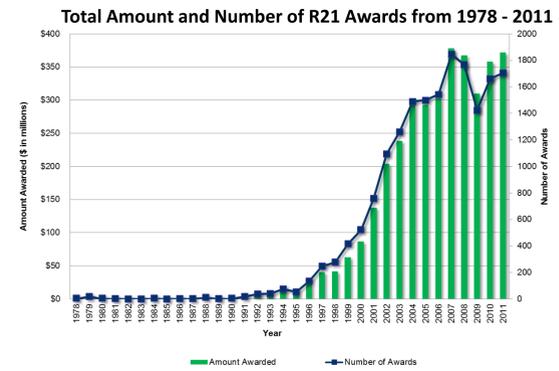


# The NIH R21 Program, 2001 – 2010

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Office of Extramural Programs, OER

## TRENDS IN THE R21 PORTFOLIO

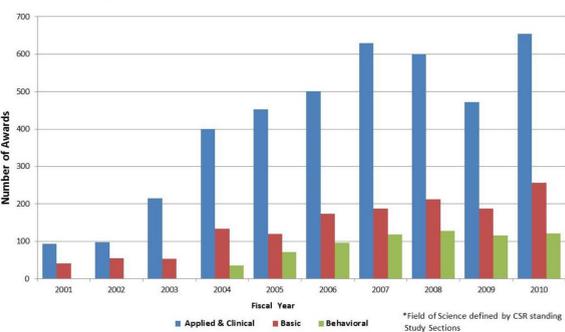
While the number of R01s and overall Research Project Grants (RPG) did not change dramatically between 2001-2010, the number of R21 awards more than doubled. The large majority of R21 awards were in the applied and clinical sciences, and >85% of applications were reviewed by CSR.



## Awarded and Average Awarded for New R01, R21 & RPG by Year

Year	R01			R21			RPG		
	Awards	Total Awarded	Avg. Awarded	Awards	Total Awarded	Avg. Awarded	Awards	Total Awarded	Avg. Awarded
2001	4,272	\$1,385,740,096	\$324,377	741	\$134,168,896	\$181,065	6,191	\$1,927,342,772	\$311,314
2002	4,144	\$1,405,147,355	\$339,080	1,085	\$182,749,153	\$168,432	6,505	\$1,983,710,091	\$304,952
2003	4,526	\$1,563,382,117	\$345,422	1,255	\$235,001,811	\$187,252	7,183	\$2,223,712,149	\$309,580
2004	4,224	\$1,474,558,501	\$349,091	1,465	\$286,570,166	\$195,611	7,025	\$2,309,205,329	\$328,713
2005	3,902	\$1,395,622,759	\$357,669	1,495	\$291,665,902	\$195,094	6,739	\$2,178,025,344	\$323,197
2006	3,612	\$1,300,416,875	\$360,027	1,533	\$299,243,870	\$195,201	6,390	\$2,173,240,446	\$340,100
2007	3,961	\$1,516,196,378	\$382,781	1,853	\$377,813,686	\$203,893	7,320	\$2,507,198,461	\$342,513
2008	3,691	\$1,446,700,324	\$391,953	1,758	\$362,189,456	\$206,024	6,772	\$2,334,046,939	\$344,661
2009	3,601	\$1,497,451,342	\$415,843	1,423	\$309,857,270	\$217,749	6,258	\$2,392,619,107	\$382,330
2010	3,900	\$1,641,211,425	\$420,823	1,670	\$359,230,165	\$215,108	6,851	\$2,674,892,365	\$390,438

## Competing R21 Awards by the Field of Science from 2001 to 2010



## Number of R21 application by type of Review in 2010

Locus of Review	Review Committee				Total
	IRG		SEP		
	N	%	N	%	
CSR	8010	67	2323	19	10333
IC	362	3	1317	11	1679
Total	8372		3640		12012

## R21 Subcommittee Members

Sherry Mills, M.D., M.P.H., (OER/OEP), Chair  
Kathleen Anderson (NIMH)  
Abraham Bautista (NIAAA)  
Sangeeta Bhargava (CSR)  
Mark Egli (NIAAA)  
David George (NIBIB)  
Martin Goldrosen (NCCAM)  
Gwynne Jenkins (OER/OEP)  
Chris Ketchum (NIDDK)

