Impact of an evolving regulatory landscape on skin cancer drug development in the United States

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Abstract

Background: There has been a rapid proliferation of FDA-approved medications with labeled indications for skin cancer over the last decade, with particular growth over the last 5 years.

Objective: We aimed to evaluate the impact of an evolving U.S. regulatory framework on drug development programs to better understand current trends and regulatory considerations when adjudicating drug approvals for patients with skin cancer.

Methods: We reviewed publicly-available regulatory documents of all systemic medications with a labeled indication for skin cancer.

Results: We identified 130 FDA approvals that resulted in a unique indication, usage, formulation, or dosage change in skin cancer since 1949.

Limitations: Publicly available data from the mid-to-late 20th century is limited.

Conclusions: The therapeutic landscape in skin cancer has changed greatly since the first approval in 1949. In concert, regulatory medicine has also evolved over the last 70 years with the aim of ensuring safe and effective medicines for a diverse array of patients.

Keywords: carcinoma, cutaneous, melanoma, Merkel, regulatory medicine, squamous

Introduction

Skin cancer is a heterogeneous group of malignancies that result from neoplasia of keratinocytes, melanocytes, adnexal structures, nervous tissue, stromal cells, and effectors of the innate and adaptive immune system. In aggregate, new cases of skin cancer outnumber all other forms of cancer combined, with keratinocyte carcinoma alone accounting for 3-4 million cases in the U.S. every year [1]. In keeping with the diverse mechanisms that give rise to cutaneous malignancy, there is a heterogeneous group of drug therapies used to treat skin cancer including cytotoxic agents, targeted therapies, and immunotherapies (**Table 1**). Analogous to the changing therapeutic landscape in cutaneous oncology, the field of regulatory medicine has also evolved substantially over the last century.

To understand how current trends and regulatory approaches to adjudicating drug approvals for skin cancer are influenced, it is useful to also recognize the evolution of regulatory medicine in general. For example, the FDA's modern regulatory function commenced with the Pure Food and Drugs Act of 1906, which prohibited the manufacturing and distribution of misbranded products. Galvanized in large part by the Elixir of Sulfanilamide disaster, Congress passed the Federal Food, Drug, and Cosmetic (FD&C) Act in 1938. The FD&C Act contained provisions requiring new drugs to be shown safe before marketing. In 1962, the FD&C statute was amended to require proof of efficacy in addition to safety prior to granting marketing approval (**Figure 1**).

In this article, we report an examination of the totality of drug approvals for skin cancer with a

Abbreviations

2D Measurement	sum of two-dimensional tumor measurements
ACTG	AIDS Clinical Trials Group Oncology Committee of the National Institute of Allergy and Infectious Diseases criteria
AEs	adverse events
AK	actinic keratosis
BCC	basal cell carcinoma
Bin/Enc	binimetinib/encorafenib
C	comparator/control
CCR	complete clearance rate
CI	confidence interval
CTCL	cutaneous T-cell lymphoma
D	dabrafenib
DESI	Drug Efficacy Study Implementation
DFSP	dermatofibrosarcoma protuberans
DoR	duration of response
DP	dabrafenib/placebo
DT	dabrafenib/trametinib
DT1	dabrafenib/trametinib 1mg
DT2	dabrafenib/trametinib 2mg
Enc	encorafenib
FDA	U.S. Food and Drug administration
FDAAA	Food and Drug Administration Amendments Act
FDAMA	Food and Drug Administration Modernization Act
FDARA	Food and Drug Administration Reauthorization Act
FDASIA	Food and Drug Administration Safety and Innovation Act
GP	gp100
GRS	global response criteria
H/N	head and neck
HDAC	histone deacetylase
HIV	human immunodeficiency virus
HR	hazard ratio
I	ipilimumab
IGP	ipilimumab plus gp100
IN	ipilimumab/nivolumab
KS	Kaposi sarcoma
laBCC	locally advanced basal cell carcinoma
laCSCC	locally advanced cutaneous squamous cell carcinoma
lb95%CI	lower bound 95% confidence interval
MANUF (CMC)	Chemistry, Manufacturing and Controls
mBCC	metastatic basal cell carcinoma
MCC	Merkel cell carcinoma
mcg	microgram
mCSCC	metastatic cutaneous squamous cell carcinoma
mRECIST	modified RECIST
MSI	micro satellite instability
MSI-h	micro satellite instability high
mSWAT	modified SWAT
mut	mutant
N	nivolumab
NA	not available
ORR	objective/overall response rate
OS	overall survival
P10	pembrolizumab 10mg/kg
P2	pembrolizumab 2mg/kg
PFS	progression-free survival
PHBPA	Public Health and Bioterrorism Preparedness Act
PK	pharmacokinetic analysis
r/mCSCC	recurrent or metastatic cutaneous squamous cell carcinoma
rCTCL	refractory cutaneous T-cell lymphoma
RECIST	Response Evaluation Criteria in Solid Tumors
RFS	recurrence-free survival
RFS	relapse-free survival
RR	response rate
SCC	squamous cell carcinoma
SWAT	severity-weighted assessment tool
T	treatment
T/E	trunk and extremities
TMB	tumor mutation burden
TMB-hi	tumor mutation burden high
Tx	treatment
U.S.	United States
u/mMelanoma	unresectable or metastatic melanoma
Vem	vemurafenib
WHO	world health organization; WSSI weighted skin severity index
wt	wild type

specific focus on the evolving regulatory landscape as it pertains to the assessment of clinical benefit. We highlight changes in regulatory considerations regarding trial design, efficacy endpoints, and the overall benefit:risk assessment as they relate to labeling claims for use in patients with skin cancer. Knowledge of the regulatory framework allows

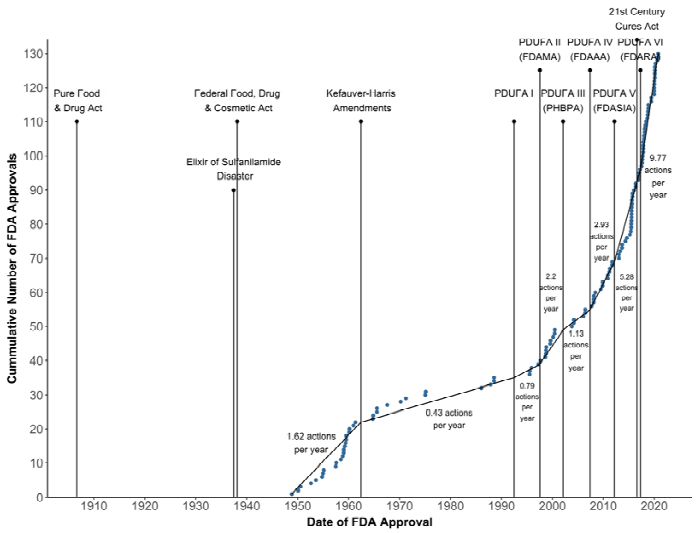

Figure 1. *Landscape of regulatory medicine and cutaneous oncology. Key landmark acts responsible for shaping and influencing trends in regulatory medicine are overlaid among the FDA Approvals specific to cutaneous oncology. Briefly, the Pure Food and Drugs Act of 1906 prohibited "the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs or medicines, and liquors" [2]. In 1937, more than 100 people died secondary to ingestion of diethylene glycol contained in the Elixir Sulfanilamide [3]. Subsequently, Congress passed the Federal Food, Drug, and Cosmetic Act (FD&C) in 1938, which required new drugs to be safe prior to marketing. In 1962, Congress passed amendments to the FD&C, commonly known as the Kefauver-Harris Amendments, which required that sponsors demonstrate scientific evidence of the effect of the purported labeling claim, not just safety. The statutory requirement remains that to obtain marketing approval, sponsors must provide substantial evidence of the drug's safety and effectiveness for its intended use. Responding to complaints about delays in drug approvals, Congress passed the Prescription Drug User Fee Act (PDUFA) in 1992, which permitted the FDA to collect fees from sponsors in order to provide more efficient and timely reviews of new drug and biologic applications. PDFUA must be reauthorized every five years. It was renewed in 1997 with FDAMA (Food and Drug Administration Modernization Act), 2002 as part of the Public Health and Bioterrorism Preparedness Act (PHBPA), 2007 as FDAAA (Food and Drug Administration Amendments Act), 2012 with FDASIA (Food and Drug Administration Safety and Innovation Act) and in 2017 as part of FDARA (Food and Drug Administration Reauthorization Act). Each reauthorization incorporates initiative and programs to continue optimizing the regulatory role of the FDA. The 21st Century Cures Act was passed by the 114th Congress with the goal to accelerate the discovery and development of new therapies. Subtitle C, section 3022 called for a program to evaluate the potential use of real-world evidence to help support regulatory decisions. Abbreviations: FDAAA, Food and Drug Administration Amendments Act; FDAMA, Food and Drug Administration Modernization Act; FDARA, Food and Drug Administration Reauthorization Act; FDASIA, Food and Drug Administration Safety and Innovation Act; PHBPA, Public Health and Bioterrorism Preparedness Act.*

physicians, investigators, industry, and regulators to promote continued innovation in the regulatory sciences and, consequently, to increase efficiency in development of safe and effective medications.

Methods

Overview

To evaluate the evidence used to support labeled claims in skin cancer we reviewed FDA New Drug Application (NDA) or Biological License Application (BLA) reviews and the US product labels that are indexed on the FDA website (https://www.accessdata.fda.gov/scripts/cder/daf/index.cfm) from 1949 to February 09, 2021.

Data

In addition to the product labels and NDA and BLA reviews, data were also obtained from OpenFDA (https://download.open.fda.gov/drug/drugsfda/drug-drugsfda-0001-of-0001.json.zip).

Disease selection

We chose the following eight forms of skin neoplasia: actinic keratosis, basal cell carcinoma (BCC), cutaneous T-cell lymphoma, dermatofibrosarcoma protuberans, Kaposi sarcoma, melanoma, Merkel cell carcinoma, and cutaneous squamous cell carcinoma (SCC). These were selected for our analysis because each category has at least one FDA-approved therapy. Actinic keratosis, although not an overt malignancy but rather a pre-malignant condition, was included because of its importance in the management of skin cancer and its ubiquitous presence in dermatological practice. In general, drugs for actinic keratosis and local treatments for BCC and SCC are reviewed outside of the oncology review divisions within the FDA.

Therapeutic inclusion criteria

Therapies that have a labeled indication for skin neoplasia (as defined above) were selected. Only labeling modifications of NDAs or BLAs were selected. If a molecular entity had an abbreviated new drug application (ANDA) associated - e.g., a generic form of the therapy was approved, the ANDA was not included in the analysis, as these generally not required to include clinical data to establish safety and efficacy.

Endpoint selection

Primary endpoints were included in our study as they are the principal analytical criteria for labeling modification. Secondary endpoints are outcomes that are related to the primary question and are often used to support the conclusions derived from the primary question. They are, however, often not sufficient to support a labeled claim. Therefore, we did not include them in this primary analysis. We still emphasize the importance of secondary endpoints as they can play an integral role in the evaluation of an agent's efficacy.

Applications selected for "Patients Per Pivotal Trial" and "Trial Design" analysis

For our analysis of the number of patients used in pivotal trials as well as the trial design, we chose application submissions that led to either initial approval of a product (e.g., a Type 1, 3 or 5 submission) or a supplemental approval that resulted in a new indication or usage. Actions that were based solely on pharmacokinetic analysis (e.g., NDA022067, BLA125554, NDA019157, BLA125514, BLA125377) were excluded.

Missing data

Data on investigational agents approved prior to the Kefauver-Harris Amendments were not obtainable (N=23). Therefore, efficacy data and trial design on these drugs, known as DESI (Drug Efficacy Study Implementation) drugs, are limited. Furthermore, certain data regarding trial design, type of submission and subject enrollment for therapies approved in the mid-to-late 20th century were also not available. We understand that this is a caveat of this figure. Missing data can be appreciated for all actions by looking at **Table 1**.

Data visualizations

Figures were generated with the package 'ggplot2' using the R programming language, version 4.0.0 (R Foundation for Statistical Computing).

Additional clarifications

NDA 022483/S-003

The initial application for Zyclara (imiquimod) included trials studying both the 3.75% and 2.5% dosage forms. The sponsor submitted for an initial NDA for the 3.75% cream. S-003 was a supplemental approval for the 2.5% dosage form. The initial NDA (NDA 022483) included 319 patients. The updated label for S-003 includes data on 479 patients. The drug development program compared both the 3.75% (N=160) and the 2.5% (N=160) dosage forms against subjects who received a vehicle control (N=159). Given that S-003 compared 160 subjects treated with Zyclara to 150 vehicle-treated, we also used 319 as the total N in that submission in **Table 1**. However, the total number of patients in all the studies was 479.

Results

FDA approvals in skin cancer

Since 1949 there have been 78 drugs approved with an indication or usage for skin cancer. We identified 1514 modifications to the marketing labels of those therapies, including approvals for use, as well as labeling updates (**Table 2**). To gain further insight into regulatory decisions governing approval, we focused our analysis on the 130 FDA actions that resulted in the approval of a product for a new or revised indication or usage, a formulation change, or dosage change in eight distinct types of cutaneous

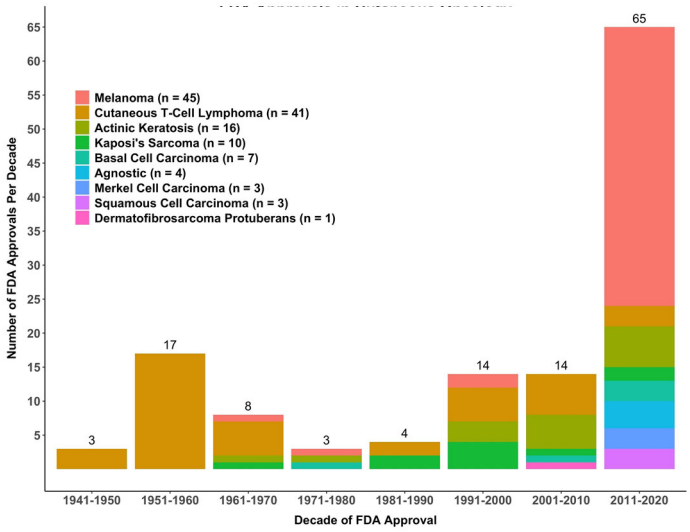

Figure 2. *FDA approvals per decade. The number of regulatory decisions relating to indications and usage, formulation changes, dosage and administration made in skin cancer drug labels per decade are shown, with color indicating the skin neoplasia corresponding to that action. Parenthetically in the legend is the total number of actions per disease from 1949-2021 by skin cancer type.*

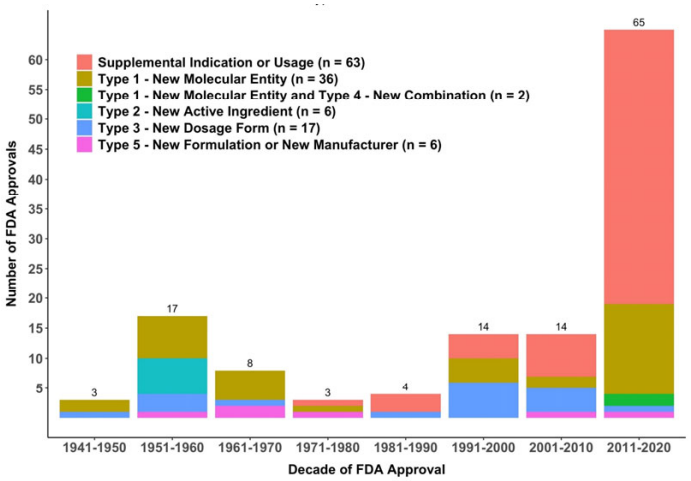

Figure 3. *Type of labeling modification. This figure depicts the different types of modifications made in skin cancer product labels across the 8 categories of skin neoplasia that have approved therapies, as well as approvals for therapies without specific skin cancer indications (aka "agnostic"), but with relevant use in skin cancer populations. Parenthetically in the legend is the total number of validated labeling modifications corresponding to that type from 1949-2021.*

neoplasia with at least one FDA-approved agent at the time of our analysis (**Figures 1, 2**).

Among the 130 FDA approvals in our analysis, 66% occurred in two diseases: melanoma (N=45) and cutaneous T-cell lymphoma (CTCL), (N=41). There were 38 new molecular entity (NME) approvals and 63 approvals of efficacy supplements for skin cancer. This constituted 78% of the approvals over the last 70 years (**Figure 3**).

The rate of FDA approvals for skin cancers has changed prominently over time (**Figure 2**). Three FDA approvals in cutaneous oncology occurred during the 1940s. In the 1950s there were an average of 1.7 actions per year, followed by 0.3 to 1.4 actions annually up until 2010. In the final full decade of our analysis (2011–2020), FDA approvals per year increased substantially to 6.5. Indeed, 62% (81/130) of the approvals in our analysis occurred in the last two decades and 73% (95/130) since the enactment of the first Prescription Drug User Fee Act (PDUFA) on October 29, 1992. The average rate of approvals has steadily increased over the last four rounds of PDUFA re-authorization (**Figure 1**).

Primary endpoints used in FDA approvals

The proposed efficacy labeling claims for an investigational agent are typically based on the pre-specified, primary endpoint(s) of a trial intended to support approval. Primary endpoints are the basis for the design, statistical parameters including sample size, and success of a trial. Commensurate with the heterogeneity of the clinical manifestations of skin cancer, a variety of endpoints have emerged over time to support marketing approvals. The most common primary endpoint used across skin cancer pivotal trials, and throughout each decade in the analysis time range, was overall response rate (ORR), (**Figure 4**). The use of co-primary endpoints, as well as progression-free survival (PFS) as the primary efficacy outcome, have emerged only in the last decade.

Of 89 reviewable labeling modifications, 64% (57/89) incorporated some form of tumor-response claim (e.g., overall response or complete clearance rate). Overall survival, a gold-standard endpoint to measure direct clinical benefit of systemic therapies in oncology trials, was used in 10 applications (5 applications where it was the sole endpoint and 5 applications where it served as a co-primary endpoint) and has only been used in the most recent decade.

