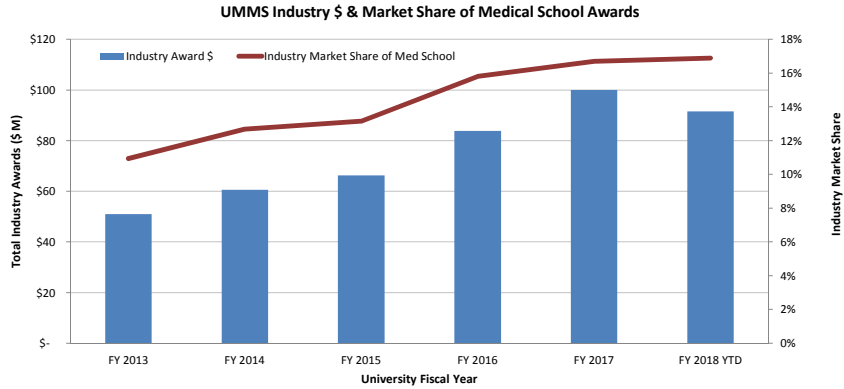


Fast Forward Medical Innovation Metrics

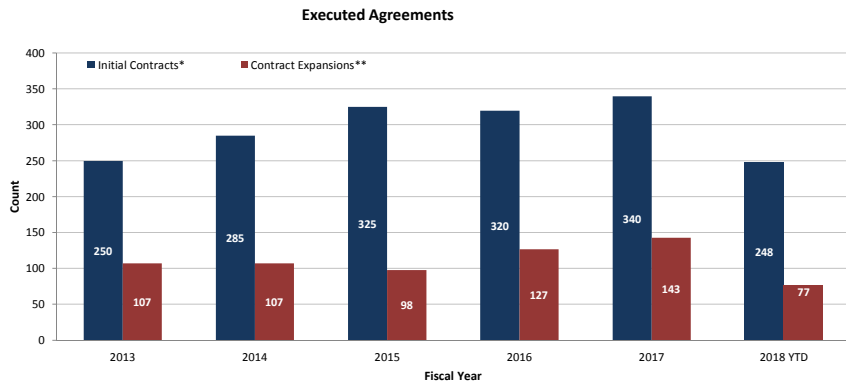
Industry Sponsor Awards & Market Share of UMMS Awards



	University Fiscal Year					
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 YTD
Med School Total Award \$ (Base Awards)	\$ 466,296,547	\$ 477,926,094	\$ 504,492,418	\$ 530,581,796	\$ 599,533,777	\$ 542,055,468
Industry Award \$	\$ 51,004,758	\$ 60,611,279	\$ 66,388,284	\$ 83,876,444	\$ 100,105,404	\$ 91,556,559
Industry Award Count	695	758	856	1004	1148	1005
Industry Market Share of Med School	10.94%	12.68%	13.16%	15.81%	16.70%	16.89%

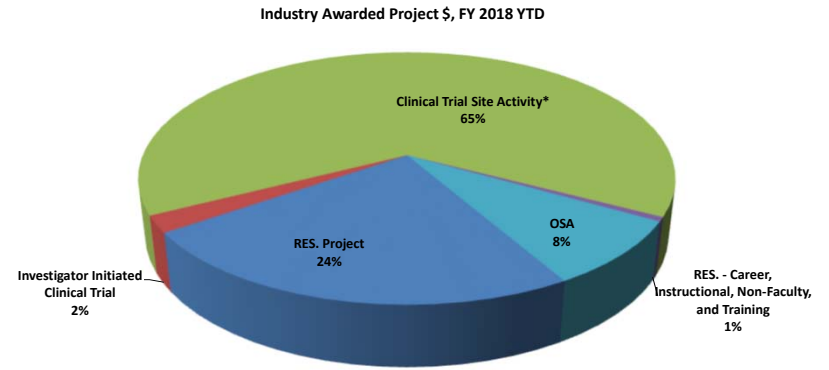
	University Fiscal Year					
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 YTD
# of Unique Sponsors*	227	247	274	319	347	312
# of Unique PIs Awarded	246	242	277	299	316	295

Executed Agreements with Industry Sponsors



*Initial Contracts are newly negotiated agreements that are for a new project or a distinct new phase of a project that require a set of new terms.
 **Contract Expansions are incremental agreements which provide additional funds for ongoing project activities.

