

Table 1: Summary statistics for selected variables

	All trials		US trials	
	Mean	Observations	Mean	Observations
Uses biomarker	0.4092	131,971	0.4619	49,540
Generous PPM	0.0643	131,971	0.0907	49,540
Restrictive PPM	0.0581	131,971	0.0813	49,540
Biomarker role: disease	0.0842	131,971	0.1145	49,540
Biomarker role: toxic effect	0.0496	131,971	0.0699	49,540
Biomarker role: therapeutic effect	0.3371	131,971	0.3758	49,540
Biomarker role: not determined	0.0023	131,971	0.0024	49,540
Biomarker type: anthropomorphic	0.0350	131,971	0.0400	49,540
Biomarker type: biochemical	0.1248	131,971	0.1300	49,540
Biomarker type: cellular	0.0308	131,971	0.0424	49,540
Biomarker type: genomic	0.2321	131,971	0.2845	49,540
Biomarker type: physiological	0.0849	131,971	0.0865	49,540
Biomarker type: proteomic	0.2426	131,971	0.2942	49,540
Biomarker type: structural (imaging)	0.0177	131,971	0.0200	49,540
Biomarker role (detailed): diagnosis	0.2948	117,180	0.3448	43,777
Biomarker role (detailed): differential diagnosis	0.1829	117,180	0.2041	43,777
Biomarker role (detailed): predicting drug resistance	0.0624	117,180	0.0778	43,777
Biomarker role (detailed): predicting treatment efficacy	0.2568	117,180	0.3060	43,777
Biomarker role (detailed): predicting treatment toxicity	0.0474	117,180	0.0493	43,777
Biomarker role (detailed): screening	0.0523	117,180	0.0547	43,777
Biomarker role (detailed): selection for therapy	0.0938	117,180	0.1111	43,777
Phase 1 Clinical	0.3305	131,971	0.3653	49,540
Phase 2 Clinical	0.4367	131,971	0.4263	49,540
Phase 3 Clinical	0.2328	131,971	0.2083	49,540
Drug indication for neoplasm	0.3340	131,971	0.3990	49,540
Received NIH funding	0.0282	131,971	0.0703	49,540
Trial site in US	0.4368	113,410	1.0000	49,540
N	131,971		49,540	

../figures/01a-trial\_count\_by\_phase.eps../figures/01b - trial\_growth\_by\_phase.eps../figures/02a - biomarker\_count\_by\_phase.eps

Table 2: Number of trials employing biomarkers by type

	Any biomarker	Anthropomorphic	Biochemical	Cellular	Genomic	Physiological	Pro
Overall	53,998	4,620	16,472	4,070	30,634	11,205	32
1995	105	4	29	1	59	22	
1996	131	5	34	6	77	16	
1997	193	10	62	8	119	24	
1998	288	12	74	6	165	58	
1999	448	16	119	22	292	68	
2000	542	33	149	28	349	83	
2001	645	36	190	38	406	94	
2002	869	53	263	36	558	135	
2003	1,085	80	358	51	698	156	
2004	1,524	126	469	68	950	216	
2005	1,928	135	580	118	1,157	314	1
2006	2,280	178	737	138	1,379	377	1
2007	2,718	220	831	207	1,687	437	1
2008	3,005	252	970	245	1,813	548	1
2009	3,492	288	1,137	251	2,157	627	2
2010	3,916	334	1,239	304	2,333	740	2
2011	4,228	366	1,353	357	2,525	828	2
2012	4,517	408	1,463	406	2,566	994	2
2013	4,681	439	1,446	382	2,544	1,104	2
2014	5,099	518	1,576	434	2,647	1,310	2
2015	5,857	546	1,610	438	2,944	1,499	3
2016	6,447	561	1,783	526	3,209	1,555	3

