What guides research investments in translational sciences?

The case for pharmaceuticals in metastatic cancers

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ABSTRACT

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Background: Understanding strategies that would optimize the impact of biomedical research is important. Prior research has not distinguished between strategizing investments in basic research versus translational research.

Methods: Population-based information on research investments and disease burden in the United States were obtained from publicly available resources such as SEER, National Cancer Statistics Reports and ClinicalTrials.gov. Graphical associations were studied between research investments in translational clinical trials with pharmaceutical drugs for six metastatic cancer sites, approved during 2008 through 2013, and BI-metrics such as 2008 cancer-site specific years-of-life lost (YLL) and historical (2002-2008) and prospective (2008 – 2014) changes in YLL. Associations were explored by study sponsors and by comparative effectiveness trials that include active comparators.

Results: Translational research investments were found to be positively associated with anticipated returns based on prospective changes in YLL but negatively associated with the baseline YLL or historical changes in YLL. One exception was non-small cell lung cancer, where the burden was big enough to dominate investments irrespective of returns. Similar patterns in investments were found for both NIH and industry. For trials involving active-comparators or comparative effectiveness trials, positive investment patterns following prospective returns in YLL were found to be more prominent for NIH compared to industry, where incentives for industry are ambiguous.

Conclusions and Relevance: Investments in translational research in metastatic cancers, especially in NIH, appeared to follow prospective changes in YLL rather than YLL themselves. This is line with the theories of investment decision-making under uncertainty. Developing and using quantitative measures such as expected value of information metrics can further help guide these decisions and create a more productive dialogue on research investments across stakeholders.

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INTRODUCTION

Throughout much of the world, health has improved tremendously, and almost continuously, over time. Biomedical research has played a major role in these advances in health. That these improvements in health are important goes almost without saying, but a recent body of work, drawing on economic estimates of the value of life, have shown that these advances are about as important to increasing welfare over this period as increases in per capita income.[1] This has led to increases in research spending and to recognition that we may still spend less on biomedical research than is optimal given its benefits.

Further increases in spending will not however circumvent the question of how to best allocate that spending. Choices need to be made between basic research and clinical research, between different diseases, between different target outcomes within diseases, and so on. Criteria to make these choices may also vary among stakeholders. Governmental agencies and researchers have consistently put forward the 'burden of illness' (BI) criterion as a means to assess the need for investing in research. Originating in the early 1960's and the 1970's and pioneered by the director of the National Center for Health Statistics at that time, Dororthy Rice, BI studies aim

to quantify the impact of diseases on patients' lives compared to a healthy population.[2,3] Later, these methods were adopted by the World Bank to establish the World Development Report.[4] Although several enhancements to the methodology of BI studies have been made over the years, the most commonly used metric for BI studies still remains to be years of life lost (YLL), both as a population aggregate and on a per patient basis, due to a disease. In 1998, the Institute of Medicine, on the request of the Congress, evaluated priority-setting criteria for NIH funding and recommended greater consideration of disease burden.[5] Analyses of data from 2006 revealed that, on average, NIH investment levels were positively associated with disease burden.[6]

Research investments, however, have typically been lumped together, without a distinction between research that develops innovations (basic sciences) versus research that understands how an innovation, already developed, can best be used in a population (clinical or translational sciences). This distinction is important because, while it could be readily argued, and as Congress has argued in the past,[5] that research investments to develop an innovation should follow population burden of illnesses, research investments in translational sciences must account for incremental returns to

such investments, which may not be perfectly aligned with population BI. For example, an innovation in diabetes, which has a large population BI may produce small incremental changes in the level of BI.

In this work, we explore the hypothesis that research investments in translational sciences follow anticipated returns of investment in the form of changes in BI, rather than absolute levels of BI. Moreover we study whether, these anticipated returns were based on retrospective changes in BI experienced or future changes in BI expected in the population. In addition, we explore whether such associations, or lack of associations, are driven by outlier diseases that dominate in the form of burden of disease.

We set out to understand these associations in the context of metastatic cancers. Cancer is still one of the leading causes of death, second only to heart disease. It is reasonable to infer that more people will live with and die from cancer in the future because of ageing population.[7, 8] Compared to the death rate in 2010, the age-adjusted mortality rate of cancer decreased by 2.4 percent in 2011.[9] However, substantial heterogeneity in the mortality rates across specific types of cancer exists.[7]

We examine research investments in pharmaceutical drugs, newly approved

for these cancers. We quantify investments with the number of clinical trials started that were not used in the approval process of these drugs. Additionally, we also explore whether these patterns of investments are similar between NIH and industry. Lastly, we discuss how systematic tools such as value of information analysis can help guide these investments for better alignment with patient welfare.

METHODS

To investigate the relationship between disease burden and the amount of investment, we estimated years of life lost (YLL) and changes in these estimates over the last decade and counted the number of clinical trials involving newly approved pharmaceutical drugs for different cancer sites. We focused on 6 cancers sites, thyroid, melanoma, prostate, breast, colon and lung, which are responsible for over 80% of the estimated number of prevalent cases of metastatic disease in the United States.[10,11]

YLL represents a better metric of burden compared to number of deaths, which has been widely reported in the cancer literature, as it naturally gives more weight to deaths occurring at younger ages.[12] To our knowledge, this is the first study that associates investments in clinical trials to burden of illness across specific cancer

sites. We explored differences in patterns of investments by private versus public investors and among trials that had an active comparator. Our analyses sheds light on the merit of using BI-type analyses for allocating research resources based on current allocations.

Years of Life Lost (YLL)

We only focused on the adult population, 20 years and older. YLL for each cancer was estimated separately for 2002, 2008 and 2014. Specifically, we obtained estimates of the total number of cancer-specific deaths in 2002,[13] 2008,[14] and 2014[15] reported in the literature. We then distributed the total number from each year using the same age-gender specific distribution of cancer deaths as reported in the SEER Cancer Statistics Review. We applied 2002-2006 SEER- estimates[16] for 2002 YLL and 2006-2010 SEER estimates[17] for both 2008 and 2014 YLL, in the absence of any newer data. Finally, we calculate YLL by aggregating age-gender specific life expectancy in the general population weighted by the number of age-gender specific deaths for each cancer. We used the 2002 life table[18] for calculating 2002 YLL and the latest available 2009 life table for the 2008 and 2014 YLL.[19] We calculated 6-year changes to YLL from 2002 to 2008 and from 2008 to 2014.

Investments in clinical trials evaluating pharmaceutical products for metastatic cancers

Since cancer deaths occur in patients with metastatic cancer (barring some misclassification in death records), and chemotherapies are some of the most widely used treatment during metastatic cancer, we focused our attention on drugs that were approved for metastatic cancer during the six years from 2008 through the end of 2013. Focusing on this period allowed us to associate these investments with the baseline YLL in 2008 but also changes before and after 2008 as discussed above. For each drug approved during 2008-2013 for treating metastatic cancer in any of the six cancer sites, we obtain the total number of clinical trials (randomized or single-arm) (funded by NIH, Private or other sources) from ClinicalTrials.gov, a public clinical trials registry. The inclusion criteria for selecting trials were that their 'received dates' and 'start dates' were before January 1, 2014 and their 'primary completion dates' were after the approval date for the specific drug (i.e., we rule out trials that were used to obtain approval). The definition of first received date is when the summary of a clinical trial was first submitted to ClinicalTrials.gov; start date means the data of enrollment for the first subject; and primary completion date is the date data was

collected from the last subject for the primary outcome. We included trials that were continuing to enroll through the end of 2013. In addition, we excluded a clinical trial if its target population was not the specific metastatic cancer for which the drug was approved; if the study has been withdrawn before enrollment; if it completed before the approval date; and if the primary drug was compared to other non-approved drugs for any indication. If a study compared two drugs that were both approved in the previous five years, and we associated the trial with the latest approved drug.

Erlotinib was not included in this study because its initial approval year for non-small cell lung cancer was in 2004, when it was approved for the patients after failed chemotherapy, although it was approved for first-line treatment of non-small cell lung cancer in 2013. Including erlotinib in the study would over count the number of clinical trials for lung cancer.

We classified the selected trials for each drug by funder types (industry, NIH, or others) and also into those that had any active comparison (e.g. comparative effectiveness trials where comparators include all types of treatments including previously approved drugs and non-drug therapies such as surgery and radiation) versus placebo control or single-arm studies. The definition of industry included any

pharmaceutical or biotechnological company. If the sponsor or collaborator of a clinical trial included both industry and NIH, we counted the trial as being in the industry category. If the sponsors or collaborators are neither industry nor NIH, the trial was categorized to other type of sponsors. Most other type sponsors were academic institutes or medical research centers.

Association of YLL and investment measures

We associated YLL and changes in YLL, as our independent variable, with number of clinical trials, as the dependent variable. We believe that translational clinical trials initiated during 2008-2013 could not have a direct effect on YLL during 2008-2014. Many of these trials were not even complete by the end of 2013. We used graphs to illustrate the association of the number of trials for each cancer site with total YLL and changes in YLL. These associations inform whether research investment decisions followed any of the YLL metrics and, if they did, which metric was most predictive of such investments. We distinguished these associations by CER-specific investments and by funder types.

RESULTS

Years of Life Lost

The number of deaths and the years of life lost by cancer site are reported in **Table 1**. Thyroid cancer had the least number of deaths and YLL while NSCLC had, by far, the most in any given year. However, comparing the 2008 estimates to the 2002 estimates, we found that during this period the number of deaths and YLL decreased only for prostate cancer and colon and rectum cancer. The disease burden slightly increased for all other cancers during this period. In contrast, from 2008 to 2014, deaths and YLL decreased only for breast cancer and NSCLC but increased for others, including prostate and colon and rectum cancers. However, these increases did not offset the gains made during 2002-2008. Especially for prostate cancer, the increase in deaths during 2008-2014 appears to be concentrated among very elderly patients, since the change in YLL per additional death during this period was small compared to the same metric during 2002-2008. **Table 2** and **Table 3** show the estimated number of age-gender specific deaths and YLL in 2014 by cancer site, respectively.

The number of trials

In 6 years, 2008-2013, 17 new drugs were approved for one of the six cancers we are studying.

Three hundred and ninety-five approval-unrelated trials for these drugs were started before the end of 2013 (**Table 4**). Of these, nearly 38% (148/395) were for drugs approved for NSCLC, reflecting the fact that investments in innovation may be following burden of disease. Across all cancer sites, besides NSCLC, less than 50% of the translational trials had active comparators. For NSCLC, the high proportion of active comparator trials was driven by the trials for Alimata injection. Table 4 also shows the number of trials by the type of sponsor. A majority of these translational trials, in all cancer sites except NSCLC, were sponsored by the industry. In NSCLC, other sponsors were quite active. All trials with ClinicalTrials.gov identifier were listed in Appendix A.

Associations

Figure 1 illustrates the association between the total number of cancer-specific trials and the cancer-specific a) difference in YLL in 2008 vs 2002; b) absolute YLL in 2008; and c) difference in YLL in 2014 vs 2008. The associations appeared to be

positive for both the difference in YLL in 2008 vs 2002 and the absolute YLL in 2008. However, the large number of trials in NSCLC drove these positive associations. When NSCLC was excluded, there was a null and a negative association with 2002-2008 difference and absolute 2008 YLL, respectively. In contrast, the number of cancer-specific translational trials was negatively associated with 2008-2014 difference in YLL when all six cancer-sites were included, but a positive association emerges when NSCLC was excluded.

Figure 2 (a) and (b) present very similar relationships between industry-sponsored and NIH-sponsored trials and the burden of illness measures. However, the number of industry–sponsored trials was more dispersed across cancer sites than NIH sponsored trials. The number of industry-sponsored trials in prostate cancer and melanoma were similar to that in NSCLC.

