

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
	Total R&D (\$ thousands)																
Total annual R&D growth	12,556,884	13,936,321	15,211,303	16,437,641	17,565,552	18,578,852	19,567,508	20,664,342	21,507,439	22,750,433	24,127,079	25,811,543	28,249,837	30,799,741	34,058,273	37,529,309	13.3
Quartile 1	1,714,527	2,002,251	2,252,539	2,492,871	2,752,182	2,967,846	3,187,532	3,416,433	3,710,676	4,011,259	4,291,941	4,798,484	5,444,187	6,265,730	7,003,633	7,995,226	24.4
C.R. Drew University of Medicine & Science (196)	2,826	2,898	4,970	7,043	7,862	6,852	9,347	12,500	16,386	17,205	17,205	24,484	31,045	36,717	48,839	49,888	111.0
George Mason University (178)	3,834	4,220	8,011	9,726	11,930	15,830	18,871	22,221	23,230	19,126	22,543	26,766	26,793	32,881	38,849	44,980	71.5
University of Maryland–Baltimore County (199)	3,975	4,342	5,385	6,809	7,619	7,544	8,117	11,868	14,304	19,799	18,155	21,854	26,044	29,641	36,323	42,906	65.3
North Dakota State University (138)	8,638	10,433	12,468	31,935	34,466	34,971	36,977	40,677	43,661	35,197	40,007	44,696	50,063	64,882	72,105	91,812	64.2
University of Texas–El Paso (200)	2,641	4,168	6,889	9,447	10,147	12,480	12,062	12,705	13,548	15,850	14,092	21,961	20,877	21,889	23,684	27,185	62.0
New Jersey Institute of Technology (144)	8,327	11,402	15,225	16,463	21,126	23,781	29,983	30,940	39,110	38,728	40,982	40,982	47,895	62,747	69,138	73,664	52.3
University of Louisiana–Lafayette (183)	5,092	6,817	8,319	10,232	10,815	11,319	11,099	13,416	13,429	22,381	24,768	30,735	32,692	32,073	47,796	43,769	50.6
University of Central Florida (134)	11,307	30,991	30,618	41,935	27,629	33,922	33,599	37,147	21,488	38,592	35,530	42,466	47,646	79,287	66,351	89,880	46.3
Georgia State University (171)	5,843	7,000	8,942	9,271	10,026	12,133	17,100	17,867	18,114	27,069	31,153	36,523	36,600	38,960	44,564	45,653	45.4
Medical University of South Carolina (117)	20,949	23,017	23,128	25,877	31,900	42,543	46,249	57,495	54,426	57,111	57,940	55,819	65,243	116,687	132,030	150,551	41.2
University of Arkansas for Medical Sciences (151)	9,851	10,834	11,898	14,250	15,889	15,686	22,762	28,389	33,354	37,336	39,487	44,066	49,074	51,921	45,046	63,677	36.4
University of Montana (180)	6,842	6,482	7,332	7,871	10,177	15,169	16,908	18,881	21,421	21,151	20,133	24,372	29,590	33,535	39,367	43,562	35.8
State University of New York–Albany (119)	19,625	24,240	22,034	20,580	35,856	37,860	43,353	38,771	66,247	57,415	50,568	64,278	82,792	70,119	67,493	120,655	34.3
University of Nebraska Medical Center (133)	14,684	17,291	17,844	27,858	31,564	31,669	33,997	38,287	42,612	45,365	50,453	54,205	51,547	60,695	71,000	85,007	31.9
College of William & Mary (159)	8,031	15,394	17,792	18,508	18,890	21,793	20,443	20,597	25,183	24,051	25,966	31,322	33,299	35,829	39,858	46,029	31.5
University of Nevada–Las Vegas (179)	7,369	11,409	15,449	19,491	13,300	19,373	15,486	17,268	16,893	15,628	16,912	20,170	24,215	27,008	30,527	42,205	31.5
Medical College of Georgia (148)	9,925	11,363	12,052	12,082	21,426	24,935	28,020	31,369	35,971	38,725	39,806	41,103	45,596	52,191	51,705	56,398	31.2
University Mississippi, all campuses (149)	15,125	17,092	22,071	24,748	23,361	23,734	25,000	26,862	26,215	26,231	28,079	32,129	44,927	58,410	71,893	85,378	31.0
University of Puerto Rico–Medical Sciences Campus (192)	5,517	6,528	6,293	11,014	18,296	14,622	17,765	17,354	15,005	15,575	19,830	17,114	21,373	23,913	29,089	31,124	30.9
Emory University (53)	60,896	64,713	82,774	91,940	101,398	120,125	136,186	148,178	149,168	163,619	172,884	189,170	206,070	236,997	271,238	323,224	28.7
University of South Florida (84)	40,396	60,973	76,404	72,948	68,713	75,322	86,186	92,758	94,157	99,649	104,325	123,961	145,397	171,550	198,026	213,455	28.6
Boston College (194)	6,137	6,152	8,052	9,810	10,400	10,731	10,724	13,298	14,504	14,746	17,774	21,726	27,767	30,768	31,754	32,158	28.3
Oregon Health & Science University (85)	37,979	43,922	50,682	52,821	61,645	75,148	84,734	96,867	101,745	118,364	130,421	140,247	150,342	155,583	158,729	197,178	27.9
Eastern Virginia Medical School (184)	6,614	8,125	10,496	11,112	11,238	15,818	17,873	17,823	17,730	19,109	21,672	24,096	23,299	26,250	28,572	32,801	26.4
University of Memphis (182)	8,201	9,892	12,073	12,000	12,169	11,740	13,305	14,642	18,429	21,271	22,486	24,280	27,381	29,445	33,625	38,728	24.8
