

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

761079Orig1s000

PROPRIETARY NAME REVIEW(S)

MEMORANDUM
NONPROPRIETARY NAME SUFFIX

Division of Medication Error Prevention and Analysis (DMEPA)
Office of Medication Error Prevention and Risk Management (OMEPRM)
Office of Surveillance and Epidemiology (OSE)
Center for Drug Evaluation and Research (CDER)

***** This document contains proprietary information that cannot be released to the public*****

Date of This Review:	January, 30 2018
Requesting Office or Division:	Division of Gastroenterology & Inborn Error Products (DGIEP)
Application Type and Number:	BLA 761079
Product Name and Strength:	Palynziq (pegvaliase-xxxx) Injection 2.5 mg/0.5 mL, 10 mg/0.5 mL and 20 mg/mL
Product Type:	Drug-Device combination Product
Rx or OTC:	Rx
Applicant/Sponsor Name:	Biomarin Pharmaceuticals, Inc.
Panorama #:	2017-1330
DMEPA Primary Reviewer:	Matthew Barlow, RN, BSN
OMEPRM Deputy Director (Acting):	Lubna Merchant, MS, PharmD

1. PURPOSE OF MEMO

This memorandum summarizes our evaluation of the suffixes proposed by Biomarin Pharmaceuticals for the nonproprietary name and communicates our recommendation for the nonproprietary name.

2. ASSESSMENT OF THE NONPROPRIETARY NAME

On October 13, 2017, Biomarin submitted a list of suffixes, in their order of preference, to be used in the nonproprietary name of their product. We note that the applicant submitted six suffixes. We conducted our review in the order of preference listed by the Applicant. We note that the Applicant submitted an evaluation of their proposed suffixes conducted by (b) (4).

We reviewed Biomarin's proposed suffixes against the principles described in the applicable guidance¹.

(b) (4)

5. -pqpz

Biomarin's fifth proposed suffix, *-pqpz*, is comprised of three letters within the proprietary name of this product (**Palynziq**). Although we note the suffix contains three specific letters found within the proprietary name of this product, we find that the composition *-pqpz* in and of itself does not readily connote the proprietary name.

¹ See Section VI of Guidance for Industry: Nonproprietary Naming of Biological Products. 2017. Available from <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM459987.pdf>

We also determined that *-pqpz* is not too similar to any other products' suffix designation, does not look similar to the names of other currently marketed products, that the suffix is devoid of meaning, and does not make any misinterpretations with respect to safety or efficacy of this product.

3. CONCLUSION

For the reasons described above, we find that Biomarin's proposed suffix *-pqpz*, submitted on October 13, 2017, acceptable for inclusion within the nonproprietary name of this product. Therefore, the decision to conditionally approve the suffix will be communicated to the Applicant via letter.

4. COMMENTS FOR THE APPLICANT



3. We find your proposed nonproprietary name, pegvaliase-*pqpz*, conditionally acceptable for your proposed product. Should your 351(a) BLA be approved during this review cycle, pegvaliase-*pqpz* will be the proper name designated in the license and you should revise your proposed labels and labeling accordingly. However, please be advised that if your application receives a Complete Response, the acceptability of your suffix will be re-evaluated when you respond to the deficiencies. If we find your proposal unacceptable upon our re-evaluation, we would inform you of our finding.

¹ Guidance for Industry: Nonproprietary Naming of Biological Products. 2017. Available from <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM459987.pdf>

² Guidance for Industry: Nonproprietary Naming of Biological Products. 2017. Available from <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM459987.pdf>

This is a representation of an electronic record that was signed electronically and this page is the manifestation of the electronic signature.

/s/

MATTHEW J BARLOW
01/30/2018

LUBNA A MERCHANT
01/30/2018

PROPRIETARY NAME REVIEW

Division of Medication Error Prevention and Analysis (DMEPA)
Office of Medication Error Prevention and Risk Management (OMEPRM)
Office of Surveillance and Epidemiology (OSE)
Center for Drug Evaluation and Research (CDER)

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Date of This Review:	October 24, 2017
Application Type and Number:	BLA 761079
Product Name and Strength:	Palynziq (pegvaliase) Injection 2.5 mg/0.5 mL, 10 mg/0.5 mL and 20 mg/mL
Product Type:	Single ingredient, drug-device combination product
Rx or OTC:	Rx
Applicant/Sponsor Name:	Biomarin Pharmaceutical, Inc.
Panorama #:	2017- 16740291
DMEPA Safety Evaluator:	Sherly Abraham, R.Ph.
DMEPA Team Leader:	Sarah K. Vee, Pharm.D.