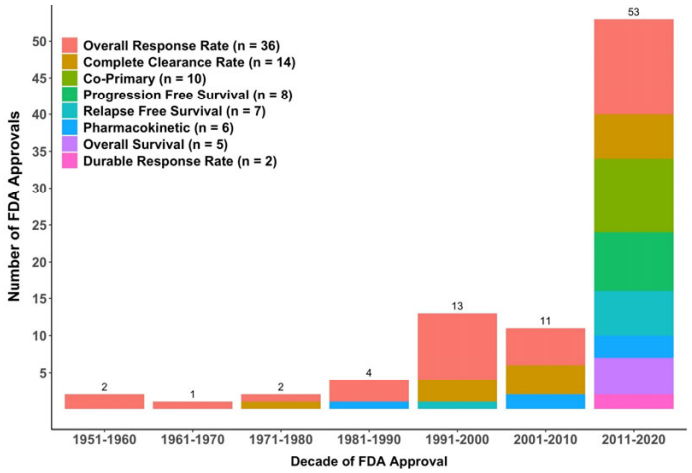

Figure 4. *Primary endpoints used in regulatory decisions for skin cancer products. Depicted is the cumulative number and type of primary endpoints used in pivotal trials for skin cancer by decade. Bars are filled with colors corresponding to the type of primary endpoint used in the pivotal trials for NDA or BLA submission from 1951-2020. Co-primary represents trials that used more than one primary endpoint in a pivotal trial. Parenthetically in the legend is the total number of times the specific endpoint was utilized since 1951. CCR, complete clearance rate; ORR, overall response rate; OS, overall survival; PFS, progression-free survival; PK, pharmacokinetic analysis; RFS, relapse-free survival.*

Approval pathways used in FDA approvals

All FDA-approved products must meet statutory standards for safety and effectiveness. A regular approval is supported by endpoints that measure direct clinical benefit (e.g., improved survival, symptoms, or functional impairments) in the intended use population. The Accelerated Approval (AA) pathway was established in 1992 for therapies used to treat serious and life-threatening conditions with an unmet medical need (21 CFR 314 Subpart H for drugs and 21 CFR 601 Subpart E for biologics). As amended by FDASIA, the FD&C Act provides FDA the authority to grant an AA based upon "determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments [4]." Since 1992, there have been 95 FDA approvals of marketing applications seeking new or updated skin cancer indications or usage, including 21 via the AA pathway. The vast majority of AAs occurred in the last 10 years (19/21), including 67% in the last five years (**Figure 5**).

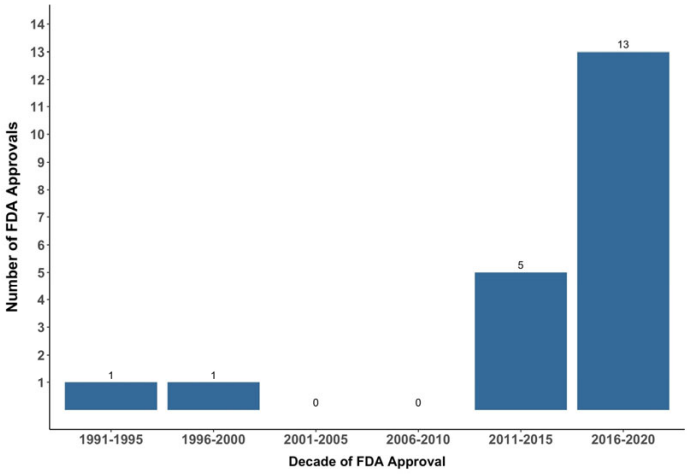

Figure 5. *Accelerated approval pathway. This graph depicts the cumulative number of applications specific for indications and usages in skin neoplasia that were approved via the accelerated pathway from 1991-2020.*

Criteria used in assessment of trial endpoints

Consistent with the diversity in endpoints used to support labeling claims, a number of criteria have been used to evaluate trial endpoints, with Clinical Assessment (e.g., evaluation of alive/dead status) being the most commonly used (**Figure 6**). Since skin lesions are not always amenable to reliable radiographic evaluation, visual assessment and clinical photography have played essential roles in response assessment. Standardized photographs of baseline and treated skin lesions are recommended in scoring assessment tools in CTCL (e.g., mSWAT and GRS), [5]. These criteria were used in the trials supporting the approvals of vorinostat, brentuximab vedotin, and mogamulizumab-kpkc in CTCL [6-8]. Composite criteria of bi-dimensional measurements of tumor ulceration and standardized digital photography of target lesion(s) in patients with locally advanced BCC (laBCC) were used to support the 2012 NDA for vismodegib. Similarly, a protocol-specific modified RECIST was incorporated for

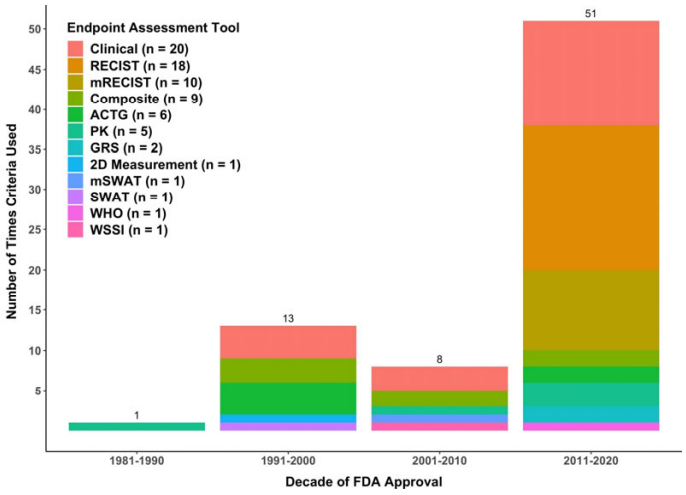

Figure 6. *Criteria used for primary endpoint assessments are shown by decade of FDA Approval from 1981-2020. Parenthetically in the legend is the total number of times that tool was used by the applications in this study since 1981. 2D Measurement, Sum of two dimensional tumor measurements; ACTG, AIDS Clinical Trials Group Oncology Committee of the National Institute of Allergy and Infectious Diseases criteria (this group includes both ACTG and modified ACTG); CCR, complete clearance rate; Clinical, this connotes an investigator assessment without a specific tool; e.g.; detection of a recurrent lesion in an adjuvant study or absence of a lesion for complete clearance rate assessment); Composite, composite endpoint; GRS, global response criteria; mRECIST, modified RECIST; mSWAT, modified SWAT; ORR, overall response rate; OS, overall survival; PK, pharmacokinetic analysis; PFS, progression-free survival; RECIST, Response Evaluation Criteria in Solid Tumors; RFS, relapse-free survival; SWAT, severity-weighted assessment tool; WHO, world health organization; WSSI, weighted skin severity index.*

assessing patients with laBCC in the 2015 NDA for sonidegib. This modification of RECIST utilizes multiple data sources including digital photography, magnetic resonance imaging, and pathology from tumor biopsies to develop a composite endpoint called "composite overall response." Notably, although long used as a method of standardizing assessments of tumor response in skin cancer lesions, digital photographic evaluations conducted during recent pivotal trials served as part of the totality of data supporting FDA granting regular approvals to hedgehog inhibitors for advanced BCC and PD1 monoclonal antibodies for advanced CSCC and laBCC [9-12]. Whereas response rate more commonly serves as an intermediate endpoint supporting AA in other cancer indications, the dramatic and treatment-related improvements in baseline disfiguring BCC and CSCC lesions observed in the photographic data included in the marketing applications and the durability of these effects was considered evidence of direct clinical benefit in these skin cancer populations.

Patients per pivotal trial

Pivotal trials have varied greatly in the number of subjects used to support the statistical persuasiveness of the investigational agent's effect. Of the 77 trials where data on enrollment were obtainable and met our inclusion criteria, the smallest application in this cohort was the imatinib supplemental NDA for dermatofibrosarcoma protuberans (N=18). The largest study supported the 2011 supplemental BLA for peginterferon alfa-2B use in resected melanoma (N=1256), (**Figure 7**).

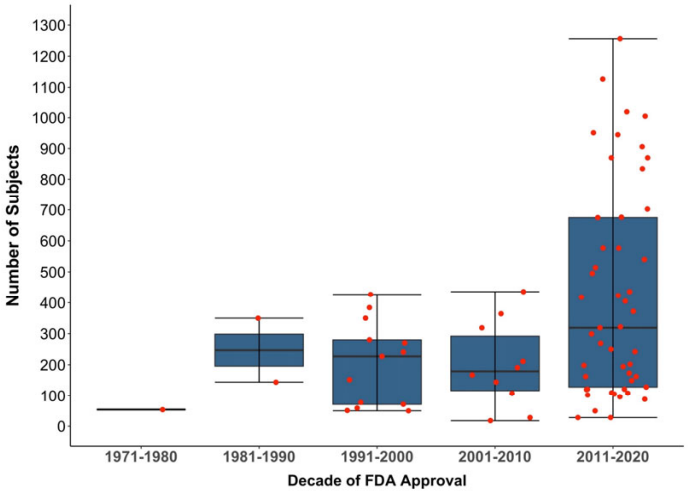

Figure 7. *Subjects enrolled in pivotal trials. The number of patients in each pivotal trial is depicted as a red dot grouped by decade of FDA Approval from 1971-2020.*

Efficacy assessment in non-comparator trials

Information regarding design of the pivotal trial was available for 79 approvals in our analysis. Of those, 24 labeling modifications were supported by placebo-controlled trials, 25 by trials of the study drug versus an active-comparator, and 30 by non-randomized studies. Single-arm trials often measure efficacy based on tumor response rate and duration of response since time-to-event endpoints (e.g., survival) are challenging to interpret in the absence

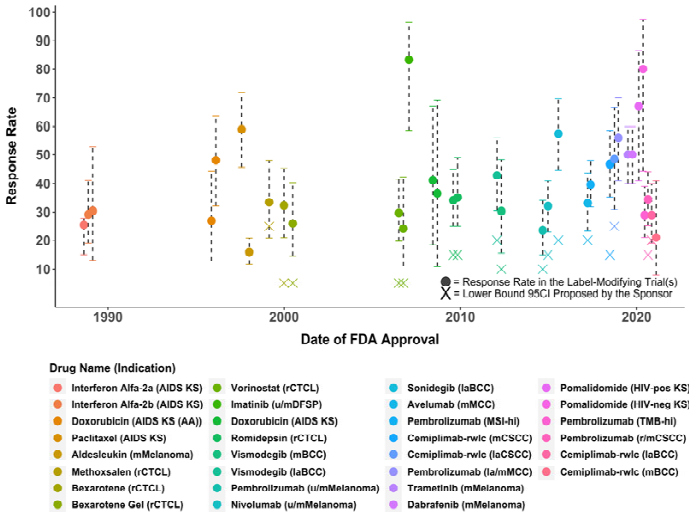

Figure 8. *Efficacy assessment in non-comparator trials. Depicted is the overall response rate (filled circles) in non-comparator trials with the corresponding 95% confidence interval (dotted segments) and the lb95%CI proposed by the sponsor to estimate a clinically meaningful response rate ("X"). This is conceptually similar to a null hypothesis for which an investigator would reject if the data were statistically persuasive. For actions, FDA may focus on the observed response rate and associated confidence interval rather than original statistical design of the protocol. AIDS KS, AIDS-related Kaposi sarcoma; AIDS KS (AA), AIDS-related Kaposi sarcoma; trial approved with accelerated approval; HIV-pos KS, HIV-positive Kaposi Sarcoma; HIV-neg KS; HIV-negative Kaposi Sarcoma; laBCC, locally advanced basal cell carcinoma; laCSCC, locally advanced cutaneous squamous cell carcinoma; la/mMCC, locally advanced or metastatic Merkel cell carcinoma; lb95%CI, lower bound 95% confidence interval; mBCC, metastatic basal cell carcinoma; mCSCC, metastatic cutaneous squamous cell carcinoma; MSI-hi, microsatellite instability high; r/mCSCC, recurrent or metastatic cutaneous squamous cell carcinoma; rCTCL, refractory cutaneous T-cell lymphoma; TMB-hi, tumor mutation burden high; u/mDFSP, unresectable or metastatic dermatofibrosarcoma Protuberans; u/mMelanoma, unresectable or metastatic melanoma.*

of an internal control (whereas most tumors rarely shrink in the absence of therapy). Of the 30 labeling modifications supported by results of single-arm studies, the observed ORR ranged from 15.9-83.3%, with a median of 34% (**Figure 8**). Objective/overall response rate results are typically evaluated in the context of a pre-specified target overall response rate and a lower bound 95% confidence interval (lb95%CI) considered clinically relevant in the respective indication. We identified 14 labeling modifications in which the lb95%CI was pre-specified in the protocol. A lb95%CI that excluded response rates less than 15% was the most commonly used boundary (N=5) in the statistical plans; the range was 5% (N=4) to 25% (N=2). The lb95%CI appears to be increasing in the protocols over time with 5% last used in 2006. Between 2016 and 2020 the minimum lb95%CI was 15%. Furthermore, the median lb95CI has increased from 5% in 1996-2000 to 17.5% in 2016-2020.

Discussion

The therapeutic landscape in skin cancer has changed greatly since the first approval in 1949. In concert, regulatory medicine has evolved over the last 70 years with the aim of ensuring access to safe and effective medicines for a diverse array of patients. Although approvals for CTCL have occurred steadily over the last 70 years, therapeutic innovation in melanoma has been a more recent development, with 91% of actions occurring in the last ten years. Furthermore, in just the last five years, initial approvals occurred in Merkel cell carcinoma, cutaneous squamous cell carcinoma, and tissue agnostic indications with direct relevance to skin cancer.

The 1962 Statutory Effectiveness Standard FDCA Sec 505(b) put into law that a sponsor must provide "substantial evidence that the drug will have the effect it purports or is represented to have under the conditions of use prescribed, recommended, or suggested in the proposed labeling." The primary basis for determining whether there is "substantial evidence" to support the claims of effectiveness for new drugs are reports of adequate and well-controlled investigations. Therefore, although there are statutes codified into law that provide guidance to the FDA, benefit-risk assessments must be interpreted through the contextual lens of the disease environment specific for any given labeled indication.

Isolation of the purported effect may dictate that trials be designed with multiple arms, incorporating either a placebo or active-comparator control. Randomization is generally necessary for a reliable analysis of time-to-event endpoints in oncology trials (e.g., PFS or OS). Use of OS in clinical trials in cutaneous oncology has generally occurred in the past decade. This is likely context dependent, as improvements in OS have supported melanoma approvals which have most occurred over the prior decade. As melanoma is a systemic disease, approvals generally require data to support a systemic anti-tumor effect (and survival is a gold standard for such an effect).

The phrase "adequate and well-controlled studies" has commonly been interpreted as a requirement for external duplication through at least two independent trials. However, FDA may also rely on a single clinical trial to establish effectiveness in certain circumstances [13]. In cutaneous oncology specifically, single-arm trials demonstrating a clinically-relevant effect size on ORR that is durable have successfully supported marketing approvals of several new molecular entities and supplemental indications.

Depending on the context ORR in cancer studies may be considered a surrogate or intermediate clinical endpoint that is "reasonably likely to predict clinical benefit;" therefore, an effect on ORR has the potential to support an AA with requirements to verify and describe benefit in subsequent post-marketing studies. It is noteworthy however, that for some skin cancer indications, there are multiple examples of regular approvals based on demonstration of durable response rates in the intended use population. As discussed above, for recent drug approvals for advanced BCC and CSCC, FDA evaluated the totality of data for these products in the context of patients having a life-threatening cancer as well as other serious disease burdens.

Demonstration of durable ORRs that correlated with substantial reduction in size of disfiguring cutaneous tumors in highly visible areas, was considered direct evidence of clinical benefit and supported these regular approvals. Ultimately, the choice of endpoint in any specific development program will depend upon multiple factors including ability to accurately assess the endpoint, unmet need, rarity of the disease, and the relative efficacy of the drug.

Because cutaneous oncology is diverse with respect to goals of therapy, available therapies, unmet need, and prevalence of the different diseases, there are different considerations for each disease with respect to study designs including number of patients needed to demonstrate efficacy. For example, the smallest trial in this cohort, the 2006 supplemental NDA for imatinib in DFSP, consisted of 18 subjects. This application was supported by data from 12 subjects in a single-arm trial and 6 from case reports. Central to the regulatory decision was the fact that there were no available therapies approved for DFSP (an ultra-rare disease), the biology was well characterized, the safety profile of imatinib was well known, and the results were statistically persuasive and consistent with similar response rates in other approved conditions of use. For example, 83% (15/18) of the patients in the application had a response with 47% (7/15) of responders demonstrating a complete response.

For rare cutaneous malignancies, global drug development strategies may be needed and developers may use novel trial designs to assess the effects of a drug. Such designs may include basket or umbrella trials, trials with Bayesian designs, or trials that generate evidence for tissue agnostic approvals. As stated in **Figure 1**, one goal of the 21st Century Cures Act is to evaluate the use of "Real World Evidence" (RWE) to support regulatory decisions. For example, photographic evidence of clinical benefit, a unique feature of cutaneous oncology, could be incorporated into RWE.

Caveats of this study include the fact that data were not obtainable for every approved product. Additionally, although safety is a critical component of the benefit-risk evaluation, this study focused on the assessment of clinical benefit, with a scope limited primarily to efficacy. In summary, regulatory decisions regarding the indications and usage of anti-neoplastic agents occur in a dynamic environment. An improved understanding of the trends of regulatory medicine by dermatologists and oncologists may yield more effective clinical investigations for patients with skin cancer.