Since investment in these trials appeared to be positively associated with contemporary changes in YLL (2008 to 2014) for most cancers, we looked at the association of the number of trials with active comparators and this metric of BI by sponsor type (Figure 3). Sans NSCLC, overall we found a positive but much weaker association. However, there was a much stronger positive association between the

number of NIH-sponsored active comparator trials and contemporary changes in YLL. This was not the case with industry-sponsored active comparator trials, where the association was slightly negative.

DISCUSSIONS

Allocating scarce resources is a fundamental challenge for any research enterprise. Quantitative metrics are often useful to guide these difficult decisions. The burden of illness measure is one such metric that is used to inform decisions about investment in research, since allocating investments to improve lives of those groups who have the greatest burden seems ethical.[20,21] However, distinction ought to be made between research investments that aim at new innovations versus those that attempt to understand how to best use a developed technology. The latter, some have argued, should be based on the potential for that technology itself rather than the burden in the population to which the technology is applied.[22,23] These discussions are currently ongoing within the National Institutes of Health, as is evident from their recent request for input on strategies for optimizing the impact and sustainability of biomedical research.[24]

In this work, we have shown that research investments on translational clinical trials with newly approved pharmaceutical for metastatic cancer likely follow anticipated returns based on changes in YLL rather than the baseline YLL themselves or historical changes in YLL. One exception is non-small cell lung cancer, where the burden is big enough to dominate investments irrespective of returns. We see similar patterns of investments by both NIH and industry. More importantly, we see that such patterns are more prominent for NIH than industry for trials involving active-comparators or comparative effectiveness trials, where incentives for industry are ambiguous since these trials present manufacturers with the risk of determining that their product is inferior to a competitor's product.[25] NIH, on the other hand, is free to respond to changes in BI without potentially negative financial consequences.

There are some limitations in this study. First, we used lung and bronchus cancer data to estimate YLL for non-small cell lung cancer. Even though 80% of lung cancer belongs to non-small cell lung cancer, the number of deaths and age distribution for non-small cell lung cancer may be different from lung cancer. However, data for lung and bronchus cancer is the best approximation we have for non-small cell lung cancer. Second, we counted the number of clinical trials based on

those that were registered by investigators on ClinicalTrials.gov. We assumed the information on the website is reliable. However, the registry may not be of high quality for each trial, or the investigators may not have updated their study regularly, which would be a source of potential bias for counting the number of trials. Also, our approach may have a censoring issue because we count the number of trials after the drugs were approved until December 2013. The number of clinical trials could be underestimated for several drugs that they were approved in 2013: it could affect the association between burden and investment. However, since melanoma and prostate sites are the ones that would be most affected by such underestimation, our results on the strength of associations are conservative.

To maximize the benefits of research spending, we need tools to determine where research is likely to yield the greatest benefits. Estimates of the benefits of research also serve the added role of documenting the likely value of research we cannot currently fund given the best possible allocation of resources for research. This information may help increase the pool of resources available for research of any type. Determining the value of research is not easy. Indeed, uncertainty is an intrinsic aspect of research, making it impossible to know its final value with certainty.

However, this does not imply that individual research opportunities cannot be valued or prioritized. Indeed, the problem of investing wisely in biomedical research is not unlike the problem faced by investors when they choose to invest in stocks or other business assets in the face of uncertain returns. Thus, the intrinsic uncertainty of research does not preclude rational investment decisions. In health care, we trust these investment decisions to the knowledge, efforts, and wisdom of scientists, policy makers, and business and philanthropic leaders who review research proposals for the public, private philanthropic, and business entities that invest in health-related research. Additionally, developing and using quantitative measures such as expected value of information metrics[26,27] can help guide these decisions and create a more productive dialogue on research investments across stakeholders.

Table 1. Estimated number of deaths and years of life lost (YLL)

Cancers	Deaths				
	2002	2008	2014	Change 2008 - 2002	Change 2014 - 2008
Thyroid Cancer	1300	1590	1890	290	300
Melanoma	7400	8420	9710	1020	1290
Prostate Cancer (Male)	30200	28660	29480	-1540	820
Breast (Female)	39600	40480	40000	880	-480
Colon and Rectum Cancer	56600	49960	50310	-6640	350
Lung and Bronchus Cancer (NSCLC)	154900	161840	159260	6940	-2580
Cancers	YLL (in 10,000 years)				
	2002	2008	2014	Change 2008 - 2002	Change 2014 - 2008
Thyroid Cancer	0.46	0.57	0.68	0.11	0.11
Melanoma	3.39	3.86	4.45	0.47	0.59
Prostate Cancer (Male)	8.64	7.44	7.66	-1.2	0.22
Breast (Female)	18.26	20.83	20.58	2.57	-0.25
Colon and Rectum Cancer	18.42	17.75	17.88	-0.67	0.13
Lung and Bronchus Cancer (NSCLC)	64.64	69.27	68.17	4.63	-1.1

Table 2. Estimated number of deaths by gender and age in 2014

		Age group				
	All	20-45	46-64	65-74	75-84	85+
All						
Thyroid Cancer	1890	62.37	470.61	466.83	557.55	332.64
Melanoma	9710	757.38	3243.14	2087.65	2330.4	1281.72
Prostate Cancer	29480	29.48	2918.52	5896	11084.48	9581
Breast (Female)	40000	2480	14480	8080	8600	6360
Colon and Rectum Cancer	50310	1559.61	13030.29	11017.89	14187.42	10464.48
Lung and Bronchus Cancer (NSCLC)	159260	1911.12	43637.24	48574.3	47937.26	17200.08
Male						
Thyroid Cancer	830	27.39	206.67	205.01	244.85	146.08
Melanoma	6470	504.66	2160.98	1391.05	1552.8	854.04
Prostate Cancer	29480	29.48	2918.52	5896	11084.48	9581
Colon and Rectum Cancer	26270	893.18	7749.65	6488.69	7224.25	3940.5
Lung and Bronchus Cancer (NSCLC)	86930	956.23	24861.98	27209.09	25644.35	8171.42
Female						
Thyroid Cancer	1060	34.98	263.94	261.82	312.7	186.56
Melanoma	3240	252.72	1082.16	696.6	777.6	427.68
Breast (Female)	40000	2480	14480	8080	8600	6360
Colon and Rectum Cancer	24040	697.16	5336.88	4567.6	6947.56	6490.8
Lung and Bronchus Cancer (NSCLC)	72330	940.29	18733.47	21265.02	22277.64	9113.58

Table 3. Years of life lost in 2014 (in 10,000 years)

		Age group				
	All	20-45	46-64	65-74	75-84	85+
All						
Thyroid Cancer	0.681	0.272	1.212	0.727	0.517	0.220
Melanoma	4.447	3.348	8.541	3.250	2.160	0.846
Prostate Cancer	7.655	0.113	6.626	8.412	9.274	5.653
Breast (Female)	20.578	10.938	40.509	13.386	8.485	4.452
Colon and Rectum Cancer	17.876	6.661	33.788	17.151	13.147	6.907
Lung and Bronchus Cancer (NSCLC)	68.171	7.915	111.008	75.614	44.422	11.352
Male						
Thyroid Cancer	0.275	0.114	0.496	0.292	0.205	0.086
Melanoma	2.746	2.120	5.308	1.985	1.299	0.504
Prostate Cancer	7.655	0.113	6.626	8.412	9.274	5.653
Colon and Rectum Cancer	9.916	3.634	18.661	9.257	6.044	2.325
Lung and Bronchus Cancer (NSCLC)	35.791	3.763	58.674	38.818	21.456	4.821
Female						
Thyroid Cancer	0.406	0.160	0.720	0.434	0.309	0.131
Melanoma	1.572	1.168	3.017	1.154	0.767	0.299
Breast (Female)	20.578	10.938	40.509	13.386	8.485	4.452
Colon and Rectum Cancer	8.006	3.126	14.731	7.567	6.855	4.544
Lung and Bronchus Cancer (NSCLC)	31.127	4.070	50.743	35.229	21.981	6.380

Table 4. Number of trials and type of compared group

	Approved Year	Drug	Number of trials		Type of compared group			Type of sponsor (# (%))		
			Screened	Included	Active compared group	Placebo or single arm	Pr(Active)	Industry	NIH	Other
Thyroid				16	1	15	0.06	9 (56.25)	5 (31.25)	2 (12.5)
	2011	vandetanib tablets	106	7	1	6	0.14	6 (85.7)	1 (14.3)	0 (0)
	2012	cabozantinib	58	7	0	7	0	3 (42.9)	3 (42.9)	1 (14.3)
	2013	sorafenib	16	2	0	2	0	0 (0)	1 (50)	1 (50)
Melanoma				92	14	78	0.15	52 (56.52)	9 (9.78)	31 (33.7)
	2011	ipilimumab injection	187	34	7	27	0.21	11 (32.4)	5 (14.7)	18 (52.9)
	2011	vemurafenib tablets	87	35	2	33	0.06	23 (65.7)	0 (0)	12 (34.3)
	2013	trametinib	79	16	5	11	0.31	12 (75)	3 (18.8)	1 (6.3)
	2013	dabrafenib	50	7	0	7	0	6 (85.7)	1 (14.3)	0 (0)
Prostate				75	23	52	0.31	58 (77.33)	5 (6.67)	11 (14.67)
	2008	Degarelix	73	36	10	26	0.28	28 (77.8)	2 (5.6)	6 (16.7)
	2010	Sipuleucel-T	30	11	3	8	0.27	9 (81.8)	1 (9.1)	1 (9.1)
	2012	enzalutamide	63	21	8	13	0.38	14 (66.7)	2 (9.5)	4 (19)
	2013	radium Ra 223 dichloride	23	7	2	5	0.29	7 (100)	0 (0)	0 (0)
Breast				46	13	33	0.28	35 (76.09)	2 (4.35)	9 (19.57)
	2010	eribulin mesylate	83	29	6	23	0.21	23 (79.3)	1 (3.4)	5 (17.2)
	2013	ado-trastuzumab emtansine	41	17	7	10	0.41	12 (70.6)	1 (5.9)	4 (23.5)
Colon				18	3	15	0.17	16 (88.89)	0 (0)	2 (11.11)
	2012	regorafenib	62	18	3	15	0.17	16 (88.9)	0 (0)	2 (11.1)
NSCLC				148	77	71	0.52	61 (41.22)	18 (12.16)	69 (46.62)
	2008	Alimta Injection	343	118	69	49	0.58	38 (32.2)	17 (14.4)	63 (53.4)
	2011	crizotinib	62	11	4	7	0.36	9 (81.8)	1 (9.1)	1 (9.1)
	2013	afatinib	105	19	4	15	0.21	14 (73.7)	0 (0)	5 (26.3)

Figure 1: Relationship between cancer-specific total number of trials initiated through 2013 using oncology drugs approved during 2008-2013 and cancer-specific: (left) difference in years of life lost (YLL) in 2008 vs 2002; (middle) absolute YLL in 2008; and (right) difference in years of life lost (YLL) in 2014 vs 2008.

