

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

125427Orig1s000

PROPRIETARY NAME REVIEW(S)



Memorandum

Date: January 16, 2013

From: OND Therapeutic Biologics and Biosimilars Team

Subject: Memorandum Addendum - BLA 125427 – [xxx]-trastuzumab emtansine

To: File

As detailed in a memorandum dated December 20, 2012, FDA determined that use of a distinguishing prefix in the nonproprietary name for Genentech's Kadcyra ([xxx]-trastuzumab emtansine), an antibody-drug conjugate submitted in a 351(a) biologics license application (BLA), will be required to distinguish the product from Herceptin (trastuzumab), a previously licensed biological product submitted in a different 351(a) BLA by Genentech that contains the unconjugated monoclonal antibody to reduce the potential for medication errors.

FDA communicated this decision to Genentech on December 26, 2012, and requested that Genentech provide three proposed prefixes. In this communication, FDA also provided Genentech the following criteria to consider in proposing prefixes:

- the prefix should be 3 to 4 letter characters in length;
- the prefix should be nonpromotional;
- the prefix should be devoid of meaning (for example, the prefix should not refer to the characteristics or composition of the product, include medical or scientific abbreviations, or contain any drug substance name or identifier designated by the United States Adopted Names (USAN) Council);
- the prefix should be pronounceable;
- the prefix should not look or sound similar to, or be confused with, a currently marketed product.

In addition, FDA provided that "we encourage you to conduct due diligence on your proposed prefixes to ensure there are no other restrictions on their use in this context."

On January 4, 2013, Genentech submitted three proposed nonproprietary names that included prefixes to the "trastuzumab emtansine" stem. Genentech also asked FDA (b) (4)

FDA has considered Genentech's suggestion (b) (4)

For this reason, FDA declines to accept this suggestion.

FDA reviewed the three proposed nonproprietary names that Genentech proposed (b) (4):

- (i) (b) (4)
- (ii) ADO-trastuzumab emtansine
- (iii) (b) (4)

FDA evaluated the proposed names with the prefix in lowercase font, and determined that "ado-" is the only acceptable prefix provided by Genentech. Specifically, FDA made the following determinations:

- (b) (4)
- The second prefix, "ado-" is a word in the English language meaning heightened fuss or concern; time-wasting bother over trivial details; trouble or difficulty. However, FDA determined that the word does not have significant common usage such that there would be concern. This prefix is listed as an abbreviation for adenosine and axiodistocclusal. Adenosine is noted in latest edition of Davis, Neil M, Medical Abbreviations 15th Edition, 2011; however adenosine does not appear in older versions. Thus, FDA suspects use of *ado* to denote adenosine is relatively new and not widespread. It was noted that "ado" could be construed to be an acronym for "antibody drug oncology." Such an acronym is not commonly used in the relevant biological product development, prescriber or patient communities, however, and FDA has

concluded that any concern associated with such extrapolated meaning from “ado” going forward does not render the prefix unacceptable for Genentech’s product. The proposed prefix “ado-” does not appear to raise other concerns related to conveying specific meaning, being promotional or looking or sounding similar to a currently marketed product. The proposed prefix “ado-” is acceptable based on the criteria outlined in the December 20, 2012 communication to Genentech.

-



It should be noted that the requirement to add a distinguishing prefix to the first word of the nonproprietary name for this antibody-drug conjugate is specific to this proposed product (“trastuzumab emtansine”) and the potential for medication errors involving the previously licensed trastuzumab. This decision is not intended to reflect a broader change to the naming conventions for antibody-drug conjugates.

REFERENCES:

<http://www.medilexicon.com/medicalabbreviations.php>
<http://www.merriam-webster.com/dictionary>

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/s/

LEAH A CHRISTL
01/16/2013



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From: OND Therapeutic Biologics and Biosimilars Team

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FDA has determined that use of a distinguishing prefix in the nonproprietary name for Genentech's Kadcyła ([xxx]-trastuzumab emtansine), an antibody-drug conjugate submitted in a 351(a) biologics license application (BLA), will be required to distinguish the product from Herceptin (trastuzumab), a previously licensed biological product submitted in a different 351(a) BLA by Genentech that contains the unconjugated monoclonal antibody.

Kadcyła ([xxx]-trastuzumab emtansine) is a HER2-targeted antibody-drug conjugate which contains trastuzumab covalently linked to the microtubule inhibitory drug DM1 (a maytansine derivative) via the MCC linker. Emtansine refers to the MCC-DM1 complex. Kadcyła is proposed as a single agent for the treatment of patients with HER2-positive metastatic breast cancer who have received prior treatment with trastuzumab and a taxane. Herceptin (trastuzumab) is licensed for use as a single agent for treatment of HER2-overexpressing breast cancer in patients who have received one or more chemotherapy regimens for metastatic disease, and in combination with paclitaxel for first-line treatment of HER2-overexpressing metastatic breast cancer. Herceptin also is indicated for adjuvant treatment of HER2-overexpressing breast cancer under specified conditions and as part of combination treatment for HER2-overexpressing metastatic gastric cancer under specified conditions.

FDA identified a potential for error between the currently marketed Herceptin (trastuzumab) and the proposed Kadcyła ("trastuzumab emtansine") due to the similarity of the nonproprietary names as well as overlapping product characteristics during review of the IND. For example, both products would be prescribed by oncologists and utilized in similar settings (infusion or cancer centers) for similar patient populations (women with breast cancer). However, the proposed dose (3.6 mg/kg) of Kadcyła is less than the recommended dose(s) of Herceptin for its approved conditions of use. Thus, if Kadcyła is confused with Herceptin, patients may experience overdose or underdose resulting in toxicity or

reduced efficacy, depending on the direction of the error. Due to this concern, FDA requested that Genentech conduct a Human Factors evaluation to determine the best methods for product differentiation. The BLA submission described medication errors involving administration of the wrong drug during clinical trials that evaluated the safety and efficacy of Kadcylla. Genentech initiated a research project to understand potential areas for confusion between Kadcylla and Herceptin due to similarities between the nonproprietary names.

Due to the fact that healthcare providers may use nonproprietary names instead of proprietary names when prescribing and ordering products, and confusion has already occurred in clinical trials, FDA has determined the use of distinct proprietary names is insufficient to adequately address the Agency's safety concerns with use of "trastuzumab emtansine" as the proper name for Kadcylla. In addition, FDA has determined that the use of distinguishing labels, labeling, and warning statements together with educational programs also is not sufficient to address the concerns. For example, while distinguishing labels and labeling can help to prevent mix-ups at the point of dispensing, the potential still exists for a healthcare provider to select the incorrect product (trastuzumab vs. "trastuzumab emtansine") from a computerized drop-down menu during medication order entry.

FDA conveyed these concerns to Genentech in an Information Request dated September 7, 2012. During a teleconference between representatives of FDA and Genentech on September 28, 2012, to discuss the potential for confusion/medication error between Kadcylla and Herceptin, Genentech asked about the "potential for FDA to request a change in the established name for trastuzumab emtansine akin to that recently requested for Zaltrap as reviewed under BLA 125418" as part of its response to FDA's Information Request.

FDA has concluded that distinguishing the first word of the nonproprietary name for Kadcylla ([xxx]-trastuzumab emtansine) from Herceptin (trastuzumab) will minimize medication errors by preventing a patient from receiving a product different than what was intended to be prescribed. Additional strategies to reduce the potential for medication errors also are being considered.

To differentiate Kadcylla from Herceptin, FDA is requesting that Genentech propose a 3-4 letter prefix to be added to the nonproprietary stem, "trastuzumab emtansine," separated by a hyphen. This decision for "trastuzumab emtansine" is similar to the decision to revise the nonproprietary names for the botulinum toxin products. The nonproprietary names for botulinum toxin products were changed to emphasize the non-interchangeable potency units of each botulinum toxin product in an effort to prevent medication errors and serious adverse events. The potency units are specific to each botulinum toxin product, and the doses or units of biological activity cannot be compared or converted from one product to

any other botulinum toxin product. The new nonproprietary names (which incorporated a 3-4 letter distinguishing prefix to the "botulinumtoxinA" or "botulinumtoxinB" stem) reinforced these differences and the lack of interchangeability among botulinum toxin products. This decision for "trastuzumab emtansine" also is similar to FDA's decision to require a unique nonproprietary names for Zaltrap (ziv-aflibercept) to distinguish the product from Eylea (aflibercept), a previously licensed biological product submitted in a different 351(a) BLA that contains a similar drug substance. Among other things, Zaltrap and Eylea have different formulations, different routes of administration, and different indications.