Potential conflicts of interest

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Table 1. *Therapies with indications for skin cancer.*

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Mechlorethamine hydrochloride	NDA006695	Mycosis fungoides	Type 1-new molecular entity	1949-03-15	CTCL	NA	NA	NA	NA	NA	No	Alkylating agent
Cortisone acetate	NDA007110	Mycosis fungoides	Type 1-new molecular entity	1950-06-13	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Cortisone acetate	NDA007750	Mycosis fungoides	Type 3-new dosage form	1950-12-04	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Hydrocortisone	NDA008697	Mycosis fungoides	Type 5-new formulation or new manufac-turer	1952-12-15	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methotrexate sodium	NDA008085	Mycosis fungoides	Type 1-new molecular entity	1953-12-07	CTCL	Response rate	NA	NA	NA	NA	No	Antimetabolite
Prednisone	NDA009766	Mycosis fungoides	Type 1-new molecular entity	1955-02-21	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Hydrocortisone sodium succinate	NDA009866	Mycosis fungoides	Type 2-new active ingredient	1955-04-27	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Prednisolone	NDA009987	Mycosis fungoides	Type 1-new molecular entity	1955-06-21	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methylprednisolone	NDA011153	Mycosis fungoides	Type 1-new molecular entity	1957-10-24	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Triamcinolone	NDA011161	Mycosis fungoides	Type 1-new molecular entity	1957-12-03	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Dexamethasone	NDA011664	Mycosis fungoides	Type 1-new molecular entity	1958-10-30	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Triamcinolone diacetate	NDA011685	Mycosis fungoides	Type 2-new active ingredient	1959-03-12	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methylprednisolone sodium succinate	NDA011856	Mycosis fungoides	Type 2-new active ingredient	1959-05-18	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methylprednisolone acetate	NDA011757	Mycosis fungoides	Type 2-new active ingredient	1959-05-27	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methotrexate sodium	NDA011719	Mycosis fungoides	Type 2-new active ingredient	1959-08-10	CTCL	Response rate	NA	NA	NA	NA	No	Antimetabolite
Dexamethasone sodium phosphate	NDA012071	Mycosis fungoides	Type 3-new dosage form	1959-10-06	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Cyclophosphamide	NDA012142	Mycosis fungoides	Type 2-new active ingredient	1959-11-16	CTCL	NA	NA	NA	NA	NA	No	Alkylating agent
Cyclophosphamide	NDA012141	Mycosis fungoides	Type 1-new molecular entity	1959-11-16	CTCL	NA	NA	NA	NA	NA	No	Alkylating agent
Methylprednisolone acetate	NDA012421	Mycosis fungoides	Type 3-new dosage form	1960-06-21	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Dexamethasone	NDA012376	Mycosis fungoides	Type 3-new dosage form	1960-07-07	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Betamethasone	NDA012657	Mycosis fungoides	Type 1-new molecular entity	1961-04-17	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Triamcinolone diacetate	NDA012802	Mycosis fungoides	Type 5-new formulation or new manufac-turer	1961-09-05	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Triamcinolone acetonide	NDA014901	Mycosis fungoides	Type 5-new formulation or new	1965-02-01	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
			manufac-turer									
Betamethasone acetate	NDA014602	Mycosis fungoides	Type 1-new molecular entity	1965-03-03	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Vinblastine sulfate	NDA012665	Mycosis fungoides	Type 1-new molecular entity	1965-11-25	CTCL	NA	NA	NA	NA	NA	No	Microtubule inhibitor
Vinblastine sulfate	NDA012665	Kaposi sarcoma	Type 1-new molecular entity	1965-11-25	KS	NA	NA	NA	NA	NA	No	Microtubule inhibitor
Hydroxyurea	NDA016295	Melanoma	Type 1-new molecular entity	1967-12-07	Melanoma	Overall response rate	NA	NA	NA	NA	No	Anti-metabolite
Fluorouracil	NDA016831	Multiple actinic keratoses	Type 3-new dosage form	1970-07-29	AK	NA	NA	NA	NA	NA	NA	Anti-metabolite
Fluorouracil	NDA016988	Actinic keratoses	Type 5-new formulation or new manufac-turer	1971-08-06	AK	NA	NA	NA	NA	NA	No	Anti-metabolite
Dacarbazine	NDA017575	Metastatic malignant melanoma	Type 1-new molecular entity	1975-05-27	Melanoma	Overall response rate	NA	NA	NA	NA	No	Alkylating agent
Fluorouracil	NDA016831	Superficial basal cell carcinoma	Efficacy	1975-06-30	BCC	Complete clearance rate	CCR: 93%	54	NA	NA	No	Anti-metabolite
Prednisolone sodium phosphate	NDA019157	Mycosis fungoides	Type 3-new dosage form	1986-05-28	CTCL	Bioequiva-lence	NA	12	NA	PK	No	Glucocorticoid
Methoxsalen	NDA009048	Refractory cutaneous T-cell lymphoma	Efficacy	1988-03-23	CTCL	Response rate	NA	NA	NA	NA	No	Phototoxic agent

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Interferon Alfa-2b	BLA103132	AIDS-related Kaposi sarcoma	Efficacy	1988-11-21	KS	Response rate	RR: 29% (30 million IU study) RR: 30% (35 million IU study)	144	NA	NA	No	Cytokine
Interferon Alfa-2a	BLA103145	AIDS-related Kaposi sarcoma	Efficacy	1988-11-21	KS	Response rate	RR: 25.5% (35 MIU)	350	NA	NA	No	Cytokine
Doxorubicin hydrochloride	NDA050718	Accelerated approval for refractory AIDS-related Kaposi sarcoma	Type 3-new dosage form	1995-11-17	KS	Response rate	RR: 27% (Investigator Assessment) RR: 48% (Indicator Lesion Assessment)	77	NA	ACTG	Yes	Topoisomerase inhibitor
Interferon Alfa-2b	BLA103132	Adjuvant melanoma	Efficacy	1995-12-05	Melanoma	Relapse-free survival	RFS: 1.72 vs. 0.98 years OS: 3.82 vs. 2.78 years	280 (T=143 C=137)	NA	Clinical	No	Cytokine
Daunorubicin citrate	NDA050704	HIV-associated Kaposi sarcoma-first line	Type 3-new dosage form	1996-04-08	KS	Response rate	RR: 23%	227 (T=116 C=111)	NA	ACTG	No	Topoisomerase inhibitor
Paclitaxel	NDA020262	AIDS-related Kaposi sarcoma-second line	Efficacy	1997-08-04	KS	Response rate	RR: 59%	59	NA	ACTG	No	Microtubule stabilizer
Aldesleukin	BLA103293	Metastatic melanoma	Efficacy	1998-01-09	Melanoma	Objective response rate	RR: 15.9%	270	NA	2D Measurement	No	Cytokine
Prednisolone sodium phosphate	NDA019157	Expansion to include	Efficacy	1998-12-17	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		pediatric populations										
Alitretinoin	NDA020886	AIDS-related Kaposi sarcoma-cutaneous lesions only	Type 1-new molecular entity	1999-02-02	KS	Response rate	RR: 35% (Study 1) RR: 36% (Study 2)	350 (T=170 C=180)	NA	ACTG	No	Retinoid
Denileukin diftitox	BLA103767	Accelerated approval for persistent or recurrent CD25+ cutaneous T-cell lymphoma	Type 1-new molecular entity	1999-02-05	CTCL	Response rate	RR: 36% (18mcg) RR: 23% (9mcg)	71 (18mcg=36 9mcg=35)	NA	SWAT	Yes	Cytokine-cytotoxin
Methoxsalen	NDA020969	Refractory cutaneous T-cell lymphoma	Type 3-new dosage form	1999-02-25	CTCL	Response rate	RR: 33.3%	51	25	Composite	No	Phototoxic agent
Aminolevulinic acid hydrochloride	NDA020965	Non-hyperkera-totic actinic keratoses of the face or scalp	Type 1-new molecular entity	1999-12-03	AK	Complete response rate	CCR: 69% (Trial 1) CCR: 63% (Trial 2)	241 (T=180 C=61)	NA	Clinical	No	Phototoxic agent
Bexarotene	NDA021055	Refractory cutaneous T-cell lymphoma	Type 1-new molecular entity	1999-12-29	CTCL	Response rate	RR: 32.2%	152	5	Composite	No	Retinoid
Bexarotene	NDA021056	Refractory stage Ia and Ib cutaneous T-cell lymphoma	Type 3-new dosage form	2000-06-28	CTCL	Response rate	RR: 26%	50	5	Composite	No	Retinoid

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Diclofenac sodium	NDA021005	Actinic keratoses	Type 3-new dosage form	2000-10-16	AK	Complete clearance rate	CCR: 47% (Study 1 90d Tx) CCR: 34% (Study 2 90d Tx) CCR: 31% (Study 3 60d Tx) CCR: 14% (Study 3 30d Tx)	427 (T=213 C=214)	NA	Clinical	No	NSAID
Fluorouracil	NDA020985	Multiple actinic keratoses of the face and anterior scalp	Type 3-new dosage form	2000-10-27	AK	Complete clearance rate	CCR: 58% (Study 1) CCR: 38% (Study 2)	384 (T=257 C=127)	NA	Clinical	No	Anti-metabolite
Imiquimod	NDA020723	Nonhyper-trophic actinic keratoses on the face or scalp	Efficacy	2004-03-02	AK	Complete clearance rate	CRR: 46% (Study A) CCR: 44% (Study B)	436 (T=215 C=221)	NA	Clinical	No	TLR agonist
Imiquimod	NDA020723	Superficial basal cell carcinoma	Efficacy	2004-07-14	BCC	Complete clearance rate	CCR: 70% (Study C) CCR: 80% (Study D)	364 (T=185 C=179)	NA	Composite	No	TLR agonist
Methyl aminolevulinate hydrochloride	NDA021415	Non-keratotic actinic keratoses of the face and scalp	Type 3-new dosage form	2004-07-27	AK	Complete response rate	CRR: 81% (Australian Study) CCR: 79% (U.S. Study)	191 (T=130 C=61)	NA	Clinical	No	Phototoxic agent
Prednisolone sodium phosphate	NDA021959	Mycosis fungoides	Type 3-new dosage form	2006-06-01	CTCL	Bioequiva-lence	NA	NA	NA	PK	No	Glucocorticoid

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Vorinostat	NDA021991	Refractory cutaneous T-cell lymphoma	Type 1-new molecular entity	2006-10-06	CTCL	Response rate	RR: 29.7% (Study 1) RR: 24.2% (Study 2)	107	5	mSWAT	No	Hedgehog inhibitor
Imatinib mesylate	NDA021588	Unresectable, recurrent and/or metastatic dermatofi-brosarcoma protuberans	Efficacy	2006-10-19	DFSP	Overall response rate	RR: 83.3%	18	NA	NA	No	Kinase inhibitor
Prednisolone acetate	NDA022067	Mycosis fungoides	Type 3-new dosage form	2008-01-17	CTCL	Bioequiva-lence	NA	72	NA	NA	No	Glucocorticoid
Doxorubicin hydrochloride	NDA050718	Regular aprroval for refractory AIDS-related Kaposi sarcoma	Efficacy	2008-06-10	KS	Overall response rate	RR: 41% (Study 1) RR: 36% (Study 2)	28	NA	NA	No	Topoisomerase inhibitor
Triamcinolone acetonide	NDA022220	Mycosis fungoides	Type 3-new dosage form	2008-06-16	CTCL	NA	NA	NA	NA	NA	No	Glucocorticoid
Methyl aminolevulinate hydrochloride	NDA021415	Use of metvixia with a new lamp (aktilite) in AKs	Efficacy	2008-06-26	AK	Complete response rate	CCR: 59.2% (Study 1) CCR: 68.4% (Study 2)	211 (T=106 C=105)	NA	Clinical	No	Phototoxic agent
Denileukin diftitox	BLA103767	Regular approval for persistent or recurrent CD25+ cutaneous T-cell lymphoma	Efficacy	2008-10-15	CTCL	Response rate	RR: 46% (18mcg) RR: 37% (9mcg)	144 (18mcg=5 5 9mcg=45 C=44)	NA	WSSI	No	Cytokine-cytotoxin

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Romidepsin	NDA022393	Refractory cutaneous T-cell lymphoma	Type 1-new molecular entity	2009-11-05	CTCL	Objective response rate	RR: 34% (Pivotal Study) RR: 35% (Supportive Study)	167	15	Composite	No	HDAC inhibitor
Aminolevulinic acid hydrochloride	NDA020965	Allow user to mix contents for 30 seconds prior to use & to use 'kerastick krusher'	Efficacy	2010-03-12	AK	NA	NA	NA	NA	NA	No	Phototoxic agent
Imiquimod	NDA022483	Use of 3.75% form for actinic keratoses of the full face or balding scalp	Type 5-new formulation or new manufac-turer	2010-03-25	AK	Complete clearance rate	CCR: 25.9% (Study 1) CCR: 45.6% (Study 2)	319 (T=160 C=159)	NA	Clinical	No	TLR agonist
Ipilimumab	BLA125377	Unresectable or metastatic melanoma	Type 1-new molecular entity	2011-03-25	Melanoma	Overall survival	HR: 0.66	676 (I=137 IGP=403 GP=136)	NA	Clinical	No	CTLA4-targeted antibody
Peginterferon Alfa-2b	BLA103949	Adjuvant melanoma	Efficacy	2011-03-29	Melanoma	Relapse-free survival	HR: 0.82	1256 (T=627 C=629)	NA	Clinical	No	Cytokine
Imiquimod	NDA022483	Use of 2.5% cream for AKs on face and scalp	Efficacy	2011-07-15	AK	Complete clearance rate	CCR: 23% (Study 1) CCR: 38% (Study 2)	319 (T=160 C=159)	NA	Clinical	No	TLR agonist
Vemurafenib	NDA202429	Unresectable or metastatic melanoma	Type 1-new molecular entity	2011-08-17	Melanoma	Overall survival & progression-free survival	HR: 0.44 (OS) HR: 0.26 (PFS)	675 (T=337 C=338)	NA	RECIST	No	Kinase inhibitor

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Ingenol mebutate	NDA202833	Actinic keratoses	Type 1-new molecular entity	2012-01-23	AK	Complete clearance rate	CCR: 37% (Study 1 Head and Neck) CCR: 47% (Study 2 Head & Neck) CCR: 28% (Study 3 Trunk & Extremities) CCR: 42% (Study 4 Trunk & Extremities)	1005 (H/N T=277 C=270 T/E T=226 C=232)	NA	Clinical	No	Cytotoxic agent
Vismodegib	NDA203388	Locally advanced or metastatic basal cell carcinoma	Type 1-new molecular entity	2012-01-30	BCC	Objective response rate	RR: 30.3% (mBCC) RR: 42.9% (laBCC)	96 (mBCC=33 laBCC=63)	10 20	mRECIST	No	Hedgehog inhibitor
Trametinib dimethyl sulfoxide	NDA204114	Unresectable or metastatic BRAF-mutated melanoma	Type 1-new molecular entity	2013-05-29	Melanoma	Progression-free survival	HR: 0.47	322 (T=214 C=108)	NA	RECIST	No	MEK inhibitor
Dabrafenib mesylate	NDA202806	Single agent, first-line in advanced BRAF-mutated melanoma	Type 1-new molecular entity	2013-05-29	Melanoma	Progression-free survival	HR: 0.33	250 (T=187 C=63)	NA	RECIST	No	Kinase inhibitor
Mechlorethamine hydrochloride	NDA202317	Refractory stage Ia and Ib	Type 5-new formulation or new	2013-08-23	CTCL	Response rate	RR: 60%	242 (T=119 C=123)	NA	Composite	No	Alkylating agent

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		cutaneous T-cell lymphoma	manufac-turer									
Trametinib dimethyl sulfoxide	NDA204114	Unresectable or metastatic BRAF-mutated melanoma	Efficacy	2014-01-08	Melanoma	Objective response rate & progression-free survival	ORR: 76%	162 (DT2=55 DT1=54 D=53)	NA	RECIST	Yes	MEK inhibitor
Dabrafenib mesylate	NDA202806	Accelerated approval for dab/tram in advanced BRAF mutant melanoma	Efficacy	2014-01-09	Melanoma	Objective response rate	RR: 76%	162 (DT2=55 DT1=54 D=53)	NA	RECIST	Yes	Kinase inhibitor
Pembrolizumab	NULL	Unresectable or metastatic melanoma-second line	Type 1-new molecular entity	2014-09-04	Melanoma	Overall response rate	RR: 23.6%	173	10	mRECIST	Yes	PD1-targeted antibody
Nivolumab	BLA125554	Accelerated approval for unresectable or metastatic melanoma in the second-line setting	Type 1-new molecular entity	2014-12-22	Melanoma	Overall response rate	RR: 32%	120	15	RECIST	Yes	PD1-targeted antibody
Sonidegib phosphate	NDA205266	Locally advanced basal cell carcinoma	Type 1-new molecular entity	2015-07-24	BCC	Objective response rate	RR: 57.5%	194	20	mRECIST	No	Smoothened inhibitor
Nivolumab	BLA125554	Accelerated approval of OPDIVO	Efficacy	2015-09-30	Melanoma	Objective response rate	RR: 60%	109 (T=72 C=37)	NA	RECIST	Yes	PD1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		with Yervoy in BRAF wild Type unresectable or metastatic melanoma										
Talimogene laherparepvec	BLA125518	Unresectable cutaneous, subcuta-neous, and nodal recurrent melanoma	Type 1-new molecular entity	2015-10-27	Melanoma	Durable response rate	RR: 16.3%	436 (T=295 C=141)	NA	WHO	No	Oncolytic virus
Ipilimumab	BLA125377	Adjuvant melanoma	Efficacy	2015-10-28	Melanoma	Relapse-free survival	HR: 0.75	951 (T=475 C=476)	NA	Clinical	No	CTLA4-targeted antibody
Cobimetinib fumarate	NDA206192	Unresectable or metastatic melanoma with a BRAF-mutated melanoma in combination with vemurafenib	Type 1-new molecular entity	2015-11-10	Melanoma	Progression-free survival	HR: 0.56	495 (T=247 C=248)	NA	RECIST	No	Kinase inhibitor
Ingenol mebutate	NDA202833	Describing response to a repeat course	Efficacy	2015-11-19	AK	Complete clearance rate	NA	NA	NA	Clinical	No	Cytotoxic agent
Trametinib dimethyl sulfoxide	NDA204114	Unresectable or metastatic melanoma with a BRAF-	Efficacy	2015-11-20	Melanoma	Progression-free survival	HR: 0.75	423 (DT=211 DP=212)	NA	RECIST	No	MEK inhibitor