Teresa Levitin (NIDA)  
Ellen Liberman (NEI)  
Peter Lyster (NIGMS)  
Pat Mastin (NIEHS)  
Sherry Mills (OER/OEP)  
Katrina Pearson (OER/OSAR)  
Alex Politis (CSR)  
Alec Ritchie (NIAID)  
Denise Russo (NINR)

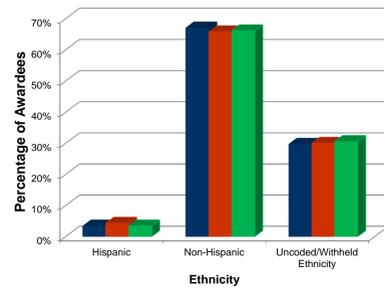
## SUMMARY

The NIH-wide R21 program has grown dramatically from a handful of awards in 1995 to the present program of nearly 2000 awards for more than \$400M annually. In 2011-2012, the Office of Extramural Programs (OEP) worked with representatives of twelve ICs to conduct a systematic analysis of the R21 program from 2001-2010, examining success rates, proportion of human subjects research, research area, locus of review, and characteristics of applicants and awardees. In addition, the committee looked at the subsequent R01 grant applications by R21 awardees, and compared R21s to short duration or small budget R01s. The results of the analysis showed that R21s and R01s are very similar in terms of the properties of the applicants, as well as in the proportion of applications and awards that involve human subjects research. However, the success rate of the R21 has dropped more rapidly than that of R01s and is now substantially lower. While first-time applicants to NIH choose the R21 much more often than the R01, the success rate for R21 first-time applicants is substantially lower. As a result, more than half of R21s were awarded to experienced investigators. Moreover, very few R21 awardees went on to receive R01s from the same IC in the four year period following the R21 award. These data suggest that while the R21 appears attractive as a 'starter grant' for new investigators, it is actually not effective in that role and a smaller budget R01 may be more appropriate.

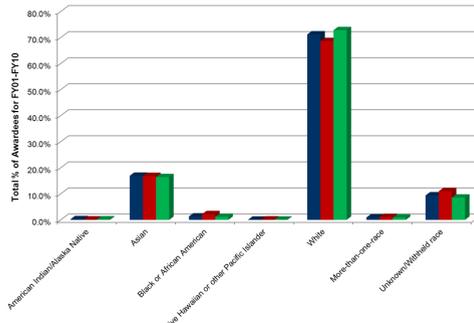
## SIMILARITIES BETWEEN R21s AND R01s

The awardees for R01s and R21s are very similar in terms of gender, race and ethnicity. In addition, the proportion of applications and awards that involve human subjects research is very similar in R21s and R01s.

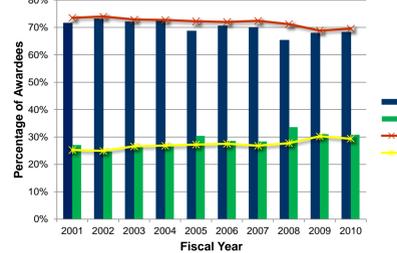
### R21, R03 and R01 Awardees by Ethnicity from 2001 - 2010



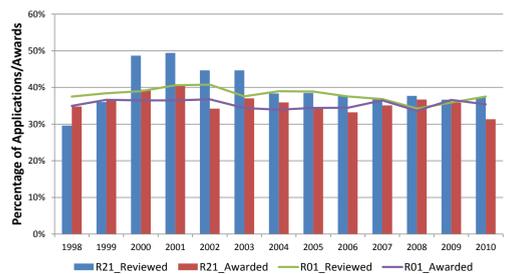
### R21, R03 and R01 Awardees by Race from 2001 - 2010



### R21 and R01 Awardees by Gender



### R01/R21 Applications/Awards that Involve Human Subjects



## R21s APPEAR TO BE A POOR CHOICE FOR NEW INVESTIGATORS

- The success rate for experienced investigators is similar for R01s and R21s.
- The success rate for new PIs for R21s is consistently lower than that for R01s.
- Even though new investigators apply nearly twice as often for R21s, 50-60% of all R21 awardees are experienced investigators.
- Relatively few (<15%) R21 awardees go on to receive R01s from the same IC 2-4 years after R21 award, suggesting that it is not useful as a 'starter' grant.

