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ABSTRACT

The principal objective of this study was to determine the organizational sources of support for the scientists and engineers who have received the Nobel and other major scientific prizes. A secondary objective was to determine what role the National Science Foundation (NSF) may have played in the recipients' research careers. The results of the study indicate that nearly three-fifths (58%) of the winners in the last ten years received some financial support from NSF during the period of their prize winning research. Most prize winners who received NSF support consider the Foundation their major source of research funding. Other leading funding sources included Department of Defense agencies (38%), the National Institutes of Health (25%), and the Department of Energy (18%). The analysis includes the funding histories of 440 United States scientists and engineers who won one or more of 55 distinguished prizes between 1977 and 1986. (TW)

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SOURCES OF FINANCIAL SUPPORT FOR RESEARCH PRIZE WINNERS

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National Science Foundation
Report 87-87 August 1987
(Evaluation Staff Report 2-87)

SOURCES OF FINANCIAL SUPPORT FOR RESEARCH PRIZE WINNERS

I. Summary.

Nearly three-fifths (58%) of the winners of prestigious national research prizes in the last ten years received some financial support from NSF during the period of their prizewinning research. Most prize winners who received NSF support consider the Foundation their major source of research funding. Other leading funding sources included: Department of Defense agencies, 38%; National Institutes of Health, 25%; and the Department of Energy, 18%.

An analysis of the funding histories of 440 U.S. scientists and engineers who won one or more of 55 distinguished prizes between 1977 and 1986 also showed that:

- 97% received some sort of non-salary support for their prizewinning research, generally from an external source;
- 23% were supported by one source for the duration of their prizewinning work (which many considered to be their entire career);
- 81% considered one or more Federal agencies as their major source(s) of support, 9% were primarily supported by industrial firms, and 4% by private foundations;
- 23% of the prize winners had received NSF funding for their graduate or postdoctoral studies;
- 14% were no longer supported by NSF after winning their prize(s), but 9% received NSF support for the first time after the prize was awarded;
- Almost half of the prizewinners received their highest degree from one of eight U.S. universities, and two-thirds from thirteen universities;
- 58% performed all of their prizewinning work at one institution, 28% at two, and 14% at three or more;
- 79% of the time, that institution was a university or college, and ten universities accounted for half of the locations where the work was performed;
- 23% of the winners were foreign-born, and 7% were women;

- Among five research fields examined, the winners of physics prizes were about equally supported by DOD, DOE and NSF; NIH was the predominant funding source for bioscience prize winners; and NSF was the leading support source for work in chemistry, psychology, and engineering.

Most of the findings are based on information provided by the researchers themselves in response to an NSF request. Other data sources included records of NSF, DOE, NIH and the various professional societies and other organizations that awarded the prizes.

II. Purposes and Scope

Several studies (Note 1) have examined the recipients of the Nobel and other major scientific prizes. These works have focused on the personal and sociological aspects of prizewinning, and on winning as a measure of the strength of a nation's science and technological capability.

The principal objective of this study, however, was to determine the organizational sources of support for the scientists and engineers who received such prizes. A secondary objective was to determine what role NSF support may have played in their research careers -- in graduate school, for example, or when their work was well underway, or after they had gained recognition.

To answer such questions, profiles were developed that traced the researchers' sources of support at various periods in their careers.

The funding histories of winners of 55 prestigious science and engineering research prizes during the period 1977-86 were examined. Of the total population of 663 individual winners, 552 were asked to identify their sources of support during the period of research for which the prize was awarded, and classify them in two categories: major support and other support. Four hundred and forty (80 percent) responded to the request.

III. Methods

A. Selection of Prizes for Analysis

Prizes that primarily recognized career achievement (e.g., the National Medal of Science) were excluded, as were regional, as opposed to national, awards. Prizes in fields where funding is clearly dominated by a particular source (such as biomedical research, plant biology and astronomy) were also excluded.

The particular prizes (listed in Appendix B) were chosen by the authors in consultation with sources knowledgeable in each field, both within NSF and among representatives of various scientific societies and professional organizations. An attempt was made to limit the number of prizes to one or two per discipline. This proved to be impossible and it was necessary to include prizes from major subdisciplines.

The names of awardees, totaling 772, were obtained from the organizations that awarded the 55 prizes. Forty-two individuals had won two or more prizes; the number of prizewinning persons was 663. (The complete list of winners is available; see note 2).

Most of the societies made available some biographical material about the winners (generally they maintained files for a maximum of three years). This information was supplemented by reference material from, for example, American Men and Women of Science and various editions of Who's Who.