Table 3: Number of trials employing biomarkers by detailed role

	Any biomarker	Diagnosis	Differential Diagnosis	Predicting drug resistance	Predicting treatment efficacy	Predicting treatment toxicity	Screening	Sele for ther
Overall	39,207	34,545	21,429	7,312	30,091	5,556	6,133	10,
1995	105	68	45	7	62	8	8	1
1996	131	88	49	22	81	14	14	1
1997	193	130	83	38	122	31	39	3
1998	288	210	137	66	199	53	42	6
1999	448	341	201	76	310	85	57	9
2000	542	369	233	88	343	78	59	1
2001	645	458	275	121	421	85	81	1
2002	869	624	395	151	578	122	109	2
2003	1,085	764	487	174	691	157	132	2
2004	1,524	1,051	675	240	954	224	190	3
2005	1,928	1,306	799	286	1,189	263	239	4
2006	2,280	1,575	1,004	370	1,396	308	291	5
2007	2,718	1,882	1,215	444	1,693	369	332	6
2008	3,005	2,046	1,360	496	1,832	430	362	6
2009	3,492	2,352	1,578	649	2,145	504	482	8
2010	3,916	2,539	1,540	581	2,210	343	444	7
2011	4,228	2,738	1,698	582	2,379	376	502	8
2012	4,517	2,909	1,780	574	2,494	376	462	9
2013	4,681	2,932	1,778	609	2,530	396	500	9
2014	5,099	3,071	1,809	548	2,552	409	519	9
2015	5,857	3,355	2,005	574	2,816	427	589	1,0
2016	6,447	3,737	2,283	616	3,094	498	680	1,

Table 4: Potential precision medicine trials (1995-2016): Generous precision medicine definition

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II t
1995	12	1.39	4	1.2	2	.63
1996	25	2.58	6	1.77	10	2.5
1997	37	2.8	11	2.44	16	3.1
1998	56	3.29	10	1.72	31	4.4
1999	75	3.12	26	3.03	37	3.9
2000	95	3.62	27	3.03	48	4.5
2001	114	3.81	41	4.13	50	4.0
2002	144	3.87	46	3.99	70	4.4
2003	166	3.96	45	3.55	85	4.8
2004	234	4.49	68	4.48	126	5.6
2005	263	4.1	67	3.63	143	5.0
2006	299	4.17	74	3.44	167	5.4
2007	407	5.39	109	4.62	231	6.9
2008	408	5.09	116	4.34	229	6.6
2009	563	6.63	178	5.95	300	8.2
2010	563	6.44	185	5.97	311	8.5
2011	642	7.14	214	6.88	361	9.3
2012	699	7.54	231	7.6	381	9.1
2013	781	8.55	257	8.44	396	9.8
2014	836	8.85	337	9.95	388	9.4
2015	1,009	9.55	368	10.5	482	9.8
2016	1,057	8.69	417	10.3	501	8.4

Table 5: Potential precision medicine trials (1995-2016): Restrictive precision medicine definition

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II trials (%)
1995	9	1.04	3	.898	2	.63
1996	23	2.37	5	1.47	9	2.2
1997	34	2.57	9	2	15	2.9
1998	53	3.11	9	1.55	30	4.2
1999	70	2.91	23	2.68	35	3.7
2000	90	3.43	25	2.8	46	4.3
2001	105	3.51	36	3.63	46	3.7
2002	133	3.58	41	3.56	66	4.2
2003	152	3.63	37	2.92	80	4.5
2004	212	4.06	60	3.95	112	5.0
2005	240	3.75	58	3.14	131	4.6
2006	275	3.83	64	2.98	156	5.0
2007	370	4.9	89	3.78	218	6.5
2008	380	4.74	104	3.89	217	6.3
2009	502	5.91	148	4.95	274	7.5
2010	514	5.88	165	5.33	285	7.8
2011	592	6.58	188	6.04	343	8.8
2012	645	6.96	209	6.88	355	8.5
2013	720	7.88	231	7.59	369	9.1
2014	748	7.92	306	9.03	343	8.3
2015	883	8.35	322	9.21	417	8.5
2016	914	7.52	346	8.56	442	7.4