It should be noted that the requirement to add a distinguishing prefix to the first word of the nonproprietary name for this antibody-drug conjugate is specific to this proposed product ("trastuzumab emtansine") and the potential for medication errors involving the previously licensed trastuzumab. This decision is not intended to reflect a broader change to the naming conventions for antibody-drug conjugates.

For these reasons, Kadcyca will be identified as ([xxx]-trastuzumab emtansine).

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/s/

LEAH A CHRISTL
12/20/2012

**Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology
Office of Medication Error Prevention and Risk Management**

Proprietary Name Review

Date: November 6, 2012

Reviewer: Jibril Abdus-Samad, PharmD
Division of Medication Error Prevention and Analysis

Team Leader: Todd Bridges, RPh
Division of Medication Error Prevention and Analysis

Deputy Director: Kellie Taylor, PharmD, MPH
Division of Medication Error Prevention and Analysis

Division Director: Carol Holquist, RPh
Division of Medication Error Prevention and Analysis

Drug Name and Strengths: Kadcyla (Trastuzumab Emtansine)
100 mg per vial and 160 mg per vial

Application Type/Number: BLA 125427

Applicant: Genentech, Inc.

OSE RCM #: 2012-2017

*** This document contains proprietary and confidential information that should not be released to the public.***

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1 INTRODUCTION

This review evaluates the proposed proprietary name, Kadcyła, from a safety and promotional perspective. The sources and methods used to evaluate the proposed name are outlined in the reference section and Appendix A, respectively.

1.1 REGULATORY HISTORY

Trastuzumab Emtansine was previously reviewed on May 11, 2011 under the name (b)(4)***, which was found unacceptable in OSE review # 2010-2591 due to orthographic similarity with the proposed proprietary name, (b)(4)***. The name was subsequently withdrawn and a new proprietary name, Kadcyła, was submitted and found acceptable in April 26, 2012 OSE review 2011-4188. Since the last review, the product characteristics changed, which consisted of the addition of dose modifications for symptomatic adverse events (see *section 1.2 Product Information*).

1.2 PRODUCT INFORMATION

Kadcyła (Trastuzumab Emtansine) is an antibody-drug conjugate, which is a monoclonal antibody (Trastuzumab) attached to a highly potent cytotoxic agent (Emtansine). The Trastuzumab allows for specific attachment to the cancer cell receptor, and once attached the Emtansine enters the cell. Trastuzumab (without Emtansine) is currently marketed as Herceptin with multiple indications (please refer to Table 1 for detailed comparison of product characteristics for Kadcyła and Herceptin).

The following product information is provided in the August 28, 2012 proprietary name submission.

- Established name: Trastuzumab Emtansine
- Indication of use: Single agent for use in HER2(+) (b)(4) metastatic breast cancer
- Route of administration: Intravenous infusion
- Dosage form: Lyophilized powder
- Strengths: 100 mg and 160 mg per vial
- Dose: 3.6 mg/kg every 3 weeks infused over 30 to 90 minutes
 - Dose reductions for symptomatic adverse events 3 mg/kg and 2.4 mg/kg
- How supplied: Single use vials
- Storage: (b)(4)
- Container and Closure Systems: Glass vial

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Table 1: Comparison of Kadcyła vs. Herceptin

Product Characteristics	Kadcyla (Trastuzumab Emtansine) BLA 125427 <i>pending</i>	Herceptin (Trastuzumab) BLA 103792 <i>approved</i>
Indication(s)	Single agent, is indicated for the treatment of patients with HER2 +, (b) (4) metastatic breast cancer who have received prior treatment with trastuzumab and a taxane	<ul style="list-style-type: none"> - Adjuvant treatment of HER2 overexpressing node + or node – breast cancer, as part of a treatment regimen consisting of doxo, cyclo, and either paclitaxel or docetaxel OR with docetaxel and carboplatin - Metastatic breast cancer in combination with Paclitaxel for first line treatment of HER@ overexpressing metastatic breast cancer OR a single agent for treatment of HER2 overexpressing breast cancer in patient who have received one more chemotherapy regimens - In combination with Cisplatin and Capecitabine or 5-FU for the treatment of patients with HER2 overexpressing metagastric or gastroesophageal junction adenocarcinoma, who have not received prior treatment for metastatic disease.
Patient population	Adults	Adults
Dose and frequency	3.6 mg/kg every 3 weeks (21-day cycle)	<ul style="list-style-type: none"> - Adjuvant Breast Cancer treatment: initial dose of 4 mg/kg then 2 mg/kg for 12 to 18 weeks then continue at 6 mg/kg every 3 weeks - Adjuvant Breast Cancer: single agent within 3 weeks following completion of multi-modality anthracycline: initial dose of 8 mg/kg then 6 mg/kg every three weeks - Metastatic Treatment Breast Cancer: alone or in combination with Paclitaxel at initial dose 4 mg/kg then once weekly dose of 2 mg/kg - Metastatic Gastric Cancer: initial dose of 8 mg/kg as a 90 minute intravenous infusion followed by 6 mg/kg every 3 weeks
Dose modifications	For symptomatic adverse events: <ul style="list-style-type: none"> - first dose reduction: 3 mg/kg - second dose reduction: 2.4 mg/kg Specific modifications to withhold doses for Hepatotoxicity, Thrombocytopenia, decreased Left Ventricular Ejection Fraction (LVEF)	<ul style="list-style-type: none"> - Decrease rate of infusion - withhold for 4 weeks if >16% absolute decrease In LVEF for pre-treatment or below institutional limits of normal and >10% absolute decrease in LVEF
Route of administration	Intravenous infusion, first time over 90 minutes, then over 30 minutes	Intravenous infusion, first time over 90 minutes then over 60 minutes or 30 minutes depending on reaction

Reconstitution directions	Reconstitute with 5 mL Sterile Water for Injection (SWFI) for 100 mg vial or 8 mL of SWFI for 160 mg vial to 20 mg/ml concentration, swirl vial, dilute calculated dose with 250 mL of (b)(4) 0.9% sodium chloride	Reconstitute with 20 mL of BWFI (for multi-dose) or 20 mL of SWFI (for allergy to benzyl alcohol) for single use solution, sit for 5 minutes, dilute calculated dose with 250 mL of 0.9% sodium chloride
Strength	100 mg/vial and 160 mg/vial; after reconstitution 100 mg/5 mL (20 mg/mL) or 160 mg/8 mL (20 mg/mL)	440 mg/vial, after reconstitution 440 mg/20 mL (21 mg/mL)
Dosage form	Single use vial of lyophilized powder	Multi-dose vial of lyophilized powder and vial of diluent
Storage	Refrigerator, after reconstitution can be stored in refrigerator (b)(4)	Refrigerator, after reconstitution can be stored for 28 days if reconstituted with BWFI, if SWFI, discard after 24 hours

2 RESULTS

The following sections provide the information obtained and considered in the overall evaluation of the proposed proprietary name.

2.1 PROMOTIONAL ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined the proposed name is acceptable from a promotional perspective. DMEPA and the Division of Oncology Products I (DOP1) concurred with the findings of OPDP's promotional assessment of the proposed name.

2.2 SAFETY ASSESSMENT

The following aspects were considered in the safety evaluation of the name.

2.2.1 *United States Adopted Names (USAN) Search*

The October 10, 2012 search of the United States Adopted Name (USAN) stems did not identify that a USAN stem is present in the proposed proprietary name.

2.2.2 *Components of the Proposed Proprietary Name*

The Applicant indicated in their submission that the proposed name, Kadcyła, is not derived from any particular concept. This proprietary name is comprised of a single word that does not contain any components such as a modifier, route of administration, or dosage form that is misleading or can contribute to medication error.

2.2.3 FDA Name Simulation Studies

Eighty-eight practitioners participated in DMEPA's prescription studies. The interpretations did not overlap with or appear or sound similar to any currently marketed products. Two of the responses (?, illegible) were not evaluated. The most common misinterpretation in the Inpatient Study was the lowercase letter 'e' for the lowercase letter 'c'. The most common misinterpretation in the Outpatient Study was the capital letter 'R' for the capital letter 'K'. The Voice Study's most common misinterpretation was the letter 'T' for the letter 'K'. See Appendix C for the complete listing of interpretations from the verbal and written prescription studies.

2.2.4 Comments from Other Review Disciplines

In response to the OSE email on September 6, 2012 e-mail, the DOP1 did not forward any comments or concerns relating to the proposed name at the initial phase of the proprietary name review.

2.2.5 Failure Mode and Effects Analysis of Similar Names to Kadcyala

A comprehensive list of the names previously identified and evaluated in OSE Review 2011-4188 are listed in Appendices G and H. Despite the new dose modifications for Kadcyala, we still agree with the previous review conclusions. Appendix B lists possible orthographic and phonetic misinterpretations of the letters appearing in the proposed proprietary name, Kadcyala. Table 2 lists the names with orthographic, phonetic, or spelling similarity to the proposed proprietary name, Kadcyala identified by the primary reviewer and the Expert Panel Discussion (EPD) during this review cycle. Additionally, any of these identified names that were previously evaluated in OSE Review 2011-4188 that had no changes in product characteristics are listed in Appendix E.