B. Development of Support Profiles

Information about support sources was initially categorized by four periods of the prize winners' research careers:

1. Graduate study -- graduate fellowships, research assistantships, teaching assistantships, traineeships.

2. Postdoctoral and early research period -- postdoctoral fellowships, Presidential Young Investigator awards, and research initiation grants.

3. Prizewinning research support -- the research period which resulted in the receipt of a prize (the principal focus of this study).

4. Post-prize research support -- funding after the date of the prize.

The postdoctoral and early research support category was eliminated from the final report because of insufficient data.

IV. Initial Results

Information about support sources was first obtained from an NSF electronic data base of awarded, declined, and pending proposals for 1972-87. Information from prior years was compiled from manual records and NSF annual reports. A similar file at NIH covering the years 1984-87 was also searched.

These files did not contain sufficient information for a conclusive analysis. Preliminary statistics from these sources are worth noting, however, as a means of comparison with the final results, and are presented in Table 1.

Table 1: Characteristics of Prize Winners
(663 Winners)

	Number	Percentage
Gender and Nationality		
Men	623	94%
Women	40	6
U. S. - Born	437	66
Foreign Born	195	29
Country of Birth Unidentified	31	5
U. S. Residents	583	88
Foreign Residents	71	11
Country of Residence Unidentified	9	1
Deceased	14	2

Fields of Research

Anthropology	6	Mathematics	29
Biochemistry	17	Meteorology	33
Biology	114	Physics	109
Chemistry	86	Psychology	61
Economics	18	Sociology	12
Engineering	131	Statistics	17
Geology	6		
Geophysics	14	Other Fields	12

Sources of Support		
National Science Foundation	393	59%
National Institutes of Health	105	16
Department of Energy	48	7
Undeterminable from records search	117	18

V. Detailed Results

A. Characteristics of Prize Winners

More definitive information was obtained by querying the individuals directly. Of the 649 living prizewinners, 71 were excluded on the basis of foreign residency (i.e., not generally eligible for support by Federal agencies). Current addresses could not be obtained on 26 others. The remaining 552 persons were asked to answer five questions about their careers, from memory; the request is reproduced in Appendix C. Eighty percent (440) responded.

Table 2: Characteristics of Prize Winners
(440 respondents)

	Number	Percentage
Gender and Nationality		
Men	411	93%
Women	29	7
Foreign Born	100	23
United Kingdom	13	
China	12	
Canada	8	
Germany	9	
Austria	7	
Hungary	7	
Japan	5	
India	5	
19 other countries	34	
Country not identified	12	

Fields of Research

Anthropology	5	Engineering:	
Biochemistry	12	civil	38
Biology:		chemical	9
molecular biology	13	electrical	23
microbiology	16	mechanical	20
physiology	7	unspecified	2
unspecified	33	Mathematics	18
Chemistry	64	Meteorology	23
Economics	8	Physics	65
Geology	3	Psychology	47
Geophysics	6	Sociology	15
		Other	3

B. Support for Graduate and Postdoctoral Work

(1) Sources of Financial Support

Approximately one-third of the prize winners had received their highest degree prior to NSF's establishment. Of the remaining two-thirds, 78 received NSF graduate fellowships or traineeships, 18 received NSF postdoctoral fellowships, and three received NATO postdoctoral fellowships (also awarded by NSF).

Seventy prizewinners listed no graduate support, while 11 reported the "GI Bill" as the principal source of support for their graduate education.

The extent of support to those who worked during graduate school as research assistants on NSF grants could not be determined. Twenty individuals identified themselves as former assistants on NSF-supported projects, but 110 were unable to identify the source of their assistantship.

Details by support organization are presented in Appendix D.

(2) Institution of Highest Degree

Of the 336 whose institution of highest degree could be identified, almost half graduated from one of eight universities, and nearly two-thirds from one of thirteen universities. The leading institutions were:

Harvard U.	33	Cal. Inst. of Tech.	15
U. Cal./Berkeley	26	U. of Illinois	13
Columbia U.	21	U. of Chicago	12
Mass. Inst. of Tech.	21	Cornell U.	12
Princeton U.	16	U. of Wisconsin	12
Stanford U.	16	Yale U.	10
		U. of Michigan	8

One-eighth received their highest degree from a foreign institution.

C. Support for Prizewinning Research

(1) Sources of funding

Researchers were asked to name the sources of financial support for their prizewinning work and categorize them as "major" or "other" sources. The results are presented in Table 3. More detailed information and a breakdown by field of research is provided in Appendix E.