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		mutated melanoma in combination with daBRAFenib										
Dabrafenib mesylate	NDA202806	Regular approval for dab/tram in advanced BRAF mutant melanoma	Efficacy	2015-11-20	Melanoma	Overall survival	HR: 0.71 (Trial 2) HR: 0.69 (Trial 3)	1127 (Trial 2 DT=211 DP=212 Trial 3 DT=352 Vem=352)	NA	RECIST	No	Kinase inhibitor
Nivolumab	BLA125554	Regular approval for unresectable or metastatic BRAF-wild Type melanoma	Efficacy	2015-11-23	Melanoma	Overall survival	HR: 0.42	418 (T=210 C=208)	NA	RECIST	No	PD1-targeted antibody
Pembrolizumab	NULL	Unresectable or metastatic melanoma	Efficacy	2015-12-18	Melanoma	Progression-free survival & overall survival	HR: 0.57 (2 mg/kg) HR: 0.50 (10 mg/kg)	540 (P2=180 P10=181 C=179)	NA	mRECIST	No	PD1-targeted antibody
Pembrolizumab	NULL	Removing language limiting the indication to disease progression following ipilimumab	Efficacy	2015-12-18	Melanoma	Progression-free survival & overall survival	HR: 0.69 (OS) HR: 0.58 (PFS)	834 (T=556 C=278)	NA	mRECIST	No	PD1-targeted antibody
Nivolumab	BLA125554	Accelerated approved for BRAF mutant	Efficacy	2016-01-23	Melanoma	Progression-free survival & overall survival	HR: 0.57 (BRAF wt & mutant)	198 (T=98 C=100)	NA	RECIST	Yes	PD1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		unresectable or metastatic melanoma in the first line setting					HR: 0.77 (BRAF mutant only)					
Nivolumab	BLA125554	Accelerated approval of ipi/nivo expansion for BRAF mutant as well as BRAF wt	Efficacy	2016-01-23	Melanoma	Progression-free survival & overall survival	HR: 0.42 (BRAF wt & mut) HR: 0.47 (BRAF mut only)	198 (T=98 C=100)	NA	RECIST	Yes	PD1-targeted antibody
Aminolevulinic acid hydrochloride	NDA208081	Actinic keratoses of mild-to-moderate severity on the face and scalp	Type 3-new dosage form	2016-05-10	AK	Complete response rate	CCR: 85% (Trial 1) CCR: 84% (Trial 2) CCR: 91% (Trial 3)	299 (T=212 C=87)	NA	Clinical	No	Phototoxic agent
Nivolumab	BLA125554	Flat dosing for melanoma, NSCLC and RCC	Efficacy	2016-09-13	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody
Nivolumab	BLA125554	Flat dosing for melanoma, NSCLC and RCC	Efficacy	2016-09-13	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody
Avelumab	BLA761049	Metastatic Merkel cell carcinoma	Type 1-new molecular entity	2017-03-23	MCC	Overall response rate	RR: 33%	88	20	RECIST	Yes	PDL1-targeted antibody
Pembrolizumab	NULL	Flat dosing of 200 mg	Efficacy	2017-05-17	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		q3 weeks in melanoma										
Pembrolizumab	NULL	Unresectable or metastatic, microsatellite instability-high or mismatch repair deficient solid tumors	Efficacy	2017-05-23	Agnostic	Objective Response Rate & Duration of Response	RR: 39.6% DoR: Not Reached	149	NA	mRECIST	Yes	PD1-targeted antibody
Ipilimumab	BLA125377	Unresectable or metastatic melanoma-patients 12 years and older	Efficacy	2017-07-21	Melanoma	Pharmaco-kinetic analysis	NA	45	NA	PK	No	CTLA4-targeted antibody
Brentuximab vedotin	BLA125388	CD30+ mycosis fundgoides and pcalcl in the second line	Efficacy	2017-11-09	CTCL	Durable response rate	RR: 56.3%	128 (T=66 C=62)	NA	GRS	No	CD30-targeted antibody
Nivolumab	BLA125554	Regular approval for adjuvant melanoma	Efficacy	2017-12-20	Melanoma	Relapse-free survival	HR: 0.65	906 (T=453 C=453)	NA	Clinical	No	PD1-targeted antibody
Nivolumab	BLA125554	Updates infusion from 60 to 30 minutes	Efficacy	2018-01-09	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody
Cobimetinib fumarate	NDA206192	Updates label to include OS data	Efficacy	2018-01-26	Melanoma	NA	NA	NA	NA	NA	No	Kinase inhibitor

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Nivolumab	BLA125554	Every 4 week dosing for advanced melanoma	Efficacy	2018-03-05	Melanoma	Pharmaco-kinetic analysis	NA	4166	NA	PK	No	PD1-targeted antibody
Nivolumab	BLA125554	Every 4 week dosing in adjuvant melanoma	Efficacy	2018-03-05	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody
Nivolumab	BLA125554	Updates infusion from 60 to 30 minutes in adjuvant melanoma	Efficacy	2018-03-05	Melanoma	NA	NA	NA	NA	NA	No	PD1-targeted antibody
Aminolevulinic acid hydrochloride	NDA020965	Minimally to moderately thick actinic keratosis of the upper extremities	Efficacy	2018-03-06	AK	Complete response rate	CCR: 31%	269 (T=135 C=134)	NA	NA	No	Phototoxic agent
Trametinib dimethyl sulfoxide	NDA204114	Adjuvant BRAF mutant melanoma in combination with daBRAFenib	Efficacy	2018-04-30	Melanoma	Relapse-free survival	HR: 0.47	870 (T=438 C=432)	NA	Clinical	No	MEK inhibitor
Dabrafenib mesylate	NDA202806	Adjuvant BRAF mutant melanoma in combination with trametinib	Efficacy	2018-04-30	Melanoma	Relapse-free survival	HR: 0.47	870 (T=438 C=432)	NA	Clinical	No	Kinase inhibitor

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
Encorafenib	NDA210496	Regular approval for use in combination with binimetinib for advanced BRAF mutant melanoma	Type 1-new molecular entity and Type 4-new combination	2018-06-27	Melanoma	Progression-free survival	HR: 0.54	577 (Bin/Enc=192 Enc=192 Vem=191)	NA	RECIST	No	Kinase inhibitor
Binimetinib	NDA210498	Unresectable or metastatic BRAF-mutated melanoma in combination with encorafenib	Type 1-new molecular entity and Type 4-new combination	2018-06-27	Melanoma	Progression-free survival	HR: 0.54	577 (Bin/Enc=192 Enc=192 Vem=191)	NA	RECIST	No	Kinase inhibitor
Mogamulizumab-kpkc	BLA761051	Relapsed/refractory mycosis fungoides or sezary syndrome-second line	Type 1-new molecular entity	2018-08-08	CTCL	Progression-free survival	HR: 0.53	372 (T=186 C=186)	NA	GRS	No	CCR4-targeted antibody
Cemiplimab-rwlc	BLA761097	Locally advanced or metastatic squamous cell carcinoma	Type 1-new molecular entity	2018-09-28	SCC	Overall response rate	RR: 46.7% (mCSCC) RR: 48.5% (laCSCC)	108 (mSCC=75 laSCC=33)	15 25	Composite	No	PD1-targeted antibody
Pembrolizumab	NULL	Locally advanced or metastatic	Efficacy	2018-12-19	MCC	Overall Response Rate &	RR: 56%	50	NA	RECIST	Yes	PD1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		merkel cell carcinoma				Duration of Response	DoR: 5.9-34.5+ (months)					
Vismodegib	NDA203388	To allow for treatment interruptions of up to 8 weeks for intolerable AEs	Efficacy	2019-01-18	BCC	NA	NA	NA	NA	NA	No	Hedgehog inhibitor
Pembrolizumab	NULL	Adjuvant melanoma	Efficacy	2019-02-15	Melanoma	Relapse-free survival	HR: 0.57	1019 (T=509 C=502)	NA	Clinical	No	PD1-targeted antibody
Nivolumab	BLA125554	Conversion to regular approval for the treatment of patients with BRAF v600 mutation-positive unresectable or metastatic melanoma	Efficacy	2019-03-07	Melanoma	Overall survival	NA	405 (T=272 C=133)	NA	NA	No	PD1-targeted antibody
Nivolumab	BLA125554	Conversion to regular approval of OPDIVO, in combination with ipilimumab, for the treatment of patients	Efficacy	2019-03-07	Melanoma	Overall survival	NA	945 (IN=314 N=316 I=315)	NA	Clinical	No	PD1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		with unresectable or metastatic melanoma										
Trametinib dimethyl sulfoxide	NDA204114	Updating results in subjects with brain metastases	Efficacy	2019-10-06	Melanoma	Overall response rate	RR: 50%	121	NA	mRECIST	No	MEK inhibitor
Dabrafenib mesylate	NDA202806	Updates label in regards to brain metastases for melanoma	Efficacy	2019-10-06	Melanoma	Overall response rate	RR: 50%	121	NA	mRECIST	No	Kinase inhibitor
Pembrolizumab	NULL	Every 6 weeks dosing in melanoma	Efficacy	2020-04-28	Melanoma	Pharmaco-kinetic analysis	NA	44	NA	PK	Yes	PD1-targeted antibody
Pembrolizumab	NULL	Every 6 weeks dosing in Merkel cell carcinoma	Efficacy	2020-04-28	MCC	NA	NA	NA	NA	NA	Yes	PD1-targeted antibody
Pembrolizumab	NULL	Every 6 weeks dosing in msi-h tumors	Efficacy	2020-04-28	Agnostic	NA	NA	NA	NA	NA	Yes	PD1-targeted antibody
Pomalidomide	NDA204026	Treatment of adult patients with AIDS-related	Efficacy	2020-05-14	KS	Objective response rate	RR: 67%	28 (HIV+=18)	NA	ACTG	Yes	Cereblon inhibitor

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		Kaposi sarcoma										
Pomalidomide	NDA204026	Treatment of Kaposi sarcoma in patients who are HIV-negative	Efficacy	2020-05-14	KS	Objective response rate	RR: 80%	28 (HIV-=10)	NA	ACTG	Yes	Cereblon inhibitor
Pembrolizumab	NULL	Tumor mutation burden-high solid tumors	Efficacy	2020-06-16	Agnostic	Objective Response Rate & Duration of Response	RR: 29%	102	NA	mRECIST	Yes	PD1-targeted antibody
Pembrolizumab	NULL	Every 6 weeks dosing in TMB-hi tumors	Efficacy	2020-06-16	Agnostic	NA	NA	NA	NA	NA	Yes	PD1-targeted antibody
Pembrolizumab	NULL	R/mCSCC	Efficacy	2020-06-24	SCC	Objective response rate	RR: 34.3%	105	15	mRECIST	No	PD1-targeted antibody
Pembrolizumab	NULL	Every 6 weeks dosing for CSCC	Efficacy	2020-06-24	SCC	NA	NA	NA	NA	NA	Yes	PD1-targeted antibody
Atezolizumab	BLA761034	Unresectable or metastatic BRAF-mutated melanoma in combination with cobimetinib	Efficacy	2020-07-30	Melanoma	Progression-free survival	HR: 0.78	514 (T=256 C=258)	NA	RECIST	No	PDL1-targeted antibody

Therapeutic(S)	BLA/NDA	Indication	Submission class	Action Date	Skin Neoplasia	Primary endpoint	Major Efficacy Outcome Measure	Subjects Enrolled	Lower Bound 95% CI (%)	Assessment Tool	Accelerated Approval	Mechanism
		and vemurafenib										
Tirbanibulin	NDA213189	Actinic keratosis of the face or scalp	Type 1-new molecular entity	2020-12-14	AK	Complete clearance rate	CCR: 44% (Study 1) CCR: 54% (Study 2)	702 (T=353 C=349)	NA	Clinical	No	Microtubule inhibitor
Cemiplimab-rwlc	BLA761097	Locally advanced basal cell carcinoma	Efficacy	2021-02-09	BCC	Objective response rate	RR: 29%	112 (laBCC=84)	20	Composite	No	PD1-targeted antibody
Cemiplimab-rwlc	BLA761097	Metastatic basal cell carcinoma	Efficacy	2021-02-09	BCC	Objective response rate	RR: 21%	112 (mBCC=28)	NA	Composite	Yes	PD1-targeted antibody

The above table lists the therapeutic agents (or agents) that were the subject of the submitted application. Key data, such as the NDA/BLA number, submission class, action date, disease for which the labeled indication is directed ("Skin Neoplasia"), the primary endpoint of the pivotal trial, the major efficacy outcome measure, the number of subjects enrolled in the pivotal trial, the lower bound 95% confidence interval proposed by the sponsor as the minimally effective response rate demonstrative of efficacy, mechanism, trial design, tools used for primary endpoint assessment, approval pathway, and action number in regard to skin cancer actions are listed. "Non-placebo comparator" connotes either an active comparator (e.g., an alternate standard of care therapy) or multiple dose levels of the investigational agent. The number of "Subjects Enrolled" for the specific submission are provided along with a parenthetical notation of relevant treatment groups in the study. For example, submissions with comparator groups are listed with the convention `T=x and C=x` to connote the number of subjects in the "treatment" and "control/comparator" groups, respectively. Additional clarifications are provided in the parentheticals in this column. For example, the approvals for the 02-09-2021 supplement for cemiplimab-RWLC and the 05-14-2020 supplement of pomalidomide are reported on individual rows in the table for the distinct labeled indications (e.g., laBCC/mBCC and HIV-negative/HIV-positive KS, respectively) to highlight the differences in indication. However, the number of subjects listed in the column "Subjects Enrolled" represents the total number of subjects evaluated for that submission to reflect the totality of evidence for which the approvals were made, with the number of subjects with that specific disease subgroup appearing in the parenthetical. AEs, adverse events; AK, actinic keratosis; BCC, basal cell carcinoma; Bin/Enc, binimetinib/encorafenib; C, comparator/control; CCR, complete clearance rate; CI, confidence interval; CTCL, cutaneous T-cell lymphoma; DFSP, dermatofibrosarcoma protuberans; DoR, duration of response; D, dabrafenib; DP, dabrafenib/placebo; DT, dabrafenib/trametinib; DT1, dabrafenib/trametinib 1mg; DT2, dabrafenib/trametinib 2mg; Enc, encorafenib; GP, gp100; HIV, human immunodeficiency virus; H/N, head and neck; HR, hazard ratio; I, ipilimumab; IGP, ipilimumab plus gp100; IN, ipilimumab/nivolumab; KS, Kaposi sarcoma; laBCC, locally advanced basal cell carcinoma; laCSCC, locally advanced cutaneous squamous cell carcinoma; mBCC, metastatic basal cell carcinoma; MCC, Merkel cell carcinoma; mcg, microgram; MSI, micro satellite instability; MSI-h, micro satellite instability high; mut, mutant; N, nivolumab; NA, missing; ORR, objective/overall response rate; OS, overall survival; P2, pembrolizumab 2mg/kg; P10, pembrolizumab 10mg/kg; PFS, progression-free survival; RFS, recurrence-free survival; RR, response rate; T, treatment; T/E, trunk and extremities; TMB, tumor mutation burden; TMB-hi, tumor mutation burden high; Tx, treatment; r/mCSCC, recurrent/metastatic cutaneous squamous cell carcinoma; SCC, squamous cell carcinoma; wt, wild type; Vem, vemurafenib.