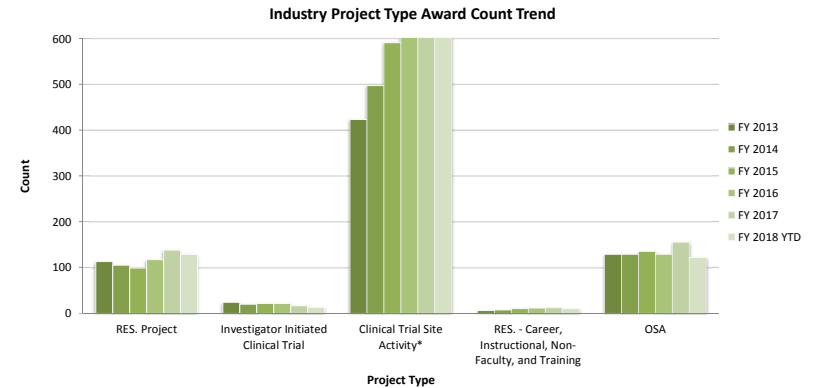
Industry Projects Award \$ by Project Type



	University Fiscal Year					
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 YTD
RES. Project	\$ 10,411,256	\$ 15,504,906	\$ 17,849,605	\$ 17,367,621	\$ 23,784,194	\$ 21,868,455
Investigator Initiated Clinical Trial	\$ 3,417,563	\$ 2,336,498	\$ 2,906,478	\$ 4,294,089	\$ 2,682,229	\$ 1,985,877
Clinical Trial Site Activity*	\$ 31,403,348	\$ 36,234,017	\$ 39,393,791	\$ 53,881,067	\$ 62,937,668	\$ 59,671,906
RES. - Career, Instructional, Non-Faculty, and Training	\$ 566,454	\$ 391,275	\$ 529,693	\$ 791,695	\$ 525,030	\$ 503,754
OSA	\$ 5,206,137	\$ 6,144,583	\$ 5,708,717	\$ 7,541,972	\$ 10,176,283	\$ 7,726,567

*Prior to FY 13, this category included only projects under FDA review for IND / IDE. FY 13 and after, it includes all Clinical Trial Site Activity.

Industry Projects Award Count by Project Type



	University Fiscal Year					
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 YTD
RES. Project	113	105	99	117	138	128
Investigator Initiated Clinical Trial	24	20	21	21	16	13
Clinical Trial Site Activity*	423	497	591	726	827	732
RES. - Career, Instructional, Non-Faculty, and Training	6	7	10	11	12	10
OSA	129	129	135	129	155	122

*Prior to FY 13, this category included only projects under FDA review for IND / IDE. FY 13 and after, it includes all Clinical Trial Site Activity.

Industry Awards by Department

	Award Count				Awards (\$ Millions)			
	2016	2017	2018 YTD	2013-2017	2016	2017	2018 YTD	2013-2017
Basic Science Departments								
Biological Chemistry	0	0	0		0.00	0.00	0.00	
Cell and Developmental Biology	0	1	0		0.00	0.07	0.00	
DCMB	1	3	2		0.23	0.84	0.70	
Human Genetics	1	0	2		0.00	0.00	0.18	
Microbiology and Immunology	7	5	3		0.38	0.25	0.08	
Molec & Integrative Physiology	2	4	3		0.03	1.08	1.40	
Pharmacology	1	3	3		0.07	0.43	0.62	
Clinical Departments								
Anesthesiology	2	3	1		0.30	2.41	0.10	
Cardiac Surgery	46	50	43		2.95	3.38	2.83	
Dermatology	13	15	11		1.05	0.95	0.81	
Emergency Medicine	1	4	2		0.05	0.26	0.18	
Family Medicine	1	0	0		0.06	0.00	0.00	
Internal Medicine	625	731	665		50.82	60.15	62.61	
Neurology	43	39	37		5.05	4.26	3.45	
Neurosurgery	7	8	5		0.25	0.49	0.08	
Obstetrics/Gynecology	3	4	3		0.25	0.30	0.29	
Ophthalmology	26	21	25		1.20	1.38	1.94	
Orthopaedics	4	10	7		0.16	0.59	0.25	
Otolaryngology	12	16	12		1.09	1.31	1.08	
Pathology	16	12	11		2.85	1.44	1.64	
Pediatrics	77	94	92		3.37	4.50	5.51	
Physical Medicine and Rehab	0	1	0		0.00	0.04	0.00	
Psychiatry	8	7	2		0.59	0.90	0.27	
Radiation Oncology	16	13	7		2.46	0.85	0.38	
Radiology	20	17	11		1.47	1.46	1.34	
Surgery	37	46	26		6.34	8.63	2.46	
Urology	10	15	13		1.31	2.28	1.07	
Other Med School Departments								
Cancer Center	17	14	4		1.01	0.80	0.35	
Department of Learning Health	0	1	1		0.00	0.23	0.23	
Division of Anatomical Science	1	1	2		0.31	0.31	0.94	
MBNI	1	3	1		0.03	0.20	0.01	
Research Oversight Units								
BRCF Roll-Up	2	3	5		0.12	0.12	0.49	
Ctr for History of Medicine	0	0	0		0.00	0.00	0.00	
MI Nanotechnology Institute	0	0	0		0.00	0.00	0.00	
MICHR Roll-up	1	0	0		0.00	0.00	0.00	
ULAM	1	2	2		0.02	0.07	0.01	
Med. Sch. Total (Incl. MSA, Other)	1,004	1,148	1,005		83.88	100.11	91.56	