Table 3: Sources of Research Support

Source	Major Support		Other Support		Total %
Federal Agencies:					
NSF	214	49%	39	9%	58%
DOD	100	23	66	15	38
NIH	86	20	22	5	25
DOE	61	14	17	4	18
Other	55	13	39	9	21
Industry	50	11	37	8	20
Universities	19	4	37	8	13
Foundations	82	19	97	22	41
State Governments	7	2	10	2	4

Twenty-three percent reported that they had obtained funding from a single source for the entire period of their prizewinning research. Another 52% obtained major support from one source and additional support from others, NSF being the most frequently cited.

Table 4 illustrates the breadth of fields supported by NSF compared to Federal "mission agencies" and industry.

Table 4: Prize Winners' Fields of Research, by Support Source

Agency	Physics		Chemistry		Psychology		Biology		Engineering	
	Maj	Other	Maj	Other	Maj	Other	Maj	Other	Maj	Other
NSF	27	4	46	8	23	5	22	7	36	7
DOE	29	2	16	3	1	0	5	2	5	5
NIH	0	0	21	5	13	4	35	3	4	3
DOD	21	10	26	23	7	3	3	4	23	15
Industry	7	3	3	6	1	1	6	4	29	20

NSF was the leading source of major support for winners of prizes in chemistry, psychology and engineering, and the second most often reported source for major support in biology. Support of physics prize winners was shared about equally among DOE, DOD and NSF. NIH led in biological fields, while DOD stressed physics, chemistry and engineering.

(2) Research Institution:

Most respondents considered the period during which their prizewinning research was conducted to be their entire research career, to the date of the prize and sometimes beyond. This complicated the analysis of institutional affiliation, since 28% listed two institutions as the site of their prizewinning work, and 14% listed three or more. In all, the 440 persons were affiliated over the course of their prizewinning work with 686 organizations.

Five hundred forty-two, or 79%, of the organizations were universities. Ten universities accounted for half of the locations where the prizewinning work was performed:

U. of Calif./Berkeley	41	U. of Chicago	28
Harvard Univ.	41	U. of Washington	18
Mass. Inst. of Technology	40	U. of Wisconsin	18
Princeton Univ.	30	Columbia U.	14
Stanford Univ.	28	Cornell U.	14

Fifty-one, or 7%, of the prize winners carried out at least some of their work at industrial laboratories, 16 of them at AT & T/Bell Laboratories and six at General Electric Laboratories.

Another 51 (7%) were Federal sites, principally:

Dep't of Energy Labs	10	Dep't of Agriculture	6
Nat'l Institutes of Health	7	Nat'l Oceanographic & Atmospheric Admin.	6
Nat'l Bureau of Standards	6	Naval Res. Lab.	5

D. Post-prize Research Support

Information about the period after the award of a prize was available only from internal NSF documents and computer records. These show that 55% of the prize winners were funded for research after receiving their prizes; in most cases, this represented a continuation of NSF support.

Thirty-nine of the 176 researchers with no NSF support during the period of prizewinning research subsequently received Foundation funding. Their research fields were:

Biochemistry	2	Mathematics	2
Biology	3	Meteorology	2
Chemistry	2	Physics	4
Engineering	11	Psychology	6
Geology	1	Sociology	3
Geophysics	1		
		TOTAL	39

Sixty-two who received NSF support during their prizewinning research period have received no additional NSF support since winning the prize. Their fields of research are:

Anthropology	1	Mathematics	3
Biochemistry	2	Meteorology	3
Biology	14	Physics	8
Chemistry	6	Psychology	9
Economics	2	Sociology	3
Engineering	9	Statistics	1
Geology	1		
		TOTAL	62

This data does not show a "bandwagon" effect on the part of NSF, i.e., funding researchers only after their work has been recognized. Nine percent of the 440 respondents received NSF support only during their post-prize period, while over 14% of those who received NSF assistance for graduate study or for their prizewinning work received no post-prize support.