Table 6: Potential precision medicine trials (1995-2016): Generous precision medicine definition for drugs with cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	8	2.33	3	2.38	2	1.4
1996	24	5.3	6	3.57	10	5.2
1997	34	5.81	11	4.89	13	5.1
1998	54	6.26	10	3.15	30	7.5
1999	67	6.41	21	5.34	35	7.2
2000	86	6.62	24	4.75	45	7.5
2001	104	7.74	39	7.39	45	7.2
2002	137	8.78	44	7.76	68	8.6
2003	142	8.53	34	5.72	80	9.4
2004	204	10.2	61	8.93	113	10.
2005	226	9.89	55	6.67	130	10.
2006	261	10.7	64	7.62	154	11.
2007	363	14.2	87	9.61	217	16.
2008	368	14.2	98	10.2	221	16.
2009	504	17.9	162	14.4	272	19.
2010	509	18	164	14.6	289	20.
2011	572	19.8	189	16.7	332	22.
2012	620	21.5	211	18.9	341	23.
2013	678	24.7	225	21.5	356	25.
2014	713	26.5	296	25.6	332	26.
2015	854	29.6	319	27	410	30.
2016	899	27.1	375	27	410	26.

Table 7: Potential precision medicine trials (1995-2016): Restrictive precision medicine definition for drugs with cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	8	2.33	3	2.38	2	1.4
1996	22	4.86	5	2.98	9	4.6
1997	31	5.3	9	4	12	4.7
1998	52	6.03	9	2.84	29	7.2
1999	64	6.12	20	5.09	33	6.8
2000	83	6.39	22	4.36	44	7.4
2001	100	7.45	35	6.63	45	7.2
2002	129	8.27	41	7.23	65	8.3
2003	132	7.93	29	4.88	76	8.9
2004	190	9.52	56	8.2	104	9.6
2005	213	9.32	50	6.07	122	10.
2006	249	10.2	59	7.02	147	11.
2007	340	13.3	77	8.51	207	15.
2008	352	13.6	91	9.48	212	15.
2009	464	16.5	138	12.3	256	18.
2010	479	17	155	13.8	270	19.
2011	544	18.9	172	15.2	323	21.
2012	598	20.7	200	18	332	22.
2013	652	23.8	211	20.2	347	25.
2014	673	25	278	24.1	311	25.
2015	790	27.3	291	24.7	378	28.
2016	820	24.7	326	23.5	383	24.

Table 8: Potential precision medicine trials (1995-2016): Generous precision medicine definition for drugs without cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	4	.765	1	.481	0	0
1996	1	.193	0	0	0	0
1997	3	.407	0	0	3	1.1
1998	2	.238	0	0	1	.33
1999	8	.587	5	1.08	2	.43
2000	9	.679	3	.775	3	.65
2001	10	.606	2	.43	5	.81
2002	7	.324	2	.342	2	.25
2003	24	.95	11	1.63	5	.54
2004	30	.932	7	.837	13	1.1
2005	37	.898	12	1.18	13	.80
2006	38	.802	10	.763	13	.72
2007	44	.88	22	1.52	14	.71
2008	40	.738	18	1.05	8	.38
2009	59	1.04	16	.857	28	1.2
2010	54	.913	21	1.07	22	.98
2011	70	1.15	25	1.26	29	1.2
2012	79	1.24	20	1.04	40	1.4
2013	103	1.61	32	1.6	40	1.5
2014	123	1.82	41	1.84	56	1.9
2015	155	2.02	49	2.11	72	2.0
2016	158	1.79	42	1.58	91	2.0