Table 2: Collective List of Potentially Similar Names (DMEPA, and EPD)					
Look Similar					
<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>
Helixate FS	EPD	(b) (4)	EPD	(b) (4)	EPD
Kadian	EPD	Kalbitor	EPD	Kaletra	EPD
Kalexate	EPD	Kalydeco	EPD	(b) (4)***	EPD
Kinlytic	EPD	(b) (4)***	EPD	Kolephrin	EPD
Konsyl	EPD	Onglyza	EPD	Radiagel	EPD
Radigel	EPD	(b) (4)	EPD	Valcyte	EPD
Vanex-LA	EPD	Vercyte	EPD	Vi-Daylin	EPD
Videx EC	EPD	Xolegel	EPD	Lodosyn	Safety Evaluator
Ridaura	Safety Evaluator	Riluzole	Safety Evaluator	Tradjenta***	Safety Evaluator
Sound Similar					
<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>
Adcirca	Safety Evaluator	Skyla***	Safety Evaluator		
Look and Sound Similar					
<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>
Kadcyla***	Safety Evaluator	(b) (4)	Safety Evaluator		

Our analysis of the 31 names contained in Table 2 considered the information obtained in the previous sections along with their product characteristics. We determined 31 names will not pose a risk for confusion as described in Appendices D through F.

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2.2.6 Failure Mode and Effects Analysis of Established Name

Kadcyla's proposed established name is Trastuzumab Emtansine. This established name is extremely similar to the currently marketed Herceptin (Trastuzumab). In addition to similar established names, the products have the following overlaps: both are oncology products, both are prepared and diluted in 250 mL bags, and both are administered over the same rates (30 minutes, 60 minutes, or 90 minutes) and with the same frequency of administration (every 3 weeks). Additionally, both products would be prescribed by Oncologists and utilized in similar settings (infusion or cancer centers) for similar patients (women with breast cancer). However, the Trastuzumab Emtansine dose of 3.6 mg/kg for single-agent treatment is almost one half the 6 mg/kg dose of the currently marketed Trastuzumab. If these two products are confused, a patient may receive an overdose of Trastuzumab Emtansine. Because we could not get the established name revised, we requested the Applicant differentiate the proposed Kadcyla from Herceptin using labeling techniques tested through Human Factors evaluations.

In response to our Human Factors (HF) study request to evaluate this risk of established name confusion and identify other failures that may occur with the use of Kadcyla, the Applicant requested a teleconference. During the teleconference, the Applicant proposed to submit a plan to decrease the risk of wrong drug errors rather than conducting a HF study.

On October 11, 2012, the Applicant submitted a response that included a summary of their evaluation of this issue which included the following:

1. Differences implemented in the visual presentation of Kadcyla and Herceptin
2. Proposed labeling and warning statements for Kadcyla
3. A summary of a medication confusion assessment and planning research project initiated by Genentech which aimed to understand the potential areas for confusion between Kadcyla and Herceptin due to their generic name similarities. For the conduct of this research, Genentech engaged an expert in pharmaceutical risk management including subject matter experts representing physicians, pharmacists and nurses.

The Applicant also proposed educational programs and materials. This plan included :



This submission will be evaluated in OSE Review 2012-2037, Kadcyła Label and Labeling Review to determine if these interventions will minimize the risk of established name confusion.

2.2.7 Communication of DMEPA's Final Decision to Other Disciplines

DMEPA communicated our findings to the DOP1 via e-mail on October 19, 2012. At that time, we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the DOP1 on October 24, 2012, they stated no additional concerns with the proposed proprietary name, Kadcyła.

3 CONCLUSIONS

The proposed proprietary name is acceptable from both a promotional and safety perspective. Additionally, the concern of established name confusion will be addressed in OSE Review 2012-2037.

If you have further questions or need clarifications, please contact Frances Fahnbulleh, OSE project manager, at 301-796-0942.

3.1 COMMENTS TO THE APPLICANT

We have completed our review of the proposed proprietary name, Kadcyła, and have concluded that this name is acceptable. However, if any of the proposed product characteristics as stated in your August 28, 2012 submission are altered, the name must be resubmitted for review.

Additionally, the proposed proprietary name must be re-reviewed 90 days prior to approval of the BLA. The conclusions upon re-review are subject to change.

4 REFERENCES

1. ***Micromedex Integrated Index*** (<http://csi.micromedex.com>)

Micromedex contains a variety of databases covering pharmacology, therapeutics, toxicology and diagnostics.

2. ***Phonetic and Orthographic Computer Analysis (POCA)***

POCA is a database which was created for the Division of Medication Error Prevention and Analysis, FDA. As part of the name similarity assessment, proposed names are evaluated via a phonetic/orthographic algorithm. The proposed proprietary name is converted into its phonemic representation before it runs through the phonetic algorithm. Likewise, an orthographic algorithm exists which operates in a similar fashion.

3. ***Drug Facts and Comparisons, online version, St. Louis, MO***
(<http://factsandcomparisons.com>)

Drug Facts and Comparisons is a compendium organized by therapeutic course; it contains monographs on prescription and OTC drugs, with charts comparing similar products. This database also lists the orphan drugs.

4. ***FDA Document Archiving, Reporting & Regulatory Tracking System [DARRTS]***

DARRTS is a government database used to organize Applicant and Sponsor submissions as well as to store and organize assignments, reviews, and communications from the review divisions.

5. ***Division of Medication Errors Prevention and Analysis proprietary name consultation requests***

This is a list of proposed and pending names that is generated by the Division of Medication Error Prevention and Analysis from the Access database/tracking system.

6. ***Drugs@FDA*** (<http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>)

Drugs@FDA contains most of the drug products approved since 1939. The majority of labels, approval letters, reviews, and other information are available for drug products approved from 1998 to the present. Drugs@FDA contains official information about FDA approved brand name, generic drugs, therapeutic biological products, prescription and over-the-counter human drugs and discontinued drugs and “Chemical Type 6” approvals.

7. ***U.S. Patent and Trademark Office*** (<http://www.uspto.gov>)

USPTO provides information regarding patent and trademarks.

8. ***Clinical Pharmacology Online*** (www.clinicalpharmacology-ip.com)

Clinical Pharmacology contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common,

combination, nutraceutical and nutritional products. It also provides a keyword search engine.

9. *Data provided by Thomson & Thomson's SAEGIS™ Online Service, available at (www.thomson-thomson.com)*

The Pharma In-Use Search database contains over 400,000 unique pharmaceutical trademarks and trade names that are used in about 50 countries worldwide. The data is provided under license by IMS HEALTH.

10. *Natural Medicines Comprehensive Databases (www.naturaldatabase.com)*

Natural Medicines contains up-to-date clinical data on the natural medicines, herbal medicines, and dietary supplements used in the western world.

11. *Access Medicine (www.accessmedicine.com)*

Access Medicine® from McGraw-Hill contains full-text information from approximately 60 titles; it includes tables and references. Among the titles are: Harrison's Principles of Internal Medicine, Basic & Clinical Pharmacology, and Goodman and Gilman's The Pharmacologic Basis of Therapeutics.

12. *USAN Stems (<http://www.ama-assn.org/ama/pub/about-ama/our-people/coalitions-consortiums/united-states-adopted-names-council/naming-guidelines/approved-stems.shtml>)*

USAN Stems List contains all the recognized USAN stems.

13. *Red Book (www.thomsonhc.com/home/dispatch)*

Red Book contains prices and product information for prescription, over-the-counter drugs, medical devices, and accessories.

14. *Lexi-Comp (www.lexi.com)*

Lexi-Comp is a web-based searchable version of the Drug Information Handbook.

15. *Medical Abbreviations (www.medilexicon.com)*

Medical Abbreviations dictionary contains commonly used medical abbreviations and their definitions.

16. *CVS/Pharmacy (www.CVS.com)*

This database contains commonly used over the counter products not usually identified in other databases.

17. *Walgreens (www.walgreens.com)*

This database contains commonly used over the counter products not usually identified in other databases.

18. Rx List (www.rxlist.com)

RxList is an online medical resource dedicated to offering detailed and current pharmaceutical information on brand and generic drugs.

19. Dogpile (www.dogpile.com)

Dogpile is a [Metasearch](#) engine that searches multiple search engines including Google, Yahoo! and Bing, and returns the most relevant results to the search.

20. Natural Standard (<http://www.naturalstandard.com>)

Natural Standard is a resource that aggregates and synthesizes data on complementary and alternative medicine.