* * * *

Addendum: Institution of Baccalaureate Degree

Of the 290 prize winners whose undergraduate institution could be identified, one-third graduated from one of ten schools, and nearly one-half from one of 21 universities or colleges. The leading institutions were:

Harvard U.	22	U. of Michigan	5
City Coll. of New York	11	U. of Minnesota	5
Mass. Inst. of Tech.	11	Ohio State U.	4
Columbia U.	10	Rutgers U.	4
U. Cal./Berkeley	9	Stanford U.	4
U. of Wisconsin	9	Amherst	3
U. of Illinois	8	U. Cal./Los Angeles	3
Cal. Inst. of Tech.	7	U. of Pennsylvania	3
Cornell U.	7	Purdue U.	3
U. of Chicago	6	Yale U.	3
Princeton U.	6		

Notes and References:

1. For example, Christopher Hill and Joan Winston, "The Nobel-Prize Awards in Science as a Measure of National Strength in Science"; also Eugene Garfield's The Awards of Science: Beyond the Nobel Prize.

2. A complete list of all the prizes and award-winners reviewed in this study is available upon written request to: Program Evaluation Staff, Room 425, National Science Foundation, Washington, D.C. 20550.

BIBLIOGRAPHY

Cattell, Jacques (ed.), American Men and Women of Science, 16th edition, Bowker Press: New York, 1985.

Cole, Jonathan R. and Stephen Cole, Social Stratification in Science, University of Chicago Press: Chicago, 1973.

Garfield, Eugene, The Awards of Science: Beyond the Nobel Prize, ISI Press: Philadelphia, 1984.

Hill, Christopher T. and Joan D. Winston, "The Nobel-Prize Awards in Science as a Measure of National Strength in Science", Library of Congress Congressional Research Service: Washington, D.C., 1986.

Who's Who in Frontiers of Science and Technology, Marquis Who's Who: Chicago, 1985.

* * *

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Particular thanks are due to the prize-winners themselves, who took the time to respond candidly and promptly to our request for information.

APPENDIX: A: List of Abbreviations

ACS - American Chemical Society
AEA - American Economics Association
AGI - American Geological Institute
AGU - American Geophysical Union
AIBS - American Institute of Biological Sciences
AIChE- American Institute of Chemical Engineers
AMS - American Mathematical Society
AMS - American Meteorological Society
APS - American Physical Society
APA - American Psychological Association
ASCE - American Society of Civil Engineers
ASME - American Society of Mechanical Engineers
ASM - American Society for Microbiology
ASA - American Statistical Association
FASEB- Federation of American Societies for Experimental Biology
IEEE - Institute of Electrical and Electronics Engineers
NAS - National Academy of Sciences
NSF - National Science Foundation

Appendix B: List of Prizes Examined

The following three prizes transcend almost all fields of science or engineering and are therefore placed at the head of the list. The organization administering the prize is listed in parentheses after the prize name.

1.	Nobel Prize (Sweden)	70 Total
	Chemistry	12
	Physics	21
	Physiology/Medicine	25
	Economics	12
2.	MacArthur Prize (MacArthur Foundation)	65 Total
	Biology	14
	Mathematics	10
	Physics	12
	Statistics	3
	Social Science	11
	Other	15
3.	The Alan T. Waterman Award (NSF)	10 Total

BIOLOGY:

4.	Eli Lilly Research Award in Microbiology and Immunology (ASM)	10 Total
5.	Fisher Scientific Company Award in Applied and Environmental Microbiology	10
6.	U.S. Steel Foundation Award in Molecular Biology (NAS)	13
7.	American Institute of Biological Sciences Distinguished Service Award	18
8.	3M Life Sciences Award	13
9.	National Academy of Sciences Richard Lounsberry Award	10
10.	Albert Lasker Basic Medical Research Award (Albert Lasker Foundation)	26
11.	Louisa Gross Horwitz Prize (Columbia University)	19

CHEMISTRY:

12.	Robert A. Welch Award in Chemistry	7
13.	National Academy of Sciences Award in Chemical Sciences	7
14.	American Chemical Society Award in Pure Chemistry (ACS)	10
15.	Peter Debye Award in Physical Chemistry (E.I. DuPont)	6
16.	Irving Langmuir Award in Chemical Physics (ACS, APS)	10
17.	Roger Adams Award in Organic Chemistry (ACS, Organic Reactions, Organic Syntheses)	5
18.	Arthur C. Cope Award (ACS)	5
19.	ACS Award in Inorganic Chemistry	9
20.	ACS Award in Analytical Chemistry	10
21.	James Flack Norris Award in Physical Organic Chemistry (ACS)	10

ECONOMICS:

22.	John Bates Clark Award (AEA)	5

ENGINEERING:

23.	Pi Tau Sigma Gold Medal (ASME)	6
24.	Charles Russ Richards Memorial Award (ASME)	10
25.	Gustus L. Larson Memorial Award (ASME)	10
26.	Norman Medal (ASCE)	18
27.	J. James Croes Medal (ASCE)	19
28.	State-of-the-Art of Civil Engineering Award (ASCE)	13
29.	Alfred Noble Prize (ASCE)	7
30.	IEEE Medal of Honor	10
31.	Lamme Medal (IEEE)	10

32.	Morris N. Liebmann Memorial Award (IEEE)	18
33.	Society of Women Engineers Achievement Award	10
34.	Alpha Chi Sigma Award (AIChE)	10

GEOLOGY:

35.	Medal in Memory of Ian Campbell (AGI)	4
36.	William Bowie Medal (AGU)	10
37.	John Adam Fleming Medal (AGU)	5

MATHEMATICS:

38.	Fields Medal (Int'l Congress of Mathematicians)	10
39.	Bocher Memorial Prize (AMS)	3
40.	Frank Nelson Cole Prize (AMS)	6
41.	Oswald Veblen Prize in Geometry (AMS)	3

METEOROLOGY:

42.	Carl-Gustaf Rossby Research Medal (AMS)	9
43.	Jule G. Charney Award, formerly the Second Half Century Award (AMS)	13
44.	Meisinger Award (AMS)	11

PHYSICS:

45.	Enrico Fermi Award (Dept. of Energy)	13
46.	Dannie Heineman Prize for Mathematical Physics (APS)	10

APPENDIX C: Prize Recipients' Reply Form*

NAME: / Information provided /
/ by project staff /
AWARD(s)/YEAR(s): / /

Please provide dates, in years, during which your award-winning research was conducted:

University or other organization where your award-winning research was conducted:

_____

_____

Sources of financial support of your award-winning research (e.g., NSF, DOD, DOE, Carnegie Foundation, etc.):

Major Support: _____

Other Support: _____

What support, in the form of fellowships, scholarships or research assistantships did you receive during graduate school?

Fellowships _____ _____

Scholarships _____ _____

Research Assistantships _____ _____

In addition to your prize-winning research support and your graduate school support, please list other sources of support over the years with approximate dates:

_____

_____

If you have not reported NSF support in the above questions, have you ever received any NSF support?

Yes____Approximate Dates _____; No_____

*Sent to awardee with letter explaining project and requesting information.

APPENDIX D: Distribution of Graduate Student Support by Agency and Category

Key: (1) Fellowship
(2) Research Assistantship
(3) Teaching Assistantship
(4) Traineeship

	(1)	(2)	(3)	(4)
National Science Foundation	64	20	0	4
Dep't of Energy	2	7	0	0
Dep't of Agriculture	1	0	0	0
National Aeronautics & Space Administration	2	1	0	2
Dep't of Defense	1	4	0	0
Health & Human Services	10	4	0	0
National Institutes of Health	18	3	1	7
Environmental Protection Agency	0	1	0	1
Dep't of Education	5	0	0	1
American Cancer Society	4	0	0	0
Dupont Awards	5	0	0	0
Ford Foundation	2	0	0	0
Rockefeller Foundation	2	0	0	0
Fulbright Awards	3	0	0	0
Social Science Research Council	6	0	0	0
Sloan Foundation	3	0	0	0
Woodrow Wilson Awards	8	0	0	0
Danforth Fundation	3	0	0	0
Industry	31	3	0	0
Universities	64	110	43	0
Totals:	236	175	87	16

Note: This data was supplied by prize winners. The figures for NSF differ in minor respects from NSF program records; The latter were used in the analyses.

APPENDIX E: RESEARCH SUPPORT SOURCES BY ORGANIZATION AND FIELD

Agency	Physics		Chemistry		Meteorology		Mathematics		Geophysics		Geology		Anthropology		Economics		Statistics		Psychology		Sociology	
	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other
NSF	27	4	46	8	18	2	10	3	3	2	3		2		7		6		23	5	7	1
DOE	30	2	16	3	1	1		1		2					1	1			1		2	
DOT																1						
FAA																						
DOC																						
NBS		1	1	1																		
NOAA					6	6																
USDA																						
EPA			1	3	1																	
NASA	1	4	1		3	2			3	1		1										
DOS																1					1	
AID																						1
DOD	4	1	5	1	4				1	1	1						2		2		1	
DARPA	1	1		1							1								1	1		
AFOSR	4	2	5	7	1	1				1												1
ARO	5	1	9	8	1	1				1										1		1
ONR	7	4	7	6	2	2			1	1					1		3	1	4	1		
HHS															1					1		
NIH		2	21	5		1	1							1			1	1	13	4	2	
NIMH				1												1			19	1	4	
USPHS			1																			
DOI			1	1		1																
USGS																						
NEH													1						2			1
DOEd																					2	
FOUNDATIONS																						
Sloan		3		9			1	3				1							2	1		
ACS/PetResFnd	1			12																		
For			1										1		2				1	1	4	1
Rockefeller	1		1	2											2					1		
Am Cancer Soc																						
SocSciResCou																			2			2
Guggenheim		2					2	1				2			1	1	1	2	2	2	2	1
Other	3	2		5											4			2	2	6	3	2
INDUSTRY																						
Bell Labs	5		1																1			
Gen Elect	1																			1		
Other	1	3	2	6		1				1					1		1	1			1	
UNIVERSITY	1	2		5			3	1	1			1	1	1	2	2	1		4	3		4
STATE		1		2													1					1