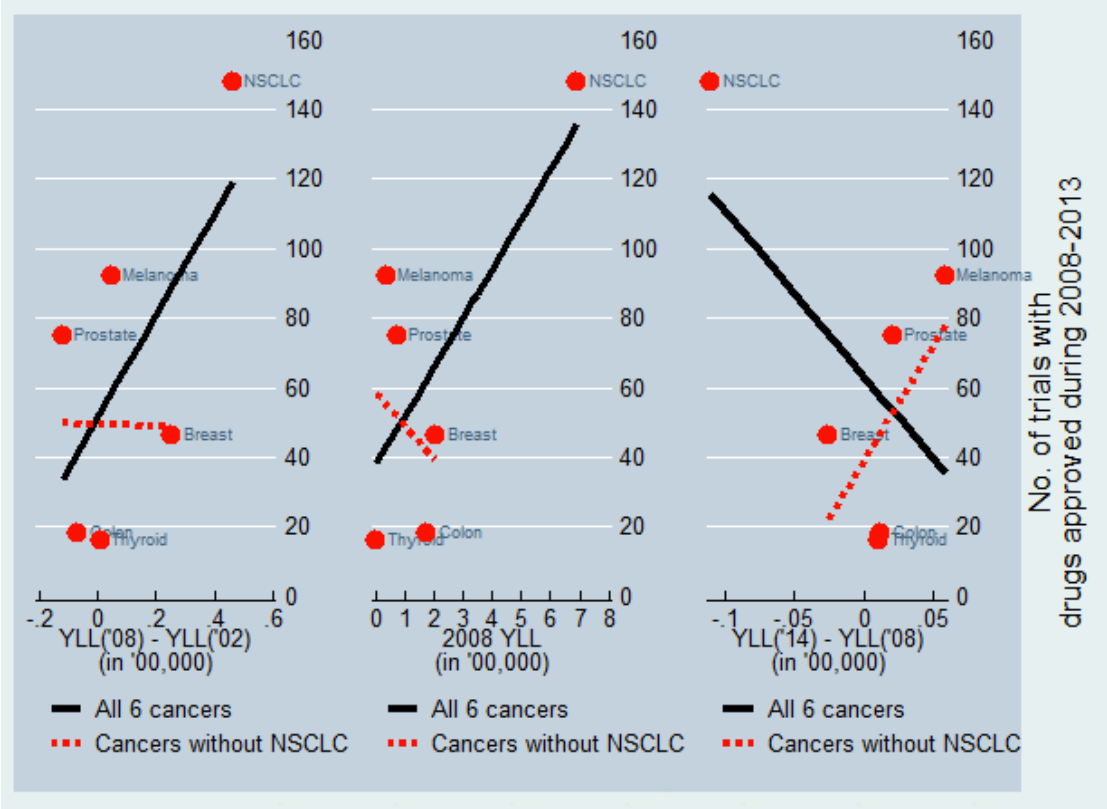
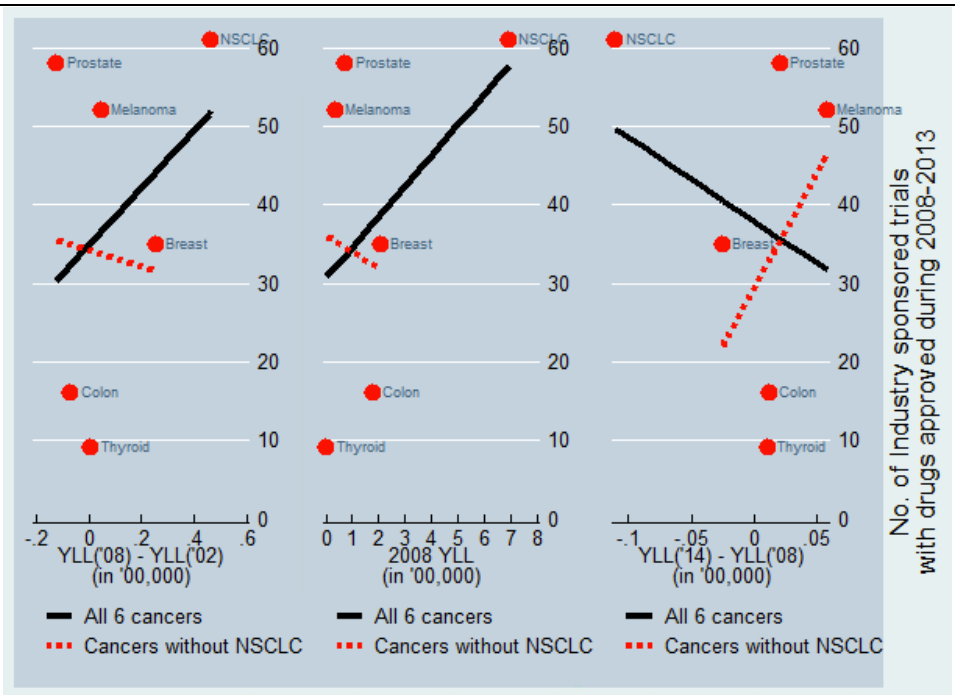
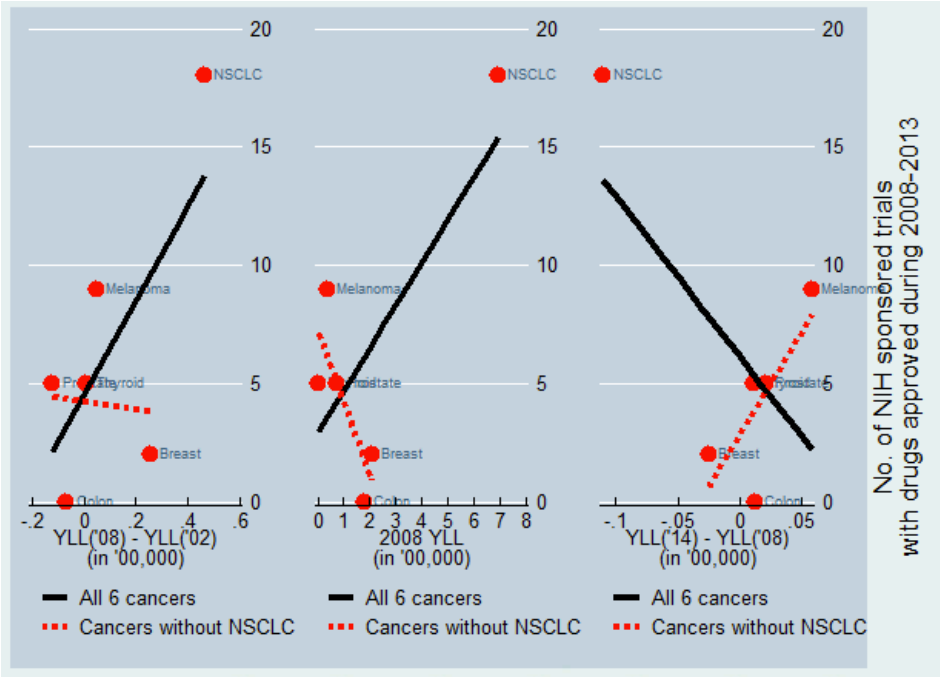


Figure 2: Relationship between cancer-specific total number of (a) ***industry sponsored*** trials or (b) ***NIH sponsored*** trials, initiated through 2013 using oncology drugs approved during 2008-2013 and cancer-specific (left) difference in years of life lost (YLL) in 2008 vs 2002; (middle) absolute YLL in 2008; and (right) difference in years of life lost (YLL) in 2014 vs 2008.

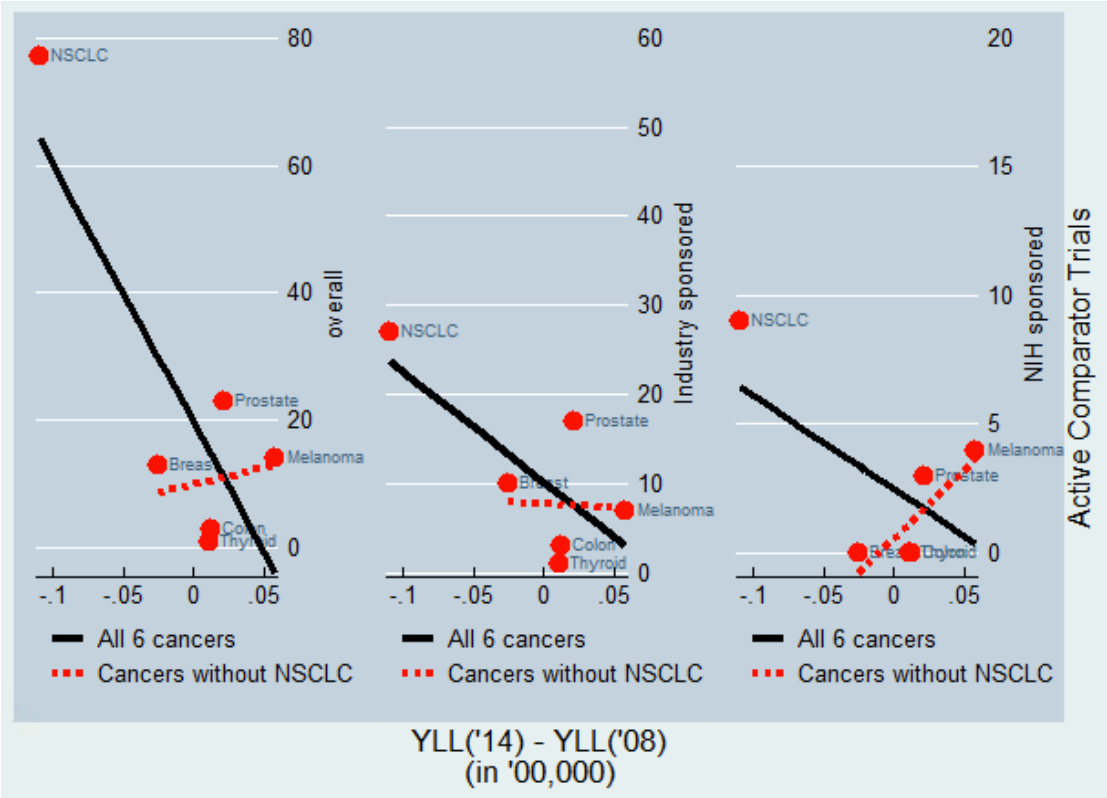


(a) Industry-sponsored trials



(b) NIH sponsored trials

Figure 3: Relationship between cancer-specific total number of ***active comparator*** trials initiated through 2013 using oncology drugs approved during 2008-2013 difference in years of life lost (YLL) in 2014 vs 2008 ***by study sponsors***.



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Appendix A. List of Trials with ClinicalTrials.gov Identifier by Cancer Site and Drugs

Thyroid Cancer

vandetanib tablets		
1	NCT00514046	Vandetanib to Treat Children and Adolescents With Medullary Thyroid Cancer
2	NCT01298323	Study to Determine if Contacting Patients With MTC More Frequently Results in Earlier Detection and Treatment of Signs and Symptoms of AEs and Thus a Decrease in the Percentage of Time Patients Experience AEs During First 12 Months on Vandetanib Treatment (88)
3	NCT01496313	To Compare The Effects Of Two Doses Of Vandetanib In Patients With Advanced Medullary Thyroid Cancer
4	NCT01661179	Evaluate the Safety and Tolerability of Vandetanib in Japanese Patients With Medullary Thyroid Carcinoma
5	NCT01757470	Vandetanib Risk Minimisation Effectiveness
6	NCT01876784	Evaluation of Efficacy, Safety of Vandetanib in Patients With Differentiated Thyroid Cancer (VERIFY)
7	NCT01945762	Observational Study to Evaluate Vandetanib in RET -/+ Patients With Metastatic Medullary Thyroid Cancer (Caprelsa104)

cabozantinib		
1	NCT00940225	Study of Cabozantinib (XL184) in Adults With Advanced Malignancies
2	NCT01553656	Dose-Finding Study of Cabozantinib (XL184) in Japanese Subjects With Advanced Cancer
3	NCT01709435	Cabozantinib in Treating Younger Patients With Recurrent or Refractory Solid Tumors
4	NCT01588821	Cabozantinib in Advanced Solid Malignancies
5	NCT01822522	Cabozantinib-S-Malate in Treating Patients With Advanced Solid Tumors and Human Immunodeficiency Virus
6	NCT01896479	A Study of Two Different Doses of Cabozantinib (XL184) in Progressive, Metastatic Medullary Thyroid Cancer

7	NCT01811212	Cabozantinib-S-Malate in Treating Patients With Refractory Thyroid Cancer

sorafenib		
1	NCT00390325	Sorafenib Tosylate in Treating Patients With Metastatic, Locally Advanced, or Recurrent Medullary Thyroid Cancer
2	NCT02084732	Safety and Efficacy of Sorafenib in Patients With Advanced Thyroid Cancer: a Phase II Clinical Study

