

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*

**125409Orig1s000**

**PROPRIETARY NAME REVIEW(S)**

**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: May 7, 2012

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Drug Name and Strength: Perjeta (Pertuzumab)  
Injection  
420 mg/14 mL

Application Type/Number: BLA 125409

Applicant: Genentech, Inc.

OSE RCM #: 2012-919

\*\*\* 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, Perjeta, 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

The Applicant previously submitted a proprietary name review request for Omnitarg on March 19, 2007 under IND (b)(4). However, on March 29, 2007, Omnitarg received a denial due to DDMAC objection (see OSE RCM # 2007-628). Subsequently, on May 27, 2011, the Applicant submitted a new proprietary name request for (b)(4) with an alternate name of (b)(4) under IND 9900. (b)(4) was deemed conditionally acceptable on November 4, 2011 (see OSE RCM # 2011-2242). However, the Applicant submitted a withdrawal for the name (b)(4) on January 3, 2012 citing that (b)(4). Consequently, on January 6, 2012, the Applicant submitted a request for review of the original alternate name (b)(4) under BLA 125409. Additionally, the Applicant submitted an external Proprietary Name Safety Summary conducted by the (b)(4) on March 21, 2012. On April 5, 2012, the proposed name, (b)(4), was denied by the FDA (b)(4).

Due to the approaching action date of June 8, 2012 for this application, a teleconference with the Applicant was held on April 10, 2012 to discuss the review of a new proposed proprietary name. Accordingly, the Applicant submitted a new request for the proposed name Perjeta under the same BLA 125409, which is the topic of this review. The Applicant also submitted an external Proprietary Name Safety Summary conducted by (b)(4) that was conducted on March 29, 2012.

### 1.2 PRODUCT INFORMATION

The following product information is provided in the April 10, 2012 proprietary name submission.

- Active Ingredient: Pertuzumab
- Indication of Use: in combination with Trastuzumab and Docetaxel, is indicated for the treatment of patients with HER2-positive metastatic (b)(4) breast cancer who have not received previous treatment (b)(4)
- Route of Administration: Intravenous infusion
- Dosage Form: Injection
- Strength: 420 mg/14 mL (30 mg/mL)
- Dose and Frequency: 840 mg administered as a 60 minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30 to 60 minutes.

- How Supplied: Single-dose vial containing 420 mg/14 mL (30 mg/mL)
- Storage: Store vials in a refrigerator at 2°C to 8°C (36°F to 46°F) until time of use. Keep vial in the outer carton in order to protect from light. Do not freeze. Do not shake.
- Container and Closure Systems: glass vial

## **2 RESULTS**

The following sections provide the information obtained and considered in the 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 Product 1 (DOPI) concurred with the findings of OPDP's promotional assessment of the proposed name.

### **2.2 SAFETY ASSESSMENT**

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

#### ***2.2.1 United States Adopted Names (USAN) SEARCH***

On April 23, 2012, the United States Adopted Name (USAN) stem search identified that a USAN stem is not present in the proposed proprietary name.

#### ***2.2.2 Components of the Proposed Proprietary Name***

The Applicant notes in their submission that the proprietary name was not derived from any one particular concept. DMEPA notes that the proposed proprietary name 'Perjeta' contains a portion ('Per') of the established name 'Pertuzumab'. We discourage inclusion of the established name in the proprietary name for products because this diminishes the goal of having two unique identifiers for a single drug product. However, since 'per' is not a USAN stem and is defined as "by way of or through",<sup>1</sup> and does not provoke or suggest a product name, indication, disease state or disorder that may lead to confusion or result in a medication error, we deem it acceptable to include in the name.