Table 2. *Label modifications to therapeutics with an indication in skin cancer.*

Substance name	Brand name	Application number	Submission class	Action date
Mechlorethamine hydrochloride	Mustargen	NDA006695	Type 1	3/15/49
Cortisone acetate	Cortone	NDA007110	Type 1	6/13/50
Cortisone acetate	Cortone	NDA007750	Type 3	12/4/50
Hydrocortisone	Cortef	NDA008697	Type 5	12/15/52
Methotrexate sodium	Methotrexate sodium	NULL	Type 1	12/7/53
Methoxsalen	8-MOP	NDA009048	Type 1	12/3/54
Prednisone	Meticorten	NDA009766	Type 1	2/21/55
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Type 2	4/27/55
Prednisolone	Delta-Cortef	NDA009987	Type 1	6/21/55
Methylprednisolone	Medrol	NDA011153	Type 1	10/24/57
Triamcinolone	Aristocort	NDA011161	Type 1	12/3/57
Dexamethasone	Decadron	NDA011664	Type 1	10/30/58
Triamcinolone diacetate	Aristocort	NDA011685	Type 2	3/12/59
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Type 2	5/18/59
Methylprednisolone acetate	Depo-Medrol	NDA011757	Type 2	5/27/59
Methotrexate sodium	Methotrexate preservative free	NDA011719	Type 2	8/10/59
Dexamethasone sodium phosphate	Decadron	NDA012071	Type 3	10/6/59
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Type 2	11/16/59
Cyclophosphamide	Cytoxan	NDA012141	Type 1	11/16/59
Methylprednisolone acetate	Medrol acetate	NDA012421	Type 3	6/21/60
Dexamethasone	Decadron	NDA012376	Type 3	7/7/60
Betamethasone	Celestone	NDA012657	Type 1	4/17/61
Triamcinolone diacetate	Aristocort	NDA012802	Type 5	9/5/61
Triamcinolone acetonide	Kenalog-40	NDA014901	Type 5	2/1/65
Betamethasone acetate	Celestone soluspan	NDA014602	Type 1	3/3/65
Vinblastine sulfate	Velban	NDA012665	Type 1	11/25/65
Vinblastine sulfate	Velban	NDA012665	Type 1	11/25/65
Hydroxyurea	Droxia	NDA016295	Type 1	12/7/67
Fluorouracil	Efudex	NDA016831	Type 3	7/29/70
Fluorouracil	Fluoroplex	NDA016988	Type 5	8/6/71
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Type 1	8/7/74
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	9/19/74
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	11/13/74
Methoxsalen	8-MOP	NDA009048	S	11/13/74
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	12/17/74
Methoxsalen	8-MOP	NDA009048	Labeling	4/4/75

Substance name	Brand name	Application number	Submission class	Action date
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	5/5/75
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/7/75
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/7/75
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	5/12/75
Dacarbazine	DTIC-Dome	NDA017575	Type 1	5/27/75
Fluorouracil	Efudex	NDA016831	Efficacy	6/30/75
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	7/22/75
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/25/75
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	10/16/75
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	11/3/75
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	11/3/75
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	11/10/75
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	11/25/75
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	12/5/75
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	12/24/75
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	1/13/76
Methotrexate sodium	Methotrexate sodium	NULL	S	1/26/76
Methylprednisolone acetate	Medrol acetate	NDA012421	Labeling	2/27/76
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/25/76
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	6/9/76
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	6/9/76
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	6/10/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	6/29/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	6/29/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	6/29/76
Fluorouracil	Fluoroplex	NDA016988	Labeling	7/9/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/3/76
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	8/6/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/7/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/7/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/7/76
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	9/10/76
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	9/14/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/14/76
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/14/76
Cyclophosphamide	Cytoxan	NDA012141	REMS	10/18/76
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	10/18/76
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	11/1/76

Substance name	Brand name	Application number	Submission class	Action date
Cyclophosphamide	Cytoxan	NDA012141	Labeling	11/1/76
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	12/21/76
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	1/13/77
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	3/2/77
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	3/17/77
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	3/17/77
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	3/18/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/22/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/22/77
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	3/28/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/29/77
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	4/20/77
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	4/25/77
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	4/26/77
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	4/26/77
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	4/29/77
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	4/29/77
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	5/3/77
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	5/16/77
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	7/14/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	7/25/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	7/25/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	7/25/77
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/2/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/10/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/18/77
Fluorouracil	Fluoroplex	NDA016988	Labeling	9/1/77
Methylprednisolone acetate	Medrol acetate	NDA012421	Manuf (CMC)	11/11/77
Cyclophosphamide	Cytoxan	NDA012141	Labeling	11/16/77
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	11/16/77
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	12/14/77
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	12/14/77
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	1/9/78
Prednisone	Meticorten	NDA009766	Labeling	1/25/78
Hydrocortisone	Cortef	NDA008697	Labeling	2/8/78
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	4/7/78
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	4/7/78
Methylprednisolone	Medrol	NDA011153	Labeling	4/11/78

Substance name	Brand name	Application number	Submission class	Action date
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	4/17/78
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	5/23/78
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	6/12/78
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	7/3/78
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	7/10/78
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	7/12/78
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	7/19/78
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/8/78
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/8/78
Cyclophosphamide	Cytoxan	NDA012141	S	8/16/78
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/22/78
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/28/78
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/29/78
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	9/13/78
Prednisolone	Delta-Cortef	NDA009987	Labeling	9/25/78
Vinblastine sulfate	Velban	NDA012665	Labeling	9/25/78
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	10/11/78
Dexamethasone sodium phosphate	Decadron	NDA012071	Labeling	10/18/78
Betamethasone	Celestone	NDA012657	Labeling	11/8/78
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/21/78
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	11/27/78
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	11/28/78
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	12/7/78
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	12/13/78
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	12/14/78
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	1/2/79
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	1/10/79
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	2/15/79
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	2/16/79
Prednisone	Meticorten	NDA009766	S	2/26/79
Dexamethasone	Decadron	NDA012376	Manuf (CMC)	3/1/79
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/14/79
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	4/5/79
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	4/5/79
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	4/30/79
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	5/1/79
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	5/24/79
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	5/24/79

Substance name	Brand name	Application number	Submission class	Action date
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	5/30/79
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	6/18/79
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	6/19/79
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	7/17/79
Betamethasone	Celestone	NDA012657	Manuf (CMC)	7/23/79
Dexamethasone	Decadron	NDA011664	Labeling	7/26/79
Dexamethasone	Decadron	NDA011664	Labeling	7/26/79
Dexamethasone	Decadron	NDA011664	Labeling	7/26/79
Dexamethasone	Decadron	NDA011664	Labeling	7/26/79
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	7/27/79
Cortisone acetate	Cortone	NDA007750	Labeling	8/1/79
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/3/79
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/3/79
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	8/6/79
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	8/8/79
Cortisone acetate	Cortone	NDA007110	Labeling	8/15/79
Dexamethasone	Decadron	NDA011664	Labeling	8/15/79
Dexamethasone	Decadron	NDA012376	Labeling	8/15/79
Dexamethasone sodium phosphate	Decadron	NDA012071	Labeling	8/15/79
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	8/21/79
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	9/5/79
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	9/24/79
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	9/24/79
Cortisone acetate	Cortone	NDA007750	Labeling	9/25/79
Betamethasone	Celestone	NDA012657	Manuf (CMC)	10/3/79
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	10/15/79
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	10/23/79
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	10/26/79
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	10/30/79
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	10/30/79
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	10/31/79
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	11/13/79
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	12/3/79
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	12/18/79
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	1/25/80
Cortisone acetate	Cortone	NDA007750	Labeling	2/1/80
Dexamethasone	Decadron	NDA011664	Labeling	2/4/80
Dexamethasone	Decadron	NDA011664	Labeling	2/4/80

Substance name	Brand name	Application number	Submission class	Action date
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	2/5/80
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	2/19/80
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	2/19/80
Methylprednisolone acetate	Medrol acetate	NDA012421	Labeling	2/29/80
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	2/29/80
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/31/80
Methylprednisolone	Medrol	NDA011153	Labeling	4/14/80
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	4/14/80
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	4/23/80
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/28/80
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	5/20/80
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	6/11/80
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	6/20/80
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	7/7/80
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	7/29/80
Prednisone	Meticorten	NDA009766	Manuf (CMC)	8/27/80
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	9/18/80
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	9/27/80
Cyclophosphamide	Cytoxan	NDA012141	Labeling	9/27/80
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	9/30/80
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	10/3/80
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	10/6/80
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	10/8/80
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	10/27/80
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	12/3/80
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	1/12/81
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	2/5/81
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	2/17/81
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	2/20/81
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	2/27/81
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	3/21/81
Dexamethasone	Decadron	NDA011664	Labeling	4/1/81
Betamethasone	Celestone	NDA012657	Manuf (CMC)	4/11/81
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	4/27/81
Dacarbazine	DTIC-Dome	NDA017575	Efficacy	4/29/81
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	5/11/81
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	7/2/81
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	7/28/81

Substance name	Brand name	Application number	Submission class	Action date
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	8/11/81
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	10/13/81
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	10/16/81
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	11/16/81
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	12/7/81
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	12/11/81
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	12/15/81
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	12/15/81
Methylprednisolone acetate	Medrol acetate	NDA012421	Manuf (CMC)	12/28/81
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	2/10/82
Dexamethasone	Decadron	NDA012376	Manuf (CMC)	2/10/82
Cortisone acetate	Cortone	NDA007750	Manuf (CMC)	3/2/82
Cortisone acetate	Cortone	NDA007110	Manuf (CMC)	3/4/82
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	3/4/82
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	3/4/82
Fluorouracil	Efudex	NDA016831	Labeling	3/10/82
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/15/82
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/15/82
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	3/31/82
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	3/31/82
Methylprednisolone acetate	Medrol acetate	NDA012421	Labeling	4/2/82
Methoxsalen	8-MOP	NDA009048	Labeling	5/7/82
Methoxsalen	8-MOP	NDA009048	Labeling	5/7/82
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/14/82
Dexamethasone	Decadron	NDA012376	Labeling	5/21/82
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	6/11/82
Betamethasone	Celestone	NDA012657	Manuf (CMC)	6/30/82
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	6/30/82
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	6/30/82
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	7/28/82
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	7/28/82
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	7/30/82
Dexamethasone	Decadron	NDA011664	Labeling	7/30/82
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	8/24/82
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/30/82
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	11/4/82
Betamethasone	Celestone	NDA012657	Manuf (CMC)	11/23/82
Cortisone acetate	Cortone	NDA007110	Manuf (CMC)	12/9/82

Substance name	Brand name	Application number	Submission class	Action date
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	2/4/83
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	2/21/83
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	2/24/83
Hydrocortisone	Cortef	NDA008697	Manuf (CMC)	3/9/83
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	3/9/83
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	3/9/83
Methylprednisolone	Medrol	NDA011153	Labeling	3/9/83
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	3/14/83
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	3/15/83
Cyclophosphamide	Cytoxan	NDA012141	Labeling	3/15/83
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	3/22/83
Dacarbazine	DTIC-Dome	NDA017575	Labeling	4/5/83
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/8/83
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/8/83
Methoxsalen	8-MOP	NDA009048	Labeling	4/21/83
Betamethasone	Celestone	NDA012657	Manuf (CMC)	4/26/83
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	5/3/83
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	5/11/83
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	8/4/83
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/10/83
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/12/83
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/12/83
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	8/25/83
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	1/4/84
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	4/4/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	4/5/84
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	4/13/84
Methoxsalen	8-MOP	NDA009048	Labeling	4/16/84
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	5/3/84
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/4/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	5/24/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	6/14/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	6/14/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	6/15/84
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	6/25/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	7/18/84
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	7/19/84
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/10/84

Substance name	Brand name	Application number	Submission class	Action date
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/13/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/20/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	10/17/84
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	12/10/84
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	1/16/85
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	2/27/85
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/4/85
Dexamethasone sodium phosphate	Decadron	NDA012071	Labeling	3/8/85
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	3/14/85
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	3/28/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	5/2/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	5/6/85
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	5/20/85
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	6/7/85
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	6/10/85
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	6/14/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	6/18/85
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	7/15/85
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	7/16/85
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	7/24/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/6/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	8/30/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	8/30/85
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/30/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	9/24/85
Dexamethasone	Decadron	NDA011664	Labeling	11/26/85
Cyclophosphamide	Cytoxan	NDA012141	Labeling	12/4/85
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	12/4/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	12/5/85
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	12/5/85
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	12/10/85
Cyclophosphamide	Cytoxan	NDA012141	Labeling	1/15/86
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	1/15/86
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	1/23/86
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	1/31/86
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	2/11/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	2/14/86
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	2/14/86

Substance name	Brand name	Application number	Submission class	Action date
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/21/86
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	3/29/86
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	5/12/86
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	5/12/86
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	5/12/86
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	5/21/86
Dacarbazine	DTIC-Dome	NDA017575	Labeling	5/22/86
Prednisolone sodium phosphate	Pediapred	NDA019157	Type 3	5/28/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	5/30/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	5/30/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	5/30/86
Interferon alfa-2b	Intron A	BLA103132	Type 1	6/4/86
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	6/10/86
Vinblastine sulfate	Velban	NDA012665	Labeling	6/30/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	7/11/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	7/11/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	7/11/86
Cyclophosphamide	Cytoxan	NDA012141	Labeling	7/11/86
Cyclophosphamide	Cytoxan	NDA012141	Labeling	7/11/86
Cyclophosphamide	Cytoxan	NDA012141	Labeling	7/11/86
Cyclophosphamide	Cytoxan	NDA012141	Labeling	7/11/86
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	8/14/86
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	9/16/86
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	9/16/86
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	9/16/86
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	9/25/86
Betamethasone	Celestone	NDA012657	Manuf (CMC)	10/20/86
Vinblastine sulfate	Velban	NDA012665	Labeling	11/3/86
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	11/6/86
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/14/86
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	11/19/86
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	11/29/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	12/8/86
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	12/8/86
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	12/8/86
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	12/8/86
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	12/8/86
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	12/8/86

Substance name	Brand name	Application number	Submission class	Action date
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	1/7/87
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	1/15/87
Fluorouracil	Fluoroplex	NDA016988	Labeling	1/28/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	2/19/87
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	2/24/87
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	3/19/87
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	3/19/87
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	3/19/87
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	3/19/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/25/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/25/87
Fluorouracil	Efudex	NDA016831	Labeling	3/26/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/27/87
Betamethasone	Celestone	NDA012657	Manuf (CMC)	4/2/87
Prednisone	Meticorten	NDA009766	Manuf (CMC)	4/2/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	4/28/87
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Efficacy	4/29/87
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	4/29/87
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	4/29/87
Cyclophosphamide	Cytoxan	NDA012141	Efficacy	4/29/87
Cyclophosphamide	Cytoxan	NDA012141	Labeling	4/29/87
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	4/29/87
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	5/5/87
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	7/1/87
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	7/2/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	7/22/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	7/22/87
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	7/23/87
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/18/87
Vinblastine sulfate	Velban	NDA012665	Labeling	8/25/87
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	9/18/87
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	10/16/87
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	11/20/87
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	11/30/87
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	12/30/87
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	1/11/88
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	1/12/88
Methoxsalen	8-MOP	NDA009048	Efficacy	3/23/88

Substance name	Brand name	Application number	Submission class	Action date
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	3/25/88
Methotrexate sodium	Methotrexate preservative free	NDA011719	Efficacy	4/7/88
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/7/88
Vinblastine sulfate	Velban	NDA012665	Labeling	4/18/88
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/21/88
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	4/28/88
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	5/3/88
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	5/10/88
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	5/13/88
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	8/25/88
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	10/31/88
Methotrexate sodium	Methotrexate sodium	NULL	Efficacy	10/31/88
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	10/31/88
Interferon alfa-2b	Intron A	BLA103132	Efficacy	11/21/88
Interferon alfa-2a	Roferon	BLA103145	Efficacy	11/21/88
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/30/88
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	12/2/88
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	1/5/89
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	1/5/89
Dexamethasone	Decadron	NDA012376	Manuf (CMC)	1/12/89
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	2/2/89
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	3/1/89
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	3/1/89
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	3/22/89
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	3/22/89
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	4/19/89
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	4/24/89
Cortisone acetate	Cortone	NDA007750	Labeling	5/16/89
Cortisone acetate	Cortone	NDA007110	Labeling	5/16/89
Dexamethasone	Decadron	NDA011664	Labeling	5/16/89
Dexamethasone	Decadron	NDA012376	Labeling	5/16/89
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	5/18/89
Vinblastine sulfate	Velban	NDA012665	Labeling	6/6/89
Vinblastine sulfate	Velban	NDA012665	Labeling	6/6/89
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	7/11/89
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	10/2/89
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	10/12/89
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	10/12/89

Substance name	Brand name	Application number	Submission class	Action date
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	10/27/89
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	11/16/89
Cortisone acetate	Cortone	NDA007750	Manuf (CMC)	11/30/89
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	12/11/89
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	12/14/89
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	1/16/90
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	1/18/90
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	1/18/90
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	3/29/90
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/24/90
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	5/1/90
Vinblastine sulfate	Velban	NDA012665	Labeling	6/18/90
Vinblastine sulfate	Velban	NDA012665	Labeling	8/10/90
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	10/5/90
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	10/22/90
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	10/24/90
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	10/24/90
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	11/15/90
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	12/7/90
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	2/20/91
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	4/1/91
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	7/19/91
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	7/24/91
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	7/29/91
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	9/4/91
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	11/5/91
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	1/6/92
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	1/22/92
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	1/23/92
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	2/6/92
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	2/6/92
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	2/6/92
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	2/6/92
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	2/14/92
Aldesleukin	Proleukin	BLA103293	Type 1	5/5/92
Prednisone	Meticorten	NDA009766	Labeling	7/6/92
Interferon alfa-2b	Intron A	BLA103132	Efficacy	7/13/92
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	7/31/92

Substance name	Brand name	Application number	Submission class	Action date
Vinblastine sulfate	Velban	NDA012665	Labeling	7/31/92
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	11/5/92
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	11/5/92
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	12/8/92
Vinblastine sulfate	Velban	NDA012665	Labeling	12/16/92
Betamethasone	Celestone	NDA012657	Labeling	12/17/92
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	12/17/92
Prednisone	Meticorten	NDA009766	Labeling	12/17/92
Paclitaxel	Taxol	NDA020262	Type 1	12/29/92
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	1/28/93
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	3/4/93
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	3/9/93
Interferon alfa-2b	Intron A	BLA103132	Efficacy	5/14/93
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	6/25/93
Paclitaxel	Taxol	NDA020262	Labeling	7/23/93
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/5/93
Dexamethasone	Decadron	NDA011664	Labeling	8/25/93
Cortisone acetate	Cortone	NDA007110	Labeling	8/26/93
Dexamethasone sodium phosphate	Decadron	NDA012071	Labeling	8/26/93
Cortisone acetate	Cortone	NDA007750	Labeling	8/27/93
Dexamethasone	Decadron	NDA012376	Labeling	8/27/93
Triamcinolone	Aristocort	NDA011161	Labeling	9/7/93
Triamcinolone diacetate	Aristocort	NDA011685	Labeling	9/7/93
Triamcinolone diacetate	Aristocort	NDA012802	Labeling	9/7/93
Betamethasone	Celestone	NDA012657	Labeling	9/7/93
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	9/7/93
Prednisone	Meticorten	NDA009766	Labeling	9/7/93
Vinblastine sulfate	Velban	NDA012665	Labeling	9/7/93
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	11/5/93
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	11/8/93
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	11/22/93
Hydrocortisone	Cortef	NDA008697	Manuf (CMC)	12/8/93
Hydrocortisone	Cortef	NDA008697	Labeling	12/28/93
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	12/28/93
Methylprednisolone	Medrol	NDA011153	Labeling	12/28/93
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	12/28/93
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	1/7/94
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	3/14/94