21. OSE Reviews

Tobenkin, Anne. OSE Review 2011-4188: Proprietary Name Review for Kadcyła, April 26, 2012

Tobenkin, Anne. OSE Review 2010-2591: Proprietary Name Review for (b) (4) May 11, 2011

APPENDICES

Appendix A

FDA's Proprietary Name Risk Assessment considers the promotional and safety aspects of a proposed proprietary name. The promotional review of the proposed name is conducted by OPDP. OPDP evaluates proposed proprietary names to determine if they are overly fanciful, so as to misleadingly imply unique effectiveness or composition, as well as to assess whether they contribute to overstatement of product efficacy, minimization of risk, broadening of product indications, or making of unsubstantiated superiority claims. OPDP provides their opinion to DMEPA for consideration in the overall acceptability of the proposed proprietary name.

The safety assessment is conducted by DMEPA. DMEPA staff search a standard set of databases and information sources to identify names that are similar in pronunciation, spelling, and orthographically similar when scripted to the proposed proprietary name. Additionally, we consider inclusion of USAN stems or other characteristics that when incorporated into a proprietary name may cause or contribute to medication errors (i.e., dosing interval, dosage form/route of administration, medical or product name abbreviations, names that include or suggest the composition of the drug product, etc.). DMEPA defines a medication error as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.¹

Following the preliminary screening of the proposed proprietary name, DMEPA gathers to discuss their professional opinions on the safety of the proposed proprietary name. This meeting is commonly referred to the Center for Drug Evaluation and Research (CDER) Expert Panel discussion. DMEPA also considers other aspects of the name that may be misleading from a safety perspective. DMEPA staff conducts a prescription simulation studies using FDA health care professionals. When provided, DMEPA considers external proprietary name studies conducted by or for the Applicant/Sponsor and incorporates the findings of these studies into the overall risk assessment.

The DMEPA primary reviewer assigned to evaluate the proposed proprietary name is responsible for considering the collective findings, and provides an overall risk assessment of the proposed proprietary name. DMEPA bases the overall risk assessment on the findings of a Failure Mode and Effects Analysis (FMEA) of the proprietary name and misleading nature of the proposed proprietary name with a focus on the avoidance of medication errors.

DMEPA uses the clinical expertise of its staff to anticipate the conditions of the clinical setting where the product is likely to be used based on the characteristics of the proposed product. DMEPA considers the product characteristics associated with the proposed product throughout the risk assessment because the product characteristics of the proposed may provide a context for communication of the drug name and ultimately determine the use of the product in the *usual* clinical practice setting.

¹ National Coordinating Council for Medication Error Reporting and Prevention.
<http://www.nccmerp.org/aboutMedErrors.html>. Last accessed 10/11/2007.

Typical product characteristics considered when identifying drug names that could potentially be confused with the proposed proprietary name include, but are not limited to; established name of the proposed product, proposed indication of use, dosage form, route of administration, strength, unit of measure, dosage units, recommended dose, typical quantity or volume, frequency of administration, product packaging, storage conditions, patient population, and prescriber population. DMEPA considers how these product characteristics may or may not be present in communicating a product name throughout the medication use system. Because drug name confusion can occur at any point in the medication use process, DMEPA considers the potential for confusion throughout the entire U.S. medication use process, including drug procurement, prescribing and ordering, dispensing, administration, and monitoring the impact of the medication.²

The DMEPA considers the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. DMEPA compares the proposed proprietary name with the proprietary and established name of existing and proposed drug products and names currently under review at the FDA. DMEPA compares the pronunciation of the proposed proprietary name with the pronunciation of other drug names because verbal communication of medication names is common in clinical settings. DMEPA examines the phonetic similarity using patterns of speech. If provided, DMEPA will consider the Sponsor's intended pronunciation of the proprietary name. However, DMEPA also considers a variety of pronunciations that could occur in the English language because the Sponsor has little control over how the name will be spoken in clinical practice. The orthographic appearance of the proposed name is evaluated using a number of different handwriting samples. DMEPA applies expertise gained from root-cause analysis of postmarketing medication errors to identify sources of ambiguity within the name that could be introduced when scripting (e.g., "T" may look like "F," lower case 'a' looks like a lower case 'u,' etc). Additionally, other orthographic attributes that determine the overall appearance of the drug name when scripted (see Table 1 below for details).

² Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

Table 1. Criteria Used to Identify Drug Names that Look- or Sound-Similar to a Proposed Proprietary Name.

Type of Similarity	Considerations when Searching the Databases		
	<i>Potential Causes of Drug Name Similarity</i>	<i>Attributes Examined to Identify Similar Drug Names</i>	<i>Potential Effects</i>
Look-alike	Similar spelling	Identical prefix Identical infix Identical suffix Length of the name Overlapping product characteristics	<ul style="list-style-type: none"> Names may appear similar in print or electronic media and lead to drug name confusion in printed or electronic communication Names may look similar when scripted and lead to drug name confusion in written communication
	Orthographic similarity	Similar spelling Length of the name/Similar shape Upstrokes Down strokes Cross-strokes Dotted letters Ambiguity introduced by scripting letters Overlapping product characteristics	<ul style="list-style-type: none"> Names may look similar when scripted, and lead to drug name confusion in written communication
Sound-alike	Phonetic similarity	Identical prefix Identical infix Identical suffix Number of syllables Stresses Placement of vowel sounds Placement of consonant sounds Overlapping product characteristics	<ul style="list-style-type: none"> Names may sound similar when pronounced and lead to drug name confusion in verbal communication

Lastly, DMEPA considers the potential for the proposed proprietary name to inadvertently function as a source of error for reasons other than name confusion. Post-marketing experience has demonstrated that proprietary names (or components of the proprietary name) can be a source of error in a variety of ways. Consequently, DMEPA considers and evaluates these broader safety implications of the name throughout this assessment and the medication error staff provides additional comments related to the

safety of the proposed proprietary name or product based on professional experience with medication errors.

1. Database and Information Sources

DMEPA searches the internet, several standard published drug product reference texts, and FDA databases to identify existing and proposed drug names that may sound-alike or look-alike to the proposed proprietary name. A standard description of the databases used in the searches is provided in the reference section of this review. To complement the process, the DMEPA uses a computerized method of identifying phonetic and orthographic similarity between medication names. The program, Phonetic and Orthographic Computer Analysis (POCA), uses complex algorithms to select a list of names from a database that have some similarity (phonetic, orthographic, or both) to the trademark being evaluated. Lastly, DMEPA reviews the USAN stem list to determine if any USAN stems are present within the proprietary name. The individual findings of multiple safety evaluators are pooled and presented to the CDER Expert Panel. DMEPA also evaluates if there are characteristics included in the composition that may render the name unacceptable from a safety perspective (abbreviation, dosing interval, etc.).

2. Expert Panel Discussion

DMEPA gathers CDER professional opinions on the safety of the proposed product and discussed the proposed proprietary name (Expert Panel Discussion). The Expert Panel is composed of Division of Medication Errors Prevention (DMEPA) staff and representatives from the Office of Prescription Drug Promotion (OPDP). We also consider input from other review disciplines (OND, ONDQA/OBP). The Expert Panel also discusses potential concerns regarding drug marketing and promotion related to the proposed names.

The primary Safety Evaluator presents the pooled results of the database and information searches to the Expert Panel for consideration. Based on the clinical and professional experiences of the Expert Panel members, the Panel may recommend additional names, additional searches by the primary Safety Evaluator to supplement the pooled results, or general advice to consider when reviewing the proposed proprietary name.

3. FDA Prescription Simulation Studies

Three separate studies are conducted within the Centers of the FDA for the proposed proprietary name to determine the degree of confusion of the proposed proprietary name with marketed U.S. drug names (proprietary and established) due to similarity in visual appearance with handwritten prescriptions or verbal pronunciation of the drug name. The studies employ healthcare professionals (pharmacists, physicians, and nurses), and attempts to simulate the prescription ordering process. The primary Safety Evaluator uses the results to identify orthographic or phonetic vulnerability of the proposed name to be misinterpreted by healthcare practitioners.

In order to evaluate the potential for misinterpretation of the proposed proprietary name in handwriting and verbal communication of the name, inpatient medication orders and/or outpatient prescriptions are written, each consisting of a combination of marketed and unapproved drug products, including the proposed name. These orders are optically

scanned and one prescription is delivered to a random sample of participating health professionals via e-mail. In addition, a verbal prescription is recorded on voice mail. The voice mail messages are then sent to a random sample of the participating health professionals for their interpretations and review. After receiving either the written or verbal prescription orders, the participants record their interpretations of the orders which are recorded electronically.