Table 9: Potential precision medicine trials (1995-2016): Restrictive precision medicine definition for drugs without cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	1	.191	0	0	0	0
1996	1	.193	0	0	0	0
1997	3	.407	0	0	3	1.1
1998	1	.119	0	0	1	.33
1999	6	.441	3	.645	2	.43
2000	7	.528	3	.775	2	.43
2001	5	.303	1	.215	1	.16
2002	4	.185	0	0	1	.12
2003	20	.792	8	1.19	4	.43
2004	22	.683	4	.478	8	.69
2005	27	.655	8	.784	9	.55
2006	26	.549	5	.382	9	.50
2007	30	.6	12	.826	11	.55
2008	28	.516	13	.76	5	.23
2009	38	.669	10	.535	18	.79
2010	35	.592	10	.507	15	.66
2011	48	.785	16	.808	20	.83
2012	47	.737	9	.467	23	.85
2013	68	1.06	20	1	22	.83
2014	75	1.11	28	1.25	32	1.1
2015	93	1.21	31	1.34	39	1.1
2016	94	1.06	20	.754	59	1.3

Table 10: Potential precision medicine trials (1995-2016): Generous precision medicine definition for trials located in US

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II trials (%)
1995	10	3.8	4	4.08	2	1.8
1996	18	4.9	4	3.25	9	5.7
1997	24	4.41	10	5.1	10	4.4
1998	39	5.66	6	2.7	27	7.8
1999	52	4.2	21	4.64	26	5.0
2000	63	5.84	18	5.22	36	7.4
2001	68	5.68	26	6.91	32	5.7
2002	91	6.12	34	7.98	42	6
2003	104	5.95	30	5.84	57	7.1
2004	130	5.86	40	5.99	74	7.4
2005	135	5.16	36	4.58	75	6.3
2006	177	6.03	57	6	96	7.4
2007	230	7.52	73	6.94	131	9.8
2008	221	6.77	71	6.05	125	8.7
2009	303	9.26	113	9.11	145	10.
2010	285	8.89	120	9.3	132	10.
2011	322	9.9	135	10.3	157	12
2012	336	10.7	144	12	153	11.
2013	418	12.9	171	13.2	178	13.
2014	445	12.8	222	15.1	170	12.
2015	530	14.5	236	16.2	211	14.
2016	491	13.7	228	15.8	207	13.

Table 11: Potential precision medicine trials (1995-2016): Restrictive precision medicine definition for trials located in US

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II trials (%)
1995	9	3.42	3	3.06	2	1.8
1996	16	4.36	3	2.44	8	5.1
1997	22	4.04	9	4.59	9	3.9
1998	37	5.37	5	2.25	26	7.6
1999	47	3.79	18	3.97	24	4.6
2000	58	5.38	16	4.64	34	7
2001	64	5.35	23	6.12	31	5.5
2002	85	5.72	31	7.28	40	5.7
2003	94	5.37	24	4.67	53	6.6
2004	120	5.41	35	5.24	69	6.9
2005	120	4.59	30	3.82	68	5.7
2006	156	5.31	49	5.16	85	6.6
2007	208	6.8	60	5.7	123	9.2
2008	206	6.31	64	5.45	118	8.3
2009	264	8.07	93	7.49	130	9.1
2010	262	8.17	111	8.6	119	9.2
2011	298	9.16	121	9.24	150	11.
2012	304	9.68	128	10.6	140	10.
2013	383	11.8	156	12	164	12.
2014	393	11.3	200	13.6	146	10.
2015	465	12.7	212	14.5	179	12
2016	415	11.6	197	13.6	170	11.