APPENDIX E: RESEARCH SUPPORT SOURCES BY ORGANIZATION AND FIELD

Agency	Biology		Biochemistry		Biol/Micro		Biol/Molec		Engineering		Engin Chem.		Engin Civil		Engin Mech.		Engin Elec.		Total Major	%	Total Other	%	Total %
	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other	Major	Other					
NSF	22	7	4		9	2	3	3	36	7	7		12	3	10	3	6	1	214	48.6%	39	8.9%	57.5%
DOE	5	2			2	1			5	5	1	2		1	1		2	2	64	13.9%	17	3.9%	17.7%
DOT									5	2			3	2	1		1		5	1.1%	3	0.7%	1.8%
FAA									1								1		1	0.2%	0	0.0%	0.2%
DOC																			0	0.0%	0	0.0%	0.0%
NBS									2				2						3	0.7%	2	0.5%	1.1%
NOAA		1				1													6	1.4%	7	1.6%	3.0%
USDA	3	3			1	2			3				3						6	1.4%	3	0.7%	2.0%
EPA		2				1			2				2						4	0.9%	5	1.1%	2.0%
NASA	1								7	2	1		1		4	2	1		16	3.6%	10	2.3%	5.9%
DOS																			1	0.2%	1	0.2%	0.5%
AID	2	3				1				1				1					2	0.5%	5	1.1%	1.6%
DOD		1							6	7	1	1		1	2	1	3	3	26	5.9%	11	2.5%	8.4%
DARPA									1						1				4	0.9%	3	0.7%	1.6%
AFOSR		1							6	1	1		1		2	1	2		16	3.6%	14	3.2%	6.8%
ARO		1							7	4	1		1		3	3	2	1	22	5.0%	18	4.1%	9.1%
ONR	3	1	1	1	1	1			3	3					2	2	1	1	32	7.3%	20	4.5%	11.8%
NRS																			1	0.2%	1	0.2%	0.5%
NIH	35	3	9	2	10	2	13		4	3	1	1			2			1	86	19.5%	22	5.0%	24.5%
NIMH	1																		24	5.5%	3	0.7%	6.1%
USPHS	1		1		1	1													3	0.7%	0	0.0%	0.7%
DOI	1								1		1								3	0.7%	2	0.5%	1.1%
USGS									2				2						2	0.5%	0	0.0%	0.5%
NEH									1										4	0.9%	1	0.2%	1.1%
DOEd																			2	0.5%	0	0.0%	0.5%
FOUNDATIONS																							
Sloan																			3	0.7%	17	3.9%	4.5%
ACS/PetResFnd										4									1	0.2%	16	3.6%	3.9%
Ford		2																	9	2.0%	4	0.9%	3.0%
Rockefeller	2	3	1																7	1.6%	6	1.4%	3.0%
Am Cancer Soc	5	9		2	2		2	5											5	1.1%	11	2.5%	3.6%
SocSciResCou																			2	0.5%	2	0.5%	0.9%
Guggenheim		2								1									8	1.8%	14	3.2%	5.0%
Other	5	8	1	1			1		2	1	1					1			20	4.5%	27	6.1%	10.7%
INDUSTRY																							
Bell Labs									5								5		12	2.7%	0	0.0%	2.7%
Gen Elect									3								3		4	0.9%	1	0.2%	1.1%
Other	6	4	1		2	2	1		21	20		4	8	5	7	6	6	5	34	7.7%	36	8.2%	15.9%
UNIVERSITY	4	6				1		2	1	12		2	1	5		3		1	19	4.3%	37	8.4%	12.7%
STATE	1	3				1			5	3			5	3					7	1.6%	10	2.3%	3.9%