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1 INTRODUCTION

This review evaluates the proposed proprietary name, Palynziq, from a safety and misbranding perspective. The sources and methods used to evaluate the proposed name are outlined in the reference section and Appendix A respectively. The Applicant did not submit an external name study for this proposed proprietary name.

1.1 REGULATORY HISTORY

The Applicant previously submitted the proposed proprietary name, (b) (4) on May 28, 2015. However, the Division of Medication Error Prevention and Analysis (DMEPA) found the name, (b) (4) unacceptable (b) (4), (b) (4), dated October 15, 2015^a.

Thus, the Applicant submitted the name, Palynziq, for review on February 19, 2016. On August 2, 2016, DMEPA found the name conditionally acceptable in OSE Review # 2016-2853115^b under IND 76269.

On August 2, 2017, the Applicant submitted the name, Palynziq for review under BLA 761079.

1.2 PRODUCT INFORMATION

The following product information is provided in the August 2, 2017 proprietary name submission and June 30, 2017 prescribing information.

- Intended Pronunciation: pa lin' zik
- Active Ingredient: pegvaliase
- Indication of Use: treatment of phenylketonuria (PKU)
- Route of Administration: subcutaneous
- Dosage Form: injection
- Strength: 2.5 mg/0.5 mL, 10 mg/0.5 mL, 20 mg/mL
- Dose and Frequency: Initiate 2.5 mg once per week for 4 weeks. Titrate dose and frequency based on patient tolerability in a stepwise manner: 2.5 mg twice weekly, 10 mg once weekly, 10 mg twice weekly, 10 mg four times a week, 10 mg daily; 20 mg daily

^aAbraham, S. Proprietary Name Review for (b) (4) (IND 76269) Silver Spring (MD): Food and Drug Administration, Center for Drug Evaluation and Research, Office of Surveillance and Epidemiology, Division of Medication Error Prevention and Analysis (US); 2015 Oct 15 Panorama No. 574846

^bBarlow, M. Proprietary Name Review for Palynziq (IND 76269) Silver Spring (MD): Food and Drug Administration, Center for Drug Evaluation and Research, Office of Surveillance and Epidemiology, Division of Medication Error Prevention and Analysis (US); 2016 Aug 2 Panorama No. 2016-2853115

- How Supplied: All dosage strengths of Palynziq are provided in a 1 mL glass syringe with a 26 gauge, 0.5 inch needle. Each carton contains 1 (b) (4) or (b) (4) trays with single-dose prefilled syringe(s), Prescribing Information, Medication Guide, and Instructions for Use.
- Storage: Store in refrigerator at 36°F to 46°F (2°C to 8°C) in its original carton. Palynziq may be stored in (b) (4) for up to 30 days at temperatures up to 68°F to 77°F (20°C to 25°C). Record the date removed from refrigeration (b) (4). Once stored at room temperature, do not return the product to the refrigerator. The shelf-life then expires after storage at room temperature for 30 days, or after the expiration date on the product carton, whichever is earlier.

2 RESULTS

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

2.1 MISBRANDING ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined that the proposed name would not misbrand the proposed product. DMEPA concurred with the findings of OPDP's assessment of the proposed name. The Division of Gastroenterology & Inborn Error Products (DGIEP) provided further comments for OPDP's consideration (see Section 2.2.3)

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*

There is no USAN stem present in the proprietary name^c.

2.2.2 *Components of the Proposed Proprietary Name*

The Applicant did not provide a derivation or intended meaning for the proposed name, Palynziq in their submission. This proprietary name is comprised of a single word that does not contain any components (i.e. a modifier, route of administration, dosage form, etc.) that are misleading or can contribute to medication error.

2.2.3 *Comments from Other Review Disciplines at Initial Review*

In response to the OSE August 16, 2017 e-mail, the clinical reviewer within Division of Gastroenterology & Inborn Error Products (DGIEP) commented that "'PALYNZIQ' may imply that the product has an impact on IQ (i.e., cognition) within the PKU patient population [and]---PKU can manifest in a neuro-psychiatric manner"

The clinical reviewer's concern was shared with OPDP. OPDP re-reviewed the name, taking into account DGIEP's concern, and maintained their non-objection to the name. We informed DGIEP

^c USAN stem search conducted on (August 16, 2017).

of OPDP's determination and DGIEP did not provide any additional comments. DMEPA concurs with OPDP's assessment.

2.2.4 FDA Name Simulation Studies

Sixty-seven (n=67) practitioners participated in DMEPA's prescription studies. The responses did not overlap with any currently marketed products nor did the responses sound or look similar to any currently marketed products or any products in the pipeline. Appendix B contains the results from the verbal and written prescription studies.