Melanoma

ipilimumab injection		
1	NCT00162123	A Companion Study for Patients Enrolled in Prior/Parent Ipilimumab Studies
2	NCT00636168	Efficacy Study of Ipilimumab Versus Placebo to Prevent Recurrence After Complete Resection of High Risk Stage III Melanoma
3	NCT00972933	Immunogenicity and Biomarker Analysis of Neoadjuvant Ipilimumab for Melanoma
4	NCT01216696	Ipilimumab in Patients With Advanced Melanoma and Spontaneous Preexisting Immune Response to NY-ESO-1 (CTLA4 NY-ESO-1)
5	NCT01355120	THE IPI - Trial in Advanced Melanoma: Melanoma Patients With Advanced Disease (DeCOG)
6	NCT01274338	Ipilimumab or High-Dose Interferon Alfa-2b in Treating Patients With High-Risk Stage III-IV Melanoma That Has Been Removed by Surgery
7	NCT01449279	Pilot Ipilimumab in Stage IV Melanoma Receiving Palliative Radiation Therapy
8	NCT01557114	Study of Radiotherapy Administered in Combination With Ipilimumab in Patients With Unresectable Stage III or Stage IV Advanced Malignant Melanoma (Mel-Ipi-Rx)
9	NCT01496807	Yervoy With Sylatron Unresectable Stage 3 or 4 Melanoma
10	NCT01409174	IPI Biochemotherapy for Chemonaive Patients With Metastatic Melanoma

11	NCT01480323	A Phase II Study to Evaluate Safety and Efficacy of Combined Treatment With Ipilimumab and Intratumoral Interleukin-2 in Pretreated Patients With Stage IV Melanoma
12	NCT01497808	RADVAX: A Stratified Phase I/II Dose Escalation Trial of Stereotactic Body Radiotherapy Followed by Ipilimumab in Metastatic Melanoma
13	NCT01511913	A Multi-National, Prospective, Observational Study in Patients With Unresectable or Metastatic Melanoma (IMAGE)
14	NCT01565837	Concurrent Ipilimumab and Stereotactic Ablative Radiation Therapy (SART) for Oligometastatic But Unresectable Melanoma
15	NCT01689974	Phase II Randomized Trial of Ipilimumab Versus Ipilimumab and Radiotherapy in Metastatic Melanoma
16	NCT01708941	Ipilimumab With or Without High-Dose Recombinant Interferon Alfa-2b in Treating Patients With Stage III-IV Melanoma That Cannot Be Removed By Surgery
17	NCT01585194	Ipilimumab for Uveal Melanoma
18	NCT01608594	Neoadjuvant Combination Therapy With Ipilimumab and HighDose IFN-α2b for Melanoma
19	NCT01703507	Ipilimumab and Whole-Brain Radiation Therapy or Stereotactic Radiosurgery in Treating Patients With Melanoma With Brain Metastases
20	NCT01709162	Study to Compare the Effect of Ipilimumab Retreatment With Chemotherapy in Advanced Melanoma
21	NCT01515189	Phase 3 Trial in Subjects With Metastatic Melanoma Comparing 3 mg/kg Ipilimumab Versus 10 mg/kg Ipilimumab
22	NCT01730157	Radioembolization and Ipilimumab in Treating Patients With Uveal Melanoma With Liver Metastases
23	NCT01696045	Phase 2 Study of Ipilimumab in Children and Adolescents (12 to < 18 Years) With Previously Treated or Untreated, Unresectable Stage III or Stage lV Malignant Melanoma
24	NCT01681212	Phase 2 Study of Ipilimumab Plus DTIC in Japanese Advanced Melanoma Patients
25	NCT01715077	Study of Ipilimumab in the Immune System
26	NCT02009384	Study of Ipilimumab Administered to Stage IIIC and Stage IV Melanoma Patients After Regulatory T Cell Depletion With Denileukin Diftitox
27	NCT01672450	A Study of Intratumoral Injection of Interleukin-2 and Ipilimumab in Patients With Unresectable Stages III-IV Melanoma

28	NCT01970527	Stereotactic Body Radiation Therapy and Ipilimumab in Treating Patients With Stage IV Melanoma
29	NCT01769222	Ipilimumab and Local Radiation Therapy in Treating Patients With Recurrent Melanoma, Non-Hodgkin Lymphoma, Colon, or Rectal Cancer
30	NCT02068196	A National Phase IV Study With Ipilimumab for Patients With Advanced Malignant Melanoma. (Ipi4)
31	NCT01856023	HD IL-2 + Ipilimumab in Patients With Metastatic Melanoma (PROCLIVITY 02)
32	NCT01950195	SRS (Stereotactic Radiosurgery) Plus Ipilimumab
33	NCT01990859	Phase 2 Study of Ipilimumab in Japanese Advanced Melanoma Patients
34	NCT01996202	A Pilot Study of Ipilumimab and Radiation in Poor Prognosis Melanoma

vemurafenib tablets		
1	NCT00405587	Safety Study of PLX4032 in Patients With Solid Tumors
2	NCT01001299	A Pharmacokinetic Study of RO5185426 in Combination With a Drug Cocktail in Patients With Metastatic Melanoma
3	NCT01164891	A Pharmacokinetic and Metabolism Study of 14C-labeled RO5185426 on Patients With Metastatic Melanoma
4	NCT01107418	A Pharmacokinetic/Pharmacodynamic Study of RO5185426 in Previously Treated Patients With Metastatic Melanoma
5	NCT01264380	A Study of the Effect of Food on the Pharmacokinetics of Single Dose RO5185426 And the Safety And Efficacy of Continuous Administration in Patients With BRAF V600E Mutation-Positive Metastatic Melanoma
6	NCT01586195	Study Of Zelboraf (Vemurafenib) in Patients With Locally-Advanced, Unresectable, Stage IIIc Or Metastatic Melanoma and Activating Exon 15 BRAF Mutations Other Than V600E
7	NCT01378975	A Study of Vemurafenib in Metastatic Melanoma Patients With Brain Metastases
8	NCT01739764	An Extension (Rollover) Study of Vemurafenib in Patients With BRAF V600 Mutation-Positive Malignancies Previously Enrolled in an Antecedent Vemurafenib Protocol
9	NCT01673854	Phase II Safety Study of Vemurafenib Followed by Ipilimumab in Subjects With V600 BRAF Mutated Advanced Melanoma
10	NCT01638676	A Phase I/II Trial of Vemurafenib and Metformin to Melanoma Patients

11	NCT01683188	HD IL-2 + Vemurafenib in Patients With BRAF Mutation Positive Metastatic Melanoma (PROCLIVITY 01)
12	NCT01667419	BRIM8: A Study of Vemurafenib Adjuvant Therapy in Patients With Resected Cutaneous BRAF Mutant Melanoma
13	NCT01603212	Systemic Therapy With Interferon, Interleukin-2 and BRAF Inhibitor
14	NCT01754376	Combined BRAF-Targeted Therapy & Immunotherapy for Melanoma
15	NCT01804140	A Screening Study to Detect BRAF V600 Mutation-Positive Patients For Enrollment Into Clinical Research Studies of Zelboraf (Vemurafenib)
16	NCT01519323	BRIM-P: A Study of Vemurafenib in Pediatric Patients With Stage IIIC or Stage IV Melanoma Harboring BRAFV600 Mutations
17	NCT02036086	Study of Neoadjuvant Vemurafenib for BRAF Mutant Melanoma and Palpable Lymph Node Metastasis
18	NCT01813214	The Effects of Vemurafenib on Immunity in Patients With Melanoma
19	NCT01943422	Safety and Efficacy Study of Vemurafenib and High-dose Interferon Alfa-2b in Melanoma (12-107)
20	NCT01942993	The Effects of Treatment With Vemurafenib on the Immune System in Advanced Melanoma
21	NCT02050321	A Phase II Study of Vemurafenib Combined With Acitretin in Patients With Advanced Melanoma
22	NCT01781026	Phase 2 Study of Neoadjuvant Vemurafenib in Melanoma Patients With Untreated Brain Metastases
23	NCT01959633	Study of the Combination Vemurafenib Plus PEG-interferon in Advanced Melanoma Patients Harboring the V600BRAF Mutation (VEMUPLINT)
24	NCT01849666	A Study of the Effect of Vemurafenib on the Pharmacokinetics of Phenprocoumon in Patients With BRAFV600 Mutation-Positive Metastatic Malignancy
25	NCT01910181	A Study of Zelboraf (Vemurafenib) in Chinese Patients With BRAFV600 Mutation-Positive Unresectable or Metastatic Melanoma
26	NCT01844674	A Study on the Effect of Vemurafenib on the Pharmacokinetics of a Single Dose of Tizanidine in Patients With BRAFV600 Mutation-Positive Metastatic Malignancies
27	NCT01898585	An Open-Label Study of Zelboraf (Vemurafenib) in Patients With Braf V600 Mutation Positive Metastatic Melanoma

28	NCT01765556	A Pharmacokinetics Study to Investigate the Effect of Ketoconazole on Vemurafenib in Patients With BRAFV600 Mutation-Positive Metastatic Melanoma
29	NCT01765543	A Pharmacokinetics Study to Investigate the Effect of Rifampin on Vemurafenib in Patients With BRAFV600 Mutation-Positive Metastatic Malignancy
30	NCT01765569	A Pharmacokinetics Study to Investigate the Effect of Vemurafenib on Digoxin in Patients With BRAFV600 Mutation-Positive Metastatic Melanoma
31	NCT01767623	A Study of The Impact of Severe Hepatic Impairment on the Pharmacokinetics and Safety of Vemurafenib in BRAF V600 Mutation-Positive Cancer Patients
32	NCT02042040	Vemurafenib:Radiation Use During Vemurafenib Treatment
33	NCT01990248	An Observational Safety Study in Zelboraf (Vemurafenib)-Treated Patients With BRAF-V600 Mutation-Positive Unresectable or Metastatic Melanoma (ZeSS)
34	NCT01897116	A Phase I Trial of Vemurafenib and Hydroxychloroquine in Patients With Advanced BRAF Mutant Melanoma
35	NCT01843738	Radiation Use During Vemurafenib Treatment

dabrafenib		
1	NCT01677741	The Study to Determine Safety, Tolerability and Pharmacokinetics of Oral Dabrafenib In Pediatric Subjects
2	NCT01738451	A Study to Evaluate the Effect of Repeat Oral Dosing of GSK2118436 on Cardiac Repolarization in Subjects With V600 BRAF Mutation-Positive Tumors
3	NCT01682213	Adjuvant Dabrafenib (GSK2118436) in Patients With Surgically Resected AJCC Stage IIIC Melanoma Characterized by a BRAFV600E/K Mutation
4	NCT01721603	A Phase 2 Prospective Trial of Dabrafenib With Stereotactic Radiosurgery in BRAFV600E Melanoma Brain Metastases
5	NCT01582997	A Phase I Study to Investigate the Safety, Tolerability and Pharmacokinetic Profile of of GSK2118436 in Japanese Subjects With BRAF Mutation Positive Solid Tumors