Table 12: Potential precision medicine trials (1995-2016): Generous precision medicine definition for trials located outside US

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II t
1995	1	.625	0	0	0	0
1996	4	2.34	1	2.86	0	0
1997	7	2.72	0	0	3	3.9
1998	12	4.15	2	3.51	2	2.2
1999	13	3.64	2	2.63	4	3.3
2000	16	3.33	3	2.78	6	3.4
2001	29	4.26	8	5.19	9	3.5
2002	34	3.63	4	2.03	18	4.8
2003	49	4.03	13	4.85	20	4.0
2004	81	4.56	18	5.68	41	5.1
2005	106	4.23	26	5.12	53	4.6
2006	103	3.33	14	2.14	58	4.0
2007	152	4.41	28	3.62	85	5.2
2008	169	4.4	37	3.65	96	5.5
2009	237	5.35	59	4.52	143	7.2
2010	265	5.44	63	4.46	174	7.9
2011	296	5.85	68	4.69	191	8.1
2012	340	6.25	78	5.18	218	8.3
2013	347	6.4	82	5.2	207	8.2
2014	367	6.68	109	6.4	202	7.8
2015	445	7.03	115	6.31	260	8.3
2016	501	6.58	171	7.52	259	6.5

Table 13: Potential precision medicine trials (1995-2016): Restrictive precision medicine definition for trials located outside US

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II trials (%)
1995	0	0	0	0	0	0
1996	4	2.34	1	2.86	0	0
1997	7	2.72	0	0	3	3.9
1998	11	3.81	2	3.51	2	2.2
1999	13	3.64	2	2.63	4	3.3
2000	16	3.33	3	2.78	6	3.4
2001	26	3.82	6	3.9	8	3.1
2002	31	3.31	4	2.03	16	4.2
2003	46	3.78	12	4.48	19	3.8
2004	71	4	16	5.05	33	4.1
2005	99	3.95	23	4.53	49	4.3
2006	101	3.26	13	1.99	58	4.0
2007	139	4.03	21	2.72	81	4.9
2008	157	4.09	32	3.16	91	5.2
2009	217	4.9	50	3.83	133	6.7
2010	241	4.95	54	3.82	161	7.3
2011	273	5.4	58	4	181	7.7
2012	322	5.92	74	4.91	206	7.9
2013	321	5.92	71	4.51	194	7.7
2014	334	6.08	101	5.93	183	7.0
2015	388	6.13	95	5.21	228	7.2
2016	442	5.81	136	5.98	239	6.0

Table 14: Share of trials receiving NIH funding: Generous precision medicine definition

	(1) Phase I: All	(2) Phase II: All	(3) Phase III: All	(4) Phase I: Generous PPM	(5) Phase II: Generous PPM	(6) Phase III: Generous PP
Share funded (%)						
1995	2.10	5.99	3.26	0.00	100.00	0.00
1996	3.54	4.81	3.39	0.00	10.00	11.11
1997	5.56	8.02	3.05	9.09	6.25	0.00
1998	5.34	6.00	1.89	0.00	19.35	6.67
1999	4.08	6.93	2.95	15.38	8.11	0.00
2000	7.29	6.10	2.64	7.41	10.42	10.00
2001	4.73	5.67	3.27	14.63	12.00	0.00
2002	3.91	4.97	2.51	15.22	12.86	3.57
2003	5.13	4.14	2.07	6.67	5.88	2.78
2004	4.08	5.81	1.15	16.18	7.94	2.50
2005	4.34	4.94	1.60	4.48	9.79	3.77
2006	4.05	4.75	0.98	12.16	9.58	1.72
2007	3.22	3.73	0.75	7.34	9.96	0.00
2008	3.29	3.62	0.88	17.24	10.92	4.76
2009	3.54	3.18	0.81	8.43	6.00	0.00
2010	2.74	2.47	0.75	11.35	4.82	1.49
2011	1.96	2.43	0.69	5.14	5.26	0.00
2012	2.07	2.04	0.24	5.63	4.46	0.00
2013	2.66	2.81	0.34	5.84	7.32	0.78
2014	3.13	2.25	0.52	5.04	3.87	0.00
2015	2.63	2.48	0.82	6.52	6.64	0.63
2016	2.67	1.85	0.64	6.47	4.79	0.00
<i>N</i>	43615	57636	30720	2837	4365	1283