Substance name	Brand name	Application number	Submission class	Action date
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	3/16/94
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	3/25/94
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	3/25/94
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	3/28/94
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	3/30/94
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/6/94
Betamethasone	Celestone	NDA012657	Labeling	4/13/94
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	4/13/94
Prednisone	Meticorten	NDA009766	Labeling	4/13/94
Paclitaxel	Taxol	NDA020262	Efficacy	4/13/94
Cortisone acetate	Cortone	NDA007110	Manuf (CMC)	4/20/94
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	4/21/94
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/22/94
Paclitaxel	Taxol	NDA020262	Efficacy	6/22/94
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	7/22/94
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	8/4/94
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	8/4/94
Betamethasone	Celestone	NDA012657	Manuf (CMC)	8/10/94
Cortisone acetate	Cortone	NDA007750	Manuf (CMC)	8/18/94
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	9/15/94
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	9/15/94
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	10/18/94
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	10/19/94
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	10/20/94
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	11/29/94
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	12/6/94
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	1/10/95
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	1/12/95
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	1/24/95
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	2/15/95
Fluorouracil	Efudex	NDA016831	Labeling	3/21/95
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	3/22/95
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	4/10/95
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/25/95
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	4/26/95
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	5/3/95
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	5/5/95
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	5/10/95

Substance name	Brand name	Application number	Submission class	Action date
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	7/5/95
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	9/5/95
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	11/6/95
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	11/9/95
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	11/9/95
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Type 3	11/17/95
Interferon alfa-2b	Intron A	BLA103132	Efficacy	12/5/95
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	12/13/95
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	12/20/95
Cyclophosphamide	Cytoxan	NDA012141	Labeling	12/20/95
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	1/25/96
Cortisone acetate	Cortone	NDA007750	Manuf (CMC)	3/1/96
Cortisone acetate	Cortone	NDA007110	Manuf (CMC)	3/1/96
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	3/1/96
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	3/1/96
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	3/8/96
Paclitaxel	Taxol	NDA020262	Labeling	4/1/96
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	4/3/96
Daunorubicin citrate	Daunoxome	NDA050704	Type 3	4/8/96
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	5/3/96
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	5/22/96
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	5/24/96
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	7/10/96
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	8/27/96
Betamethasone	Celestone	NDA012657	Manuf (CMC)	9/10/96
Hydroxyurea	Droxia	NDA016295	Labeling	9/24/96
Hydroxyurea	Droxia	NDA016295	Labeling	9/24/96
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	10/11/96
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	10/15/96
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	10/21/96
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	11/7/96
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	11/13/96
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	11/25/96
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	12/13/96
Vinblastine sulfate	Velban	NDA012665	Labeling	12/20/96
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	2/18/97
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	2/24/97
Imiquimod	Aldara	NDA020723	Type 1	2/27/97

Substance name	Brand name	Application number	Submission class	Action date
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	3/5/97
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	3/11/97
Interferon alfa-2b	Intron A	BLA103132	Efficacy	3/26/97
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	4/7/97
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	4/25/97
Interferon alfa-2b	Intron A	BLA103132	S	4/29/97
Betamethasone	Celestone	NDA012657	Manuf (CMC)	5/7/97
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	5/20/97
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	5/20/97
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	5/23/97
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	5/29/97
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	6/30/97
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	7/21/97
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	7/31/97
Paclitaxel	Taxol	NDA020262	Efficacy	8/4/97
Prednisone	Meticorten	NDA009766	Manuf (CMC)	8/26/97
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	9/2/97
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	9/9/97
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	9/18/97
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	9/23/97
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	9/23/97
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	10/14/97
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	10/22/97
Interferon alfa-2b	Intron A	BLA103132	Efficacy	11/6/97
Imiquimod	Aldara	NDA020723	Manuf (CMC)	11/7/97
Imiquimod	Aldara	NDA020723	Manuf (CMC)	12/8/97
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	12/19/97
Aldesleukin	Proleukin	BLA103293	Efficacy	1/9/98
Aldesleukin	Proleukin	BLA103293	Efficacy	1/9/98
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	1/21/98
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	2/13/98
Imiquimod	Aldara	NDA020723	Manuf (CMC)	2/20/98
Hydroxyurea	Droxia	NDA016295	Efficacy	2/25/98
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	2/25/98
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	2/26/98
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	2/26/98
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	2/26/98
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	2/26/98

Substance name	Brand name	Application number	Submission class	Action date
Betamethasone	Celestone	NDA012657	Manuf (CMC)	3/16/98
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	3/16/98
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	3/31/98
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	4/1/98
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	4/7/98
Paclitaxel	Taxol	NDA020262	Efficacy	4/9/98
Paclitaxel	Taxol	NDA020262	Labeling	4/9/98
Paclitaxel	Taxol	NDA020262	Labeling	4/9/98
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	5/14/98
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	6/18/98
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	6/22/98
Paclitaxel	Taxol	NDA020262	Efficacy	6/30/98
Interferon alfa-2b	Intron A	BLA103132	Efficacy	8/18/98
Dacarbazine	DTIC-Dome	NDA017575	Manuf (CMC)	9/24/98
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	10/16/98
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	10/16/98
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/2/98
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	11/5/98
Hydroxyurea	Droxia	NDA016295	Manuf (CMC)	11/10/98
Betamethasone	Celestone	NDA012657	Manuf (CMC)	11/19/98
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	11/30/98
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	12/1/98
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	12/17/98
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	12/17/98
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	12/17/98
Prednisolone sodium phosphate	Pediapred	NDA019157	Efficacy	12/17/98
Paclitaxel	Taxol	NDA020262	Labeling	1/8/99
Paclitaxel	Taxol	NDA020262	Labeling	1/8/99
Paclitaxel	Taxol	NDA020262	Labeling	1/8/99
Paclitaxel	Taxol	NDA020262	Labeling	1/8/99
Alitretinoin	Panretin	NDA020886	Type 1	2/2/99
Denileukin diftitox	Ontak	BLA103767	Type 1	2/5/99
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	2/12/99
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	2/17/99
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	2/19/99
Methoxsalen	Uvadex	NDA020969	Type 3	2/25/99
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	3/4/99
Vinblastine sulfate	Velban	NDA012665	Manuf (CMC)	3/4/99

Substance name	Brand name	Application number	Submission class	Action date
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	3/16/99
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	3/19/99
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	3/23/99
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	5/28/99
Cyclophosphamide	Cytoxan	NDA012141	Labeling	5/28/99
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	6/28/99
Alitretinoin	Panretin	NDA020886	Manuf (CMC)	7/12/99
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	7/15/99
Hydroxyurea	Droxia	NDA016295	Labeling	8/11/99
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/20/99
Triamcinolone	Aristocort	NDA011161	Manuf (CMC)	9/17/99
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	10/8/99
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	10/25/99
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	10/25/99
Paclitaxel	Taxol	NDA020262	Efficacy	10/25/99
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	10/28/99
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	10/29/99
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	10/29/99
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	11/25/99
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	12/1/99
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Type 1	12/3/99
Paclitaxel	Taxol	NDA020262	Labeling	12/10/99
Bexarotene	Targretin	NDA021055	Type 1	12/29/99
Hydroxyurea	Droxia	NDA016295	Labeling	1/12/00
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	2/9/00
Dexamethasone sodium phosphate	Decadron	NDA012071	Manuf (CMC)	2/18/00
Imiquimod	Aldara	NDA020723	Manuf (CMC)	3/7/00
Imiquimod	Aldara	NDA020723	Manuf (CMC)	3/7/00
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	3/15/00
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	3/28/00
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	3/30/00
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/3/00
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	4/4/00
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	4/4/00
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	4/5/00
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	4/5/00
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	4/10/00
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	5/23/00

Substance name	Brand name	Application number	Submission class	Action date
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	6/13/00
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	6/15/00
Cyclophosphamide	Cytoxan	NDA012141	Labeling	6/15/00
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	6/20/00
Paclitaxel	Taxol	NDA020262	Efficacy	6/20/00
Aldesleukin	Proleukin	BLA103293	Labeling	6/27/00
Bexarotene	Targretin	NDA021056	Type 3	6/28/00
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	7/7/00
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	7/7/00
Vinblastine sulfate	Velban	NDA012665	Labeling	8/24/00
Imiquimod	Aldara	NDA020723	Manuf (CMC)	9/27/00
Diclofenac sodium	Solaraze	NDA021005	Type 3	10/16/00
Fluorouracil	Carac	NDA020985	Type 3	10/27/00
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	11/2/00
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	11/8/00
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	11/8/00
Mechlorethamine hydrochloride	Mustargen	NDA006695	Manuf (CMC)	11/17/00
Alitretinoin	Panretin	NDA020886	Manuf (CMC)	11/21/00
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	1/5/01
Peginterferon alfa-2b	Pegintron	NULL	Type 1	1/19/01
Fluorouracil	Carac	NDA020985	Labeling	1/29/01
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	1/30/01
Cyclophosphamide	Cytoxan	NDA012141	Labeling	1/30/01
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	2/12/01
Bexarotene	Targretin	NDA021055	Manuf (CMC)	2/14/01
Hydroxyurea	Droxia	NDA016295	Labeling	2/20/01
Hydrocortisone	Cortef	NDA008697	Manuf (CMC)	3/16/01
Imiquimod	Aldara	NDA020723	Manuf (CMC)	3/28/01
Hydroxyurea	Droxia	NDA016295	Labeling	4/4/01
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	4/10/01
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	5/8/01
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	5/8/01
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	5/23/01
Interferon alfa-2b	Intron A	BLA103132	Efficacy	6/21/01
Fluorouracil	Carac	NDA020985	Manuf (CMC)	7/2/01
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	7/3/01
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	7/3/01
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	7/24/01

Substance name	Brand name	Application number	Submission class	Action date
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Manuf (CMC)	7/27/01
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	8/7/01
Diclofenac sodium	Solaraze	NDA021005	Labeling	8/17/01
Triamcinolone diacetate	Aristocort	NDA011685	Manuf (CMC)	8/29/01
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	8/29/01
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/30/01
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	10/2/01
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	10/31/01
Interferon alfa-2b	Intron A	BLA103132	Labeling	11/29/01
Interferon alfa-2b	Intron A	BLA103132	Labeling	11/29/01
Imiquimod	Aldara	NDA020723	Labeling	12/8/01
Prednisolone sodium phosphate	Pediapred	NDA019157	Manuf (CMC)	1/3/02
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	1/10/02
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	1/10/02
Bexarotene	Targretin	NDA021055	Manuf (CMC)	1/29/02
Interferon alfa-2b	Intron A	BLA103132	Labeling	2/1/02
Daunorubicin citrate	Daunoxome	NDA050704	Manuf (CMC)	2/10/02
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	2/19/02
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	2/20/02
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	2/20/02
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	2/20/02
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	2/20/02
Daunorubicin citrate	Daunoxome	NDA050704	Labeling	2/21/02
Paclitaxel	Taxol	NDA020262	Labeling	3/4/02
Paclitaxel	Taxol	NDA020262	Labeling	3/4/02
Bexarotene	Targretin	NDA021056	Manuf (CMC)	3/14/02
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	4/2/02
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	4/18/02
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	5/20/02
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	5/22/02
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	6/18/02
Interferon alfa-2b	Intron A	BLA103132	Labeling	6/21/02
Dexamethasone	Decadron	NDA011664	Manuf (CMC)	6/25/02
Peginterferon alfa-2b	Pegintron	NULL	Labeling	7/17/02
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	8/9/02
Paclitaxel	Taxol	NDA020262	Labeling	8/29/02
Imiquimod	Aldara	NDA020723	Labeling	9/3/02
Imiquimod	Aldara	NDA020723	Labeling	9/3/02

Substance name	Brand name	Application number	Submission class	Action date
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	9/25/02
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	9/25/02
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	10/21/02
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	10/21/02
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	10/25/02
Prednisone	Meticorten	NDA009766	Labeling	11/12/02
Prednisone	Meticorten	NDA009766	Labeling	11/12/02
Prednisone	Meticorten	NDA009766	Labeling	11/12/02
Fluorouracil	Carac	NDA020985	Manuf (CMC)	11/15/02
Peginterferon alfa-2b	Pegintron	NULL	Labeling	11/21/02
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/27/02
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	12/12/02
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	12/13/02
Imiquimod	Aldara	NDA020723	Labeling	12/15/02
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	12/17/02
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	1/3/03
Triamcinolone diacetate	Aristocort	NDA012802	Labeling	1/17/03
Triamcinolone diacetate	Aristocort	NDA012802	Labeling	1/17/03
Cyclophosphamide	Cytoxan	NDA012141	Labeling	2/27/03
Paclitaxel	Taxol	NDA020262	Labeling	3/5/03
Peginterferon alfa-2b	Pegintron	NULL	Labeling	3/14/03
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	3/19/03
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Labeling	3/26/03
Methoxsalen	8-MOP	NDA009048	Labeling	3/26/03
Imatinib mesylate	Gleevec	NDA021588	Type 3	4/18/03
Bexarotene	Targretin	NDA021055	Labeling	4/21/03
Bexarotene	Targretin	NDA021055	Labeling	4/21/03
Diclofenac sodium	Solaraze	NDA021005	Labeling	4/29/03
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Efficacy	5/8/03
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	5/8/03
Imatinib mesylate	Gleevec	NDA021588	Efficacy	5/20/03
Hydroxyurea	Droxia	NDA016295	Efficacy	6/26/03
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Labeling	6/27/03
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Manuf (CMC)	7/11/03
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	7/29/03
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	10/24/03
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	10/24/03
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	11/7/03

Substance name	Brand name	Application number	Submission class	Action date
Interferon alfa-2b	Intron A	BLA103132	Labeling	11/26/03
Imatinib mesylate	Gleevec	NDA021588	Efficacy	12/8/03
Fluorouracil	Carac	NDA020985	Labeling	12/16/03
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	1/27/04
Mechlorethamine hydrochloride	Mustargen	NDA006695	Labeling	2/9/04
Hydroxyurea	Droxia	NDA016295	Labeling	2/19/04
Imiquimod	Aldara	NDA020723	Efficacy	3/2/04
Peginterferon alfa-2b	Pegintron	NULL	Labeling	3/5/04
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	3/18/04
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	4/27/04
Dexamethasone	Decadron	NDA011664	Labeling	5/17/04
Imatinib mesylate	Gleevec	NDA021588	Labeling	6/23/04
Fluorouracil	Efudex	NDA016831	Labeling	6/24/04
Imiquimod	Aldara	NDA020723	Efficacy	7/14/04
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	7/23/04
Methyl aminolevulinate hydrochloride	Metvixia	NDA021415	Type 3	7/27/04
Peginterferon alfa-2b	Pegintron	NULL	Labeling	9/23/04
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/1/04
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/15/04
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/15/04
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	10/27/04
Interferon alfa-2b	Intron A	BLA103132	S	10/27/04
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	12/3/04
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	12/15/04
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	1/28/05
Imatinib mesylate	Gleevec	NDA021588	Efficacy	3/14/05
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	4/13/05
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/4/05
Imatinib mesylate	Gleevec	NDA021588	Labeling	5/18/05
Imatinib mesylate	Gleevec	NDA021588	Manuf (CMC)	5/19/05
Methyl aminolevulinate hydrochloride	Metvixia	NDA021415	Labeling	5/31/05
Peginterferon alfa-2b	Pegintron	NULL	Labeling	7/22/05
Imiquimod	Aldara	NDA020723	Labeling	8/9/05
Fluorouracil	Efudex	NDA016831	Labeling	10/13/05
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/20/05
Peginterferon alfa-2b	Pegintron	NULL	Labeling	11/3/05
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/10/06
Imatinib mesylate	Gleevec	NDA021588	Labeling	5/31/06

Substance name	Brand name	Application number	Submission class	Action date
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	5/31/06
Prednisolone sodium phosphate	Orapred odt	NDA021959	Type 3	6/1/06
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	7/12/06
Interferon alfa-2b	Intron A	BLA103132	Labeling	7/28/06
Hydroxyurea	Droxia	NDA016295	Labeling	9/19/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	9/27/06
Vorinostat	Zolinza	NDA021991	Type 1	10/6/06
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/10/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/19/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/19/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/19/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/19/06
Imatinib mesylate	Gleevec	NDA021588	Efficacy	10/19/06
Imatinib mesylate	Gleevec	NDA021588	Labeling	10/30/06
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	11/20/06
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/22/06
Imiquimod	Aldara	NDA020723	Efficacy	3/22/07
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	5/17/07
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	5/17/07
Interferon alfa-2b	Intron A	BLA103132	S	5/22/07
Interferon alfa-2b	Intron A	BLA103132	Labeling	5/22/07
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/31/07
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	6/1/07
Interferon alfa-2b	Intron A	BLA103132	Labeling	7/13/07
Imatinib mesylate	Gleevec	NDA021588	Efficacy	9/13/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Vinblastine sulfate	Velban	NDA012665	Labeling	12/7/07
Prednisolone acetate	Flo-pred	NDA022067	Type 3	1/17/08
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	3/26/08
Imatinib mesylate	Gleevec	NDA021588	Manuf (CMC)	4/30/08
Interferon alfa-2b	Intron A	BLA103132	Labeling	5/2/08
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	6/10/08
Triamcinolone acetonide	Trivaris	NDA022220	Type 3	6/16/08

Substance name	Brand name	Application number	Submission class	Action date
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	6/24/08
Methyl aminolevulinate hydrochloride	Metvixia	NDA021415	Efficacy	6/26/08
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	6/27/08
Vorinostat	Zolinza	NDA021991	Labeling	7/22/08
Imatinib mesylate	Gleevec	NDA021588	Labeling	9/26/08
Imatinib mesylate	Gleevec	NDA021588	Labeling	9/26/08
Imatinib mesylate	Gleevec	NDA021588	Efficacy	9/26/08
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	10/3/08
Denileukin diftitox	Ontak	BLA103767	Efficacy	10/15/08
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	12/11/08
Peginterferon alfa-2b	Pegintron	NULL	S	12/11/08
Imatinib mesylate	Gleevec	NDA021588	Efficacy	12/19/08
Imatinib mesylate	Gleevec	NDA021588	Labeling	2/10/09
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	3/10/09
Triamcinolone	Aristocort	NDA011161	Labeling	3/13/09
Triamcinolone	Aristocort	NDA011161	Labeling	3/13/09
Triamcinolone	Aristocort	NDA011161	Labeling	3/13/09
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	4/7/09
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	4/7/09
Aldesleukin	Proleukin	BLA103293	Labeling	4/8/09
Prednisolone sodium phosphate	Orapred odt	NDA021959	Manuf (CMC)	4/27/09
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	5/8/09
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/8/09
Imatinib mesylate	Gleevec	NDA021588	Efficacy	5/27/09
Imatinib mesylate	Gleevec	NDA021588	Labeling	5/27/09
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Labeling	7/17/09
Interferon alfa-2b	Intron A	BLA103132	Labeling	8/7/09
Peginterferon alfa-2b	Pegintron	NULL	Labeling	8/7/09
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	9/1/09
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	9/1/09
Vorinostat	Zolinza	NDA021991	Efficacy	9/23/09
Romidepsin	Istodax	NDA022393	Type 1	11/5/09
Triamcinolone diacetate	Aristocort	NDA012802	Labeling	1/14/10
Peginterferon alfa-2b	Pegintron	NULL	Labeling	1/26/10
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	1/28/10
Interferon alfa-2b	Intron A	BLA103132	Labeling	2/16/10
Denileukin diftitox	Ontak	BLA103767	Labeling	3/5/10
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Efficacy	3/12/10

Substance name	Brand name	Application number	Submission class	Action date
Aldesleukin	Proleukin	BLA103293	Labeling	3/17/10
Imiquimod	Zyclara	NDA022483	Type 5	3/25/10
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	5/6/10
Hydroxyurea	Droxia	NDA016295	Labeling	5/7/10
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	6/16/10
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	6/24/10
Aldesleukin	Proleukin	BLA103293	Labeling	7/6/10
Interferon alfa-2b	Intron A	BLA103132	Labeling	7/21/10
Peginterferon alfa-2b	Pegintron	NULL	Labeling	7/21/10
Prednisolone sodium phosphate	Orapred odt	NDA021959	Labeling	7/28/10
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	7/30/10
Paclitaxel	Taxol	NDA020262	Labeling	8/13/10
Imiquimod	Aldara	NDA020723	Labeling	10/14/10
Interferon alfa-2b	Intron A	BLA103132	S	2/1/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	2/1/11
Imiquimod	Zyclara	NDA022483	Efficacy	3/24/11
Ipilimumab	Yervoy	BLA125377	Type 1	3/25/11
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	3/29/11
Imatinib mesylate	Gleevec	NDA021588	Efficacy	4/1/11
Imatinib mesylate	Gleevec	NDA021588	Labeling	4/1/11
Bexarotene	Targretin	NDA021056	Labeling	4/8/11
Romidepsin	Istodax	NDA022393	Labeling	4/12/11
Paclitaxel	Taxol	NDA020262	Labeling	5/2/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/6/11
Interferon alfa-2b	Intron A	BLA103132	Labeling	5/13/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/13/11
Bexarotene	Targretin	NDA021055	Labeling	5/16/11
Interferon alfa-2b	Intron A	BLA103132	Labeling	6/6/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	6/6/11
Vorinostat	Zolinza	NDA021991	Labeling	6/10/11
Prednisolone acetate	Flo-pred	NDA022067	Labeling	6/14/11
Romidepsin	Istodax	NDA022393	Efficacy	6/16/11
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	6/16/11
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	7/15/11
Imiquimod	Zyclara	NDA022483	Efficacy	7/15/11
Aldesleukin	Proleukin	BLA103293	Labeling	7/19/11
Ipilimumab	Yervoy	BLA125377	Labeling	7/28/11
Vemurafenib	Zelboraf	NDA202429	Type 1	8/17/11

Substance name	Brand name	Application number	Submission class	Action date
Brentuximab vedotin	Adcetris	BLA125388	Type 1	8/19/11
Brentuximab vedotin	Adcetris	BLA125388	Efficacy	8/19/11
Denileukin diftitox	Ontak	BLA103767	S	8/30/11
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	9/26/11
Imiquimod	Zyclara	NDA022483	Labeling	9/29/11
Romidepsin	Istodax	NDA022393	Labeling	9/30/11
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	10/20/11
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	10/20/11
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	11/1/11
Vorinostat	Zolinza	NDA021991	Labeling	11/14/11
Diclofenac sodium	Solaraze	NDA021005	Labeling	12/8/11
Aldesleukin	Proleukin	BLA103293	Labeling	12/16/11
Interferon alfa-2b	Intron A	BLA103132	Labeling	12/20/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/22/11
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/22/11
Bexarotene	Targretin	NDA021055	Labeling	1/6/12
Brentuximab vedotin	Adcetris	BLA125388	Labeling	1/13/12
Brentuximab vedotin	Adcetris	BLA125388	Labeling	1/13/12
Ingenol mebutate	Picato	NDA202833	Type 1	1/23/12
Hydroxyurea	Droxia	NDA016295	Labeling	1/26/12
Hydroxyurea	Droxia	NDA016295	Labeling	1/26/12
Vismodegib	Erivedge	NDA203388	Type 1	1/30/12
Imatinib mesylate	Gleevec	NDA021588	Efficacy	1/31/12
Imiquimod	Zyclara	NDA022483	Manuf (CMC)	2/14/12
Ipilimumab	Yervoy	BLA125377	Labeling	2/16/12
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	3/31/12
Cyclophosphamide	Cytoxan	NDA012141	Labeling	3/31/12
Interferon alfa-2b	Intron A	BLA103132	Labeling	6/4/12
Peginterferon alfa-2b	Pegintron	NULL	Labeling	6/4/12
Peginterferon alfa-2b	Pegintron	NULL	Labeling	7/2/12
Aldesleukin	Proleukin	BLA103293	Labeling	7/30/12
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	9/19/12
Ipilimumab	Yervoy	BLA125377	Labeling	10/26/12
Methyl aminolevulinate hydrochloride	Metvixia	NDA021415	Labeling	11/20/12
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/26/12
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	1/9/13
Imatinib mesylate	Gleevec	NDA021588	Efficacy	1/25/13
Pomalidomide	Pomalyst	NULL	Type 1	2/8/13

Substance name	Brand name	Application number	Submission class	Action date
Imatinib mesylate	Gleevec	NDA021588	Labeling	2/21/13
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	3/13/13
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	3/22/13
Vorinostat	Zolinza	NDA021991	Labeling	4/24/13
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Labeling	5/7/13
Cyclophosphamide	Cytoxan	NDA012141	Labeling	5/7/13
Vismodegib	Erivedge	NDA203388	Manuf (CMC)	5/8/13
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/15/13
Ipilimumab	Yervoy	BLA125377	Labeling	5/22/13
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Type 1	5/29/13
Dabrafenib mesylate	Tafinlar	NDA202806	Type 1	5/29/13
Vismodegib	Erivedge	NDA203388	Manuf (CMC)	6/3/13
Methoxsalen	Uvadex	NDA020969	Manuf (CMC)	6/5/13
Romidepsin	Istodax	NDA022393	Labeling	6/13/13
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	7/2/13
Vemurafenib	Zelboraf	NDA202429	Labeling	7/3/13
Vemurafenib	Zelboraf	NDA202429	Labeling	7/3/13
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	7/18/13
Bexarotene	Targretin	NDA021056	Manuf (CMC)	7/22/13
Brentuximab vedotin	Adcetris	BLA125388	Labeling	8/19/13
Mechlorethamine hydrochloride	Valchlor	NDA202317	Type 5	8/23/13
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	8/30/13
Romidepsin	Istodax	NDA022393	Manuf (CMC)	9/13/13
Methoxsalen	8-MOP	NDA009048	Labeling	9/20/13
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	9/27/13
Pomalidomide	Pomalyst	NULL	Manuf (CMC)	10/3/13
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	10/7/13
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	10/8/13
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	10/10/13
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	10/11/13
Imatinib mesylate	Gleevec	NDA021588	Labeling	10/30/13
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	10/31/13
Methoxsalen	Uvadex	NDA020969	Labeling	11/1/13
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	11/8/13
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Manuf (CMC)	11/14/13
Interferon alfa-2b	Intron A	BLA103132	Labeling	11/15/13
Pomalidomide	Pomalyst	NULL	REMS	11/15/13
Peginterferon alfa-2b	Pegintron	NULL	Labeling	11/15/13

Substance name	Brand name	Application number	Submission class	Action date
Alitretinoin	Panretin	NDA020886	Manuf (CMC)	11/22/13
Ipilimumab	Yervoy	BLA125377	Labeling	12/5/13
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/9/13
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	12/12/13
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	12/12/13
Peginterferon alfa-2b	Pegintron	NULL	Efficacy	12/18/13
Vismodegib	Erivedge	NDA203388	Manuf (CMC)	12/19/13
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	12/26/13
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	1/8/14
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	1/9/14
Vemurafenib	Zelboraf	NDA202429	Labeling	2/6/14
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	2/28/14
Ingenol mebutate	Picato	NDA202833	Labeling	3/12/14
Pomalidomide	Pomalyst	NULL	Labeling	3/13/14
Vemurafenib	Zelboraf	NDA202429	Efficacy	3/19/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	3/28/14
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	3/28/14
Interferon alfa-2b	Intron A	BLA103132	Labeling	4/2/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	4/4/14
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	4/4/14
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	4/14/14
Betamethasone acetate	Celestone soluspan	NDA014602	Manuf (CMC)	5/21/14
Imatinib mesylate	Gleevec	NDA021588	Labeling	5/22/14
Methylprednisolone acetate	Depo-Medrol	NDA011757	Manuf (CMC)	6/9/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	6/9/14
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	6/9/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	6/24/14
Paclitaxel	Taxol	NDA020262	Manuf (CMC)	6/27/14
Triamcinolone diacetate	Aristocort	NDA011685	Labeling	7/3/14
Triamcinolone diacetate	Aristocort	NDA012802	Labeling	7/3/14
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	7/3/14
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	7/3/14
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	7/3/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	7/3/14
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	7/3/14
Mechlorethamine hydrochloride	Valchlor	NDA202317	Manuf (CMC)	7/8/14
Mechlorethamine hydrochloride	Valchlor	NDA202317	Labeling	7/9/14
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	7/22/14

Substance name	Brand name	Application number	Submission class	Action date
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	7/22/14
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	7/22/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	7/31/14
Interferon alfa-2b	Intron A	BLA103132	Labeling	8/11/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	8/11/14
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Manuf (CMC)	8/13/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	8/14/14
Dabrafenib mesylate	Tafinlar	NDA202806	Manuf (CMC)	8/25/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	8/30/14
Triamcinolone diacetate	Aristocort	NDA012802	Manuf (CMC)	9/4/14
Pembrolizumab	Keytruda	BLA125514	Type 1	9/4/14
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	9/6/14
Pomalidomide	Pomalyst	NULL	REMS	9/12/14
Vemurafenib	Zelboraf	NDA202429	Manuf (CMC)	9/23/14
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Manuf (CMC)	9/26/14
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	9/29/14
Prednisolone acetate	Flo-pred	NDA022067	Manuf (CMC)	10/3/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/9/14
Mechlorethamine hydrochloride	Valchlor	NDA202317	Manuf (CMC)	10/13/14
Vismodegib	Erivedge	NDA203388	Manuf (CMC)	10/15/14
Romidepsin	Istodax	NDA022393	Efficacy	10/15/14
Peginterferon alfa-2b	Pegintron	NULL	Labeling	11/17/14
Fluorouracil	Carac	NDA020985	Manuf (CMC)	11/20/14
Brentuximab vedotin	Adcetris	BLA125388	Labeling	11/23/14
Brentuximab vedotin	Adcetris	BLA125388	Labeling	11/23/14
Imiquimod	Zyclara	NDA022483	Manuf (CMC)	11/24/14
Vemurafenib	Zelboraf	NDA202429	Labeling	11/25/14
Imiquimod	Aldara	NDA020723	Manuf (CMC)	11/26/14
Bexarotene	Targretin	NDA021055	Manuf (CMC)	12/2/14
Nivolumab	Opdivo	BLA125554	Type 1	12/22/14
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	1/22/15
Imatinib mesylate	Gleevec	NDA021588	Efficacy	1/30/15
Imiquimod	Aldara	NDA020723	Manuf (CMC)	2/3/15
Ingenol mebutate	Picato	NDA202833	Manuf (CMC)	2/3/15
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	2/4/15
Bexarotene	Targretin	NDA021056	Manuf (CMC)	2/9/15
Paclitaxel	Taxol	NDA020262	Labeling	3/3/15
Ipilimumab	Yervoy	BLA125377	REMS	3/16/15

Substance name	Brand name	Application number	Submission class	Action date
Ipilimumab	Yervoy	BLA125377	Labeling	3/19/15
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	3/30/15
Nivolumab	Opdivo	BLA125554	Labeling	4/14/15
Nivolumab	Opdivo	BLA125554	Labeling	4/14/15
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Efficacy	4/16/15
Pomalidomide	Pomalyst	NULL	Labeling	4/23/15
Pomalidomide	Pomalyst	NULL	Efficacy	4/23/15
Pomalidomide	Pomalyst	NULL	Labeling	4/23/15
Fluorouracil	Carac	NDA020985	Manuf (CMC)	4/29/15
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	5/6/15
Aldesleukin	Proleukin	BLA103293	Labeling	5/6/15
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/13/15
Vismodegib	Erivedge	NDA203388	Labeling	5/21/15
Vismodegib	Erivedge	NDA203388	Labeling	5/21/15
Vismodegib	Erivedge	NDA203388	Labeling	5/21/15
Vismodegib	Erivedge	NDA203388	Labeling	5/21/15
Interferon alfa-2b	Intron A	BLA103132	Labeling	5/21/15
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/21/15
Pembrolizumab	Keytruda	BLA125514	Labeling	6/19/15
Hydroxyurea	Droxia	NDA016295	Labeling	7/16/15
Hydroxyurea	Droxia	NDA016295	Labeling	7/16/15
Sonidegib phosphate	Odomzo	NDA205266	Type 1	7/24/15
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	7/28/15
Bexarotene	Targretin	NDA021055	Efficacy	7/29/15
Methoxsalen	8-MOP	NDA009048	Manuf (CMC)	7/30/15
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Manuf (CMC)	8/6/15
Vemurafenib	Zelboraf	NDA202429	Labeling	8/11/15
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	8/14/15
Brentuximab vedotin	Adcetris	BLA125388	Efficacy	8/17/15
Brentuximab vedotin	Adcetris	BLA125388	Labeling	8/17/15
Ipilimumab	Yervoy	BLA125377	Labeling	8/17/15
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	8/18/15
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Manuf (CMC)	9/10/15
Pomalidomide	Pomalyst	NULL	REMS	9/14/15
Bexarotene	Targretin	NDA021055	Manuf (CMC)	9/14/15
Peginterferon alfa-2b	Pegintron	NULL	Labeling	9/16/15
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	9/23/15
Nivolumab	Opdivo	BLA125554	Efficacy	9/30/15

Substance name	Brand name	Application number	Submission class	Action date
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/2/15
Ingenol mebutate	Picato	NDA202833	Labeling	10/6/15
Vorinostat	Zolinza	NDA021991	Manuf (CMC)	10/7/15
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	10/9/15
Nivolumab	Opdivo	BLA125554	Efficacy	10/9/15
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	10/26/15
Talimogene laherparepvec	Imlygic	BLA125518	Type 1	10/27/15
Pomalidomide	Pomalyst	NULL	REMS	10/27/15
Ipilimumab	Yervoy	BLA125377	Efficacy	10/28/15
Mechlorethamine hydrochloride	Valchlor	NDA202317	Labeling	10/29/15
Fluorouracil	Efudex	NDA016831	Manuf (CMC)	11/4/15
Cobimetinib fumarate	Cotellic	NDA206192	Type 1	11/10/15
Ingenol mebutate	Picato	NDA202833	Efficacy	11/19/15
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	11/20/15
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	11/20/15
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	11/20/15
Nivolumab	Opdivo	BLA125554	Efficacy	11/23/15
Nivolumab	Opdivo	BLA125554	Efficacy	11/23/15
Pomalidomide	Pomalyst	NULL	REMS	12/1/15
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	12/2/15
Vorinostat	Zolinza	NDA021991	Labeling	12/17/15
Pembrolizumab	Keytruda	BLA125514	Efficacy	12/18/15
Pembrolizumab	Keytruda	BLA125514	Efficacy	12/18/15
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	12/28/15
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Manuf (CMC)	1/7/16
Nivolumab	Opdivo	BLA125554	Efficacy	1/23/16
Nivolumab	Opdivo	BLA125554	Efficacy	1/23/16
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	1/29/16
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	1/29/16
Methotrexate sodium	Methotrexate preservative free	NDA011719	Manuf (CMC)	2/3/16
Sonidegib phosphate	Odomzo	NDA205266	Labeling	2/17/16
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Manuf (CMC)	2/25/16
Fluorouracil	Fluoroplex	NDA016988	Manuf (CMC)	3/1/16
Brentuximab vedotin	Adcetris	BLA125388	Labeling	3/4/16
Hydroxyurea	Droxia	NDA016295	Labeling	3/23/16
Hydroxyurea	Droxia	NDA016295	Labeling	3/23/16
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Manuf (CMC)	3/29/16
Prednisolone sodium phosphate	Orapred odt	NDA021959	Manuf (CMC)	4/8/16