University of Texas Medical Branch–Galveston (103)	33,047	38,717	40,610	45,086	57,672	67,998	72,773	72,569	73,759	77,683	86,488	93,580	97,896	102,722	129,534	153,122	24.2
Indiana University (48)	73,526	81,793	89,191	102,461	117,565	127,877	136,617	145,512	154,260	165,198	171,754	194,790	227,737	259,899	299,080	337,669	24.0
Duke University (25)	113,968	131,090	140,708	164,232	188,678	202,434	220,220	218,703	242,235	251,536	282,388	348,274	356,625	375,133	441,533	520,191	23.8
Vanderbilt University (70)	60,591	65,218	75,062	80,759	95,447	96,181	110,105	111,224	117,003	122,598	135,214	149,675	171,926	186,504	208,305	276,074	23.7
University of Medicine and Dentistry of New Jersey (81)	42,027	54,451	71,789	80,787	84,505	76,410	86,866	96,365	98,535	110,383	114,491	126,277	140,951	162,417	178,156	190,763	23.6
Loyola University of Chicago (153)	8,327	11,303	12,260	22,702	30,099	29,232	36,830	33,098	29,365	30,994	34,241	29,001	30,034	37,156	37,607	37,581	23.4
University of Nevada–Reno (131)	17,867	18,141	21,449	29,303	37,546	38,564	42,176	46,783	47,977	52,703	45,476	47,939	56,248	59,229	66,721	80,553	23.4
Thomas Jefferson University (109)	24,231	29,405	30,969	33,066	41,329	51,106	56,932	65,705	69,154	69,228	69,460	78,410	89,626	88,936	102,974	109,083	23.3
Rush University (127)	19,827	21,741	21,284	27,359	26,184	34,039	39,736	44,322	48,772	49,969	55,277	60,957	68,189	70,219	79,394	89,196	23.3
Dartmouth College (108)	35,563	38,452	43,737	49,384	53,668	59,920	57,845	50,525	52,945	61,619	64,964	69,522	78,874	109,096	126,839	155,795	22.5
University of New Hampshire (122)	22,095	23,720	25,994	29,591	33,744	39,555	43,707	42,548	45,693	45,886	52,359	57,613	72,108	87,879	93,222	96,415	22.4
Drexel University (168)	16,045	17,983	20,079	19,705	23,184	20,314	20,886	19,389	19,322	19,267	19,603	22,397	24,876	27,698	44,465	69,548	22.2

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Baylor College of Medicine (32).....	106,814	134,681	155,122	161,084	167,998	172,252	186,865	190,375	184,613	192,744	216,528	272,198	334,175	381,461	411,924	461,763	22.2
University of Maryland–Baltimore (59).....	68,787	75,854	83,689	100,163	100,312	111,772	110,866	107,874	122,207	134,808	143,321	140,903	224,346	239,007	266,822	297,271	22.1
Mount Sinai School of Medicine (83).....	49,727	56,856	63,752	66,310	75,561	75,337	86,179	92,008	92,405	94,776	109,448	127,765	149,846	176,946	185,335	214,514	22.1
Wake Forest University (106).....	30,568	37,156	39,654	44,214	49,919	57,646	52,581	68,388	75,331	75,290	76,893	82,827	86,840	98,343	111,634	130,405	21.8
Saint Louis University (160).....	9,700	14,251	17,157	19,183	19,932	20,826	20,844	22,686	25,099	26,517	26,943	27,817	31,002	32,442	35,444	41,189	21.6
Wayne State University (74).....	50,509	59,521	62,455	69,997	81,127	85,627	94,632	106,140	112,151	124,383	138,456	146,832	156,814	175,984	199,007	213,717	21.5
University of Cincinnati (68).....	60,479	69,831	74,461	80,598	90,279	92,512	93,599	91,159	127,733	141,604	159,695	153,002	171,906	192,895	217,739	255,083	21.5
Old Dominion University (189).....	7,252	9,107	10,478	10,040	10,859	14,097	14,911	14,439	17,577	18,583	20,150	23,030	25,058	24,659	29,223	30,324	21.2
University of Pittsburgh (36).....	98,609	111,265	117,716	130,322	157,250	178,778	185,377	186,457	189,826	202,533	213,842	249,477	294,809	348,792	400,200	409,684	21.0
University of California–Los Angeles (7).....	209,338	227,828	246,795	250,033	270,954	277,974	279,869	303,668	354,645	398,865	447,367	477,620	530,826	693,801	787,598	849,357	20.4
Washington University in St Louis (27).....	117,829	128,419	151,249	160,464	170,339	179,329	192,378	209,100	218,640	262,426	269,550	315,606	362,216	406,642	416,960	474,328	20.2
University of Florida (30).....	107,177	125,770	139,678	140,257	140,189	142,966	148,592	199,216	255,099	272,373	274,862	304,447	313,692	347,892	386,316	429,734	20.1
Quartile 2.....	3,375,023	3,775,681	4,156,875	4,570,786	4,967,715	5,369,681	5,668,993	6,041,415	6,294,556	6,668,076	7,230,046	7,772,269	8,556,946	9,392,265	10,441,060	11,566,161	16.2
University of Maine (142).....	17,341	19,974	23,605	27,082	23,213	24,879	29,393	31,901	34,684	33,144	33,106	41,452	54,821	64,070	62,149	68,923	19.8
University of Kentucky (61).....	69,003	69,532	74,959	81,137	92,244	102,911	105,539	111,934	118,721	124,804	161,346	174,034	202,392	211,721	236,275	272,062	19.6