2.2.5 Phonetic and Orthographic Computer Analysis (POCA) Search Results

Our POCA search^d identified 70 names with a combined phonetic and orthographic score of $\geq 55\%$ or an individual phonetic or orthographic score $\geq 70\%$. These names are included in Table 1 below. We had identified and evaluated some of the names in our previous proprietary name review.^e We re-evaluated the previously identified names of concern considering any lessons learned from recent post-marketing experience, which may have altered our previous conclusion regarding the acceptability of the name. We note that none of the product characteristics have changed and we agree with the findings from our previous review for the names evaluated previously. Therefore, we identified 14 names not previously analyzed. These names are included in Table 1 below.

2.2.6 Names Retrieved for Review Organized by Name Pair Similarity

Table 1 lists the number of names retrieved from our POCA search. These name pairs are organized as highly similar, moderately similar or low similarity for further evaluation.

Table 1. Similarity Category	Number of Names
Highly similar name pair: combined match percentage score $\geq 70\%$	1
Moderately similar name pair: combined match percentage score $\geq 55\%$ to $\leq 69\%$	13
Low similarity name pair: combined match percentage score $\leq 54\%$	0

^d POCA search conducted on August 17, 2017, in version 4.1.

^eBarlow, M. Proprietary Name Review for Palyngiq (IND 76269) Silver Spring (MD): Food and Drug Administration, Center for Drug Evaluation and Research, Office of Surveillance and Epidemiology, Division of Medication Error Prevention and Analysis (US); 2016 Aug 2 Panorama No. 2016-2853115

2.2.7 Safety Analysis of Names with Potential Orthographic, Spelling, and Phonetic Similarities

Our analysis of the 14 names contained in Table 1 determined that none of the names will pose a risk for confusion as described in Appendices C through H.

2.2.8 Communication of DMEPA's Analysis at Midpoint of Review

DMEPA communicated our findings to the Division of Gastroenterology & Inborn Error Products (DGIEP) via e-mail on October 20, 2017. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the DGIEP on October 23, 2017, they stated no additional concerns with the proposed proprietary name, Palynziq.

3 CONCLUSIONS

The proposed proprietary name is acceptable.

If you have any questions or need clarifications, please contact Nicholas Miles, OSE project manager, at 301-796-7025.

3.1 COMMENTS TO THE APPLICANT

We have completed our review of the proposed proprietary name, Palynziq, and have concluded that this name is acceptable.

If any of the proposed product characteristics as stated in your August 2, 2017, submission are altered prior to approval of the marketing application, the name must be resubmitted for review.

4 REFERENCES

1. *USAN Stems* (<http://www.ama-assn.org/ama/pub/physician-resources/medical-science/united-states-adopted-names-council/naming-guidelines/approved-stems.page>)

USAN Stems List contains all the recognized USAN stems.

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

POCA is a system that FDA designed. As part of the name similarity assessment, POCA is used to evaluate proposed names via a phonetic and orthographic algorithm. The proposed proprietary name is converted into its phonemic representation before it runs through the phonetic algorithm. Likewise, an orthographic algorithm exists that operates in a similar fashion. POCA is publicly accessible.

Drugs@FDA

Drugs@FDA is an FDA Web site that contains most of the drug products approved in the United States 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* and *generic drugs*; *therapeutic biological products*, *prescription* and *over-the-counter* human drugs; and *discontinued drugs* (see Drugs @ FDA Glossary of Terms, available at http://www.fda.gov/Drugs/InformationOnDrugs/ucm079436.htm#ther_biological).

RxNorm

RxNorm contains the names of prescription and many OTC drugs available in the United States. RxNorm includes generic and branded:

- Clinical drugs – pharmaceutical products given to (or taken by) a patient with therapeutic or diagnostic intent
- Drug packs – packs that contain multiple drugs, or drugs designed to be administered in a specified sequence

Radiopharmaceuticals, contrast media, food, dietary supplements, and medical devices, such as bandages and crutches, are all out of scope for RxNorm (<http://www.nlm.nih.gov/research/umls/rxnorm/overview.html#>).

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.

3. *Electronic Drug Registration and Listing System (eDRLS) database*

The electronic Drug Registration and Listing System (eDRLS) was established to support the FDA's Center for Drug Evaluation and Research (CDER) goal to establish a common Structured Product Labeling (SPL) repository for all facilities that manufacture regulated drugs. The system is a reliable, up-to-date inventory of FDA-regulated, drugs and establishments that produce drugs and their associated information.

APPENDICES

Appendix A

FDA's Proprietary Name Risk Assessment evaluates proposed proprietary names for misbranding and safety concerns.