Substance name	Brand name	Application number	Submission class	Action date
Mechlorethamine hydrochloride	Valchlor	NDA202317	Manuf (CMC)	4/8/16
Ingenol mebutate	Picato	NDA202833	Manuf (CMC)	4/15/16
Pomalidomide	Pomalyst	NULL	REMS	4/22/16
Diclofenac sodium	Solaraze	NDA021005	Labeling	5/9/16
Vemurafenib	Zelboraf	NDA202429	Labeling	5/9/16
Aminolevulinic acid hydrochloride	Ameluz	NDA208081	Type 3	5/10/16
Sonidegib phosphate	Odomzo	NDA205266	Labeling	5/12/16
Diclofenac sodium	Solaraze	NDA021005	Manuf (CMC)	5/16/16
Nivolumab	Opdivo	BLA125554	Efficacy	5/17/16
Atezolizumab	Tecentriq	BLA761034	Type 1	5/18/16
Cobimetinib fumarate	Cotellic	NDA206192	Labeling	5/31/16
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	6/16/16
Pomalidomide	Pomalyst	NULL	Labeling	6/30/16
Pomalidomide	Pomalyst	NULL	Labeling	6/30/16
Fluorouracil	Fluoroplex	NDA016988	Labeling	7/25/16
Romidepsin	Istodax	NDA022393	Labeling	7/27/16
Prednisolone sodium phosphate	Orapred odt	NDA021959	Manuf (CMC)	7/28/16
Dexamethasone	Decadron	NDA011664	Labeling	7/29/16
Pembrolizumab	Keytruda	BLA125514	Efficacy	8/5/16
Imatinib mesylate	Gleevec	NDA021588	Efficacy	8/25/16
Imatinib mesylate	Gleevec	NDA021588	Labeling	8/25/16
Vemurafenib	Zelboraf	NDA202429	Efficacy	8/31/16
Hydrocortisone	Cortef	NDA008697	Labeling	9/8/16
Hydrocortisone	Cortef	NDA008697	Labeling	9/8/16
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	9/8/16
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	9/8/16
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	9/8/16
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	9/8/16
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	9/8/16
Nivolumab	Opdivo	BLA125554	Efficacy	9/13/16
Nivolumab	Opdivo	BLA125554	Efficacy	9/13/16
Ingenol mebutate	Picato	NDA202833	Labeling	9/13/16
Imatinib mesylate	Gleevec	NDA021588	Labeling	9/27/16
Brentuximab vedotin	Adcetris	BLA125388	Labeling	9/28/16
Nivolumab	Opdivo	BLA125554	Efficacy	10/4/16
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/24/16
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/24/16
Cyclophosphamide	Cytoxan (lyophilized)	NDA012142	Manuf (CMC)	10/31/16

Substance name	Brand name	Application number	Submission class	Action date
Vismodegib	Erivedge	NDA203388	Labeling	11/2/16
Nivolumab	Opdivo	BLA125554	Efficacy	11/10/16
Mechlorethamine hydrochloride	Valchlor	NDA202317	Manuf (CMC)	12/22/16
Ingenol mebutate	Picato	NDA202833	Manuf (CMC)	1/26/17
Nivolumab	Opdivo	BLA125554	Efficacy	2/2/17
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Labeling	2/24/17
Ipilimumab	Yervoy	BLA125377	Labeling	3/3/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	3/14/17
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	3/15/17
Avelumab	Bavencio	BLA761049	Type 1	3/23/17
Atezolizumab	Tecentriq	BLA761034	Efficacy	4/17/17
Vemurafenib	Zelboraf	NDA202429	Labeling	4/17/17
Imatinib mesylate	Gleevec	NDA021588	Labeling	4/24/17
Avelumab	Bavencio	BLA761049	Labeling	4/25/17
Nivolumab	Opdivo	BLA125554	Efficacy	4/25/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	5/10/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	5/17/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	5/18/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	5/18/17
Pembrolizumab	Keytruda	BLA125514	Efficacy	5/23/17
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/25/17
Interferon alfa-2b	Intron A	BLA103132	Labeling	6/12/17
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	6/16/17
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	6/22/17
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	6/22/17
Pomalidomide	Pomalyst	NULL	REMS	6/27/17
Ipilimumab	Yervoy	BLA125377	Efficacy	7/21/17
Pembrolizumab	Keytruda	BLA125514	Labeling	7/27/17
Pembrolizumab	Keytruda	BLA125514	Labeling	7/27/17
Nivolumab	Opdivo	BLA125554	Efficacy	7/31/17
Vismodegib	Erivedge	NDA203388	Labeling	8/1/17
Aminolevulinic acid hydrochloride	Ameluz	NDA208081	Labeling	9/6/17
Imatinib mesylate	Gleevec	NDA021588	Labeling	9/6/17
Nivolumab	Opdivo	BLA125554	Labeling	9/6/17
Vemurafenib	Zelboraf	NDA202429	Efficacy	9/13/17
Vemurafenib	Zelboraf	NDA202429	Labeling	9/13/17
Sonidegib phosphate	Odomzo	NDA205266	Efficacy	9/18/17
Nivolumab	Opdivo	BLA125554	Efficacy	9/22/17

Substance name	Brand name	Application number	Submission class	Action date
Pembrolizumab	Keytruda	BLA125514	Efficacy	9/22/17
Imatinib mesylate	Gleevec	NDA021588	Labeling	9/29/17
Interferon alfa-2b	Intron A	BLA103132	Labeling	10/2/17
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/2/17
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/2/17
Peginterferon alfa-2b	Pegintron	NULL	Labeling	10/3/17
Avelumab	Bavencio	BLA761049	Labeling	10/12/17
Ipilimumab	Yervoy	BLA125377	Efficacy	10/20/17
Vemurafenib	Zelboraf	NDA202429	Efficacy	11/6/17
Brentuximab vedotin	Adcetris	BLA125388	Efficacy	11/9/17
Pembrolizumab	Keytruda	BLA125514	Labeling	11/29/17
Pomalidomide	Pomalyst	NULL	Labeling	11/30/17
Ipilimumab	Yervoy	BLA125377	Labeling	12/13/17
Hydroxyurea	Droxia	NDA016295	Labeling	12/18/17
Hydroxyurea	Droxia	NDA016295	Labeling	12/18/17
Nivolumab	Opdivo	BLA125554	Efficacy	12/20/17
Pomalidomide	Pomalyst	NULL	Labeling	12/29/17
Nivolumab	Opdivo	BLA125554	Efficacy	1/9/18
Nivolumab	Opdivo	BLA125554	Efficacy	1/9/18
Nivolumab	Opdivo	BLA125554	Efficacy	1/9/18
Nivolumab	Opdivo	BLA125554	Efficacy	1/9/18
Nivolumab	Opdivo	BLA125554	Efficacy	1/9/18
Methoxsalen	Uvadex	NDA020969	Labeling	1/9/18
Cobimetinib fumarate	Cotellic	NDA206192	Efficacy	1/26/18
Prednisolone sodium phosphate	Pediapred	NDA019157	Labeling	2/5/18
Ipilimumab	Yervoy	BLA125377	Labeling	2/8/18
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	2/9/18
Nivolumab	Opdivo	BLA125554	Labeling	2/13/18
Nivolumab	Opdivo	BLA125554	Efficacy	2/15/18
Nivolumab	Opdivo	BLA125554	Efficacy	2/15/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18

Substance name	Brand name	Application number	Submission class	Action date
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Nivolumab	Opdivo	BLA125554	Efficacy	3/5/18
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Efficacy	3/6/18
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Labeling	3/9/18
Atezolizumab	Tecentriq	BLA761034	Labeling	3/13/18
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	3/15/18
Methotrexate sodium	Methotrexate sodium	NULL	Labeling	3/15/18
Brentuximab vedotin	Adcetris	BLA125388	Efficacy	3/20/18
Pomalidomide	Pomalyst	NULL	Labeling	3/20/18
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	3/28/18
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	3/29/18
Betamethasone acetate	Celestone soluspan	NDA014602	Labeling	4/10/18
Nivolumab	Opdivo	BLA125554	Efficacy	4/16/18
Ipilimumab	Yervoy	BLA125377	Efficacy	4/16/18
Aminolevulinic acid hydrochloride	Levulan	NDA020965	Labeling	4/19/18
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	4/20/18
Dexamethasone	Decadron	NDA011664	Labeling	4/23/18
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	4/30/18
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	4/30/18
Atezolizumab	Tecentriq	BLA761034	Efficacy	4/30/18
Interferon alfa-2b	Intron A	BLA103132	Labeling	5/4/18
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	5/4/18
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/4/18
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	5/4/18
Methotrexate sodium	Methotrexate preservative free	NDA011719	Labeling	5/7/18
Peginterferon alfa-2b	Pegintron	NULL	Labeling	5/25/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/12/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/13/18
Atezolizumab	Tecentriq	BLA761034	Efficacy	6/14/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/19/18
Atezolizumab	Tecentriq	BLA761034	Efficacy	6/19/18
Triamcinolone acetonide	Kenalog-40	NDA014901	Labeling	6/22/18
Atezolizumab	Tecentriq	BLA761034	Labeling	6/26/18
Encorafenib	Braftovi	NDA210496	Type 1/4	6/27/18
Binimetinib	Mektovi	NDA210498	Type 1/4	6/27/18
Atezolizumab	Tecentriq	BLA761034	Efficacy	7/2/18
Nivolumab	Opdivo	BLA125554	Efficacy	7/10/18
Ipilimumab	Yervoy	BLA125377	Efficacy	7/10/18

Substance name	Brand name	Application number	Submission class	Action date
Methylprednisolone acetate	Depo-Medrol	NDA011757	Labeling	7/24/18
Methylprednisolone	Medrol	NDA011153	Labeling	7/24/18
Methylprednisolone sodium succinate	Solu-Medrol	NDA011856	Labeling	7/24/18
Mogamulizumab-kpkc	Poteligeo	BLA761051	Type 1	8/8/18
Nivolumab	Opdivo	BLA125554	Efficacy	8/16/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	8/16/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	8/20/18
Imatinib mesylate	Gleevec	NDA021588	Labeling	8/21/18
Cemiplimab-rwlc	Libtayo	BLA761097	Type 1	9/28/18
Avelumab	Bavencio	BLA761049	Efficacy	10/19/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/30/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	11/9/18
Nivolumab	Opdivo	BLA125554	Labeling	11/15/18
Brentuximab vedotin	Adcetris	BLA125388	Efficacy	11/16/18
Romidepsin	Istodax	NDA022393	Labeling	11/27/18
Atezolizumab	Tecentriq	BLA761034	Efficacy	12/6/18
Vorinostat	Zolinza	NDA021991	Labeling	12/11/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	12/19/18
Peginterferon alfa-2b	Pegintron	NULL	Labeling	12/21/18
Pembrolizumab	Keytruda	BLA125514	Efficacy	12/28/18
Peginterferon alfa-2b	Pegintron	NULL	Labeling	1/8/19
Vismodegib	Erivedge	NDA203388	Efficacy	1/18/19
Cemiplimab-rwlc	Libtayo	BLA761097	Labeling	1/18/19
Encorafenib	Braftovi	NDA210496	Efficacy	1/23/19
Binimetinib	Mektovi	NDA210498	Efficacy	1/23/19
Nivolumab	Opdivo	BLA125554	Labeling	2/1/19
Denileukin diftitox	Ontak	BLA103767	Labeling	2/15/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	2/15/19
Nivolumab	Opdivo	BLA125554	Efficacy	3/7/19
Nivolumab	Opdivo	BLA125554	Efficacy	3/7/19
Atezolizumab	Tecentriq	BLA761034	Efficacy	3/8/19
Atezolizumab	Tecentriq	BLA761034	Efficacy	3/18/19
Cemiplimab-rwlc	Libtayo	BLA761097	Labeling	3/20/19
Vismodegib	Erivedge	NDA203388	Labeling	3/26/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/11/19
Triamcinolone acetonide	Kenalog-40	NDA014901	Manuf (CMC)	4/12/19
Nivolumab	Opdivo	BLA125554	Efficacy	4/18/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/19/19

Substance name	Brand name	Application number	Submission class	Action date
Nivolumab	Opdivo	BLA125554	Labeling	5/2/19
Atezolizumab	Tecentriq	BLA761034	Efficacy	5/6/19
Atezolizumab	Tecentriq	BLA761034	Efficacy	5/6/19
Dexamethasone	Decadron	NDA011664	Labeling	5/8/19
Ipilimumab	Yervoy	BLA125377	Labeling	5/8/19
Sonidegib phosphate	Odomzo	NDA205266	Labeling	5/13/19
Avelumab	Bavencio	BLA761049	Efficacy	5/14/19
Aldesleukin	Proleukin	BLA103293	Labeling	5/17/19
Encorafenib	Braftovi	NDA210496	Efficacy	5/24/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/10/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/17/19
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Labeling	7/16/19
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	7/16/19
Hydroxyurea	Droxia	NDA016295	Labeling	7/22/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	7/30/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	7/30/19
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/9/19
Doxorubicin hydrochloride	Doxil (liposomal)	NDA050718	Labeling	8/12/19
Methotrexate sodium	Methotrexate sodium	NULL	Manuf (CMC)	8/16/19
Methylprednisolone	Medrol	NDA011153	Manuf (CMC)	8/26/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	9/17/19
Nivolumab	Opdivo	BLA125554	Labeling	9/18/19
Ipilimumab	Yervoy	BLA125377	Labeling	9/20/19
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Efficacy	10/6/19
Dabrafenib mesylate	Tafinlar	NDA202806	Efficacy	10/6/19
Brentuximab vedotin	Adcetris	BLA125388	Labeling	10/15/19
Pomalidomide	Pomalyst	NULL	Labeling	10/30/19
Hydrocortisone	Cortef	NDA008697	Labeling	11/21/19
Hydrocortisone sodium succinate	Solu-Cortef	NDA009866	Labeling	11/21/19
Atezolizumab	Tecentriq	BLA761034	Efficacy	12/3/19
Hydroxyurea	Droxia	NDA016295	Labeling	12/18/19
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	12/20/19
Pembrolizumab	Keytruda	BLA125514	Efficacy	1/8/20
Pembrolizumab	Keytruda	BLA125514	Labeling	1/9/20
Mechlorethamine hydrochloride	Valchlor	NDA202317	Labeling	1/13/20
Denileukin diftitox	Ontak	BLA103767	Labeling	2/10/20
Ingenol mebutate	Picato	NDA202833	Labeling	2/13/20
Prednisolone sodium phosphate	Orapred odt	NDA021959	Labeling	3/6/20

Substance name	Brand name	Application number	Submission class	Action date
Nivolumab	Opdivo	BLA125554	Efficacy	3/10/20
Ipilimumab	Yervoy	BLA125377	Efficacy	3/10/20
Encorafenib	Braftovi	NDA210496	Efficacy	4/8/20
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Labeling	4/9/20
Dabrafenib mesylate	Tafinlar	NDA202806	Labeling	4/9/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	4/28/20
Mechlorethamine hydrochloride	Valchlor	NDA202317	Labeling	5/1/20
Methotrexate sodium	Methotrexate sodium	NULL	Efficacy	5/4/20
Pomalidomide	Pomalyst	NULL	Efficacy	5/14/20
Pomalidomide	Pomalyst	NULL	Efficacy	5/14/20
Nivolumab	Opdivo	BLA125554	Efficacy	5/15/20
Ipilimumab	Yervoy	BLA125377	Efficacy	5/15/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	5/18/20
Vemurafenib	Zelboraf	NDA202429	Labeling	5/18/20
Nivolumab	Opdivo	BLA125554	Efficacy	5/26/20
Ipilimumab	Yervoy	BLA125377	Efficacy	5/26/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	5/29/20
Nivolumab	Opdivo	BLA125554	Efficacy	6/10/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/16/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/16/20
Trametinib dimethyl sulfoxide	Mekinist	NDA204114	Labeling	6/23/20
Nivolumab	Opdivo	BLA125554	Labeling	6/23/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/24/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/24/20

Substance name	Brand name	Application number	Submission class	Action date
Cemiplimab-rwlc	Libtayo	BLA761097	Efficacy	6/25/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	6/29/20
Ipilimumab	Yervoy	BLA125377	Labeling	6/29/20
Avelumab	Bavencio	BLA761049	Efficacy	6/30/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	7/30/20
Vismodegib	Erivedge	NDA203388	Labeling	7/31/20
Cyclophosphamide	Cytoxan	NDA012141	Manuf (CMC)	8/7/20
Imatinib mesylate	Gleevec	NDA021588	Labeling	8/10/20
Imatinib mesylate	Gleevec	NDA021588	Labeling	8/10/20
Ipilimumab	Yervoy	BLA125377	Labeling	8/13/20
Doxorubicin hydrochloride	Doxorubicin hydrochloride	NDA050467	Labeling	8/28/20
Nivolumab	Opdivo	BLA125554	Efficacy	9/18/20
Nivolumab	Opdivo	BLA125554	Efficacy	9/18/20
Ipilimumab	Yervoy	BLA125377	Efficacy	9/18/20
Nivolumab	Opdivo	BLA125554	Labeling	9/25/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	9/30/20
Nivolumab	Opdivo	BLA125554	Efficacy	10/2/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/2/20
Ipilimumab	Yervoy	BLA125377	Efficacy	10/2/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	10/14/20
Avelumab	Bavencio	BLA761049	Labeling	11/10/20
Cemiplimab-rwlc	Libtayo	BLA761097	Labeling	11/10/20
Nivolumab	Opdivo	BLA125554	Labeling	11/10/20
Pembrolizumab	Keytruda	BLA125514	Labeling	11/10/20
Atezolizumab	Tecentriq	BLA761034	Labeling	11/10/20
Pembrolizumab	Keytruda	BLA125514	Efficacy	11/13/20
Ipilimumab	Yervoy	BLA125377	Labeling	11/13/20
Pomalidomide	Pomalyst	NULL	Efficacy	11/20/20
Pomalidomide	Pomalyst	NULL	Labeling	12/3/20
Tirbanibulin	Klisyri	NDA213189	Type 1	12/14/20
Ingenol mebutate	Picato	NDA202833	Labeling	12/17/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	12/18/20
Atezolizumab	Tecentriq	BLA761034	Efficacy	12/18/20
Nivolumab	Opdivo	BLA125554	Labeling	12/29/20
Nivolumab	Opdivo	BLA125554	Efficacy	1/22/21
Hydroxyurea	Droxia	NDA016295	Labeling	2/9/21
Cemiplimab-rwlc	Libtayo	BLA761097	Efficacy	2/9/21
Cemiplimab-rwlc	Libtayo	BLA761097	Efficacy	2/9/21

The above table lists all labeling modifications for the therapeutic agents (or agents) with an indication for skin cancer. TYPE1, Type 1 - New Molecular Entity; TYPE2, Type 2 - New Active Ingredient; TYPE3 - New Dosage Form; TYPE4, Type 4 - New Combination; TYPE5, Type 5 - New Formulation or New Manufacturer; Manuf (CMC), chemistry, manufacturing and controls; S, Supplement.