## Success Rate for Career Stage of New Competing R01, R03 and R21 from 2000-2010

Year	Career Stage	R01			R03			R21		
		Applicants	Awardees	Success Rate %	Applicants	Awardees	Success Rate %	Applicants	Awardees	Success Rate %
2001	Experienced	7,890	2,571	33	622	235	38	1,097	436	40
	New	6,584	1,547	23	1,441	486	34	1,296	295	23
2002	Experienced	7,933	2,495	31	548	217	40	1,665	614	37
	New	6,756	1,540	23	1,515	491	32	2,009	448	22
2003	Experienced	8,561	2,716	32	716	241	34	1,901	609	32
	New	7,286	1,649	23	1,850	539	29	2,881	605	21
2004	Experienced	9,599	2,559	27	877	270	31	2,598	789	30
	New	8,040	1,504	19	2,378	537	23	3,771	658	17
2005	Experienced	10,054	2,342	23	782	227	29	2,922	727	25
	New	8,078	1,422	18	2,359	482	20	4,567	742	16
2006	Experienced	10,301	2,182	21	697	157	23	3,418	782	23
	New	8,052	1,335	17	2,370	466	20	5,289	723	14
2007	Experienced	9,480	2,256	24	615	185	30	3,804	883	23
	New	7,680	1,575	21	2,251	524	23	6,051	925	15
2008	Experienced	9,663	2,236	23	674	224	33	3,875	921	24
	New	7,870	1,594	20	2,262	519	23	6,024	897	15
2009	Experienced	9,961	2,184	22	687	175	25	3,742	780	21
	New	8,819	1,705	19	2,158	394	18	6,138	761	12
2010	Experienced	10,519	2,375	23	494	127	26	4,219	955	23
	New	10,023	1,977	20	2,182	397	18	6,750	875	13

## SMALL BUDGET R01s APPEAR TO BE A REASONABLE ALTERNATIVE TO R21s, BUT SHORT DURATION R01s APPEAR TO BE SUBSTANTIALLY LESS SUCCESSFUL

### Short Duration R01s (<= 3 years requested at application)

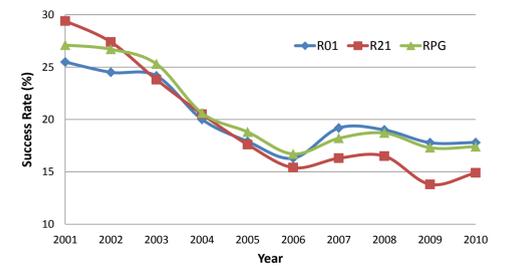
- Declined steadily as a percentage of the total R01 application pool, from 20% in 2001 to 10% in 2010
- Short duration Type 1's had an lower average success rate (14%) between 2001-2010, than all unsolicited Type 1 R01s (20%)
- Short duration Type 2's also had a lower average success rate (26%) than that of all Type 2 R01s (36%)

### Small Dollar R01s (<= \$300,000 in direct costs)

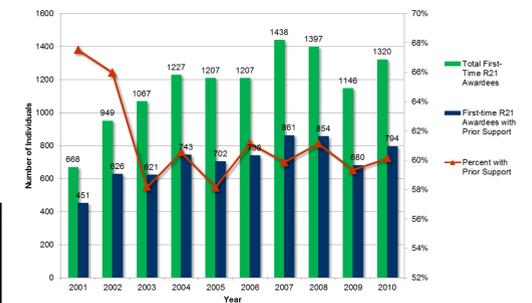
- Declined steadily as a percentage of the total R01 application pool, from 86% in 2001 to 68% in 2010
- Have a comparable success rate to all R01s

## SUCCESS RATES

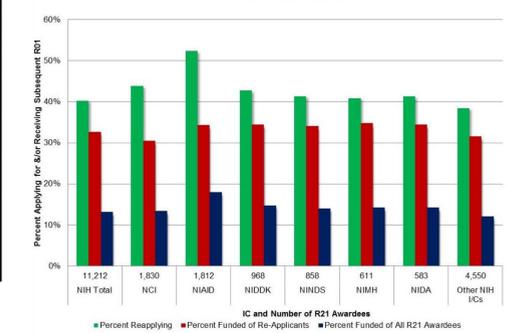
Although there has been a perception that R21s are easier to obtain, the data show that the success rate for R21 applications is substantially lower than that of R01s or RPGs (research project grants) overall.



## First-Time R21 Awardees with Prior Type 1 Competing Awards



## R21 Awardees Applying for and/or Receiving Subsequent R01s in Same IC (2-4 yrs from R21) FY2001 - 2008 R21s



National Institutes of Health  
Office of Extramural Research