1. **Misbranding Assessment:** For prescription drug products, OPDP assesses the name for misbranding concerns. For over-the-counter (OTC) drug products, the misbranding assessment of the proposed name is conducted by DNDP. OPDP or DNDP evaluates proposed proprietary names to determine if the name is false or misleading, such as by making misrepresentations with respect to safety or efficacy. For example, a fanciful proprietary name may misbrand a product by suggesting that it has some unique effectiveness or composition when it does not (21 CFR 201.10(c) (3)). OPDP or DNDP provides their opinion to DMEPA for consideration in the overall acceptability of the proposed proprietary name.
2. **Safety Assessment:** The safety assessment is conducted by DMEPA, and includes the following:
 - a. Preliminary Assessment: 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.) See prescreening checklist below in Table 2*. 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.^f

***Table 2- Prescreening Checklist for Proposed Proprietary Name**

	Answer the questions in the checklist below. Affirmative answers to any of these questions indicate a potential area of concern that should be carefully evaluated as described in this guidance.
Y/N	Is the proposed name obviously similar in spelling and pronunciation to other names?
	Proprietary names should not be similar in spelling or pronunciation to proprietary names, established names, or ingredients of other products.
Y/N	Are there inert or inactive ingredients referenced in the proprietary name?
	Proprietary names should not incorporate any reference to an inert or inactive ingredient in a way that might create an impression that the ingredient's value is greater than its true functional role in the formulation (21 CFR 201.10(c) (4)).
Y/N	Does the proprietary name include combinations of active ingredients?
	Proprietary names of fixed combination drug products should not include or suggest the name of one or more, but not all, of its active ingredients (see 21 CFR 201.6(b)).
Y/N	Is there a United States Adopted Name (USAN) stem in the proprietary name?
	Proprietary names should not incorporate a USAN stem in the position that USAN designates for the stem.
Y/N	Is this proprietary name used for another product that does not share at least one common active ingredient?
	Drug products that do not contain at least one common active ingredient should not use the same

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

	(root) proprietary name.
Y/N	Is this a proprietary name of a discontinued product?
	Proprietary names should not use the proprietary name of a discontinued product if that discontinued drug product does not contain the same active ingredients.

b. Phonetic and Orthographic Computer Analysis (POCA): Following the preliminary screening of the proposed proprietary name, DMEPA staff evaluates the proposed name against potentially similar names. In order to identify names with potential similarity to the proposed proprietary name, DMEPA enters the proposed proprietary name in POCA and queries the name against the following drug reference databases, Drugs@fda, CernerRxNorm, and names in the review pipeline using a 55% threshold in POCA. DMEPA reviews the combined orthographic and phonetic matches and group the names into one of the following three categories:

- Highly similar pair: combined match percentage score $\geq 70\%$.
- Moderately similar pair: combined match percentage score $\geq 55\%$ to $\leq 69\%$.
- Low similarity: combined match percentage score $\leq 54\%$.

Using the criteria outlined in the check list (Table 3-5) that corresponds to each of the three categories (highly similar pair, moderately similar pair, and low similarity), DMEPA evaluates the name pairs to determine the acceptability or non-acceptability of a proposed proprietary name. The intent of these checklists is to increase the transparency and predictability of the safety determination of whether a proposed name is vulnerable to confusion from a look-alike or sound-alike perspective. Each bullet below corresponds to the name similarity category cross-references the respective table that addresses criteria that DMEPA uses to determine whether a name presents a safety concern from a look-alike or sound-alike perspective.

- For highly similar names, differences in product characteristics often cannot mitigate the risk of a medication error, including product differences such as strength and dose. Thus, proposed proprietary names that have a combined score of ≥ 70 percent are at risk for a look-alike sound-alike confusion which is an area of concern (See Table 3).
- Moderately similar names are further evaluated to identify the presence of attributes that are known to cause name confusion.
 - Name attributes: We note that the beginning of the drug name plays a significant role in contributing to confusion. Additionally, drug name pairs that start with the same first letter and contain a shared letter string of at least 3 letters in both names are major contributing factor in the confusion of drug names^g. We evaluate all moderately similar names retrieved from POCA to identify the above attributes. These names are further evaluated to identify overlapping or similar strengths or doses.
 - Product attributes: Moderately similar names of products that have overlapping or similar strengths or doses represent an area for concern for FDA. The dose and strength information is often located in close proximity to the drug name itself on prescriptions and medication orders, and the information can be an important factor that either increases or decreases the potential for confusion between similarly named drug pairs. The ability of other product characteristics to mitigate confusion (e.g., route, frequency, dosage form) may be limited when the strength or dose overlaps. DMEPA reviews such names further, to determine whether sufficient differences exist to prevent confusion. (See Table 4).

^g Shah, M, