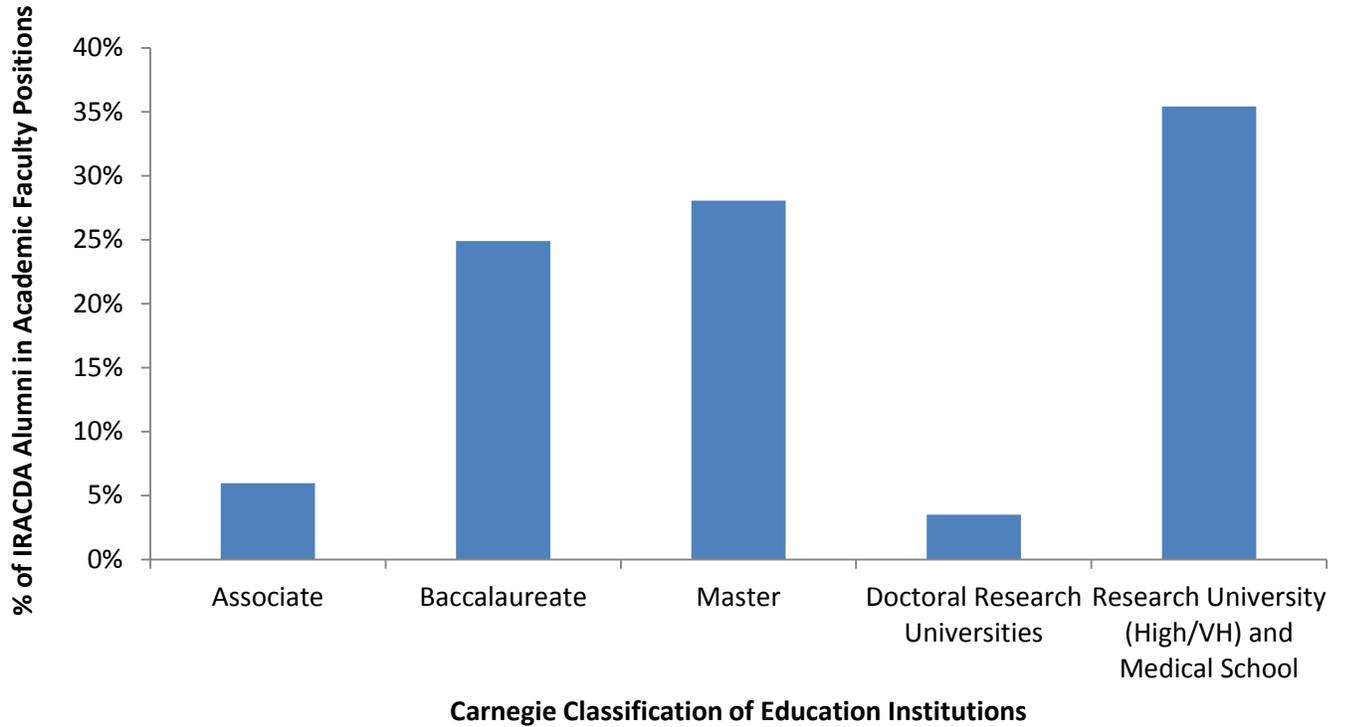


Figure 2. Academic Institutions Employing IRACDA Alumni. The distribution of IRACDA alumni employed in academic faculty positions (n=285) based on the Carnegie Classification of Institutions of Higher Learning (<http://carnegieclassifications.iu.edu/definitions.php>). IRACDA alumni employed in academic faculty positions span a wide array of education institutions with 35 percent being employed in research universities and medical schools, 28 percent at master-degree granting institutions and 25 percent at primarily undergraduate institutions.

IRACDA and F32 Awardee Populations

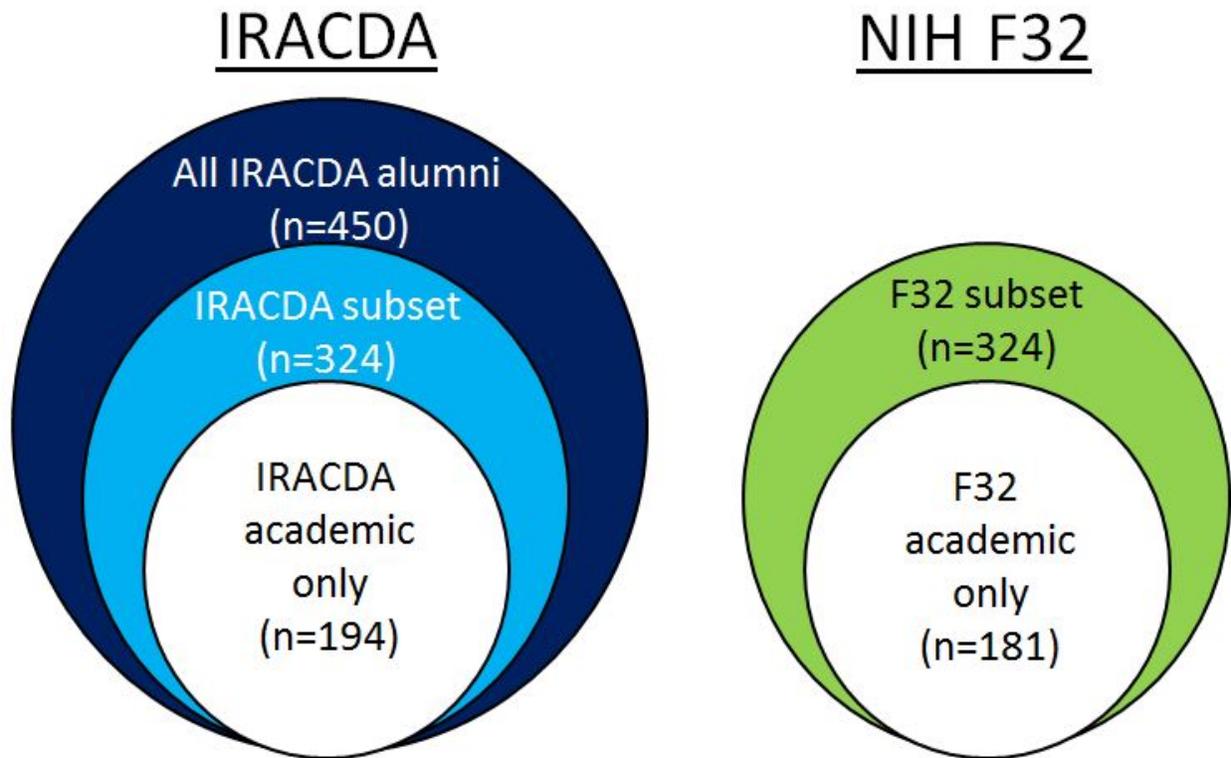


Figure 3. Study populations included in outcomes analyses. The five study populations included in the subsequent analyses are the overall pool of IRACDA alumni (n=450), the IRACDA alumni (n=324) matched to F32 awardees (n=324) who were at the same institutions and had an F32 awarded at the same time the IRACDA scholar was supported on the K12 grant. Within these matched subsets, we took a closer look at those who were employed in academic research and/or teaching faculty positions (IRACDA alumni, n=194; F32 awardee, n=181).

Gender of IRACDA Alumni and F32 Awardees

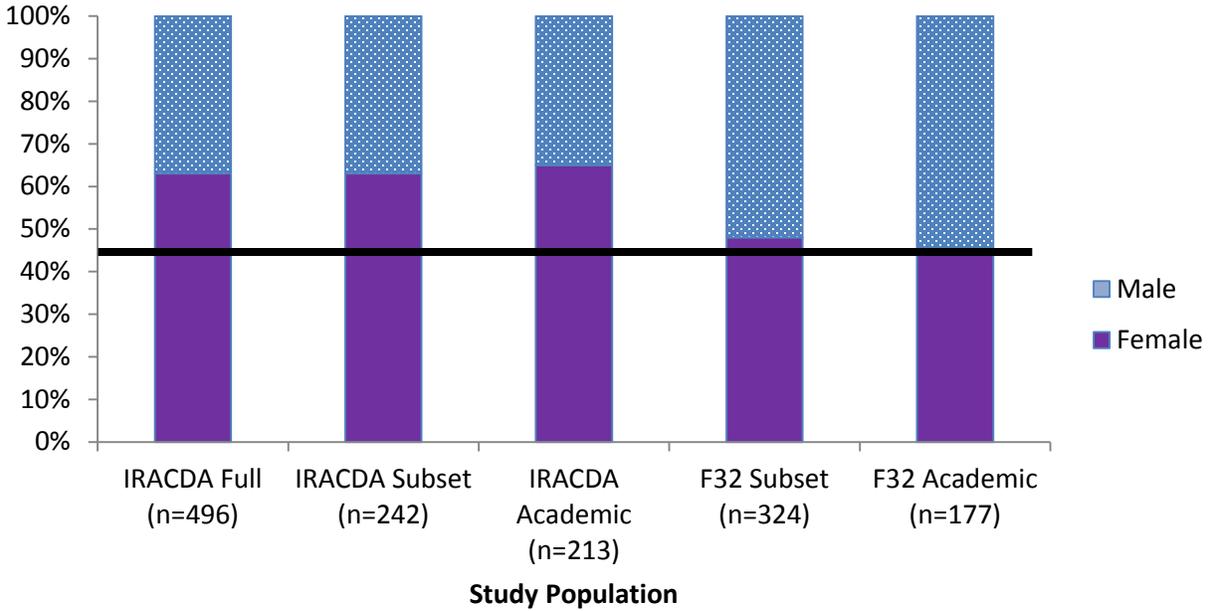


Figure 4. Data are self-reported information from IRACDA scholars at time of appointment or F32 awardees at the time of submission. Data for IRACDA scholars was aggregated from all IRACDA appointments, including current scholars. The total IRACDA pool (scholars and alumni) at the time of this analysis was 650 individuals. Of these, gender information was available for 496. Overall 63-65 percent of IRACDA scholars and 45-48 percent of F32 awardees across all subsets are female.

Race/Ethnicity of IRACDA Alumni and F32 awardees

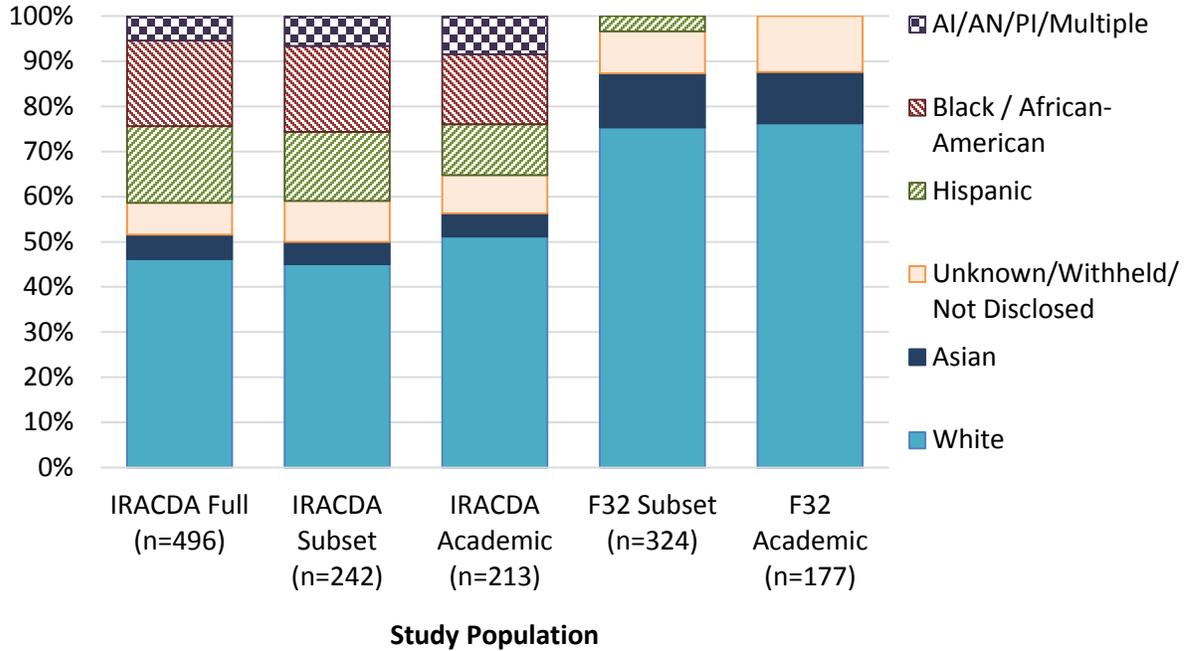


Figure 5. Data are self-reported information from IRACDA scholars at time of appointment or F32 awardees at the time of submission. Data for IRACDA scholars was aggregated from all IRACDA appointments, including current scholars. The total IRACDA pool (scholars and alumni) at the time of this analysis was 650 individuals. Of these, race/ethnicity information was available for 496. Among all IRACDA populations, approximately 46-51 percent of individuals identified as White, 5 percent as Asian, 15-18 percent as Black/African-American, 11-17 percent as Hispanic, less than 1 percent as American Indian/Alaskan Native/Pacific Islander/Multiple and 7-9 percent as Unknown/Withheld/Undisclosed. Among F32 populations, approximately 75-76 percent identified as White, 11-12 percent as Asian, less than 1 percent as Black/African-American or as American Indian/Alaskan Native/Pacific Islander/Multiple and 9-12 percent as Unknown/Withheld/Undisclosed. Approximately, 3 percent of F32 awardees in the overall subset identified as Hispanic and this number was less than 1 percent among those in this subset with academic faculty positions.

Career Outcomes of IRACDA Alumni and F32 Awardees

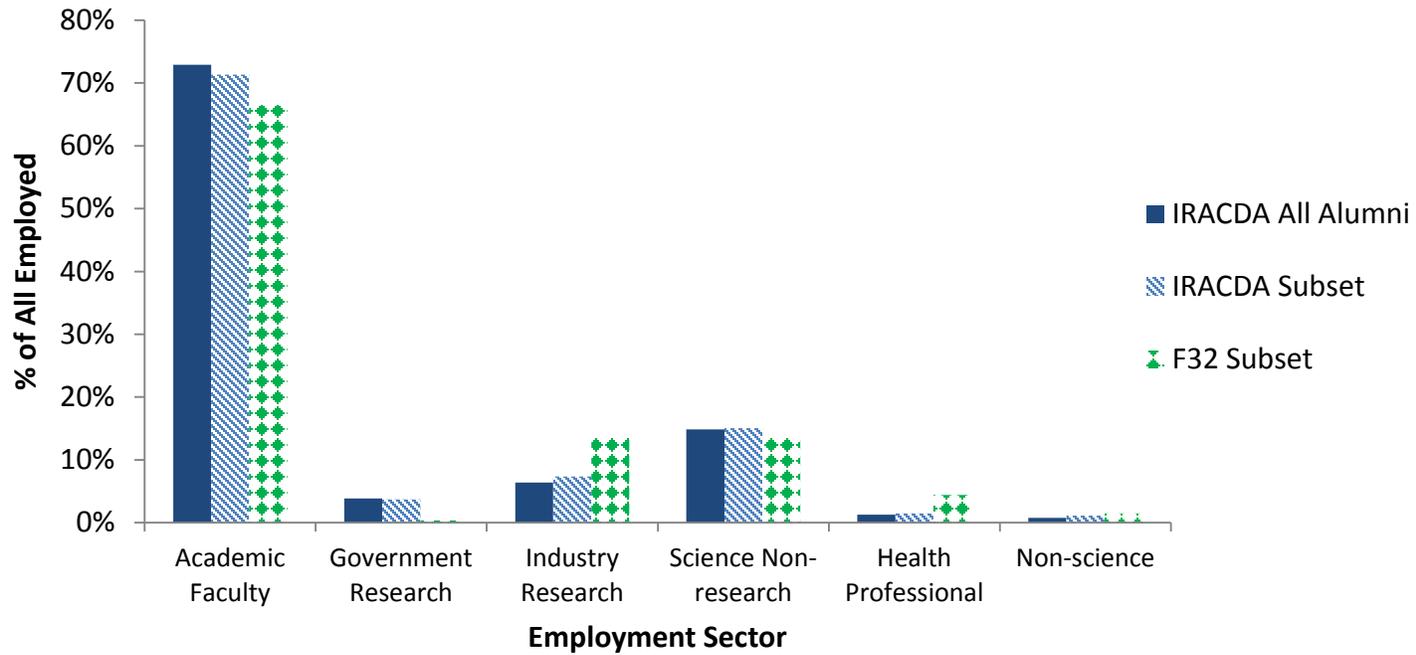


Figure 6. Career Outcomes of IRACDA Alumni and F32 Awardees. Current employer classification followed the categories and definitions outlined in the Biomedical Research Workforce Working Group Report, Advisory Committee to the Director, NIH (http://acd.od.nih.gov/biomedical_research_wgreport.pdf). Individuals categorized as “still in training” (e.g. postdoc) were excluded from this figure. Overall, 73 percent of IRACDA alumni are in academic research and/or teaching faculty positions. Within the IRACDA subset matched to F32 awardees, there are 71 percent of alumni in this employment sector. Among the F32 awardees matched to IRACDA alumni, 67 percent are in academic research and/or teaching faculty positions.