#### ***2.2.3 FDA Name Simulation Studies***

Twenty-four practitioners participated in DMEPA's prescription studies. The interpretations did not overlap with or appear or sound similar to any currently marketed products. Nine out of ten participants in the Inpatient Study correctly identified the name as "Perjeta" with only one misinterpretation of "Piyeta" due to the lowercase letter 'e' mistaken for the lowercase letter 'i' and lowercase letters 'rj' mistaken for the lowercase

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<sup>1</sup> <http://www.merriam-webster.com/dictionary/therapy> . Last accessed April 23, 2012

letter ‘y’. All four participants in the Outpatient Study correctly identified the name as “Perjeta”. The ten misinterpretations in the Voice Study was due to the sound of the letters ‘Per’ being mistaken for the letters ‘Pro’ with one participant misinterpreting the sound of the letter ‘g’ for the letter ‘j’. 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, April 19, 2012 email at the initial phase of the proprietary name review, DOP1 forwarded a comment that the proposed name, Perjeta, sounds like “perjury” but did not forward any concern relating to a marketed product.

#### ***2.2.5 Failure Mode and Effects Analysis of Similar Names***

Appendix B lists possible orthographic and phonetic misinterpretations of the letters appearing in the proposed proprietary name, Perjeta. Table 1 lists the names with orthographic, phonetic, or spelling similarity to the proposed proprietary name, Perjeta identified by the primary reviewer, the Expert Panel Discussion (EPD), and other review disciplines. Table 1 also includes the names identified from the FDA Prescription Simulation and by Drug Safety Institute, Inc. not identified by DMEPA that require further evaluation.

**Table 1: Collective List of Potentially Similar Names (DMEPA, EPD, Other Disciplines, FDA Name Simulation Studies, and External Name Study)**

Look Similar		Sound Similar		Look and Sound Similar	
<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>	<i>Name</i>	<i>Source</i>
Banzel	FDA	Brilinta	External	Prometa	FDA
Derifil	FDA	Pradaxa	External	Prezista	FDA, External
Doryx	FDA	Prevacid	External	Percocet	FDA, External
Linjeta ***	FDA	Byetta	External	Tradjenta	FDA, External
Perfecta	FDA	Caverject	External	Propranolol	External
Pergonal	FDA	Exenatide	External	Provigil	External
Pirazolac	FDA	Zometa	External	Prozac	External
Prajmaline	FDA			Parcopa	External
Priftin	FDA			Parnate	External
(b) (4)	FDA			Pexeva	External
Prograf	FDA			Perjeta ***	FDA
Purge	FDA				
Berplex	FDA				
Depade	FDA				
Gengraf	FDA				
Perigel	FDA				
Pergolide	FDA				
Pertzye ***	FDA				
Pirprofen	FDA				
Pri-Gest-R	FDA				
Profenal	FDA				
PureFe	FDA				
PureVit	FDA				
Percodan	External				
Perdiem	External				
Provera	External				
Permethrin	External				

Our analysis of the 45 names contained in Table 1 considered the information obtained in the previous sections along with their product characteristics.

We determined 44 names will not pose a risk for confusion as described in Appendices D and E. However, our findings indicate that the proposed name, Perjeta, is vulnerable to name confusion that could lead to medication errors with Linjeta<sup>\*\*\*</sup> due to orthographic and phonetic similarities as well as overlapping product characteristics. Consequently, DMEPA has determined that Perjeta and Linjeta can not safely co-exist in the market place. Linjeta is the proposed proprietary name of a pending application (NDA (b) (4)) for a monomeric human insulin rDNA.

The rationale for the risk of confusion with Linjeta is described below since this proprietary name is associated with a pending application.

The proposed proprietary name, Perjeta, is orthographically and phonetically similar to and shares overlapping product characteristics with the pending application for Linjeta, a Monomeric Human Insulin rDNA product. The orthographic similarity of Perjeta and Linjeta stems from the fact that both names begin with similarly shaped letter string 'Per' and 'Lin' and end with identical letter string 'jeta'. Additionally, the names contain the same number of letters (seven) providing a similar length to the names. The phonetic similarity of Perjeta and Linjeta stems from the fact that both names contain three syllables with identical middle and last syllables providing a strong rhyming effect when spoken.

In addition to the orthographic and phonetic similarities, the product characteristics that Perjeta and Linjeta share increase the likelihood of confusion that may result in medication errors. Specifically, the dose of Perjeta (840 mg or 420 mg) is numerically similar to the achievable dose of Linjeta (84 units or 42 units) since dosing for insulin is highly individualized and dependent upon the patient's body weight. We considered the instance when the prescriber may express the Linjeta dose on an order using trailing zeros, which could result in Linjeta dose of '84.0 or 42.0' to be misinterpreted as Perjeta dose of '840 and 420', respectively. We have post-marketing evidence of such misinterpretation. Similarly, post-marketing evidence has also demonstrated that the numerical portion of the Perjeta dose may blend with the unit of measure "mg", which may result in the same type of misinterpretation (i.e., Linjeta '84' units interpreted as Perjeta '840' mg), especially when the designation 'units' is often expressed simply as the letter 'u' which is orthographically similar to the letter 'm' in mg. Additionally, both products are available as a solution for injection to be administered parentally. Although the strength between the two products differ greatly (420 mg/14 mL or 30 mg/mL for Perjeta vs. 100 unit/mL for Linjeta), both products are available in a single strength, thus, these products could be prescribed and dispensed without specifying the strength. Furthermore, prescriptions for either of these products may be written with the directions for use indicated as "use as directed" or "UAD", which would limit the potentially differentiating information on an order (e.g., the frequency of administration) and increase the likelihood for these names to be confused. As a result, a prescription written

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for “Perjeta (without a strength) 840 mg UAD or as directed” may be misinterpreted as “Linjeta (without a strength) 84 uUAD or as directed” and vice versa.

Please see writing sample below for an orthographic demonstration of this scenario.

The image shows two rows of handwritten text. The top row shows 'Linjeta' followed by '840mg'. The bottom row shows 'Perjeta' followed by '840mg'. The words are written in a cursive style, demonstrating their orthographic similarity.

Based on the orthographic similarity of the names, the shared product characteristics, and post-marketing experience with medication errors, we conclude that there is a potential for confusion between Perjeta and Linjeta that would lead to wrong drug errors. However, this concern can be eliminated since the name Linjeta that we found likely to cause confusion with Perjeta is a product that is still pending review by the Agency and this name will be issued a denial upon the approval of Perjeta, thereby, devoiding the co-existence of these two names in the market place.

The Linjeta application received a complete response (CR) from the Agency on 10/29/2010

[Redacted text block]

**2.2.6 Communication of DMEPA’s Final Decision to Other Disciplines**

DMEPA communicated our findings to the DOP1 via e-mail on April 30, 2012. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the DOP1 on May 2, 2012, they stated no additional concerns with the proposed proprietary name, Perjeta.

**3 CONCLUSIONS**

The proposed proprietary name is acceptable from a promotional perspective but not acceptable from a safety perspective. However, the proposed proprietary name Perjeta can be granted approval since the Linjeta application received a complete response (CR) from the Agency on 10/29/2010

[Redacted text block]

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, Perjeta, and have concluded that this name is acceptable. However, if any of the proposed product characteristics as stated in your April 10, 2012 submission are altered, DMEPA rescinds this finding and the name must be resubmitted for review.

## 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](http://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](http://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](http://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](http://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](http://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](http://www.lexi.com))

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

15. ***Medical Abbreviations*** ([www.medilexicon.com](http://www.medilexicon.com))

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

16. ***CVS/Pharmacy*** ([www.CVS.com](http://www.CVS.com))

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

**17. Walgreens ([www.walgreens.com](http://www.walgreens.com))**

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

**18. Rx List ([www.rxlist.com](http://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](http://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.

## 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.<sup>2</sup>

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.

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<sup>2</sup> 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.<sup>3</sup>

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).

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<sup>3</sup> 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.

<b>Type of Similarity</b>	<b>Considerations when Searching the Databases</b>		
	<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"> <li>Names may appear similar in print or electronic media and lead to drug name confusion in printed or electronic communication</li> <li>Names may look similar when scripted and lead to drug name confusion in written communication</li> </ul>
	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"> <li>Names may look similar when scripted, and lead to drug name confusion in written communication</li> </ul>
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"> <li>Names may sound similar when pronounced and lead to drug name confusion in verbal communication</li> </ul>

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.<sup>4</sup> 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

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<sup>4</sup> Institute for Healthcare Improvement (IHI). Failure Mode and Effects Analysis. Boston. IHI:2004.

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 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, Perjeta	Scripted May Appear as	Spoken May Be Interpreted as
Capital letter ‘P’	D, R, L, G, B, T	B
lowercase ‘e’	a, i, l, o, p, u	any vowel
lowercase ‘r’	s, n, e, v	---
lowercase ‘j’	g, p, q, y	g
lowercase ‘e’	a, i, l, o, p, u	any vowel
lowercase ‘t’	r, f, x, b, A	d
lowercase ‘a’	el, ci, cl, d, o, u, e, i	Any vowel

**Appendix C: Prescription Simulation Samples and Results**

**Figure 1. Perjeta Study (Conducted on April 20, 2012)**

Handwritten Medication Order	Verbal Prescription
<p><u>Medication Order:</u></p> <p><i>Perjeta 840 mg IV over 60 minutes</i></p>	<p>Perjeta Bring to clinic Dispense #1</p>
<p><u>Outpatient Prescription:</u></p> <div style="border: 1px solid black; padding: 5px;"> <p>Patient _____ Date <u>4/19/12</u> Address _____</p> <p><b>R</b> <i>Perjeta</i> <i># 1 vial</i> <i>Sp. Bring to clinic</i></p>  <p>Refill(s): _____ Dr. <u>OSE</u> DEA No. _____ Address _____ Telephone _____</p> </div>	

**FDA Prescription Simulation Responses (Aggregate 1 Rx Studies Report)**

**Study Name: Perjeta**

As of Date 4/27/2012

84 People Received Study

24 People Responded

Study Name: Perjeta

	Total	10	10	4	
INTERPRETATION	INPATIENT	VOICE	OUTPATIENT	TOTAL	
PERJETA	9	0	4	13	
PIYETA	1	0	0	1	
PROGETTA	0	1	0	1	
PROJETA	0	3	0	3	
PROJETTA	0	6	0	6	

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

Proprietary Name	Active Ingredient	Similarity to Perjeta	Failure preventions
Derifil	Chlorophyllin	Look	The pair have sufficient orthographic differences
Doryx	Doxycycline	Look	The pair have sufficient orthographic differences
Pergonal	Menotropins (FSH and LH)	Look	The pair have sufficient orthographic differences
Berplex	Multivitamin	Look	The pair have sufficient orthographic differences
Gengraf	Cyclosporine	Look	The pair have sufficient orthographic differences
Pergolide	Pergolide	Look	The pair have sufficient orthographic differences
Pirazolac	Pirazolac	Look	The pair have sufficient orthographic differences
Prajmaline	Prajmaline	Look	The pair have sufficient orthographic differences
Pirprofen	Pirprofen	Look	The pair have sufficient orthographic differences
Pri-Gest-R	Brompheniramine Maleate	Look	The pair have sufficient orthographic differences
PureFe	Ferrous Fumarate	Look	The pair have sufficient orthographic differences
PureVit	Multivitamin and Mineral	Look	The pair have sufficient orthographic differences
Percodan	Oxycodone HCl and Aspirin	Look	The pair have sufficient orthographic differences
Perdiem	Sennosides	Look	The pair have sufficient orthographic differences
Provera	Medroxyprogesterone Acetate	Look	The pair have sufficient orthographic differences
Purge	Castor Oil	Look	The pair have sufficient orthographic differences
Permethrin	Permethrin	Look	The pair have sufficient orthographic differences
Perigel	Baking Soda, Hydrogen Peroxide, and Sodium Fluoride	Look	Product is not a drug. It is a toothpaste that also whitens teeth.
Perfecta	Petrolatum	Look	Name identified in Redbook database. Unable to find product characteristics in commonly used drug databases.
Banzel	Rufinamide	Look	The pair have sufficient phonetic differences
Brilinta	Ticagrelor	Sound	The pair have sufficient phonetic differences
Prevacid	Lansoprazole	Sound	The pair have sufficient phonetic differences
Caverject	Alprostadil	Sound	The pair have sufficient phonetic differences
Exenatide	Exenatide	Sound	The pair have sufficient phonetic differences
Percocet	Oxycodone HCl and Acetaminophen	Look & Sound	The pair have sufficient orthographic & phonetic differences

<b>Proprietary Name</b>	<b>Active Ingredient</b>	<b>Similarity to Perjeta</b>	<b>Failure preventions</b>
Tradjenta	Linagliptin	Look & Sound	The pair have sufficient orthographic & phonetic differences
Propranolol	Propranolol HCl	Look & Sound	The pair have sufficient orthographic & phonetic differences
Provigil	Modafinil	Look & Sound	The pair have sufficient orthographic & phonetic differences
Prozac	Fluoxetine HCl	Look & Sound	The pair have sufficient orthographic & phonetic differences
Parcopa	Carbidopa and Levodopa	Look & Sound	The pair have sufficient orthographic & phonetic differences
Parnate	Tranlycypromine	Look & Sound	The pair have sufficient orthographic & phonetic differences
Pexeva	Paroxetine Mesylate	Look & Sound	The pair have sufficient orthographic & phonetic differences
Perjeta	Pertuzumab	Look & Sound	Subject of this review

**Appendix E:** 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><b>Perjeta (Pertuzumab)</b>  <b>Solution for Injection</b>  <b>30 mg/mL (420 mg/14 mL)</b>  <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b>  <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b>  <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
<p>Pradaxa (Ganciclovir)  Capsule 75 mg, 150 mg  Usual Dose:  150 mg taken orally twice daily.  For severe renal impairment:  75 mg orally twice daily</p>	<p><b>Phonetic similarity</b>  -The first syllable “per” in Perjeta and “pra” in Pradaxa have similar sound  -Both names share same ending syllable “ah”  -Both names have 3 syllables  <b>Product characteristic similarity</b>  None</p>	<p><b>Phonetic differences</b>  -The letter string “jet” from the second syllable in Perjeta lacks phonetic similarity to the letter string “dax” in Pradaxa  <b>Product characteristic differences</b>  Dose: 840 mg or 420 mg vs. 150 mg or 75 mg  Frequency: twice daily vs. variable  Strength: 30 mg/mL or 420 mg/14 mL vs. 75 mg or 150 mg</p>
<p>Byetta (Exenatide)  Solution for Injection  250 mcg/mL  Usual Dose:  10-20 mcg/day subcutaneously twice daily</p>	<p><b>Phonetic similarity</b>  -Both names share same ending two syllables “eta” and “etta”  -Both names have 3 syllables  <b>Product characteristic similarity</b>  Strength: Both products are single strength products. Thus, the strength can be omitted on a prescription  Dosage form: Both products are Solution for Injection</p>	<p><b>Phonetic differences</b>  -The letter string “By” from the first syllable in Byetta lacks phonetic similarity to the letter string “Perj” in Perjeta  <b>Product characteristic differences</b>  Dose: 840 mg or 420 mg vs. 10-20 mcg  Frequency: twice daily vs. variable</p>
<p>Zometa (Zoledronic acid)  Solution for Injection  4 mg/100 mL, 4 mg/5 mL  Usual Dose:  4 mg every 3-4 weeks intravenously</p>	<p><b>Phonetic similarity</b>  -Both names share same ending two syllables “eta”  -Both names have 3 syllables  <b>Product characteristic similarity</b>  Dosage form: Both products are</p>	<p><b>Phonetic differences</b>  -The letter string “Zom” from the first syllable in Zometa lacks phonetic similarity to the letter string “Perj” in Perjeta  <b>Product characteristic differences</b>  Dose: 840 mg or 420 mg vs. 4 mg  Strength: 30 mg/mL or 420 mg/14 mL</p>

<p><b>Perjeta (Pertuzumab)</b>  <b>Solution for Injection</b>  <b>30 mg/mL (420 mg/14 mL)</b>  <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b>  <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b>  <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
	<p>Solution for Injection</p> <p>Frequency: Both products are given every 3 weeks</p> <p>Route of administration: Both products are given intravenously</p>	<p>vs. 4 mg/100 mL or 4 mg/5 mL</p>
<p>Prezista (Darunavir Ethanolate)</p> <p>Tablet 75 mg, 150 mg, 400 mg</p> <p>Usual dose: Adults:</p> <p>Treatment naïve: Darunavir 800 mg taken with ritonavir 100 mg once daily with food</p> <p>Treatment experienced: Darunavir 600 mg with ritonavir 100 mg twice-daily</p> <p>Children: Darunavir 200 mg to 600 mg with ritonavir 32 mg to 100 mg twice daily with food depending on body weight</p>	<p><b>Orthographic similarity</b></p> <p>-Both names begin with the letter string ‘Pre’ and ‘Per’ that look similar when scripted, followed by a downstroke letter in the same position (if the letter ‘z’ is scripted as a downstroke), and shares the same ending letter string ‘ta’</p> <p>-Both names have similar length with 7 vs. 8 letters</p> <p><b>Phonetic similarity</b></p> <p>-The first syllable “per” in Perjeta and “pre” in Prezista have similar sound</p> <p>-Both names share same ending syllable “ta”</p> <p>-Both names have 3 syllables</p> <p><b>Product characteristic similarity</b></p> <p>None</p>	<p><b>Orthographic differences</b></p> <p>-The extra letter ‘s’ in Prezista elongates this name compared to Perjeta which helps to differentiate the two names</p> <p><b>Phonetic differences</b></p> <p>-Perjeta lacks the distinctive sound of the letter “s” found in the second syllable of Prezista</p> <p><b>Product characteristic differences</b></p> <p>Dose: 200 mg to 800 mg vs. 840 mg or 420 mg</p> <p>Strength: 30 mg/mL or 420 mg/14 mL vs. 75 mg, 150 mg, 400 mg</p> <p>Frequency: once or twice daily vs. variable</p>
<p>Prometa (Metaproterenol Sulfate)</p> <p>Inhalation Solution 5%</p> <p>Oral Syrup 10 mg/5 mL</p> <p>Usual Dose:</p>	<p><b>Orthographic similarity</b></p> <p>-Both names begin with the same letter ‘P’ and ending with the same letters ‘eta’</p> <p>-Both names have same length with 7 letters</p>	<p><b>Orthographic differences</b></p> <p>-Prometa lacks the downstroke letter ‘j’ found in Perjeta</p> <p><b>Phonetic differences</b></p> <p>-The sound from letter “m” from the second syllable in Prometa lacks phonetic similarity to the sound from</p>

<p><b>Perjeta (Pertuzumab)</b>  <b>Solution for Injection</b>  <b>30 mg/mL (420 mg/14 mL)</b>  <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b>  <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b>  <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
<p>Inhalation Solution: 0.2-0.3 mL of 5% (10-15 mg) solution, diluted in 2.5-3 mL of 1/2 normal saline, normal saline, or other diluent. Doses may be repeated 3-4 times per day</p> <p>Syrup: 10 mg-20 mg orally given 3-4 times per day</p> <p><u>Note:</u> Applicant Muro Pharmaceutical withdraw application (FR effective 11/28/2000)</p>	<p><b>Phonetic similarity</b></p> <ul style="list-style-type: none"> <li>-The first syllable “per” in Perjeta and “pro” in Prometa have similar sound</li> <li>-Both names share same ending two syllables “eta” and “etta”</li> <li>-Both names have 3 syllables</li> </ul> <p><b>Product characteristic similarity</b></p> <p>Strength: Both products are single strength products. Thus, the strength can be omitted on a prescription</p> <p>Dosage form: Both products are Solution for Injection (albeit one is for injectable and one is for inhalation)</p>	<p>letter “j” in Perjeta</p> <p><b>Product characteristic differences</b></p> <p>Dose: 840 mg or 420 mg vs. syrup dose 10 mg-20 mg or inhalation solution dose 0.2 mL-0.3 mL</p> <p>Frequency: 3-4 times daily vs. variable</p>
<p>Depade (Naltrexone)</p> <p>Tablet 25 mg, 50 mg, 100 mg</p> <p>Usual Dose:</p> <p>Opioid detoxification: Initial dose of 25 mg orally once. If no withdrawal signs occur within 1 hour, give an additional 25 mg orally once. If a total of 50 mg does not elicit withdrawal, maintenance dose of 50 mg to 150 mg/day orally once daily or in divided doses may be given, depending on the schedule prescribed.</p> <p>Alcoholism: 50 mg orally once daily with food for 12 weeks</p>	<p><b>Orthographic similarity</b></p> <ul style="list-style-type: none"> <li>-Both names begin with the letters ‘P’ and ‘D’ that look similar when scripted, followed by same letter ‘e’, contain a downstroke letter following by the letter string ‘eta’ and ‘ade’ that look similar when scripted</li> <li>-Both names have similar length with 7 vs. 6 letters</li> </ul> <p><b>Product characteristic similarity</b></p> <p>Frequency: Both product may be prescribed as once or as directed due to the special administration instructions</p>	<p><b>Orthographic differences</b></p> <ul style="list-style-type: none"> <li>-The downstroke letters ‘p’ and ‘j’ offers orthographic distinction, especially in cases when the j is dotted</li> <li>-The extra middle letter ‘r’ in Perjeta elongates this name and provide visual distinction from the infix in Depade</li> </ul> <p><b>Product characteristic differences</b></p> <p>Dose: 840 mg or 420 mg vs. 25 mg or 50 mg-150 mg</p> <p>Strength: 30 mg/mL or 420 mg/14 mL vs. 25 mg, 50 mg, 100 mg</p>

<p><b>Perjeta (Pertuzumab)</b> <b>Solution for Injection</b> <b>30 mg/mL (420 mg/14 mL)</b> <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b> <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b> <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
<p>Priftin (Rifapentine) Tablet 150 mg Usual Dose: 600 mg (four 150 mg tablets) orally twice weekly for 2 months with an interval of not less than 3 days (72 hours) between doses</p>	<p><b>Orthographic similarity</b> -Both names begin with the letter string 'Pr' and 'Pe' that look similar when scripted, followed by the letter 'f' which may be written as a downstroke to look similar to the downstroke letter 'j' in the same position, and contain the same upstroke letter 't' -Both names have same length with 7 letters <b>Product characteristic similarity</b> Strength: Both products are single strength products. Thus, the strength can be omitted on a prescription</p>	<p><b>Orthographic differences</b> -The ending letters 'in' and 'a' offers orthographic distinction to the names -The middle letter 'e' between the downstroke and the upstroke in Perjeta provide visual distinction from Priftin <b>Product characteristic differences</b> Dose: 840 mg or 420 mg vs. 600 mg or 4 tablets Frequency: twice weekly vs. variable</p>
<p>Prograf (Tacrolimus) Capsule 0.5 mg, 1 mg, 5 mg Solution for Injection 5 mg/mL Usual dose: Liver transplant rejection: 0.10-0.15 mg/kg/day PO in two divided doses, every 12 hours or 0.03-0.05 mg/kg/day continuous IV infusion Kidney transplant rejection: 0.2 mg/kg/day PO in two divided doses, every 12 hours or 0.03-0.05 mg/kg/day continuous IV infusion Heart transplant rejection: 0.075 mg/kg/day PO in two divided doses, every 12 hours or 0.01 mg/kg/day as a continuous</p>	<p><b>Orthographic similarity</b> -Both names begin with the letter string 'Pro' and 'Per' that look similar when scripted, followed by a downstroke letter in the same position, and contain a similar upstroke/crosstroke letters 't' and 'f' -Both names have same length with 7 letters <b>Product characteristic similarity</b> Dosage form: Both products are Solution for Injection Route of administration: Both products are given intravenously</p>	<p><b>Orthographic differences</b> -The downstroke letters 'g' and 'j' offers orthographic distinction, especially in cases when the j is dotted -The position of the upstroke letter is transposed providing visual distinction to the ending letter string of 'ta' and 'af' <b>Product characteristic differences</b> Dose: no overlap (840 mg or 420 mg for Perjeta not achievable at recommended Prograf dosing) Strength: 30 mg/mL or 420 mg/14 mL vs. 0.5 mg, 1 mg, 5 mg, or 5 mg/mL Frequency: every 12 hrs for oral or continuous intravenous infusion vs. variable</p>

<p><b>Perjeta (Pertuzumab)</b>  <b>Solution for Injection</b>  <b>30 mg/mL (420 mg/14 mL)</b>  <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b>  <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b>  <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
<p>IV infusion</p>		
<p>Profenal (Suprofen)  Ophthalmic Solution 1%  Usual dose:  On the day of surgery, instill two drops into the conjunctival sac at three, two and one hour prior to surgery. Two drops may be instilled into the conjunctival sac every four hours, while awake, the day preceding surgery.</p>	<p><b>Orthographic similarity</b>  -Both names begin with the letter string 'Pr' and 'Pe' that look similar when scripted, followed by a downstroke letter in the same position (if the letter 'f' is scripted as a downstroke), followed by the same letter 'e', and contain an upstroke letter towards the end of the name  -Both names have similar length with 7 vs. 8 letters  <b>Product characteristic similarity</b>  Strength: Both products are single strength products. Thus, the strength can be omitted on a prescription</p>	<p><b>Orthographic differences</b>  -The position of the upstroke letter is transposed providing visual distinction to the ending letter string of 'ta' and 'al', especially if the letter 't' is crossed  -The extra letter 'n' in Profenal elongates this name compared to Perjeta which further helps to differentiate the names  <b>Product characteristic differences</b>  Dose: 840 mg or 420 mg vs. 2 drops  Frequency: Instill 2 drops at 1-3 hrs pre-op then every 4 hours post-op vs. variable</p>
<p>Pertzye<sup>***</sup> (Pancrelipase)  Delayed-Release Capsule  8,000 USP Units Lipase,  (b) (4) USP Units Amylase,  (b) (4) USP Units Protease,  16,000 USP Units Lipase,  (b) (4) USP Units Amylase,  (b) (4) USP Units Protease  Usual Dose:  (b) (4)</p>	<p><b>Orthographic similarity</b>  -Both names share the same beginning letter string 'Per', have similar downstroke letter 'j' and 'y' when scripted, and contain the same upstroke letter 't'  -Both names have same length with 7 letters  <b>Product characteristic similarity</b>  None</p>	<p><b>Orthographic differences</b>  -The positions of the upstroke and downstroke letters are different creating a different shape in the names, especially if the downstroke letter 'j' is dotted  -The ending letter strings 'tzye' and 'jeta' are orthographically distinctive which further helps to differentiate the two names  <b>Product characteristic differences</b>  Dose: 840 mg or 420 mg vs. dose dependent on age and fat intake  Frequency: must be coordinated with meal time vs. variable intravenous infusion</p>

<p><b>Perjeta (Pertuzumab)</b>  <b>Solution for Injection</b>  <b>30 mg/mL (420 mg/14 mL)</b>  <b>Dose: 840 mg administered as a 60-minute intravenous infusion, followed every 3 weeks thereafter by a dose of 420 mg administered over a period of 30-60 minutes</b></p>	<p><b>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</b>  <b>Causes (could be multiple)</b></p>	<p><b>Prevention of Failure Mode:</b>  <b>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</b></p>
<p>units/kg/meal (or maximum of 10,000 USP units of Lipase/kg/day), or less than 4,000 Lipase units/gram fat ingested/day; <i>Children 4 years and older and adults:</i> begin with 500 Lipase units/kg/meal to a maximum of 2,500 Lipase units/kg/meal (or maximum of 10,000 USP units of Lipase/kg/day), or less than 4,000 Lipase units/gram fat ingested per day</p> <p>Note: Pertzye was found acceptable in OSE review #2011-4357 and again in final assessment OSE review #2012-386</p>		<p>Strength: multiple for Pertzye which must be specified providing an opportunity for differentiation</p>

(b) (4)

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/s/  
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KIMBERLY A DE FRONZO  
05/07/2012

JAMES H SCHLICK on behalf of TODD D BRIDGES  
05/07/2012

KELLIE A TAYLOR  
05/07/2012

CAROL A HOLQUIST  
05/07/2012

**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: April 5, 2012

Reviewers: 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 Strength: (b) (4) (Pertuzumab) Injection  
420 mg/14 mL

Application Type/Number: BLA 125 (b) (4)

Applicant: Genentech, Inc.

OSE RCM #: 2012-129

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04/05/2012

KELLIE A TAYLOR  
04/05/2012

CAROL A HOLQUIST  
04/05/2012