Naval Postgraduate School (150).....	15,515	15,306	17,391	19,397	20,412	24,296	26,538	27,510	30,706	32,333	34,095	34,095	40,827	47,559	54,291	61,025	19.6
University of Texas Southwestern Medical Center–Dallas (58).....	70,392	79,920	85,919	94,511	102,263	114,258	118,398	125,301	130,162	140,589	153,711	165,520	189,216	222,376	263,958	276,692	19.5
George Washington University (118).....	23,522	30,284	32,372	29,791	39,335	41,177	38,429	43,488	49,263	55,158	74,481	66,757	69,300	73,805	86,288	92,454	19.5
University of Akron (190).....	7,114	9,728	10,372	13,405	14,825	17,558	16,783	15,589	15,507	17,999	16,326	16,279	19,495	22,266	28,080	27,953	19.5
University of California–Irvine (71).....	60,100	66,806	78,074	82,523	89,275	100,631	104,778	109,908	119,647	119,669	130,415	141,842	158,437	179,866	209,469	234,656	19.4
University of Texas Health Science Center–Houston (31).....	118,987	132,763	136,990	162,884	167,383	186,261	188,789	196,845	203,767	225,216	243,253	260,433	301,783	338,185	400,525	464,463	19.4
University of Louisville (143).....	22,945	14,466	15,921	16,852	17,400	19,496	20,475	22,835	29,655	33,434	39,147	57,051	64,062	72,857	80,974	88,522	19.1
University of South Carolina (102).....	31,836	40,421	47,477	55,091	54,360	57,062	74,001	79,710	78,619	77,855	92,785	105,835	105,675	111,011	124,208	122,350	19.0
University of Illinois–Chicago (57).....	75,922	83,329	85,268	90,520	102,267	106,952	113,741	119,381	121,540	139,296	151,739	175,093	195,839	233,098	259,852	291,507	18.9
Mississippi State University (89).....	45,005	53,670	58,492	64,335	65,754	70,300	76,201	72,145	84,124	84,157	100,410	110,896	132,503	146,939	158,652	165,922	17.9
Arizona State University (96).....	39,510	44,347	59,849	63,489	69,346	66,142	62,563	77,009	84,653	80,740	92,019	107,184	108,117	118,763	123,016	145,591	17.9
Boston University (73).....	61,505	66,325	73,651	74,881	83,701	91,158	90,504	103,709	110,266	120,392	130,054	141,102	154,029	172,031	192,612	224,841	17.7
Wright State University (173).....	9,551	11,043	13,451	14,646	16,793	19,791	19,388	18,661	17,381	17,291	19,676	23,131	29,092	32,033	30,962	34,860	17.7
University of North Carolina–Chapel Hill (34).....	107,039	122,097	123,113	142,681	161,549	179,157	201,622	209,118	208,529	221,380	235,296	252,767	269,072	303,576	370,806	390,542	17.7
West Virginia University (112).....	28,807	37,569	46,624	49,686	52,482	54,271	58,604	53,072	54,844	63,312	62,362	63,392	66,130	71,311	84,985	104,748	17.6
Montana State University– Bozeman (125).....	25,227	25,968	27,648	30,278	34,419	32,911	36,149	47,998	50,097	49,440	52,292	55,475	65,324	69,593	78,211	91,503	17.5
Northeastern University (166).....	11,894	13,302	14,347	15,973	15,876	18,517	19,104	19,850	17,980	19,822	26,385	30,209	35,340	34,467	38,540	42,931	17.4
University of Washington (3).....	190,735	221,712	245,313	274,423	313,514	335,329	353,945	389,160	406,472	409,959	438,191	482,659	529,342	589,626	627,273	684,814	17.3
University of Pennsylvania (15).....	159,218	173,744	189,390	198,221	222,424	233,829	251,461	272,393	288,430	296,141	333,477	383,569	430,389	469,852	522,269	564,716	17.0
University of California–Santa Cruz (126).....	22,163	23,651	26,347	31,620	36,413	37,886	42,457	44,294	51,062	49,428	56,533	52,902	56,212	64,253	70,967	78,448	16.9
University of Oklahoma (77).....	50,047	53,956	58,645	79,777	92,146	92,019	95,747	102,337	109,071	114,387	126,861	142,085	150,902	148,695	169,373	174,466	16.6
University of California–San Francisco (12).....	193,289	219,446	238,278	268,700	295,784	314,599	312,393	329,742	320,757	343,384	379,970	417,095	443,013	524,975	596,965	671,443	16.5
San Diego State University (135).....	19,370	20,124	22,524	28,570	30,683	32,493	29,309	35,287	43,201	40,586	41,915	45,579	55,002	58,332	64,302	67,053	16.4
Ohio University (176).....	10,863	11,461	12,982	12,796	14,811	15,452	16,425	19,713	18,329	21,008	21,469	21,437	23,767	27,146	36,601	37,527	16.4
Washington State University (88).....	51,319	55,173	66,856	75,244	85,080	92,434	94,819	96,810	98,641	97,700	95,422	96,943	104,796	107,937	146,862	175,181	16.1

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University of Colorado (22)	128,015	143,720	154,723	160,526	176,266	193,217	234,267	243,932	251,301	269,816	311,203	318,618	353,908	365,472	399,818	436,761	16.1