Top 15 Industry Sponsors by Award \$

Top 15 Industry Sponsors (Directly from the Sponsor) - FY 2018 YTD

Sponsor Name	Awarded Project \$	# of Awards	Average Bud \$ / Award
Genentech, Inc.	\$ 5,538,482	44	\$ 125,875
Bristol-Myers Squibb Company	\$ 5,430,010	41	\$ 132,439
Merck Sharp and Dohme Research Laboratories	\$ 4,846,514	17	\$ 285,089
AbbVie Inc	\$ 3,963,585	29	\$ 136,675
Incyte Pharmaceuticals, Inc.	\$ 2,479,870	28	\$ 88,567
Astellas Pharma US, Inc.	\$ 2,462,076	9	\$ 273,564
Medtronic, Inc.	\$ 2,336,520	30	\$ 77,884
Novartis	\$ 1,899,075	31	\$ 61,260
Pfizer	\$ 1,803,471	21	\$ 85,880
Novo Nordisk A/S	\$ 1,802,054	9	\$ 200,228
Medimmune, Inc.	\$ 1,683,746	9	\$ 187,083
Pfizer, Inc.	\$ 1,592,998	17	\$ 93,706
Merck, Inc	\$ 1,519,068	11	\$ 138,097
Merck and Company, Inc.	\$ 1,430,606	11	\$ 130,055
Janssen Research and Development, LLC	\$ 1,288,630	16	\$ 80,539

Top 15 Industry Sponsors (Intermediate Company) - FY 2018 YTD

Sponsor Name	Awarded Project \$	# of Awards	Average Bud \$ / Award
Covance Inc.	\$ 2,730,183	24	\$ 113,758
INC Research	\$ 2,349,264	18	\$ 130,515
Quintiles, Inc	\$ 2,134,370	38	\$ 56,168
PPD, Inc.	\$ 1,465,187	24	\$ 61,049
NephCure Foundation	\$ 1,139,974	1	\$ 1,139,974
PRA Health Sciences	\$ 1,087,729	22	\$ 49,442
ICON Clinical Research, Inc.	\$ 1,061,026	17	\$ 62,413
inVentiv Health	\$ 991,451	9	\$ 110,161
Pharmaceutical Research Associates, Inc.	\$ 864,347	6	\$ 144,058
PPD Investigator Services, LLC	\$ 836,766	8	\$ 104,596
Medpace, Inc	\$ 775,580	10	\$ 77,558
Chiltern International, Inc	\$ 725,474	7	\$ 103,639
Huntington Study Group (HSG)	\$ 704,694	2	\$ 352,347
Parexel International Corporation	\$ 702,442	9	\$ 78,049
Parexel International, LLC	\$ 453,586	8	\$ 56,698

Technology Transfer Metrics

Technology Transfer Metrics (Medical School Only; Effective FY 2018 Q1)

	University Fiscal Year					
	2013	2014	2015*	2016**	2017	2018 YTD
Royalties/Equity Sales (\$M)	11.1	11.3	74.8	19.4	9.2	2.0
Invention Reports	133	133	166	169	175	53
U.S. Patent Appl. (all-new)	44	45	52	47	51	11
U.S. Patents Issued	41	39	53	43	44	13
License/Option Agreements	40	60	74	82	84	49
Invention Reports in Agreements	54	93	75	84	92	52
New Business Startups	2	1	10	5	5	1

*The increased Royalties/Equity Sales amount in FY 2015 is largely the result of the monetization agreement of the Genzyme license

**The increased FY2016 Royalties/Equity Sales is largely due to the receipt of a one-time St Jude settlement (about \$10M)