4. Comments from Other Review Disciplines

DMEPA requests the Office of New Drugs (OND) and/or Office of Generic Drugs (OGD), ONDQA or OBP for their comments or concerns with the proposed proprietary name, ask for any clinical issues that may impact the DMEPA review during the initial phase of the name review. Additionally, when applicable, at the same time DMEPA requests concurrence/non-concurrence with OPDP's decision on the name. The primary Safety Evaluator addresses any comments or concerns in the safety evaluator's assessment.

The OND/OGD Regulatory Division is contacted a second time following our analysis of the proposed proprietary name. At this point, DMEPA conveys their decision to accept or reject the name. The OND or OGD Regulatory Division is requested to provide any further information that might inform DMEPA's final decision on the proposed name.

Additionally, other review disciplines opinions such as ONDQA or OBP may be considered depending on the proposed proprietary name.

5. Safety Evaluator Risk Assessment of the Proposed Proprietary Name

The primary Safety Evaluator applies his/her individual expertise gained from evaluating medication errors reported to FDA, considers all aspects of the name that may be misleading or confusing, conducts a Failure Mode and Effects Analysis, and provides an overall decision on acceptability dependent on their risk assessment of name confusion. Failure Mode and Effects Analysis (FMEA) is a systematic tool for evaluating a process and identifying where and how it might fail.³ When applying FMEA to assess the risk of a proposed proprietary name, DMEPA seeks to evaluate the potential for a proposed proprietary name to be confused with another drug name because of name confusion and, thereby, cause errors to occur in the medication use system. FMEA capitalizes on the predictable and preventable nature of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to orthographically or phonetically similar drug names prior to approval, where actions to overcome these issues are easier and more effective than remedies available in the post-approval phase.

In order to perform an FMEA of the proposed name, the primary Safety Evaluator must analyze the use of the product at all points in the medication use system. Because the proposed product is has not been marketed, the primary Safety Evaluator anticipates the use of the product in the usual practice settings by considering the clinical and product

³ Institute for Healthcare Improvement (IHI). Failure Mode and Effects Analysis. Boston. IHI:2004.

characteristics listed in Section 1.2 of this review. The Safety Evaluator then analyzes the proposed proprietary name in the context of the usual practice setting and works to identify potential failure modes and the effects associated with the failure modes.

In the initial stage of the Risk Assessment, the Safety Evaluator compares the proposed proprietary name to all of the names gathered from the above searches, Expert Panel Discussion, and prescription studies, external studies, and identifies potential failure modes by asking:

“Is the proposed proprietary name convincingly similar to another drug name, which may cause practitioners to become confused at any point in the usual practice setting? And are there any components of the name that may function as a source of error beyond sound/look-alike?”

An affirmative answer indicates a failure mode and represents a potential for the proposed proprietary name to be confused with another proprietary or established drug name because of look- or sound-alike similarity or because of some other component of the name. If the answer to the question is no, the Safety Evaluator is not convinced that the names possess similarity that would cause confusion at any point in the medication use system, thus the name is eliminated from further review.

In the second stage of the Risk Assessment, the primary Safety Evaluator evaluates all potential failure modes to determine the likely *effect* of the drug name confusion, by asking:

“Could the confusion of the drug names conceivably result in medication errors in the usual practice setting?”

The answer to this question is a central component of the Safety Evaluator’s overall risk assessment of the proprietary name. If the Safety Evaluator determines through FMEA that the name similarity would not ultimately be a source of medication errors in the usual practice setting, the primary Safety Evaluator eliminates the name from further analysis. However, if the Safety Evaluator determines through FMEA that the name similarity could ultimately cause medication errors in the usual practice setting, the Safety Evaluator will then recommend the use of an alternate proprietary name.

Moreover, DMEPA will object to the use of proposed proprietary name when the primary Safety Evaluator identifies one or more of the following conditions in the Overall Risk Assessment:

- a. OPDP finds the proposed proprietary name misleading from a promotional perspective, and the Review Division concurs with OPDP’s findings. The Federal Food, Drug, and Cosmetic Act provides that labeling or advertising can misbrand a product if misleading representations are made or suggested by statement, word, design, device, or any combination thereof, whether through a PROPRIETARY name or otherwise [21 U.S.C 321(n); See also 21 U.S.C. 352(a) & (n)].
- b. DMEPA identifies that the proposed proprietary name is misleading because of similarity in spelling or pronunciation to another proprietary or established name of a different drug or ingredient [CFR 201.10.(C)(5)].

- c. FMEA identifies the potential for confusion between the proposed proprietary name and other proprietary or established drug name(s), and demonstrates that medication errors are likely to result from the drug name confusion under the conditions of usual clinical practice.
- d. The proposed proprietary name contains an USAN (United States Adopted Names) stem.
- e. DMEPA identifies a potential source of medication error within the proposed proprietary name. For example, the proprietary name may be misleading or, inadvertently, introduce ambiguity and confusion that leads to errors. Such errors may not necessarily involve confusion between the proposed drug and another drug product but involve a naming characteristic that when incorporated into a proprietary name, may be confusing, misleading, cause or contribute to medication errors.

If DMEPA objects to a proposed proprietary name on the basis that drug name confusion could lead to medication errors, the primary Safety Evaluator uses the FMEA process to identify strategies to reduce the risk of medication errors. DMEPA generally recommends that the Sponsor select an alternative proprietary name and submit the alternate name to the Agency for review. However, in rare instances FMEA may identify plausible strategies that could reduce the risk of medication error of the currently proposed name. In that instance, DMEPA may be able to provide the Sponsor with recommendations that reduce or eliminate the potential for error and, thereby, would render the proposed name acceptable.

In the event that DMEPA objects to the use of the proposed proprietary name, based upon the potential for confusion with another proposed (but not yet approved) proprietary name, DMEPA will provide a contingency objection based on the date of approval. Whichever product, the Agency approves first has the right to use the proprietary name, while DMEPA will recommend that the second product to reach approval seek an alternative name.

The threshold set for objection to the proposed proprietary name may seem low to the Applicant/Sponsor. However, the safety concerns set forth in criteria a through e above are supported either by FDA regulation or by external healthcare authorities, including the Institute of Medicine (IOM), World Health Organization (WHO), the Joint Commission, and the Institute for Safe Medication Practices (ISMP). These organizations have examined medication errors resulting from look- or sound-alike drug names, confusing, or misleading names and called for regulatory authorities to address the issue prior to approval. Additionally, DMEPA contends that the threshold set for the Proprietary Name Risk Assessment is reasonable because proprietary drug name confusion is a predictable and preventable source of medication error that, in many instances, the Agency and/or Sponsor can identify and rectify prior to approval to avoid patient harm.

Furthermore, post-marketing experience has demonstrated that medication errors resulting from drug name confusion are notoriously difficult to rectify post-approval. Educational and other post-approval efforts are low-leverage strategies that have had limited effectiveness at alleviating medication errors involving drug name confusion. Sponsors have undertaken higher-leverage strategies, such as drug name changes, in the

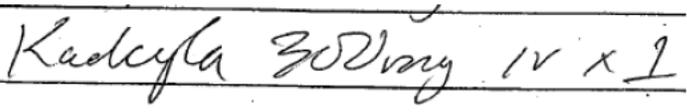
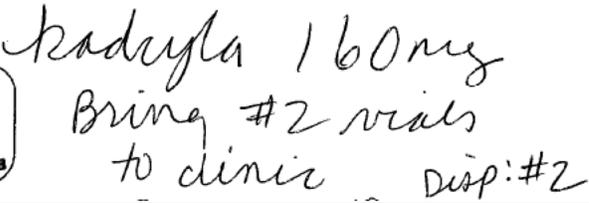
past but at great financial cost to the Sponsor and at the expense of the public welfare, not to mention the Agency's credibility as the authority responsible for approving the error-prone proprietary name. Moreover, even after Sponsors' have changed a product's proprietary name in the post-approval phase, it is difficult to eradicate the original proprietary name from practitioners' vocabulary, and as a result, the Agency has continued to receive reports of drug name confusion long after a name change in some instances. Therefore, DMEPA believes that post-approval efforts at reducing name confusion errors should be reserved for those cases in which the potential for name confusion could not be predicted prior to approval.