University of Texas Health Science Center—San Antonio (97)	39,673	42,501	45,663	51,768	65,179	75,239	83,535	87,336	83,028	86,019	82,357	87,804	103,824	115,154	129,616	133,304	15.7
University of Notre Dame (155)	17,845	19,385	19,373	21,302	22,679	23,745	22,833	23,332	24,556	24,116	28,873	30,483	34,524	46,096	52,371	59,803	15.7
University of Alabama—Birmingham (44)	85,030	100,666	110,603	113,317	117,844	133,790	141,735	158,779	170,193	203,758	227,720	232,115	233,461	231,702	255,053	284,497	15.6
University of Kansas (80)	51,723	57,111	61,144	65,982	75,004	85,134	95,701	100,702	100,649	108,893	117,115	132,752	148,670	156,467	172,131	173,024	15.6
University of New Mexico (79)	47,729	52,970	57,728	67,344	72,863	76,736	90,315	129,354	116,618	116,152	125,910	115,850	133,980	156,619	150,598	158,239	15.4
Colorado School of Mines (187)	8,832	9,364	10,943	12,971	12,783	13,644	13,880	16,585	19,291	19,221	20,681	21,715	21,795	23,654	26,515	29,162	15.3
Johns Hopkins University (9)	192,994	217,295	253,113	270,770	272,956	298,873	324,830	341,805	363,635	421,147	410,923	438,725	464,237	517,302	580,307	636,774	15.3
Medical College of Wisconsin (115)	33,231	34,951	34,622	40,446	43,579	48,689	49,604	44,169	47,365	51,629	56,021	61,446	70,581	83,857	96,700	108,608	15.1
Case Western Reserve University (52)	77,303	86,168	93,384	104,199	118,391	124,691	133,272	141,089	143,435	161,825	176,330	182,332	193,057	198,253	219,042	250,674	15.0
University of California—San Diego (8)	200,472	216,991	237,032	261,422	282,114	307,051	331,901	357,333	371,509	376,655	418,790	461,632	518,559	556,533	585,008	646,508	14.8
Ohio State University (20)	154,652	173,485	178,569	194,919	203,291	221,460	230,515	246,287	262,147	289,100	301,518	322,810	361,399	390,652	432,387	496,438	14.7
South Dakota State University (197)	8,622	8,472	9,511	11,511	12,692	14,050	14,083	13,448	14,925	15,671	15,631	15,599	16,784	19,717	20,085	27,652	14.7
University of California—Santa Barbara (91)	46,598	50,067	59,750	59,593	66,007	68,775	73,619	78,737	91,284	91,149	96,034	104,561	118,154	116,372	131,795	149,130	14.7
Colorado State University (69)	59,369	64,351	73,967	80,474	107,339	115,385	112,457	122,172	126,701	128,580	140,179	150,281	152,279	161,144	178,845	187,054	14.3
Texas Tech University (121)	29,374	33,926	34,124	34,994	36,869	38,119	39,455	40,824	43,000	46,645	53,126	58,488	66,263	69,918	82,785	92,515	14.3
University of Delaware (110)	32,023	37,194	40,119	44,696	48,970	52,627	50,734	53,161	54,154	65,095	69,896	73,521	74,711	77,491	85,157	100,706	14.3
University of Michigan (1)	250,169	280,905	310,578	363,582	393,059	425,868	430,778	443,070	468,876	483,485	496,761	508,619	551,556	600,523	673,724	780,054	14.1
University of California—Davis (19)	154,655	180,297	198,075	200,664	209,282	223,758	230,147	244,116	254,604	267,341	288,796	307,950	364,789	432,396	456,653	482,145	14.1
Northwestern University (39)	102,755	118,991	133,151	144,809	141,975	162,299	169,949	173,731	187,262	200,943	223,235	233,809	245,774	257,933	282,154	319,722	14.1
Clemson University (90)	49,375	56,699	66,664	70,236	77,579	78,569	76,572	82,883	84,836	84,034	90,150	99,341	114,903	123,885	134,840	152,986	14.0
University of Missouri—Columbia (66)	66,365	74,055	88,181	96,748	97,242	106,193	121,256	122,870	119,079	128,178	136,061	149,002	158,861	174,782	177,011	205,212	13.9
Quartile 3	3,855,166	4,269,386	4,617,321	4,893,646	5,193,764	5,412,954	5,772,602	6,109,065	6,257,542	6,669,804	7,101,090	7,490,267	8,177,844	8,702,428	9,605,060	10,469,236	11.4
University of Iowa (43)	94,552	105,900	115,778	124,058	135,418	148,811	157,036	164,893	178,228	184,414	199,063	207,135	236,944	255,348	288,808	292,035	13.9
University of Nebraska—Lincoln (75)	60,788	68,281	77,598	87,529	91,427	94,959	102,746	107,721	102,460	117,100	118,857	131,046	136,023	157,520	171,431	184,652	13.6
University of Maryland Center for Environmental Science (164)	12,682	13,741	15,652	16,205	18,557	19,055	19,817	21,100	21,448	21,377	24,038	26,816	31,605	36,635	38,501	38,344	13.5
Brown University (107)	41,556	43,564	46,763	49,503	55,585	57,152	55,146	56,269	67,621	71,411	73,977	76,330	81,476	91,636	109,482	125,090	13.4
Florida State University (94)	50,679	55,245	62,933	53,811	50,178	62,929	76,588	86,060	78,125	95,908	94,463	97,673	105,095	113,817	134,351	152,277	13.4
University of Massachusetts (42)	106,043	121,886	113,103	132,060	141,127	151,090	156,385	156,883	170,524	191,243	208,685	205,981	232,791	251,013	293,039	317,387	13.3
University of Utah (62)	75,789	83,340	89,018	94,621	108,486	105,263	103,771	105,642	114,423	135,911	142,956	153,843	187,661	197,597	216,707	223,739	13.0
Virginia Commonwealth University (100)	42,951	52,193	62,730	65,608	69,189	77,097	76,597	76,529	79,018	78,948	80,538	79,785	88,220	99,180	109,619	126,451	13.0
City University of New York (124)	25,821	28,952	32,190	34,922	36,789	42,292	48,160	48,070	51,103	51,400	51,730	47,005	49,135	58,214	67,495	75,946	12.9
University of Wyoming (136)	20,429	23,310	22,831	23,009	30,181	32,556	38,464	40,470	40,553	47,753	48,500	47,197	43,094	41,632	41,632	60,054	12.9
University of Arkansas (111)	28,104	32,842	36,963	40,831	44,768	58,325	57,815	59,410	59,753	64,868	71,686	61,585	70,817	78,303	83,863	82,277	12.9
University of Arizona (18)	155,464	174,119	195,633	213,726	221,999	235,528	269,939	292,351	279,656	285,278	302,328	320,245	345,090	367,128	390,027	454,941	12.8
University of Vermont (113)	36,815	42,743	45,162	46,541	49,542	49,839	51,775	54,065	53,659	59,526	57,832	64,049	63,391	75,597	88,602	104,994	12.3
University of Idaho (116)	30,078	31,879	34,936	39,407	44,140	44,655	49,338	52,529	56,198	57,582	58,967	62,531	61,347	67,496	76,758	85,213	12.2
Pennsylvania State University (14)	188,444	219,930	256,926	267,816	278,305	282,659	302,997	330,881	337,938	339,955	362,643	379,402	427,575	458,066	492,739	533,427	12.2
University of Texas—Dallas (198)	10,936	11,265	12,075	10,571	12,995	13,371	14,492	14,027	13,562	14,561	15,211	16,028	15,684	15,684	26,198	30,748	12.1
San Jose State University (175)	10,104	9,488	10,086	12,100	18,326	21,005	21,005	21,005	21,005	21,005	21,005	21,005	21,005	22,709	25,003	28,323	12.0
Rockefeller University (82)	68,588	73,945	75,245	74,090	75,102	74,396	74,458	99,348	105,595	109,999	115,494	121,519	124,138	145,571	166,603	192,143	12.0
University of Hawaii—Manoa (76)	64,278	70,733	76,525	78,166	80,258	73,961	70,079	78,429	111,202	120,107	148,007	156,810	161,300	156,976	161,823	179,285	11.9

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	Total R&D (\$ thousands)															Average annual change (%)	
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		2003
Rice University (140)	18,851	21,563	26,267	30,577	29,424	30,403	33,309	34,446	39,696	43,601	41,067	41,069	41,840	42,675	48,169	52,367	11.9
University of Virginia (67)	74,572	81,281	96,815	96,733	110,103	115,786	129,504	136,679	97,334	114,085	139,135	131,138	140,416	149,547	182,340	206,199	11.8
Michigan State University (41)	116,320	121,456	126,987	133,249	142,308	150,861	163,285	182,009	182,589	190,178	193,611	207,912	238,436	265,946	289,787	321,410	11.8
Tulane University (95)	42,619	45,195	56,407	71,781	72,190	75,634	83,885	100,231	83,660	86,427	87,858	87,324	89,785	99,761	102,998	117,709	11.7
University of Southern California (26)	150,009	162,013	169,102	175,595	194,740	200,822	207,275	222,159	244,258	259,246	268,806	280,741	300,445	340,597	372,397	414,099	11.7
Virginia Polytech Institute and State University (47)	89,955	104,266	121,423	125,256	130,994	135,771	148,313	148,501	143,815	169,808	167,118	169,250	192,672	216,323	232,560	247,807	11.7
Louisiana State University, all campuses (37) ...	114,698	122,357	135,849	147,626	151,844	158,823	165,857	186,723	196,328	205,441	208,928	225,808	251,233	268,911	287,363	314,665	11.6
State University of New York–Buffalo (54)	87,635	100,291	109,190	113,441	128,428	128,203	141,092	143,768	137,701	135,663	151,650	166,823	187,692	186,829	226,959	240,180	11.6
University of California–Berkeley (13)	186,372	209,967	231,061	258,038	284,545	284,346	289,632	291,200	316,320	377,376	420,426	451,539	518,514	446,273	474,746	507,186	11.5
Columbia University in the City of New York (23)	160,976	172,145	182,769	194,666	199,516	204,710	236,417	244,991	236,403	244,337	267,007	279,587	319,693	354,497	405,403	437,669	11.5
University of Wisconsin–Madison (2)	271,418	285,982	309,841	326,489	352,706	372,362	392,718	403,541	412,570	419,810	443,695	499,688	554,361	604,143	662,101	721,248	11.0
University of North Dakota (172)	15,806	17,518	17,498	16,995	18,265	19,204	18,732	18,940	28,188	20,899	16,938	16,999	17,343	19,692	33,973	41,803	11.0
Rutgers–the State University of New Jersey (40)	105,150	124,574	137,985	151,335	162,089	161,025	173,211	192,263	185,103	183,038	197,053	213,838	225,268	236,793	258,829	274,576	10.7
Kansas State University (104)	43,174	47,302	50,311	53,010	57,723	62,562	65,696	71,103	71,222	76,896	81,233	85,580	91,790	94,030	106,804	112,733	10.7
Southern Illinois University–Carbondale (146) ...	20,310	23,357	25,873	28,340	28,094	26,376	30,497	29,631	28,578	30,043	30,490	33,169	36,354	43,207	53,604	53,018	10.7
Purdue University (38)	118,797	124,323	130,379	136,325	140,260	149,032	172,733	203,419	206,951	206,588	216,479	226,411	234,536	254,917	285,778	309,476	10.7
California Institute of Technology (46)	92,530	98,731	105,730	115,526	111,733	115,439	127,946	138,016	157,005	177,888	185,066	212,216	222,666	215,085	220,004	240,664	10.7
North Carolina State University (35)	110,286	123,441	131,133	142,606	143,008	155,624	173,407	180,191	190,748	229,292	254,254	270,621	277,946	299,259	290,018	286,025	10.6
State University of New York–Binghamton (191)	8,926	9,270	10,680	9,870	12,843	13,760	15,803	17,106	18,500	19,310	20,754	17,998	18,661	18,992	21,343	23,090	10.6
University of Alaska–Fairbanks (99)	49,856	56,701	65,571	67,432	67,881	66,796	76,093	72,216	71,381	70,943	75,606	88,825	102,500	110,195	116,279	128,916	10.6
University of North Texas (186)	11,499	12,751	12,508	14,084	14,621	14,744	15,585	15,997	17,749	17,936	17,734	17,176	19,239	25,259	26,120	29,378	10.4
Georgia Institute of Technology(28)	143,051	174,664	168,193	176,729	180,263	175,873	193,630	211,875	225,633	240,237	259,233	263,725	304,511	306,533	340,347	364,190	10.3
State University of New York–Stony Brook (65)	79,410	79,455	82,236	90,790	98,906	107,817	113,251	122,611	126,377	136,624	141,766	148,982	163,307	168,487	184,045	200,330	10.2
University of Miami (63)	70,783	90,298	94,344	96,979	104,165	120,875	121,475	128,736	130,056	135,888	136,972	139,608	145,795	153,772	171,319	177,709	10.1
University of Chicago (55)	98,541	109,429	117,955	113,289	118,123	111,877	121,902	126,261	135,693	150,531	151,635	162,805	170,678	194,125	225,264	247,322	10.1
University of Rochester (45)	114,061	123,997	129,011	131,777	139,992	161,810	167,485	158,539	144,914	155,311	174,617	177,126	197,335	234,261	261,601	285,768	10.0
University of Alabama Huntsville (141)	18,628	26,186	29,565	28,897	32,017	34,153	31,482	36,736	38,176	32,817	36,946	40,203	41,274	43,731	48,353	46,595	10.0
University of Illinois at Urbana-Champaign (16)	197,393	210,590	225,634	243,380	251,970	252,811	245,407	246,174	268,995	286,470	329,266	358,247	373,024	390,863	427,174	493,581	10.0
University of Oregon (145)	18,567	22,476	26,346	26,151	30,242	30,738	31,170	30,386	33,654	31,487	33,315	32,695	35,934	36,881	43,723	44,604	9.3
New York University (51)	100,872	104,451	108,511	112,106	122,399	129,774	139,202	148,935	145,874	153,288	156,452	167,179	182,205	190,722	222,978	241,593	9.3
Quartile 4	3,612,168	3,889,003	4,184,568	4,480,338	4,651,891	4,828,371	4,938,381	5,097,429	5,244,665	5,401,294	5,504,002	5,750,523	6,070,860	6,439,318	7,008,520	7,498,686	7.2
Yale University (24)	162,188	171,139	180,706	193,893	211,569	226,850	224,939	231,819	234,901	245,536	262,680	274,050	296,706	321,514	354,243	387,644	9.3
University of Maryland–College Park (29) ...	135,531	149,510	166,022	206,432	219,041	229,344	198,348	209,945	216,957	215,927	223,190	257,628	252,429	267,383	324,980	321,899	9.2
University of Houston (123)	26,803	34,229	37,978	42,292	44,957	55,038	43,131	44,993	49,178	45,916	42,297	43,370	48,902	51,567	59,707	63,455	9.1
Auburn University (92)	52,737	53,814	66,795	69,913	66,773	68,151	84,769	85,566	87,358	85,460	87,768	80,544	92,612	106,347	108,775	124,103	9.0
Yeshiva University (78)	75,383	74,496	83,968	86,721	87,196	89,636	92,881	94,739	91,430	96,819	99,000	111,771	139,618	148,230	157,124	177,236	9.0
Texas A&M University (5)	236,847	259,151	280,849	296,944	317,292	336,735	373,697	381,040	389,861	390,288	420,214	427,945	454,539	483,106	527,488	556,514	9.0

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
	Total R&D (\$ thousands)																
Utah State University (87).....	59,273	69,944	86,450	94,167	89,776	75,835	79,085	82,468	81,709	91,292	94,228	95,364	103,161	121,359	121,621	138,862	9.0