6	NCT01954043	A Pharmacokinetics (PK) Study of the Effects Rabeprazole and Rifampin on Dabrafenib in Subjects With BRAF V600 Mutation Positive Tumors
7	NCT01907802	Dabrafenib in Treating Patients With Solid Tumors and Kidney or Liver Dysfunction

trametinib		
1	NCT01725100	A Study to Determine the Relative Bioavailability of the MEK Inhibitor, Trametinib, in Subjects With Solid Tumor Malignancies
2	NCT01682083	A Study of the BRAF Inhibitor Dabrafenib in Combination With the MEK Inhibitor Trametinib in the Adjuvant Treatment of High-risk BRAF V600 Mutation-positive Melanoma After Surgical Resection. (COMBI-AD)
3	NCT01584648	A Study Comparing Trametinib and Dabrafenib Combination Therapy to Dabrafenib Monotherapy in Subjects With BRAF-mutant Melanoma
4	NCT01726738	LCCC 1128: Open Label Phase II Trial of the BRAF Inhibitor (Dabrafenib) and the MEK Inhibitor (Trametinib) in Unresectable Stage III and Stage IV BRAF Mutant Melanoma; Correlation of Resistance With the Kinome and Functional Mutations
5	NCT01658553	A Study to Look at the Electrical Activity of the Heart in Subjects With Solid Tumor Cancers, Before and After Receiving the Study Treatment, GSK1120212
6	NCT01597908	Dabrafenib Plus Trametinib vs Vemurafenib Alone in Unresectable or Metastatic BRAF V600E/K Cutaneous Melanoma (COMBI-v)
7	NCT01701037	Dabrafenib Alone and in Combination With Trametinib Before Surgery in Treating Patients With Locally or Regionally Advanced Melanoma That Can Be Removed By Surgery
8	NCT01619774	An Open-Label Phase II Study of the Combination of GSK2118436 and GSK1120212 in Patients With Metastatic Melanoma Which is Refractory or Resistant to BRAF Inhibitor

9	NCT01767454	Study of Dabrafenib +/- Trametinib in Combination With Ipilimumab for V600E/K Mutation Positive Metastatic or Unresectable Melanoma
10	NCT02015117	Trametinib With or Without Whole Brain Radiation Therapy in Treating Patients With Brain Metastases
11	NCT01972347	Neoadjuvant Dabrafenib + Trametinib for AJCC Stage IIIB-C BRAF V600 Mutation Positive Melanoma
12	NCT02034110	Efficacy and Safety of the Combination Therapy of Dabrafenib and Trametinib in Subjects With BRAF V600E- Mutated Rare Cancers
13	NCT01940809	Ipilimumab With or Without Dabrafenib, and/or Trametinib in Treating Patients With Melanoma That is Metastatic or Cannot Be Removed By Surgery
14	NCT02039947	Study to Evaluate Treatment of Dabrafenib Plus Trametinib in Subjects With BRAF Mutation-Positive Melanoma That Has Metastasized to the Brain
15	NCT01978236	A Single Cohort Study to Evaluate the Pharmacokinetics, Pharmacodynamics, Exploratory Translational Research, and Safety Endpoints of Preoperative Treatment of GSK2118436 in Subjects With BRAF V600E or V600K Mutation-positive Metastatic Melanoma to the Brain
16	NCT01928940	Japan PhI/II of GSK2118436 and GSK1120212 Combination in Subjects With BRAF V600E/K Mutation Positive Advanced Solid Tumors (Phase I Part) or Cutaneous Melanoma (Phase II Part)

Prostate Cancer

Degarelix		
1	NCT00215683	An Extension Study Evaluating the Long-Term Safety and Tolerability of Degarelix One-Month Depots in Prostate Cancer
2	NCT00268892	Extension Study Investigating the Long-Term Safety of Degarelix Three-Month Depots in Patients With Prostate Cancer
3	NCT00117286	Extension Study Investigating the Long-Term Safety of Degarelix One-Month Depots in Patients With Prostate Cancer

4	NCT00451958	A Long-term Extension Study Evaluating a One-Month Dosing Regimen of Degarelix in Prostate Cancer Requiring Androgen Ablation Therapy
5	NCT00801242	Intermittent Treatment With Degarelix of Patients Suffering From Prostate Cancer
6	NCT00946920	A Trial of Degarelix in Patients With Prostate Cancer
7	NCT00818623	Investigation of a New Trial Drug (FE200486) in Prostate Cancer Patients
8	NCT00884273	Investigation of the Effect of Degarelix in Terms of Prostate Volume Reduction in Prostate Cancer Patients
9	NCT00833248	Neoadjuvant Study Investigating Degarelix in Patients Suffering From Prostate Cancer
10	NCT00967018	A Long Term Safety Study of Degarelix in Patients With Prostate Cancer
11	NCT00928434	A Study of Degarelix in Patients With Prostate Cancer
12	NCT00930319	Effectiveness and Safety of Firmagon® (FAST)
13	NCT01071915	Efficacy and Safety of Degarelix One Month Dosing Regimen in Korean Patients With Prostate Cancer
14	NCT01220869	A Study of Degarelix in Taiwanese Patients With Prostate Cancer
15	NCT01215513	Long-Term Safety and Tolerability of Degarelix One-Month Dosing Regimen in Korean Patients
16	NCT01215526	A Study Into the Effectivity and Safety of Firmagon, Prescribed for Treatment of Patients With Advanced Prostate Cancer (FAST-NL)
17	NCT01234350	Post Authorisation Safety Study (PASS) on Patients With Advanced Prostate Cancer
18	NCT01261572	Study to Find Maintenance Dose for Periodic Administration of ASP3550
19	NCT01852864	Degarelix Before Radical Prostatectomy
20	NCT01512472	Firmagon (Degarelix) Intermittent Therapy (FIT)
21	NCT01446991	Feasibility and Toxicity of Degarelix for Prostate Downsizing Prior to Permanent Seed Prostate Brachytherapy
22	NCT01344564	Initiation of Androgen Deprivation Therapy for Prostate Cancer Using Degarelix Followed by Leuprolide
23	NCT01491971	Intramuscular Injections of Degarelix Administered in 1-Month Dosing Regimens in Patients With Prostate Cancer (IM1)
24	NCT01366053	Hormone Sensitive Prostate Cancer Patients Switched to Degarelix Therapy After Failing on GnRH Agonists (DELAY)

25	NCT01309672	S1014 Abiraterone Acetate in Treating Patients With Prostate Cancer Who Have Undergone Initial Hormone Therapy
26	NCT01751451	3-arm Study of Abiraterone Acetate Alone, Abiraterone Acetate Plus Degarelix, a GnRH Antagonist, and Degarelix Alone for Patients With Prostate Cancer With a Rising PSA or a Rising PSA and Nodal Disease Following Definitive Radical Prostatectomy
27	NCT01731912	Degarelix Acetate Before and During Radiation Therapy in Treating Patients With Prostate Cancer
28	NCT01674270	Degarelix Neo-Adjuvant Radical Prostatectomy Trial
29	NCT01710098	Treatment of Prostate Cancer With Firmagon®
30	NCT01744366	One Month Degarelix/Comparator Treatment for Prostate Cancer in Chinese Population (PANDA)
31	NCT01630967	Efficacy Study of Switching to a Lutenizing Hormone-releasing Hormone (LHRH) Antagonist From a LHRH Agonist to Treat Progressive Castrate Resistant Prostate Cancer (CRPC)
32	NCT01542021	Androgen Deprivation Therapy Prior to Prostatectomy for Patients With Intermediate and High Risk Prostate Cancer
33	NCT01729676	Impact of the Geographical FACTor on the Prostate Cancer Stage at Hormonal Therapy Initiation
34	NCT01861236	Effectiveness and Safety of Firmagon® in Androgen Ablative Therapy of Advanced Hormone-dependent Prostate Carcinoma in Argentina (FAST AR)
35	NCT01994239	Comparison of HT Concomitant With RT vs RT Alone in Patients With a Detectable PSA After Prostatectomy (GETUG-AFU22)
36	NCT01786265	Finite Androgen Ablation vs. Finite Androgen Ablation in Combination With Abiraterone Acetate and Prednisone

Sipuleucel-T		
1	NCT00715104	Sipuleucel-T as Neoadjuvant Treatment in Prostate Cancer (NeoACT)
2	NCT00715078	To Evaluate Sipuleucel-T Manufactured With Different Concentrations of Prostate Adenocarcinoma (PA2024) Antigen (ProACT)
3	NCT00901342	Open Label Study of Sipuleucel-T

4	NCT01338012	Sipuleucel-T in Metastatic Castrate Resistant Prostate Cancer (CRPC) Patients Previously Treated on Dendreon Study P-11 (NCT00779402)
5	NCT01431391	Sequencing of Sipuleucel-T and ADT in Men With Non-metastatic Prostate Cancer
6	NCT01487863	Concurrent Versus Sequential Treatment With Sipuleucel-T and Abiraterone in Men With Metastatic Castrate Resistant Prostate Cancer (mCRPC)
7	NCT01477749	Sipuleucel-T Manufacturing Demonstration Study
8	NCT01306890	A Registry of Sipuleucel-T Therapy in Men With Advanced Prostate Cancer (PROCEED
9	NCT01727154	Immune Monitoring Protocol in Men With Prostate Cancer Enrolled in a Clinical Trial of Sipuleucel-T (PRIME)
10	NCT01807065	Sipuleucel-T With or Without Radiation Therapy in Treating Patients With Hormone-Resistant Metastatic Prostate Cancer
11	NCT01818986	Sipuleucel-T and Stereotactic Ablative Body Radiation (SABR) for Metastatic Castrate-resistant Prostate Cancer (mCRPC)

enzalutamide		
1	NCT00510718	A Phase 1 Study of MDV3100 in Patients With Castration-Resistant (Hormone-Refractory) Prostate Cancer
2	NCT01212991	A Safety and Efficacy Study of Oral MDV3100 in Chemotherapy-Naive Patients With Progressive Metastatic Prostate Cancer (PREVAIL)
3	NCT01288911	A Study of MDV3100 Versus Bicalutamide in Castrate Men With Metastatic Prostate Cancer
4	NCT01284920	A Study of MDV3100 to Evaluate Safety, Tolerability, Pharmacokinetics and Efficacy of in Prostate Cancer Patients
5	NCT01650194	A Study to Determine Safety and Tolerability of Enzalutamide (MDV3100) in Combination With Abiraterone Acetate in Bone Metastatic Castration-Resistant Prostate Cancer Patients
6	NCT01664923	Safety and Efficacy Study of Enzalutamide Versus Bicalutamide in Men With Prostate Cancer (STRIVE)
7	NCT01534052	A Study to Assess the Safety of Continued Administration of MDV3100 in Subjects With Prostate Cancer Who Showed Benefit From Prior Exposure to MDV3100
8	NCT01547299	Study of MDV3100 as a Neoadjuvant Therapy for Patients Undergoing Prostatectomy for Localized Prostate Cancer

9	NCT01565928	Safety and Tolerability Study of MDV3100 in Combination With Docetaxel in Men With Advanced Prostate Cancer
10	NCT01902251	Relative Bioavailability Study of Enzalutamide in Prostate Cancer Patients
11	NCT01927627	Enzalutamide in Patients With High-risk Prostate Cancer
12	NCT02012296	Enzalutamide and Mifepristone in Treating Patients With Metastatic Hormone Resistant Prostate Cancer
13	NCT01995513	Safety Study of Continued Enzalutamide Treatment In Prostate Cancer Patients (PLATO)
14	NCT02028988	Enzalutamide + External Beam Rt For Prostate
15	NCT01946165	Abiraterone Acetate Plus LHRH Agonist and Abiraterone Acetate Plus LHRH Agonist and Enzalutamide
16	NCT01942837	Phase II Trial of Enzalutamide for Castrate-resistant Prostate Cancer With Correlative Assessment of Androgen Receptor Signaling
17	NCT02003924	Safety and Efficacy Study of Enzalutamide in Patients With Nonmetastatic Castration-Resistant Prostate Cancer (PROSPER)
18	NCT01949337	Enzalutamide With or Without Abiraterone Acetate and Prednisone in Treating Patients With Castration-Resistant Metastatic Prostate Cancer
19	NCT01977651	A Study to Evaluate the Potential Increased Risk of Seizures Among Metastatic Castration-Resistant Prostate Cancer (mCRPC) Patients Treated With Enzalutamide
20	NCT02023463	Enzalutamide, Radiation Therapy and Hormone Therapy in Treating Patients With Intermediate or High-Risk Prostate Cancer
21	NCT01981122	A Study of Sipuleucel-T With Administration of Enzalutamide in Men With Metastatic Castrate-Resistant Prostate Cancer

radium Ra 223 dichloride		
1	NCT01106352	A Study of Alpharadin® With Docetaxel in Patients With Bone Metastasis From Castration-Resistant Prostate Cancer (CRPC)
2	NCT01618370	Radium(223) Dichloride (Alpharadin) in Castration-Resistant (Hormone-Refractory) Prostate Cancer Patients With Bone Metastases
3	NCT01810770	Radium-223 Dichloride (Ra-223 Cl2) Asian Population Study in the Treatment of CRPC Patients With Bone Metastasis
4	NCT01934790	Re-treatment Safety of Radium-223 Dichloride in Castration-resistant Prostate Cancer With Bone Metastases

5	NCT02034552	A Randomized Phase IIa Efficacy and Safety Study of Radium-223 Dichloride With Abiraterone Acetate or Enzalutamide in Metastatic Castration-resistant Prostate Cancer (CRPC)
6	NCT02023697	Standard Dose Versus High Dose and Versus Extended Standard Dose Radium-223 Dichloride in Castration-resistant Prostate Cancer Metastatic to the Bone
7	NCT01929655	Japanese BAY88-8223 Monotherapy Phase II Study

Breast Cancer

eribulin mesylate		
1	NCT00337103	E7389 Versus Capecitabine in Patients With Locally Advanced or Metastatic Breast Cancer Previously Treated With Anthracyclines and Taxanes
2	NCT00908908	A Study to Determine the Metabolism and Elimination of Carbon-14 Labeled Eribulin Acetate (14C-Eribulin) in Patients With Advanced Solid Tumors
3	NCT00879086	A Study Comparing Eribulin Mesylate and Ixabepilone in Causing or Exacerbating Neuropathy in Patients With Advanced Breast Cancer
4	NCT01268150	A Study of Single-Agent Eribulin Mesylate as First-Line Therapy for Locally Recurrent or Metastatic Human Epidermal Growth Factor Receptor Two (HER2) Negative Breast Cancer
5	NCT01142661	Compassionate Use of Eribulin for the Treatment of Advanced Breast Cancer Refractory to All Other Marketed Therapies
6	NCT01323530	A Phase 1b/2, Multicenter, Randomized, Open-Label, Dose-Escalation and Confirmation Study of Eribulin in Combination With Capecitabine
7	NCT01269346	Eribulin With Trastuzumab as First-line Therapy for Locally Recurrent or Metastatic HER2 Positive Breast Cancer
8	NCT01240421	An Open-Label, Multi-Center, Expanded Access Program With Eribulin for the Treatment of Advanced Breast Cancer Refractory

9	NCT01328249	Dose Dense Doxorubucin and Cyclophosphamide Followed by Eribulin Mesylate for the Adjuvant Treatment of Early Stage Breast Cancer
10	NCT01439282	Eribulin in Combination With Capecitabine for Adjuvant Treatment in Estrogen Receptor-Positive Early Stage Breast Cancer
11	NCT01463891	Post-marketing Surveillance for the Clinical Safety and Effectiveness of Eribulin Mesylate in Patients With Inoperable or Recurrent Breast Cancer (Study HAL01S)
12	NCT01401959	Trial of Eribulin in Patients Who Do Not Achieve Pathologic Complete Response (pCR) Following Neoadjuvant Chemotherapy
13	NCT01418677	An Open-Label Study to Assess the Pharmacokinetics and Safety of HALAVENTM in Subjects With Cancer Who Also Have Impaired Renal Function
14	NCT01432886	A Study of Eribulin Mesylate With Trastuzumab for Advanced or Recurrent Human Epidermal Growth Factor Receptor 2-Positive (HER2+) Breast Cancer
15	NCT01498588	Neoadjuvant Trial of Eribulin Followed by Dose Dense Doxorubicin and Cyclophosphamide for Her2-negative, Locally Advanced Breast Cancer
16	NCT01669252	Pharmacogenomic Study of Neoadjuvant Eribulin for HER2 Non-overexpressing Breast Cancer (NeoEribulin)
17	NCT01945710	An Open-label, Multicenter, Multiple Dose, Phase 1 Study to Establish the Maximum Tolerated Dose of E7389 Liposomal Formulation in Patients With Solid Tumors
18	NCT01534455	Efficacy and Tolerability of Eribulin Plus Lapatinib in Patients With Metastatic Breast Cancer (E-VITA)
19	NCT01554371	Eribulin in Combination With Cyclophosphamide in Patients With Solid Tumor Malignancies
20	NCT01593020	Neoadjuvant Study of Sequential Eribulin Followed by FAC Compared to Sequential Paclitaxel Followed by FEC in Early Stage Breast Cancer Not Overexpressing HER-2
21	NCT01705691	Comparison of Neoadjuvant Chemotherapy With Weekly Paclitaxel or Eribulin Followed by A/C in Women With Locally Advanced HER2-Negative Breast Cancer

22	NCT01527487	Trial of Eribulin/Cyclophosphamide or Docetaxel/Cyclophosphamide as Neoadjuvant Therapy in Locally Advanced HER2-Negative Breast Cancer
23	NCT01908101	Eribulin Mesylate in Treating Patients With Previously Treated Metastatic Breast Cancer
24	NCT01961544	Eribulin Mesylate Phase IV Clinical Trial in Korean Patients With Metastatic or Locally Advanced Breast Cancer (ESKIMO)
25	NCT01912963	Phase II Study of Eribulin Mesylate, Trastuzumab, and Pertuzumab in Women With Metastatic, Unresectable Locally Advanced, or Locally Recurrent HER2-Positive Breast Cancer
26	NCT02014337	Mifepristone and Eribulin in Patients With Metastatic Triple Negative Breast Cancer
27	NCT01827787	Eribulin in HER2 Negative Metastatic BrCa
28	NCT02061085	Monotherapy With Eribulin In Her2 Negative Metastatic Breast Cancer as a First Line Treatment (MERIBEL)
29	NCT02000596	Trastuzmab & Pertuzumab Alone or in Combination With Hormonal Therapy or Chemotherapy With Eribulin in Women Aged 60 and Over With HER2/Neu Overexpressed Locally Advanced or MBC

ado-trastuzumab emtansine		
1	NCT00781612	An Extension Study of Trastuzuma Emtansine in Patients Previously Treated With Trastuzuma Emtansine
2	NCT00833963	An Observational Study of Pregnancy And Pregnancy Outcomes in Women With Breast Cancer Treated With Herceptin, Perjeta In Combination With Herceptin, or Kadcyla During Pregnancy or Within 6 Months Prior To Conception (MotHER)
3	NCT00934856	Study of Trastuzumab Emtansine (T-DM1) in Combination With Docetaxel, and Potentially Pertuzumab, in Patients With Advanced Breast Cancer
4	NCT01120184	A Study of Trastuzumab Emtansine (T-DM1) Plus Pertuzumab/Pertuzumab Placebo Versus Trastuzumab [Herceptin] Plus a Taxane in Patients With Metastatic Breast Cancer (MARIANNE)
5	NCT01702558	A Combination Study of Kadcyla (Trastuzumab Emtansine) and Capecitabine in Patients With Breast Cancer or Gastric Cancer

6	NCT01745965	A Prospective, Randomized Multicenter, Open-label Comparison of Preoperative Trastuzumab Emtansine (T-DM1) With or Without Standard Endocrine Therapy vs. Trastuzumab With Standard Endocrine Therapy Given for Twelve Weeks in Patients With Operable HER2+/HR+ Breast Cancer Within the ADAPT Protocol. (ADAPT; T-DM1)
7	NCT01702571	A Study of Kadcyla (Trastuzumab Emtansine) in Patients With HER2 Positive Breast Cancer Who Have Received Prior Anti-HER2 And Chemotherapy-based Treatment
8	NCT01565200	HER2 Imaging Study to Identify HER2 Positive Metastatic Breast Cancer Patient Unlikely to Benefit From T-DM1 (ZEPHIR)
9	NCT01513083	A Study of Trastuzumab Emtansine in Patients With HER2-Positive Metastatic Breast Cancer and Normal or Reduced Hepatic Function
10	NCT01816035	Ado-Trastuzumab Emtansine in Treating Patients With HER2-Positive Metastatic or Locally Advanced Breast Cancer That Cannot Be Removed by Surgery
11	NCT01853748	T-DM1 vs Paclitaxel/Trastuzumab for Breast (ATEMPT Trial)
12	NCT01966471	A Study of Kadcyla (Trastuzumab Emtansine) Plus Perjeta (Pertuzumab) Following Anthracyclines in Comparison With Herceptin (Trastuzumab) Plus Perjeta and a Taxane Following Anthracyclines as Adjuvant Therapy in Patients With Operable HER2-positive Primary Breast Cancer
13	NCT01835236	Trastuzumab & Pertuzumab Followed by T-DM1 in MBC
14	NCT01975142	Validity of HER2-amplified Circulating Tumor Cells to Select Metastatic Bresat Cancer Considered HER2-negative for Trastuzumab-emtansine (T-DM1) Treatment.
15	NCT01772472	A Study of Trastuzumab Emtansine Versus Trastuzumab as Adjuvant Therapy in Patients With HER2-Positive Breast Cancer Who Have Residual Tumor in the Breast or Axillary Lymph Nodes Following Preoperative Therapy (KATHERINE)
16	NCT02073916	TDM1 With Abraxane and Lapatinib for Metastatic HER2 Positive Breast Cancer (STELA)
17	NCT01904903	Cardiac Safety Study in Patients With HER2 + Breast Cancer (SAFE-HEaRt)

Colon Cancer

regorafenib		
1	NCT01117623	Continuous Dosing of BAY73-4506 in Patients With Advanced Malignancies
2	NCT01189903	Clinical Evaluation - A Phase IIA Proof of Concept Study of Regorafenib (Bayer 73-4506) in Biopsy-amenable Asian Colorectal Cancer Patients
3	NCT01298570	Regorafenib+FOLFIRI Versus Placebo+FOLFIRI as 2nd Line Tx in Metastatic Colorectal Cancer
4	NCT01339104	Open Label Regorafenib Study to Evaluate Cardiovascular Safety Parameters, Tolerability, and Anti-tumor Activity
5	NCT01287598	BAY73-4506 Probe Substrate Study
6	NCT01584830	Asian Subjects With Metastatic Colorectal Cancer Treated With Regorafenib or Placebo After Failure of Standard Therapy (CONCUR)
7	NCT01538680	Regorafenib in Subjects With Metastatic Colorectal Cancer (CRC) Who Have Progressed After Standard Therapy (CONSIGN)
8	NCT01973868	Safety and Pharmacokinetics of Regorafenib and Cetuximab in Combination
9	NCT01853046	Pharmacokinetics and Safety of Regorafenib (BAY73-4506) in Cancer Subjects With Severe Renal Impairment
10	NCT01843400	Regorafenib Post-marketing Surveillance
11	NCT01949194	Study to Determine the Efficacy of Regorafenib in Metastatic Colorectal Cancer Patients and to Discover Biomarkers
12	NCT01929616	Regorafenib Assessment in Refractory Advanced Colorectal Cancer(RegARd-C)
13	NCT01853319	Regorafenib in Subjects With Metastatic Colorectal Cancer (mCRC) Who Have Progressed After Standard Therapy (REGARD)
14	NCT01996969	Identification of Predictive Biomarker of Regorafenib in Refractory Colorectal Cancer
15	NCT02023333	Regorafenib in Good Performance Status Patients With Newly Diagnosed Metastatic Colorectal Adenocarcinoma

16	NCT01959269	Investigating the Use of Regorafenib (Stivarga®) in Patients With Metastatic Colorectal Cancer (mCRC) After Failure of Standard Therapy (RECORA)
17	NCT01875380	Regorafenib in Frail and/or Unfit for Chemotherapy Patients With Metastatic Colorectal Cancer (REFRAME)
18	NCT01939223	Colorectal Cancer Treated With Adjuvant Regorafenib Versus Placebo After Curative Treatment of Liver Metastases in a Randomized, Double-blind, Placebo-Controlled Phase-III STudy (COAST)

Non-Small Cell Lung Cancer

Alimta Injection		
1	NCT01731626	Pemetrexed Disodium and Cisplatin in Treating Patients Undergoing Surgery For Stage I-III Non-Small Cell Lung Cancer
2	NCT00508144	Single Agent Alimta in Poor Performance Status in Non-small Cell Lung Cancer
3	NCT00234052	Carboplatin, Pemetrexed Disodium, and Bevacizumab in Treating Patients With Stage IIIB, Stage IV, or Recurrent Non-Small Cell Lung Cancer
4	NCT00301808	Cisplatin, Pemetrexed Disodium, and Radiation Therapy Followed by Docetaxel in Treating Patients With Stage III Non-Small Cell Lung Cancer
5	NCT00529100	Concurrent Pemetrexed, Cisplatin and Radiation Therapy in Patients With Stage IIIA/B Non Small Cell Lung Cancer
6	NCT00227019	Phase II Trial of Bevacizumab in Combination With Pemetrexed as 2nd Line Therapy in Patients With Stable Brain Metastases From Non-small Cell Lung Cancer
7	NCT00248495	Pemetrexed Disodium and Cisplatin in Treating Patients Who Are Undergoing Surgery for Stage I, Stage II, or Stage III Non-Small Cell Lung Cancer
8	NCT01172028	Pemetrexed Disodium and Docetaxel in Treating Patients With Advanced Solid Tumors
9	NCT00227539	Positron Emission Tomography in Predicting Response in Patients Who Are Undergoing Treatment With Pemetrexed Disodium and Cisplatin With or Without Surgery for Stage I, Stage II, or Stage III Non-Small Cell Lung Cancer

10	NCT00950365	Pharmacodynamic Separation of Pemetrexed and Erlotinib as Second-line Therapy in Patients With Advanced Non-small Cell Lung Cancer (NSCLC)
11	NCT00438204	Pemetrexed Disodium, Gemcitabine, and Bevacizumab in Treating Patients With Stage IIIB or Stage IV Non-Small Cell Lung Cancer
12	NCT00440414	Trial of Pemetrexed Versus Erlotinib in Pretreated Patients With Non Small Cell Lung Cancer (NSCLC)
13	NCT00284778	Pharmaco-economic Study of a Second Line Treatment in Advanced Non Small Cell Lung Cancer
14	NCT00409006	Chemotherapy for Patients With Non-Small Cell Lung Cancer Who Are Non-Smokers
15	NCT00330044	Alimta, Carboplatin and Radiation Therapy for Non Small Cell Lung Cancer
16	NCT00556322	A Study of Tarceva (Erlotinib) and Standard of Care Chemotherapy in Patients With Advanced, Recurrent, or Metastatic Non-Small Cell Lung Cancer (NSCLC)
17	NCT00684099	Docetaxel/Pemetrexed as 1st Line Treatment in Patients With Non Small Cell Lung Cancer (NSCLC)
18	NCT00349089	Trial on Refinement of Early Stage Lung Cancer Adjuvant Therapy
19	NCT00324805	Chemotherapy With or Without Bevacizumab in Treating Patients With Stage IB, Stage II, or Stage IIIA Non-Small Lung Cancer That Was Removed By Surgery
20	NCT00312728	A Study of Bevacizumab in Combination With First- or Second-Line Therapy in Subjects With Treated Brain Metastases Due to Non-Squamous NSCLC (PASSPORT)
21	NCT00482014	A Study of Pemetrexed Plus Carboplatin, or Pemetrexed Plus Cisplatin With Radiation Therapy Followed by Pemetrexed in Patients With Inoperable Non-Small-Cell Lung Cancer
22	NCT00550173	A Study for Non-Smoker Patients With Nonsquamous Non-Small Cell Lung Cancer
23	NCT00470548	Abraxane and Alimta in Advanced Solid Tumors (UCDCC#185)
24	NCT00614822	Carboplatin, Bevacizumab and Pemetrexed in Advanced Non Small Cell Lung Cancer (H3E-US-X072)
25	NCT00497770	An Observational Study of the Ethnic Impact of Patients Undergoing Second (2nd) Line Treatment for Non-Small Cell Lung Cancer Using Pemetrexed

26	NCT00520676	Chemotherapy in Treating Patients With Non-Small Cell Lung Cancer
27	NCT00520845	Celecoxib and Docetaxel or Pemetrexed in Treating Patients With Advanced Recurrent Non-Small Cell Lung Cancer
28	NCT00517595	Phase II Study Alimta and Gemzar + Avastin as First Line Chemotherapy for Elderly Patients With Stage IIIB/IV NSCLC
29	NCT00786331	Pemetrexed +/- Carboplatin as Second Line Treatment in NSCLC
30	NCT00456261	First-Line Treatment of A Comparison of 2 Treatments in Elderly Patients With Advanced NSCLC
31	NCT00540241	Performance Status During Treatment With Pemetrexed in Patients With NSCLC (PERFORMANCE)
32	NCT00577707	Erlotinib and Chemotherapy for Patients With Stage IB-IIIA NSCLC With EGFR Mutations (ECON)
33	NCT00447057	Study of Pemetrexed Versus Pemetrexed Plus Erlotinib as Treatment of Nonsquamous Non-Small Cell Lung Cancer (NSCLC)
34	NCT00738881	Pemetrexed or Erlotinib as Second-Line Therapy in Treating Patients With Advanced Non-Small Cell Lung Cancer
35	NCT01066195	Pemetrexed (ALIMTA) and Gefitinib (IRESSA®) in Never-Smoker and Adenocarcinoma Patients With Non-Small Cell Lung Cancer Previously Treated With Platinum-Based Chemotherapy
36	NCT00744900	Pemetrexed Plus Cisplatin for Brain Metastasis of Advanced Non - Small Cell Lung Cancer (NSCLC) (GFPC 07-01)
37	NCT01565538	Erlotinib Versus Pemetrexed as Second-Line Therapy in Treating Patients With Advanced Lung Adenocarcinoma
38	NCT00807573	Paclitaxel, Bevacizumab and Pemetrexed in Patients With Untreated, Advanced Non-Small Cell Lung Cancer Using Web-Based Data Collection, Patient Self-Reporting of Adverse Effects and Automated Response Assessment
39	NCT00660816	Pemetrexed or Docetaxel With or Without Erlotinib in Stage IIIB or Stage IV Non-Small Cell Lung Cancer
40	NCT01836575	Alimta® Versus Its Combination With Carboplatin in Advanced Non-small-cell Lung Cancer in Patients Performance Status 2 (PS2)
41	NCT00762034	A Study of Pemetrexed, Carboplatin and Bevacizumab in Patients With Nonsquamous Non-Small Cell Lung Cancer
42	NCT00789373	A Study of Induction and Maintenance Treatment of Advanced Non-squamous Non-Small Cell Lung Cancer
43	NCT00609518	A Study for Patients With Non-Squamous Non-Small Cell Lung Cancer
44	NCT00923273	Sirolimus and Pemetrexed to Treat Non-Small Cell Lung Cancer

45	NCT00606021	A Study Comparing of Two Different Chemotherapy Regimens, in Patients With Advanced Non-Squamous Non-Small Cell Lung Cancer
46	NCT00741221	Pemetrexed Plus Bevacizumab in Non Small Cell Lung Cancer
47	NCT00886678	A Study of Pemetrexed Plus Carboplatin Combined With Radiation in Patients With Inoperable Locally Advanced Non-small Cell Lung Cancer (LA-NSCLC) (RT0801)
48	NCT00735891	A Trial for Treatment of Stage IIIB or IV Non-Small Cell Lung Cancer
49	NCT01442909	Pemetrexed Followed by Docetaxel or in Reverse Sequence
50	NCT00798603	Pemetrexed, Carboplatin, and Bevacizumab as First-Line Therapy in Treating Older Patients With Stage IIIB or Stage IV Non-Small Cell Lung Cancer
51	NCT00686959	Chemotherapy and Radiation in Treating Patients With Stage 3 Non-Small Cell Lung Cancer (PROCLAIM)
52	NCT01783834	Gefitinib Versus Pemetrexed for Previously Treated NSCLC Patients
53	NCT00989690	Study of Blood and Tissue Samples in Predicting Response to Second-Line Therapy Using Erlotinib Hydrochloride or Chemotherapy in Patients With Advanced Non-Small Cell Lung Cancer
54	NCT00775385	TAilored Post-Surgical Therapy in Early Stage NSCLC (TASTE)
55	NCT00976456	Efficacy Study of Avastin® With Pemetrexed +/- Carboplatin to Treat Elderly Patients With Non-small Cell Lung Cancer (65plus)
56	NCT00846443	Study of Concurrent Pemetrexed, Cisplatin and Radiotherapy in Local Advanced Non-Small Cell Lung Cancer
57	NCT01000480	A Study of Pemetrexed and Cisplatin, in Non Small Cell Lung Cancer
58	NCT00891579	Study of Pemetrexed Versus Gefitinib in Patients With Locally Advanced or Metastatic Non Small Cell Lung Cancer Who Have Previously Received Platinum-Based Chemotherapy Without Epidermal Growth Factor Receptor (EGFR) Mutations
59	NCT01020786	A Study in Non-squamous Non Small Cell Lung Cancer in Asian Patients
60	NCT00940069	TS Gene Polymorphism Predicts Effect in Patients With Advanced Lung Cancer (TPEIAL)
61	NCT00906282	Preoperative Pemetrexed and Carboplatin for Select Stage IB, II, and III Non-Squamous Non-Small-Cell Lung Cancer

62	NCT00948675	Study of Participants With Advanced Non-Small Cell Lung Cancer
63	NCT01781988	Personalized Therapy in Non-small Cell Lung Cancer (PTINCLC)
64	NCT00892710	Trial of Poor Performance Status Patients (ToPPS)
65	NCT00903292	Tailored Second Line Treatment by Epidermal Growth Factor Receptor (EGFR) Mutation in Patients With Advanced Lung Adenocarcinoma
66	NCT00961415	AVAPERL1 Study: A Study of Avastin (Bevacizumab) With or Without Pemetrexed as Maintenance Therapy After Avastin in First Line in Patients With Non-Squamous Non-Small Cell Lung Cancer
67	NCT01017874	A Study of Alimta/Cisplatin/Gefitinib for Asian Non-smoking Participants With Non Small Cell Lung Cancer
68	NCT01041781	Gemcitabine Hydrochloride or Pemetrexed Disodium and Carboplatin With or Without Celecoxib in Treating Patients With Advanced Non-Small Cell Lung Cancer
69	NCT01005680	A Study Comparing Two Different Chemotherapy Types in Chinese Patients With Advanced Non Small Cell Lung Cancer
70	NCT00887549	A Study of Thymidylate Synthase Expression in Patients With Non-Small Cell Lung Cancer
71	NCT00835471	2nd Line Erlotinib Treatment With (Out) Chemotherapy of Advanced Non Small Cell Lung Cancer (NSCLC) (NVALT10)
72	NCT01192243	Study of Gefitinib Compared With Pemetrexed/Cisplatin in Advanced Non-Small Cell Lung Cancer Patients
73	NCT01004250	A Study of Pemetrexed and Bevacizumab for Participants With Advanced Non-Small Cell Cancer
74	NCT01194453	Pemetrexed Plus Cisplatin Versus Gemcitabine Plus Cisplatin for Advanced NSCLC Metastatic Non-small Cell Lung Cancer (AP/GP)
75	NCT01067794	Chemotherapy in Treating Patients With Lung Cancer (FRAME)
76	NCT01769066	Clinical Value of Sequential Gefitinib With Pemetrexed/Platinum for Advanced NSCLC
77	NCT01116219	Bevacizumab, Pemetrexed Disodium, and Cisplatin or Erlotinib Hydrochloride and Bevacizumab in Treating Patients With Stage IV Non-Small Cell Lung Cancer. A Multicenter Phase II Trial Including Biopsy at Progression (BIO-PRO Trial).
78	NCT01204307	Influence of Prior Chemotherapy on Clinical Benefit With Erlotinib in Patients With Advanced Non-Squamous Non-Small Cell Lung Cancer With or Without EGFR Gene Mutation