Appendix B: Letters with Possible Orthographic or Phonetic Misinterpretation

Letters in Name, Kadcyła	Scripted May Appear as	Spoken May Be Interpreted as
Capital 'K'	R, X,	C, G, Q,
lowercase 'k'	h, la, x	c, g, q
lowercase 'a'	ce, ci, d, o, u,	e, o
lowercase 'd'	a, cl,	t
lowercase 'c'	a, e, i, l, r	g, k, q
lowercase 'y'	f, g, u, v, x, Z	e, i
lowercase 'cy'		s, x, z
lowercase 'l'	b, e, i	

Appendix C: Prescription Simulation Samples and Results

Figure 1. Kadcyła Study (Conducted on September 24, 2012)

Handwritten Medication Order	Verbal Prescription
<p><u>Medication Order:</u></p> 	<p>Kadcyła 160 mg Bring 2 vials to clinic Disp #2</p>
<p><u>Outpatient Prescription:</u></p> 	

192 People Received Study
88 People Responded

Study Name: Kadcyła

Total	27	28	33	
INTERPRETATION	INPATIENT	VOICE	OUTPATIENT	TOTAL
?	0	0	1	1
Cabpryla	0	1	0	1
Cadfila	0	1	0	1
Cadsila	0	5	0	5
Cadsilla	0	1	0	1
Cadsyla	0	1	0	1
Cancyla	0	1	0	1
Illegible	0	0	1	1
Kadcycla	1	0	0	1
Kadcyla	20	1	1	22
Kadcyla IV X 1	1	0	0	1
Kadeyla	4	0	1	5
Kadfila	0	2	0	2
Kadiyla	0	0	1	1
Kadryla	0	0	22	22
Kadryla	0	0	1	1
Kadsila	0	1	0	1
Kaelcyla	1	0	0	1
Kaycyla	0	0	1	1
Padsilla	0	1	0	1
Patzyma	0	1	0	1

Radcyła	0	0	1	1
Radryła	0	0	3	3
Tadcyla	0	1	0	1
Tadfila	0	2	0	2
Tadsila	0	4	0	4
Tedfila	0	2	0	2
Tedsila	0	1	0	1
Tedsyla	0	1	0	1
Tenfila	0	1	0	1

Appendix D: Proprietary names not likely to be confused or not used in usual practice settings for the reasons described.

No.	Proprietary Name	Active Ingredient	Similarity to Kadcyła	Failure preventions
1.				(b) (4)
2.	Onglyza	Saxagliptin HCl	Look	The pair have sufficient orthographic and/or phonetic differences
3.	Radiagel	Acemannan Hydrogelin	Look	Name identified in Redbook database. Unable to find product characteristics in commonly used drug databases.
4.	Radigel	Acemannan Hydrogelin	Look	Name identified in Redbook database. Unable to find product characteristics in commonly used drug databases.
5.	Vercyte	Pipobroman	Look	Name identified in Redbook database. Unable to find product characteristics in commonly used drug databases.
6.				(b) (4)
7.	Vanex-LA	Guaifenesin and Phenylpropanolamine HCl	Look	Phenylpropanolamine containing products removed from the market for safety reasons in 2005.
8.	Videx EC	Didanosine	Look	The pair have sufficient orthographic and/or phonetic differences
9.	Kadcyła ^{***}	Trastuzumab Emtansine	Look and Sound	Subject of this review
10.				(b) (4)

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Appendix E: Proprietary names determined in OSE Review 2011-4188 not likely to lead to a medication error.

No.	Proprietary Name	Active Ingredient	Similarity to Kadcyła
1.	(b) (4)	(b) (4)	Look
2.	(b) (4)	(b) (4)	Look
3.	Kadian	Morphine	Look
4.	Kalbitor	Ecallantide	Look
5.	Kaletra	Lopinavir and Ritonavir	Look
6.	Kalexate	Sodium Polystyrene Sulfate	Look
7.	Kalydeco	Ivacaftor	Look
8.	Kinlytic	Urokinase	Look
9.	Kolephrin	Acetaminophen, Pseudoephedrine and Chlorpheniramine	Look
10.	Xolegel	Ketoconazole	Look
11.	Riluzole	Rilutek	Look

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Appendix F: Risk of medication errors due to product confusion minimized by dissimilarity of the names and/ or use in clinical practice for the reasons described.

No.	<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
1.	<p>Helixate FS [Antihemophilic Factor (Recombinant), Formulated with Sucrose]</p> <p>250 units, 500 units, 1,000 units, 2,000 units, 3,000 units</p> <p>Usual Dose (units) 10 units/kg to 50 units/kg intravenously</p>	<p>Orthographic similarity</p> <ul style="list-style-type: none"> - Both names share letters that appear similar when scripted ('he-' vs. 'ke-') - Both names share upstroke letters in similar positions ('h', 'l', 't' vs. 'k', 'd', 'l') <p>Product characteristic similarity</p> <p>Route of administration intravenous</p>	<p>Orthographic difference</p> <ul style="list-style-type: none"> - Helixate contains a crossstroke letter ('t') toward the end of the name - If included on an order, the modifier, <i>FS</i>, will provide distinction. <p>Product characteristic difference</p> <ul style="list-style-type: none"> - Dose: 1,750 units (70 kg patient) or 10 units/kg to 50 units/kg vs. 3.6 mg/kg (120 mg to 360 mg)

No.	Proposed name: Kadcyla Dosage Form: for injection Strength: 100 mg per vial, 160 mg per vial Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)	Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)	Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names
2.			
3.	Konsyl (Psyllium) 520 mg capsule Usual Dose: 2 to 6 capsules with 240 mL liquid 1 to 3 times daily 28.3%, 60.3%, 71.67%, 100% packets, powders Usual Dose: 1 tsp, 1 tbsp, packet, scoop with 240 mL 1 to 3 times daily	Orthographic similarity <ul style="list-style-type: none"> - Both names share 3 letters in similar positions ('K', '-yl') - Both names share letters that appear similar when scripted ('a' vs. 'o', 'c' vs. 's') 	Orthographic difference <ul style="list-style-type: none"> - Kadcyla contains an additional upstroke letter ('d') and an extra letter at the end of the name ('a'). Product characteristic difference <ul style="list-style-type: none"> - Dose: 2 to 6 capsules, 1 tsp, 1 tbsp, packet, or scoop vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: 1 to 3 times daily vs. every 3 weeks

(b) (4)

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No.	<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
4.	<p>Valcyte (Valganciclovir Hydrochloride) 450 mg tablets</p> <p>Usual Dose: 2 tablets (900 mg) orally 1 or 2 times daily</p> <p>50 mg/mL oral solution</p> <p>Usual Dose: 7 x body surface area x CrCl * once daily (max dose 900 mg)</p>	<p>Orthographic similarity</p> <ul style="list-style-type: none"> - Both names share identical letters in similar position ('a', '-cy-') - Both names share upstrokes and a downstroke in similar positions ('V', 'l', 'y', 't' vs. 'K', 'd', 'l') 	<p>Orthographic difference</p> <ul style="list-style-type: none"> - Valcyte contains a crossstroke ('t') at the end of the name <p>Product characteristic difference</p> <ul style="list-style-type: none"> - Dose: 2 tablets (900 mg) vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: once daily vs. every 3 weeks
5.	<p>Vi-Daylin multivitamin</p> <p>Usual Dose: 0.6 mL orally daily <i>no longer manufactured in US</i></p>	<p>Orthographic similarity</p> <ul style="list-style-type: none"> - Both names share letters that appear similar when scripted ('-daylin' vs. '-dcyla') 	<p>Orthographic difference</p> <ul style="list-style-type: none"> - The initial letters differ ('V' vs. 'K') <p>Product characteristic difference</p> <ul style="list-style-type: none"> - Dose: 0.6 mL vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: once daily vs. every 3 weeks

No.	Proposed name: Kadcyla Dosage Form: for injection Strength: 100 mg per vial, 160 mg per vial Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)	Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)	Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names
6.	Lodosyn (Carbidopa) 25 mg tablet Usual Dose: 1 tablet 3 to 4 times daily	Orthographic similarity - Both names share letters in similar positions that appear when scripted ('lod-' vs. 'kad-', '-sy-' vs. '-cy-')	Orthographic difference - Kadcyla contains an additional upstroke letter ('l') at the end of the name Product characteristic difference - Dose: 25 mg vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: 3 to 4 times daily vs. every 3 weeks
7.	Ridaura (Auranofin) 3 mg capsule Usual Dose: 6 mg to 9 mg (2 to 3 capsules) daily in 2 or 3 divided doses	Orthographic similarity - Both names share letters in similar positions that appear similar ('Rid-' vs. 'Kad-' vs. 'au' vs. 'cy')	Orthographic difference - Kadcyla contains an additional upstroke ('l') Product characteristic difference - Dose: 2 to 3 capsules vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: 2 to 3 times daily vs. every 3 weeks - Prescriber population: Rheumatologist vs. Oncologist
8.	Tradjenta (Linagliptin) 5 mg tablets Usual Dose: 1 tablet orally once daily	Orthographic similarity - Both names share letters 3 identical letters in similar positions ('-ad-', 'a') - Both names share letters that appear similar when scripted ('t' vs. 'k', 'j' vs. 'y')	Orthographic difference - Tradjenta contains the crosstroke letter ('t') at the end of the name. - Tradjenta (9 letters) appears longer than Kadcyla (7 letters). Product characteristic difference - Dose: 1 tablet (5 mg) vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: once daily vs. every 3 weeks