Academic Institutions Employing IRACDA Alumni and F32 Awardees by Carnegie Classification

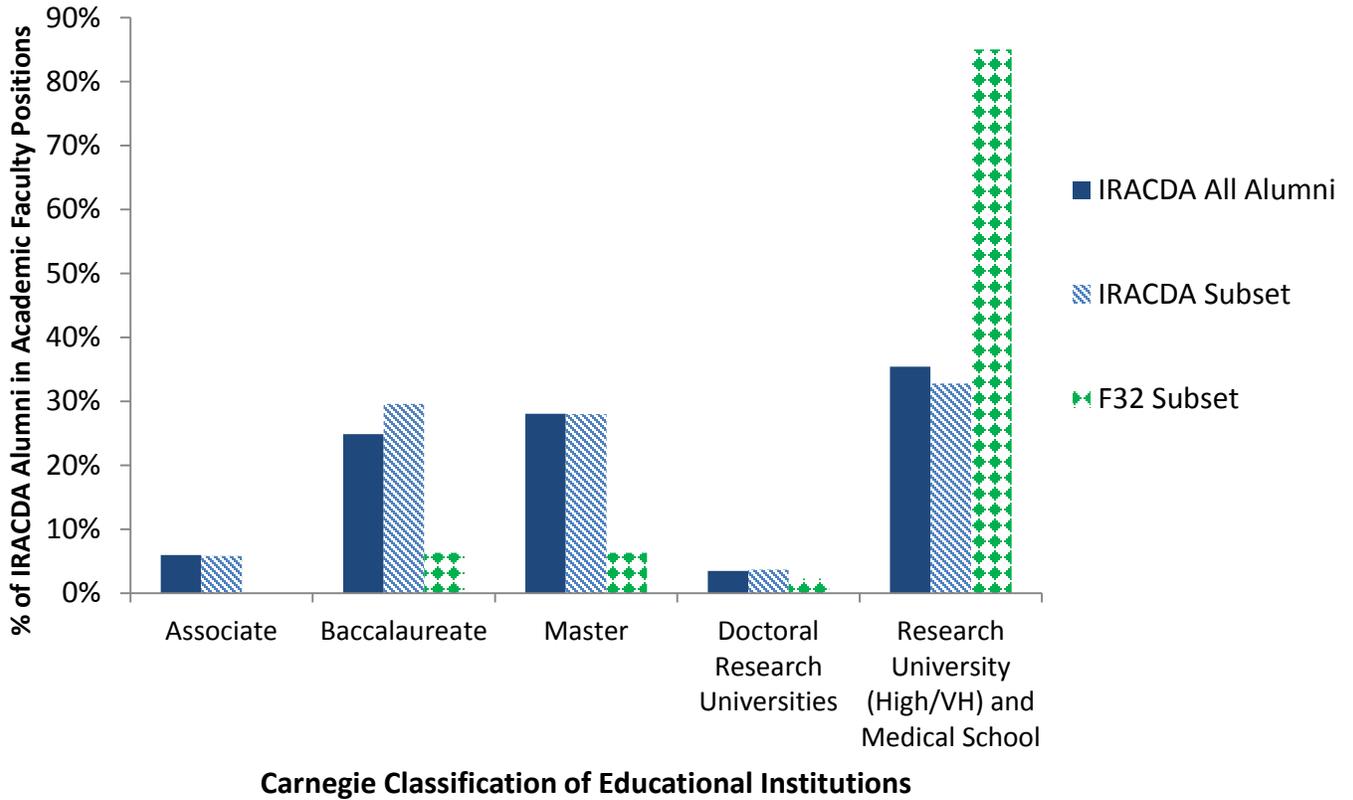


Figure 7. Academic Institutions Employing IRACDA Alumni and F32 Awardees. Among the matched subset of IRACDA alumni and F32 awardees, the distribution of IRACDA alumni (n=191) and F32 awardees (n=184) employed in academic faculty positions across educational institutions was determined using the Carnegie Classification of Institutions of Higher Education (<http://carnegieclassifications.iu.edu/definitions.php>). The IRACDA subset matched to F32 awardees is very similar to the overall group of IRACDA alumni in academic faculty positions. Of the IRACDA subset, 33 percent are employed in research universities and medical schools, 28 percent at master-degree granting institutions and 30 percent at primarily undergraduate institutions. Of the F32 awardee subset, 85 percent are employed in research universities and medical schools, 6 percent at master-degree granting institutions and 6 percent at primarily undergraduate institutions.

Academic Institutions with Substantial Enrollment of Individuals from Underrepresented Groups Employing IRACDA Alumni and F32 Awardees

	IRACDA All	IRACDA Subset	F32 Subset