Princeton University (72).....	76,891	82,914	91,514	92,002	93,958	95,561	99,287	104,157	112,380	114,549	115,996	124,237	134,875	149,411	164,408	179,951	8.9
Iowa State University (49).....	86,726	103,241	116,270	134,657	132,580	148,459	155,982	154,932	151,914	155,433	156,766	161,301	175,558	179,196	188,664	199,566	8.7
Georgetown University (86).....	44,783	53,597	50,867	60,454	64,937	73,785	82,661	102,421	112,582	119,114	116,611	111,426	133,211	99,228	96,450	100,181	8.2
Howard University (161).....	16,870	17,125	17,382	15,731	17,576	18,427	19,836	24,819	28,894	27,873	23,673	23,557	27,254	30,148	35,387	37,577	8.2
New York Medical College (177).....	13,817	12,958	13,244	14,633	16,799	18,491	18,725	18,424	16,372	16,890	19,159	20,436	23,348	24,283	25,222	30,492	8.0
University of Wisconsin–Milwaukee (174).....	12,424	13,428	15,639	16,865	18,567	18,245	19,180	19,684	19,679	19,995	20,807	21,325	20,010	23,492	24,933	27,259	8.0
University of Georgia (33).....	137,692	145,953	156,742	162,992	165,279	172,274	187,849	206,256	209,357	225,457	217,945	237,493	258,476	272,298	284,660	299,748	7.8
Stanford University (6).....	277,504	285,994	299,511	314,941	367,980	306,676	318,561	318,871	351,526	395,310	410,309	426,549	457,822	482,906	538,474	603,227	7.8
University of Alabama (157).....	15,836	18,395	21,488	21,248	22,573	23,149	21,960	23,479	21,806	23,671	23,935	28,909	31,847	33,133	37,130	34,187	7.7
University of Minnesota (11).....	236,115	258,614	292,046	331,471	317,026	332,033	317,865	336,524	341,179	363,095	360,323	371,384	411,380	462,011	494,265	508,557	7.7
Harvard University (17).....	190,429	209,519	220,812	229,939	253,126	257,207	278,459	276,422	282,443	299,961	306,100	326,193	341,810	372,107	401,367	408,707	7.6
Desert Research Institute (167).....	14,798	16,005	16,852	17,948	20,579	21,187	21,459	22,851	20,100	20,000	21,500	23,376	25,691	29,697	29,465	31,757	7.6
University of Connecticut (56).....	89,630	109,328	117,932	123,794	124,010	133,054	136,740	139,956	147,522	140,840	134,448	134,986	161,084	164,366	172,003	190,341	7.5
University of California–Riverside (105).....	52,983	53,213	54,892	57,244	57,536	59,065	60,995	62,539	71,495	75,486	79,775	75,821	83,580	94,455	111,936	112,468	7.5
Michigan Technological University (163).....	14,321	15,186	16,037	19,667	18,179	18,696	21,786	22,798	23,882	24,140	26,522	28,074	27,204	29,613	30,005	30,264	7.4
State University of New York Health Sciences Center–Brooklyn (152).....	18,374	20,523	22,873	32,824	24,171	27,645	27,773	30,781	30,254	29,727	27,517	28,840	31,626	31,626	34,981	38,424	7.3
University of Tennessee System (50).....	104,179	113,187	116,644	128,418	131,240	143,662	153,340	151,316	149,331	154,230	150,694	158,930	163,690	161,898	188,261	217,389	7.2
Tufts University (98).....	54,225	50,424	47,009	47,748	60,891	68,519	73,749	77,093	79,356	83,568	92,130	100,872	105,783	105,806	109,291	112,609	7.2
State University of New York College of Environmental Science and Forestry (165).....	12,917	17,221	18,671	19,049	18,456	21,856	21,839	21,904	21,969	20,540	22,036	25,385	26,663	27,854	26,337	26,783	7.2
Brigham Young University (195).....	10,967	11,544	11,608	12,682	14,469	13,587	13,859	14,102	11,791	11,502	11,963	23,985	17,237	19,171	21,228	22,557	7.0
Cornell University (10).....	271,659	286,733	300,144	309,535	299,342	310,949	312,683	343,786	339,534	351,030	363,511	395,552	410,393	443,828	496,123	554,760	6.9
Clark Atlanta University (181).....	6,378	7,137	7,896	8,655	11,483	12,057	12,709	25,245	34,566	28,893	29,637	19,467	16,891	17,173	17,194	12,760	6.7
University of Texas–Austin (21).....	172,608	193,337	228,203	237,043	228,545	249,158	260,602	228,676	241,606	239,021	244,843	258,122	272,811	295,104	320,966	343,854	6.6
Carnegie Mellon University (60).....	94,051	101,635	100,201	103,030	110,571	118,261	122,580	125,659	136,514	134,954	137,450	142,174	137,980	144,882	188,191	186,351	6.5
University of Texas–Arlington (188).....	7,670	7,064	5,729	12,887	13,896	14,834	17,453	21,135	24,010	37,509	19,075	11,450	10,723	17,486	15,097	15,102	6.5
Florida A&M University (169).....	12,079	14,171	15,847	18,552	22,230	22,777	24,691	20,797	22,474	25,415	19,066	21,622	21,612	23,865	31,147	23,503	6.3
Uniformed Services University of the Health Sciences (156).....	15,991	18,962	21,933	24,904	27,875	30,846	27,334	39,612	36,851	18,812	20,309	22,898	23,987	23,247	28,630	30,604	6.1