No.	Proposed name: Kadcyla Dosage Form: for injection Strength: 100 mg per vial, 160 mg per vial Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)	Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)	Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names
9.	Adcirca (Tadalafil) 20 mg tablet Usual Dose: 2 tablets daily with or without food.	Phonetic similarity - Both names contain 3 syllables ('Ad-cir-ca vs. Kad-cy-la) - The first and second syllables are similarly sounding ('Ad-cir' vs. 'Kad-cy', ')	Phonetic difference - The last syllables sound differently ('-ca' vs. '-la') Product characteristic difference - Dose: 2 tablets (20 mg) vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: once daily vs. every 3 weeks - Prescriber population: Pulmonologist vs. Oncologist
10.	Skyla ^{***} (Levonorgestrel-releasing Intrauterine System) 13.5 mg per system Usual Dose: Insert 1 system every 3 yrs	Phonetic similarity - Both names share syllables that sound similarly ('Sky-la' vs. '-cy-la')	Phonetic difference - Kadcyla contains an additional syllable at the beginning ('Kad-') Product characteristic difference - Dose: 1 insert vs. 3.6 mg/kg (120 mg to 360 mg) - Frequency of administration: 3 years vs. every 3 weeks - Prescriber population: OB/GYN vs. Oncologist

*** This document contains proprietary and confidential information that should not be released to the public.

Appendix G: Proprietary names reviewed in OSE Review 2011-4188 not likely to be confused or not used in usual practice settings for the reasons described.

Proprietary Name	Active Ingredient	Similarity to Kadcyła	Failure preventions
Setcyła	Oral contraceptive	Orthographic	Name not found in other commonly used databases
(b) (4)			
(b) (4)			
Kadcyła	N/A	Orthographic and phonetic	Proprietary name under review
(b) (4)			
(b) (4)			
Telcyta	Canfosfamide	Orthographic	Name has not been submitted to Agency for review. IND application was withdrawn
(b) (4)			
(b) (4)			
Kaopek	Attapulgite	Orthographic	Name lacks orthographic similarity to proposed name, Kadcyła

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Appendix H: Names previously reviewed in OSE Review 2011-4188 as determined to have risk of medication errors due to product confusion minimized by dissimilarity of the names and/ or use in clinical practice for the reasons described.