Table 15: Number of US trials employing biomarkers by type

	Any biomarker	Anthropomorphic	Biochemical	Cellular	Genomic	Physiological	Pro
Overall	22,881	1,981	6,442	2,102	14,093	4,284	14
1995	54	2	11	0	30	11	
1996	76	4	14	5	45	7	
1997	103	4	26	4	66	11	
1998	139	6	35	2	94	15	
1999	261	8	54	18	192	17	
2000	293	23	74	16	211	36	
2001	328	18	82	22	235	38	
2002	472	29	131	17	327	60	
2003	551	45	167	30	362	74	
2004	762	63	208	40	491	88	
2005	940	73	280	73	601	147	
2006	1,090	83	332	82	703	175	
2007	1,260	118	362	122	847	177	
2008	1,414	129	461	145	896	227	
2009	1,531	134	482	141	995	260	
2010	1,721	165	510	189	1,075	308	
2011	1,811	151	552	176	1,171	342	
2012	1,809	172	563	211	1,081	409	
2013	1,917	180	565	210	1,121	441	
2014	2,070	207	574	221	1,158	503	
2015	2,203	207	482	196	1,232	510	
2016	2,076	160	477	182	1,160	428	

Table 16: Number of US trials employing biomarkers by detailed role

	Any biomarker	Diagnosis	Differential Diagnosis	Predicting drug resistance	Predicting treatment efficacy	Predicting treatment toxicity	Screening	Sele for ther
Overall	17,118	15,095	8,936	3,406	13,396	2,158	2,393	4,8
1995	54	35	23	5	33	4	5	8
1996	76	44	22	13	42	4	5	8
1997	103	64	38	20	61	15	19	2
1998	139	95	50	33	91	18	18	2
1999	261	187	86	45	172	26	25	4
2000	293	190	103	37	176	25	22	4
2001	328	221	113	56	207	29	33	6
2002	472	340	196	86	318	61	55	10
2003	551	375	236	100	343	66	68	14
2004	762	518	311	134	480	99	89	17
2005	940	636	380	158	574	109	109	17
2006	1,090	767	459	191	667	121	127	22
2007	1,260	883	529	218	802	135	141	22
2008	1,414	968	626	247	874	178	162	33
2009	1,531	1,077	702	306	984	207	201	40
2010	1,721	1,130	648	274	1,010	143	179	33
2011	1,811	1,205	723	275	1,066	160	197	33
2012	1,809	1,200	711	236	1,051	150	157	33
2013	1,917	1,221	710	274	1,092	160	204	44
2014	2,070	1,295	739	240	1,105	155	188	44
2015	2,203	1,337	774	237	1,142	147	205	44
2016	2,076	1,307	757	221	1,106	146	184	44



Table 17: US potential precision medicine trials (1995-2016): Generous precision medicine definition for drugs with cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	8	6.15	3	5.36	2	4
1996	18	8.57	4	5.19	9	10
1997	23	7.82	10	7.94	9	6.5
1998	38	8.15	6	3.66	26	10.
1999	45	8.09	16	7.55	24	8.5
2000	57	8.78	15	6.1	34	10.
2001	65	10.1	24	10.2	31	9.0
2002	85	12.3	32	12.8	41	10.
2003	91	11.8	22	8.21	56	13.
2004	117	11.8	38	10.9	69	12.
2005	119	11	31	7.33	70	12.
2006	155	13.3	48	10.4	90	14.
2007	201	16.7	56	11.2	125	20.
2008	207	18	65	12.7	120	21.
2009	271	22.2	106	18.3	129	24.
2010	257	21.1	112	18.8	121	23.
2011	290	24.8	125	22	143	27.
2012	293	26.1	132	23.1	132	28.
2013	354	30.8	153	26.8	156	31.
2014	387	31.9	202	30.8	143	30.
2015	453	34.2	212	31.3	180	33.
2016	413	30.9	205	29.5	165	31