HBCU/PBI	32	25	0
TCU	0	0	0
AIANSI	15	8	*
HIS	18	11	*
AANAPISI	14	8	*
Any MSI	73	46	16

Table 1. Academic Institutions Employing IRACDA Alumni and F32 Awardees based on Department of Education classification of institutions of higher education enrolling populations with significant percentages of undergraduate minority students, or that serve certain populations of minority students under various programs created by Congress (<https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>). These numbers are based on the full IRACDA alumni pool in academic faculty positions (n=285), the subset of IRACDA alumni matched to F32 awardees and in academic faculty positions (n=191) and the subset of F32 awardees matched to IRACDA scholars and employed in academic faculty positions. Institutions may have more than one designation. To account for this the total in the row labeled, “Any MSI” counts each institution only once.

Geographic Distribution of IRACDA Alumni Employed in Academic Faculty Positions

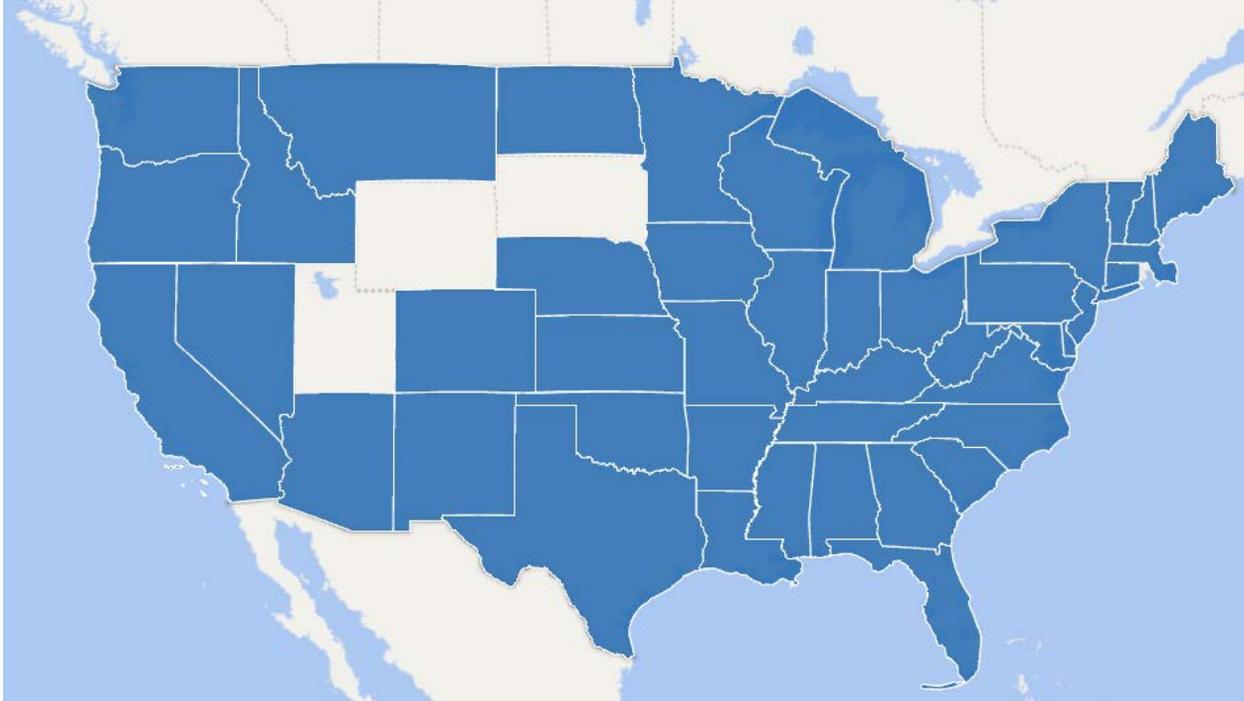


Figure 8. Geographic Distribution of IRACDA Alumni Employed in Academic Faculty Positions. IRACDA alumni (1999-2014) employed in academic positions are in 45 of the 50 states.