University of Missouri–Rolla (170).....	18,823	17,692	14,285	14,432	15,619	18,025	19,706	21,220	20,235	20,895	21,740	25,893	25,968	28,799	32,222	35,999	6.1
Brandeis University (132).....	26,618	30,596	30,881	33,837	35,229	36,213	34,835	36,451	36,760	40,145	44,589	48,305	47,658	52,818	47,122	50,841	6.1
Oregon State University (64).....	88,953	91,355	90,688	96,199	107,573	114,004	119,772	123,402	131,334	131,467	138,240	139,285	140,751	153,925	161,735	167,631	5.9
New Mexico Institute of Mining and Technology (158).....	20,357	22,289	22,911	24,059	25,208	24,040	20,945	19,584	20,580	21,974	22,791	26,061	23,636	28,392	36,309	37,186	5.5
Massachusetts Institute of Technology (4).....	270,584	287,157	311,767	323,535	333,908	377,413	374,768	370,800	380,612	410,930	413,098	420,306	426,299	435,495	446,786	485,764	5.3
New Mexico State University (93).....	61,001	60,930	71,288	78,736	83,900	85,974	80,286	81,455	76,493	81,024	77,370	79,877	79,695	86,963	103,078	108,613	5.2
Oklahoma State University (101).....	57,914	54,788	67,620	67,492	71,238	72,920	70,808	75,906	82,960	62,480	71,466	83,108	88,285	90,311	94,987	103,079	5.2
Temple University (114).....	40,941	45,482	49,449	54,921	53,921	53,686	56,308	54,742	56,533	54,500	63,024	53,940	52,466	60,182	63,850	71,327	4.9
University of Rhode Island (128).....	35,940	36,219	35,846	38,842	40,842	45,942	46,631	43,103	39,575	40,522	37,940	44,452	48,135	50,835	53,347	61,818	4.8
University of Dayton (130).....	31,483	31,984	36,177	37,925	41,009	45,052	47,768	46,084	43,188	45,437	45,000	36,937	39,345	41,343	46,554	52,943	4.5
Syracuse University (137).....	33,643	35,543	33,811	30,606	32,145	32,443	38,650	33,939	34,322	34,642	37,322	39,640	40,063	42,476	45,870	48,846	3.0
Rensselaer Polytechnic Institute (129).....	36,511	38,805	46,880	50,106	50,769	44,132	37,191	37,247	37,917	38,803	38,560	39,034	40,762	45,010	45,955	50,777	2.6
Lehigh University (147).....	27,089	26,004	27,255	27,912	31,822	30,869	29,188	35,117	34,780	26,451	26,115	27,902	25,506	29,058	22,687	29,211	0.5

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
Total R&D (\$ thousands)																	
State University of New York Upstate Medical University (185)	24,541	31,125	14,401	14,564	12,992	12,453	11,751	13,177	14,093	14,914	14,089	15,099	17,095	17,294	22,326	25,931	0.4
University of Puerto Rico–Mayaguez (139).....	27,091	29,343	30,555	27,897	25,238	23,156	22,967	40,393	44,502	48,857	51,181	55,648	34,683	18,627	19,939	20,029	-1.7
Institutions not assigned to quartiles																	
Eastern Kentucky University (193)	na	na	na	na	na	457	6,498	12,539	18,580	24,621	30,662	36,708	640	770	666	506	na
Florida International University (162)	na	na	na	na	na	11,443	13,520	16,375	16,856	17,359	17,880	25,061	34,649	44,291	47,654	52,175	na
MCP Hahnemann University (120)	23,828	31,700	32,238	37,814	44,038	42,752	45,218	41,237	48,790	85,748	95,984	27,516	41,670	32,462	37,945	na	na
University of Maryland Biotechnology Institute (154)	na	na	na	na	na	na	14,839	18,062	22,933	29,117	31,861	31,172	29,946	32,458	34,440	39,789	na
Number of articles																	
Total S&E article output.....	116,656	123,115	126,037	127,393	131,304	129,894	131,929	133,972	134,284	131,851	132,485	132,733	131,757	135,247	132,307	143,298	1.5
Quartile 1	20,043	21,677	22,452	22,996	23,844	23,868	24,135	25,013	25,195	24,884	25,056	25,153	24,848	25,784	25,173	27,462	2.5
Quartile 2	33,659	35,431	36,306	36,754	38,055	38,017	38,747	39,650	39,869	39,180	39,881	39,957	39,792	41,365	40,322	43,917	2.0
Quartile 3	34,677	36,020	36,957	37,005	38,021	37,268	37,505	37,457	37,736	36,691	36,860	36,807	36,815	37,070	36,717	39,449	0.9
Quartile 4	28,277	29,987	30,322	30,639	31,384	30,741	31,542	31,853	31,483	31,096	30,689	30,817	30,302	31,028	30,095	32,470	1.0

na = not applicable

NOTES: Top 200 R&D universities assigned to quartile based on total R&D growth between 1988 and 2003. Articles on fractional-count basis, i.e., for articles with collaborating top-200 institutions or non-top-200 institutions, credit is fractionally apportioned on basis of proportion of institutions from each top-200 institution.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation>; iplQ, Inc., and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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