Table 18: US potential precision medicine trials (1995-2016): Restrictive precision medicine definition for drugs with cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	8	6.15	3	5.36	2	4
1996	16	7.62	3	3.9	8	8.8
1997	21	7.14	9	7.14	8	5.8
1998	36	7.73	5	3.05	25	9.8
1999	42	7.55	15	7.08	22	7.8
2000	54	8.32	13	5.28	33	10.
2001	63	9.75	22	9.36	31	9.0
2002	81	11.7	31	12.4	39	10.
2003	84	10.9	19	7.09	52	12.
2004	110	11.1	35	10.1	65	11.
2005	111	10.2	28	6.62	65	11.
2006	144	12.4	44	9.54	83	13.
2007	189	15.7	52	10.4	118	19.
2008	198	17.2	62	12.1	114	20.
2009	245	20	89	15.4	120	22.
2010	242	19.9	106	17.8	112	21.
2011	274	23.4	115	20.3	139	27.
2012	279	24.8	123	21.5	128	27.
2013	340	29.6	146	25.6	152	31.
2014	363	30	188	28.7	133	28.
2015	415	31.3	196	29	161	30.
2016	376	28.1	186	26.8	149	28.

Table 19: US potential precision medicine trials (1995-2016): Generous precision medicine definition for drugs without cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	2	1.5	1	2.38	0	0
1996	0	0	0	0	0	0
1997	1	.4	0	0	1	1.1
1998	1	.448	0	0	1	1.1
1999	7	1.02	5	2.07	2	.84
2000	6	1.4	3	3.03	2	1.1
2001	3	.544	2	1.42	1	.45
2002	6	.754	2	1.14	1	.31
2003	13	1.33	8	3.25	1	.26
2004	13	1.06	2	.625	5	1.1
2005	16	1.05	5	1.38	5	.83
2006	22	1.24	9	1.84	6	.89
2007	29	1.56	17	3.07	6	.81
2008	14	.662	6	.906	5	.57
2009	32	1.56	7	1.06	16	1.8
2010	28	1.41	8	1.15	11	1.4
2011	32	1.54	10	1.35	14	1.7
2012	43	2.13	12	1.9	21	2.4
2013	64	3.05	18	2.48	22	2.6
2014	58	2.57	20	2.45	27	3.0
2015	77	3.3	24	3.07	31	3.2
2016	78	3.46	23	3.07	42	4.2

Table 20: US potential precision medicine trials (1995-2016): Restrictive precision medicine definition for drugs without cancer indications

	(1) PPM Trials: All	(2) Share of trials (%)	(3) PPM Trials: Phase I	(4) Share of Phase I trials (%)	(5) PPM Trials: Phase II	(6) Share Phase II tr
1995	1	.752	0	0	0	0
1996	0	0	0	0	0	0
1997	1	.4	0	0	1	1.1
1998	1	.448	0	0	1	1.1
1999	5	.732	3	1.24	2	.84
2000	4	.93	3	3.03	1	.59
2001	1	.181	1	.709	0	0
2002	4	.503	0	0	1	.31
2003	10	1.03	5	2.03	1	.26
2004	10	.812	0	0	4	.89
2005	9	.589	2	.551	3	.49
2006	12	.678	5	1.02	2	.29
2007	19	1.02	8	1.45	5	.68
2008	8	.378	2	.302	4	.46
2009	19	.928	4	.603	10	1.1
2010	20	1.01	5	.719	7	.91
2011	24	1.15	6	.809	11	1.3
2012	25	1.24	5	.794	12	1.4
2013	43	2.05	10	1.38	12	1.4
2014	30	1.33	12	1.47	13	1.4
2015	50	2.14	16	2.04	18	1.9
2016	39	1.73	11	1.47	21	2.1