79	NCT01165021	A Study of Pemetrexed/Cisplatin as Pre-operative Treatment of Early Stage Nonsquamous Non-Small Cell Lung Cancer
80	NCT01107626	Bevacizumab or Pemetrexed Disodium Alone or In Combination After Induction Therapy in Treating Patients With Advanced Non-Squamous Non-Small Cell Lung Cancer
81	NCT01344824	Carboplatin, Pemetrexed Disodium, and Bevacizumab in Treating Patients With Stage III or Stage IV Non-Small Cell Lung Cancer Who Are Light or Never Smokers
82	NCT01303926	Quality of Life Comparison in Advanced Non-squamous Non Small Cell Lung Cancer (ERACLE)
83	NCT01258127	Pemetrexed/Carboplatin vs Vinorelbine/Carboplatin in Patients With Completely Resected Non-small Cell Lung Cancer (NSCLC)
84	NCT01088906	Study of Pemetrexed Plus Cisplatin as First-line Therapy in Patients With Advanced Non-squamous NSCLC (Phalcis)
85	NCT01063283	Dose Escalation of Bevacizumab With Ambulatory Blood Pressure Monitoring in Patients With Advanced Non-squamous NSCLC (AVF4759)
86	NCT01193959	Pemetrexed in Advanced Non-small Cell Lung Cancer
87	NCT01257139	Trial Involving Subjects Over 70 Years of Age With Non Small-cell Lung Cancer of Stage IV and Comparing a "Classical" Strategy of Treatment Allocation, With an"Optimized" Strategy Allocating the Same Treatments (ESOGIA)
88	NCT01473563	A Study of Home Administration of Pemetrexed as Maintenance Treatment for Advanced Nonsquamous Nonsmall Cell Lung Cancer
89	NCT01282151	TaxoteRe Plus Cisplatin Versus AlImta Plus Cisplatin in 1st Line Non-squamous Cell Type Lung Cancer (TRAIL)
90	NCT01469000	A Study of Pemetrexed and Gefitinib Versus Gefitinib in Non-Small Cell Lung Cancer (NSCLC)
91	NCT01877902	Study Of Use Of Pemetrexed In Patients With Non-Small Lung Cancer Metastatic In Andalusian Public Health System
92	NCT01443078	Neoadjuvant Platinum-based Chemotherapy for Patients With Resectable , Non-small Cell Lung Cancer With Switch to Chemotherapy Alternative in Nonresponders (NEOSCAN)
93	NCT01502202	Intercalated Administration of PamCis With Gefitinib or Placebo as First Line Lung Adenocarcinoma in Never Smokers
94	NCT01401192	Pemetrexed/Cisplatin Versus Gemcitabine/Cisplatin According to Thymidylate Synthase Expression

95	NCT01323062	Bavituximab Plus Carbo and Pemetrexed in Chemo-Naive Stage IV Non-Squamous Non-Small Cell Lung Cancer (NSCLC) Subjects
96	NCT01296113	Chemotherapy for Lung Cancer in HIV-positive Patients (CHIVA)
97	NCT01579630	Genius Study Study to Compare Efficacy and Safety of Gefitinib/ Pemetrexed With Pemetrexed Alone as Maintenance Therapy in Patients With Stage IV EGFR Mutation Negative or T790M Single Mutation Who Respond to Pemetrexed/ Platinum as First-line Therapy
98	NCT01593293	Pemetrexed With or Without Carboplatin for Elderly Non-squamous Non-small Cell Lung Cancer (ACE)
99	NCT01578668	Erlotinib Plus Pemetrexed to Treat Lung Adenocarcinoma With Brain Metastases
100	NCT01656551	Study Comparing Gemcitabine and Pemetrexed, With or Without Cisplatin, in Patients With Nonsquamous Lung Cancer
101	NCT01588704	Neoadjuvant Pemetrexed, Cisplatin and Bevacizumab in Unresectable, Locally Advanced Lung Adenocarcinoma
102	NCT01544179	A Study of IRESSA Treatment Beyond Progression in Addition to Chemotherapy Versus Chemotherapy Alone (IMPRESS)
103	NCT01705184	Re-introduction of Pemetrexed and Cisplatin With Prolonged Angiogenic Blocking by Bevacizumab in Advanced Lung Cancer. (BUCiL)
104	NCT01631136	Strategies for Maintenance Therapies in Advanced Non Small Cell Lung Cancer
105	NCT01746277	Study of Chemotherapy Sequenced by or Combined With EGFR-TKIs for NSCLC Patients Failed to EGFR-TKIs Therapy
106	NCT01742767	Cisplatinum/Pemetrexed Versus Split-dose Cisplatinum/Pemetrexed In NSCLC (PemSplitCisp)
107	NCT01784549	Customized Neoadjuvant Versus Standard Chemotherapy in NSCL Patients With Resectable Stage IIIA (N2)Disease (CONTEST)
108	NCT01928160	Pemetrexed Disodium and Carboplatin or Cisplatin With or Without Erlotinib Hydrochloride in Treating Patient With Stage IV Non-Small Cell Lung Cancer Resistant to First-Line Therapy With Erlotinib Hydrochloride or Gefitinib
109	NCT02004184	Pemetrexed in Advanced Non-Small-Cell Lung Cancer: at Progression vs Maintenance Therapy After Induction Chemotherapy (IDA)
110	NCT01951482	Pemetrexed/Cisplatin With or Without Bevacizumab in Brain Metastases From Non Squamous Non-small Cell Lung Cancer

111	NCT02162537	Comparison of Two Therapeutic Strategies in Patients With Non-squamous Non-small Cell Lung Cancer (NSCLC) With Asymptomatic Brain Metastases (METAL2)
112	NCT01951469	Gefitinib With or Without Pemetrexed/Cisplatin in Brain Metastases From Non-small Cell Lung Cancer
113	NCT01860040	Neoadjuvant Chemo for NSCLC
114	NCT01860508	A Study of PC Sequential Pemetrexed Single Drug Maintenance Treatment for NSCLC and Related Predictive Biomarkers
115	NCT01850303	MODEL (Maintenance Versus Observation After inDuction Chemotherapy in Non-progressing Elderly Patients With Advanced Non-small Cell Lung Cancer)
116	NCT01958372	Radiation Therapy, Chemotherapy, and Soy Isoflavones in Treating Patients With Stage IIIA-IIIB Non-Small Cell Lung Cancer
117	NCT02037997	Safety and Effectiveness Study of Chemotherapy in Combination With Erlotinib,or Sequential Erlotinib for Treatment in Patients With NSCLC
118	NCT01899989	Stereotactic Body Radiation Therapy for Inoperable Locally-advanced Non-small Cell Lung Cancer

crizotinib		
1	NCT00585195	A Study Of Oral PF-02341066, A c-Met/Hepatocyte Growth Factor Tyrosine Kinase Inhibitor, In Patients With Advanced Cancer
2	NCT00932893	An Investigational Drug, PF-02341066 Is Being Studied Versus Standard Of Care In Patients With Advanced Non-Small Cell Lung Cancer With A Specific Gene Profile Involving The Anaplastic Lymphoma Kinase (ALK) Gene
3	NCT00932451	An Investigational Drug, PF-02341066, Is Being Studied In Patients With Advanced Non-Small Cell Lung Cancer With A Specific Gene Profile Involving The Anaplastic Lymphoma Kinase (ALK) Gene
4	NCT01154140	A Clinical Trial Testing The Efficacy Of Crizotinib Versus Standard Chemotherapy Pemetrexed Plus Cisplatin Or Carboplatin In Patients With ALK Positive Non Squamous Cancer Of The Lung (PROFILE 1014)

5	NCT01639001	A Study Of Crizotinib Versus Chemotherapy In Previously Untreated ALK Positive East Asian Non-Small Cell Lung Cancer Patients
6	NCT01597258	Safety And Efficacy Of Crizotinib (Regulatory Post Marketing Commitment Plan)
7	NCT01637597	Crizotinib Efficacy In Non-Small Cell Lung Cancer Patients With Anaplastic Lymphoma Kinase Translocation
8	NCT01576406	Hepatic Impairment Study For Crizotinib In Advanced Cancer Patients
9	NCT01945021	Phase II Safety and Efficacy Study of Crizotinib in East Asian Patients With ROS1 Positive, ALK Negative Advanced NSCLC
10	NCT01822496	Erlotinib Hydrochloride or Crizotinib and Chemoradiation Therapy in Treating Patients With Stage III Non-Small Cell Lung Cancer
11	NCT02041468	Study to Evaluate Resistance Mechanisms and Real-world Pharmacoeconomics of Crizotinib in NSCLC Patients

afatinib		
1	NCT00809133	Trial Exploring Afatinib (BIBW 2992) + Paclitaxel (Part A), Afatinib + Paclitaxel + Bevacizumab (Part B), Afatinib + Carboplatin (Part C) and Afatinib+ Paclitaxel +Carboplatin(Part D) in Patients With Advanced Solid Tumours
2	NCT00993499	Trial of Continuous Once Daily Oral Treatment Using BIBW 2992 (Afatinib) Plus Sirolimus (Rapamune®) in Patients With Non-small Cell Lung Cancer Harbouring an EGFR Mutation and/or Disease Progression Following Prior Erlotinib or Gefitinib
3	NCT01251653	A Phase I Dose Escalation Trial of Afatinib Plus Gemcitabine or Plus Docetaxel
4	NCT01156545	BIBW 2992 Plus Simvastatin vs. BIBW 2992 in Previously Treated Patients With Advanced Non-adenocarcinomatous NSCLC
5	NCT01542437	Treatment With BIBW 2992, Irreversible Inhibitor of EGFR and HER-2 in Non Small Cell Lung Cancer (NSCLC)
6	NCT01121393	BIBW 2992 (Afatinib) vs Gemcitabine-cisplatin in 1st Line Non-small Cell Lung Cancer (NSCLC)
7	NCT01074177	Understanding Mechanisms of Acquired Resistance to BIBW2992

8	NCT01466660	LUX-Lung 7: A Phase IIb Trial of Afatinib(BIBW2992) Versus Gefitinib for the Treatment of 1st Line EGFR Mutation Positive Adenocarcinoma of the Lung
9	NCT01415011	Efficacy and Safety Study of BIBW 2992 to Treat Lung Cancer Patients (TIMELY)
10	NCT01647711	A Study of Intermittent, High-dose Afatinib to Determine the Maximal Tolerated Dose and Assess Activity of This Dose Against Non-small Cell Lung Cancer With T790M Mutations
11	NCT01746251	Adjuvant Afatinib in Stage I-III NSCLC With EGFR Mutation
12	NCT01553942	Afatinib With CT and RT for EGFR-Mutant NSCLC
13	NCT01649284	Afatinib Expanded Access Program
14	NCT01776684	Evaluation of EGFR TKI Resistance Mechanism Using Plasma DNA Analysis
15	NCT01953913	Afatinib (BIBW 2992) in Advanced Non-Small Cell Lung Cancer Patients With EGFR Mutation
16	NCT01932229	An Open Label Study of BIBW 2992/Afatinib in Advanced Non-Small Cell Lung Cancer Patients Pre-treated With Erlotinib or Gefitinib
17	NCT01853826	An Open Label Trial of Afatinib (Giotrif) in Treatment-naive (1st Line) or Chemotherapy Pre-treated Patients With Locally Advanced or Metastatic Non-small Cell Lung Cancer (NSCLC) Harboring EGFR Mutation(s)
18	NCT01814553	ADAM-Afatinib Diarrhea Assessment and Management
19	NCT01931306	Expanded Access Study of Afatinib in Treatment-naive or Chemotherapy Pre-treated Patients With Non-small Cell Lung Cancer (NSCLC)