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Kaletra (Lopinavir and Ritonavir)</p> <ul style="list-style-type: none"> - 80 mg/20 mg/mL oral solution - 100 mg/25 mg, 200 mg/50 mg oral tablets - up to 2 tablets or 5 mL by mouth twice daily or 4 tablets or 10 mL by mouth once daily 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have an upstroke in the middle and end of the name - Both names are similar length - Both names end with an 'a' <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - n/a 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Kaletra does not have a downstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (weight based, 3.6 mg/kg vs. 100 mg/ 25 mg to 400 mg /100 mg, 2 to 4 tablets or 5 mL to 10 mL) - Frequency of administration (once every three weeks vs. once or twice daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Relafen (Nabumetone) Relafen name discontinued, generic available</p> <ul style="list-style-type: none"> - 500 mg, 750 mg oral tablets - 500 mg to 1000 mg by mouth once or twice daily, not to exceed 2000 mg per day 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ resemble one another when scripted - Both have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has one letter after the final upstroke vs. Relafen has two letters after the final upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 500 mg or 750 mg, 1 or two tablets) - Frequency of administration (once every 3 weeks vs. once or twice daily)
<p>Relagesic (Acetaminophen and Phenyltoloxamine)</p> <ul style="list-style-type: none"> - 650 mg/50 mg oral tablet - 1 tablet by mouth every 4 hours as needed, not to exceed 5 tablets a day 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ resemble one another when scripted - Both have an upstroke in the middle of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has an upstroke at the end of the name vs. Relagesic has upstrokes at the beginning of the name - Kadcyla has two letters after the downstroke vs. Relagesic has four letters after the downstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 650 mg/50 mg or 1 tablet) - Frequency of administration (once every 3 weeks vs. every 4 hours as needed)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Kadian (Morphine)</p> <p>- 10 mg, 20 mg, 30 mg, 50 mg, 60 mg, 80 mg, 100 mg, 200 mg</p> <p>- 1 tablet by mouth once or twice daily</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have an upstroke in the middle of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has an upstroke at the end of the name vs. Kadian does not have an upstroke at the end of the name - Kadcyla has a downstroke vs. Kadian does not have a downstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. once or twice daily)
<p>Kolephrin (Acetaminophen, Pseudoephedrine and Chlorpheniramine)</p> <p>- 325 mg/30 mg/2 mg oral caplet</p> <p>- 1 to 2 caplets by mouth every 4 hours as needed</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have a downstroke in the middle of the name - Both names have an upstroke for the third letter 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has seven letters and appears shorter when scripted vs. Kolephrin has nine letters and appears longer - Kadcyla has one letter after the final upstroke vs. Kolephrin has three letters after the final upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 1 to 2 tablets) - Frequency of administration (once every 3 weeks vs. every 4 hours as needed)
<p>Xolegel (Ketoconazole)</p> <p>- 2% Topical gel</p> <p>- Apply topically to affected area once or twice daily for two weeks</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - 'X' and 'K' appear similar when scripted - Both have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a letter after the final upstroke vs. Xolegel ends with an upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. apply to affected area) - Frequency of administration (once every 3 weeks vs. once daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Kalexate (Sodium Polystyrene Sulfate)</p> <ul style="list-style-type: none"> - 15 g or 454 g powder for suspension - 15 g or 60 mL by mouth every 6 hours or 10 to 50 g rectally every 1 to 2 hours then every 6 hours 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with ‘K’ - Both names have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Kalexate does not have a downstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 15 g or 60 mL) - Route of administration (intravenous vs. oral, rectal) - Frequency of administration (once every 3 weeks vs. every 6 hours or 1 to 2 hours)
<p>Ketoazole (Ketoconazole)</p> <ul style="list-style-type: none"> - 2% topical cream - Apply once or twice daily to the affected area 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with ‘K’ - Both names have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla does not have a cross-stroke vs. Ketoazole has a cross-stroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. apply to affected area) - Frequency of administration (once every 3 weeks vs. once daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Redisol (Cyanocobalamin)</p> <ul style="list-style-type: none"> - 1 mg/mL injection - 30 mcg to 100 mcg intramuscularly or subcutaneously once daily for up to 15 days and then 60 mcg to 200 mcg once or twice weekly to once monthly 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Redisol does not have a downstroke - Kadcyla has a letter following the final upstroke vs. Redisol ends with an upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Route of administration (intravenous infusion vs. intramuscular or subcutaneous)
<p>Kadsura (Kadsura chinesis)</p> <ul style="list-style-type: none"> - Crude product - 500 g to 2000 g of crude product by mouth or 100 mg of extract twice daily 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with ‘K’ - Both names have an upstroke in the middle of the name - Both names are similar in length - Both names end with an ‘a’ 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Kadsura does not have a downstroke - Kadcyla has an upstroke at the end of the name vs. Kadsura does not have an upstroke at the end of the name <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based vs. 100 mg or 500 g to 2000 g) - Frequency of administration (once every three weeks vs. per day or twice daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Kinlytic (Urokinase)</p> <ul style="list-style-type: none"> - 250,000 Units powder for injection - 4400 units/kg intravenous infusion every 12 hours as needed 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have an upstroke in the middle and end of the name - Both names have a downstroke in the middle of the name <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - Intravenous administration 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - n/a <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg vs. 4400 units/kg) - Frequency of administration (once every 3 weeks vs. every 12 hours)
<p>Kalbitor (Ecallantide)</p> <ul style="list-style-type: none"> - 10 mg/mL injection - 30 mg subcutaneously (three 10 mg injections), if attack persists, may administer another 30 mg within 24 hours 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have an upstroke in the middle and end of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Kalbitor does not have a downstroke - Kadcyla has three upstrokes vs. Kalbitor has four upstrokes <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based vs. 30 mg) - Frequency of administration (once every 3 weeks vs. prn, as needed for attacks)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Reclast (Zoledronic acid)</p> <ul style="list-style-type: none"> - 5 mg/100 mL injection - 5 mg intravenous infusion once or once yearly or every other year 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ appear similar when scripted - Both have an upstroke in the middle and end of the name - Both names are similar in length <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - Route of administration (intravenous) - Dosage form (infusion) 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Reclast does not have a downstroke - Kadcyla has three upstrokes vs. Reclast ends with an upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 5 mg) - Frequency of administration (once every 3 weeks vs. once a year)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Refacto (Antihemophilic factor, AHF, Factor VIII)</p> <ul style="list-style-type: none"> - 250 units, 500 units, 1000 units, 2000 units powder for injection - 15 units to 30 units/kg intravenous infusion every 12 to 24 hours for 3 days 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ appear similar when scripted - Both have an upstroke in the middle and end of the name - Both names are similar in length <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - Route of administration (intravenous) - Dosage form (infusion) 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke next to the final upstroke vs. Refacto has a downstroke in the beginning of the name <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg vs. 15 units to 30 units/kg) - Frequency of administration (once every 3 weeks vs. every 12 to 24 hours)
<p>Balagan (Antipyrine and Benzocaine)</p> <ul style="list-style-type: none"> - 54 mg/14 mg/mL otic solution - 2 to 4 drops into ear canal from every 1 to 2 hours to 4 times daily as needed 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘B’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle of the name - Both names have a downstroke at the end of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has three upstrokes vs. Balagan has two upstrokes <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 2 to 4 drops) - Frequency of administration (every 3 weeks vs. 1 to 2 hours or 4 times daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Balziva (Ethinyl estradiol and Norethindrone)</p> <ul style="list-style-type: none"> - 0.035 mg/0.4 mg oral tablet, 28 day pack - 1 tablet by mouth once daily or as directed 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘B’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle of the name - Both names have a downstroke at the end of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - The position of the downstroke is different in the two names giving them a different shape <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based vs. 1 tablet or use as directed) - Frequency of administration (once every 3 weeks vs. once daily or use as directed)
<p>Pradaxa (Dabigatran)</p> <ul style="list-style-type: none"> - 75 mg, 150 mg oral capsule - 75 mg to 150 mg by mouth twice daily or 150 mg to 220 mg by mouth once daily 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘Pr’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle of the name - Both names end with an ‘a’ <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - n/a 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Pradaxa does not have a downstroke - Kadcyla has a downstroke towards the end of the name vs. Pradaxa does not have a downstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every three weeks vs. once or twice a day)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Kalydeco*** (Ivacaftor)</p> <ul style="list-style-type: none"> - 150 mg oral tablet - 1 tablet by mouth twice daily with high fat food 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names begin with 'K' - Both names have an upstroke in the middle and end of the name - Both names have a downstroke in the middle of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has one letter after the final upstroke vs. Kalydeco has three letters after the final upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. twice per day)
<p>Riluzole (Rilutek)</p> <ul style="list-style-type: none"> - 50 mg oral tablet - 1 tablet by mouth twice daily 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - 'R' and 'K' appear similar when scripted - Both names have an upstroke in the middle and end of the name - Both names have a downstroke in the middle of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - 'Kad' and 'Ril' appear different when scripted due to the width of the letters <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. twice daily) - Dose (3.6 mg/kg, weight based regimen vs. 50 mg or 1 tablet)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Hectorol (Doxercalciferol)</p> <ul style="list-style-type: none"> - 0.5 mcg, 1 mcg, 2.5 mcg capsules - 2 mcg/mL injection - 5 mcg to 20 mcg by mouth three times daily - 2 mcg to 8 mcg intravenous bolus with dialysis 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - both names have an upstroke in the middle and of the name - ‘K’ and ‘H’ appear similar when scripted - Both names are similar in length <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - Route of administration (intravenous) 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke vs. Hectorol does not have a downstroke - Kadcyla has a letter following the final upstroke vs. Hectorol ends with an upstroke <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every three weeks vs. three times a day or three times a week) - Dose (3.6 mg/kg, weight based regimen vs. 5 mcg to 20 mcg or 1 capsule for oral dose or 2 mcg to 8 mcg for intravenous dose)
<p>Reclipsen (Ethinyl Estradiol and Desogestrel)</p> <ul style="list-style-type: none"> - 0.03 mg/0.15 mg oral tablet, 28 day pack - 1 tablet by mouth once daily or as directed 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘R’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle of the name - Both names have a downstroke in the middle of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has an upstroke at the end of the name vs. Reclipsen does not have an upstroke at the end of the name - Kadcyla is 7 letters and appears shorter when scripted vs. Reclipsen is 9 letters and appears longer when scripted <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every three weeks vs. once daily) - Dose (3.6 mg/kg, weight based regimen vs. 1 tablet)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Xarelto (Rivaroxaban)</p> <p>- 10 mg, 15 mg, 20 mg oral tablet</p> <p>- 10 mg to 20 mg by mouth once daily</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘X’ and ‘K’ appear similar when scripted - Both names have an upstroke in the middle and end of the name 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke in the middle of the name vs. Xarelto does not have a downstroke - Kadcyla has one upstroke at the end of the name vs. Xarelto has two upstrokes at the end of the name <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. once daily) - Dose (3.6 mg/kg, weight based regimen vs. 10 mg to 20 mg or 1 tablet)
<p>Valcyte (Valganciclovir)</p> <p>- 450 mg oral tablet or 50 mg/mL oral solution</p> <p>- 900 mg by mouth once or twice daily</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names have an upstroke in the middle and end of the name - Both names have a downstroke in the middle of the name - Both names are similar in length 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - n/a <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every three weeks vs. once or twice daily) - Dose (3.6 mg/kg, weight based regimen vs. 900 mg or 2 tablets)
<p>Camila (Norethindrone)</p> <p>- 0.35 mg oral tablet, 28 day pack</p> <p>- 1 tablet by mouth once daily or use as directed</p>	<p>Phonetic similarities</p> <ul style="list-style-type: none"> - Both names begin with the sound “Ka” - Both names are composed of three syllables - Both names end with the sound “la” 	<p>Phonetic differences</p> <ul style="list-style-type: none"> - The first syllable in Kadcyla ends with the sound “ahd” vs. “ah” in Camila - The second syllable has the sound “sy” in Kadcyla vs. “mihl” in Camila <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. once daily) - Dose (3.6 mg/kg, weight based regimen vs. 1 tablet)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Caduet (Amlodipine and Atorvastatin)</p> <p>2.5 mg/10 mg, 2.5 mg/20 mg, 2.5 g/40 mg, 5 mg/10 mg, 5 mg/20 mg, 5 mg/40 mg, 5 mg/80 mg, 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg, 10 mg/80 mg oral tablet</p> <p>- 1 tablet by mouth once daily</p>	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - Both names have an upstroke in the middle and end of the name <p>Phonetic similarities</p> <ul style="list-style-type: none"> - Both names begin with the sound “Kad” - Both names have three syllables <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> -n/a 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has a downstroke in the middle of the name vs. Caduet does not have a downstroke in the middle of the name - Kadcyla has a letter following the final upstroke vs. Caduet ends with an upstroke <p>Phonetic differences</p> <ul style="list-style-type: none"> - The middle syllable in Kadcyla has the sound “sy” vs. Caduet has the sound “doo” - Kadcyla ends with the sound “lah” vs. Caduet ends with the sound “et” <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Dose (3.6 mg/kg, weight based regimen vs. 2.5 mg/10 mg, 2.5 mg/20 mg, 2.5 g/40 mg, 5 mg/10 mg, 5 mg/20 mg, 5 mg/40 mg, 5 mg/80 mg, 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg, 10 mg/80 mg or 1 tablet) - Frequency of administration (once every 3 weeks vs. once daily)

<p>Proposed name: Kadcyla</p> <p>Dosage Form: for injection</p> <p>Strength: 100 mg per vial, 160 mg per vial</p> <p>Usual Dose: 2.4 mg/kg to 3.6 mg/kg infused intravenously over 30 to 90 min every 3 weeks (dose range: 120 mg to 360 mg for 50 kg to 100 kg patient)</p>	<p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p>	<p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p>
<p>Relenza (Zanamavir)</p> <ul style="list-style-type: none"> - 5 mg powder for inhalation - Two inhalations by mouth twice daily 	<p>Orthographic similarities</p> <ul style="list-style-type: none"> - ‘K’ and ‘R’ resemble one another when scripted - Both names have an upstroke in the middle of the name - Both names end with an ‘a’ - Both names are similar in length <p>Overlapping product characteristics</p> <ul style="list-style-type: none"> - n/a 	<p>Orthographic differences</p> <ul style="list-style-type: none"> - Kadcyla has an upstroke at the end of the name vs. Relenza does not have an upstroke at the end of the name <p>Differing product characteristics</p> <ul style="list-style-type: none"> - Frequency of administration (once every 3 weeks vs. once daily) - Dose (3.6 mg/kg, weight based regimen vs. 1 tablet)

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/s/

JIBRIL ABDUS-SAMAD
11/06/2012

TODD D BRIDGES
11/06/2012

KELLIE A TAYLOR
11/06/2012

CAROL A HOLQUIST
11/06/2012