IRACDA Alumni in Academic Faculty Positions by Institution Type and Race/Ethnicity

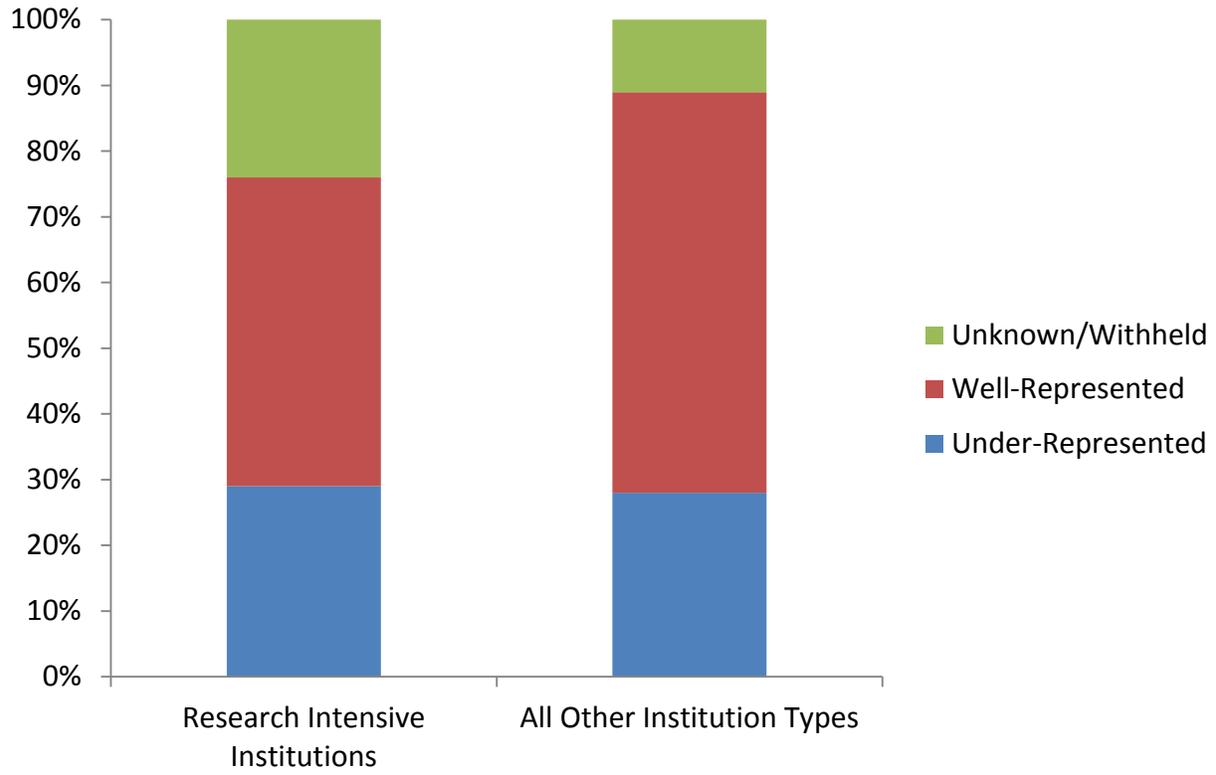


Figure 10. Race/ethnicity distribution of IRACDA alumni in academic faculty positions by type of educational institutions. Race/ethnicity from Figure 5 was collapsed with White and Asian comprising the Well-Represented Group and all other race/ethnicity designations comprising the Under-Represented Group. Unknown and Withheld information was a third category. Educational institution was collapsed from the Carnegie Classifications in Figure 2 with Research Universities remaining an independent category and all other institutions collapsed into a second category. Among IRACDA alumni, there is no difference in the percent of under-represented individuals by employment at a Research Institution or Other Institution Type.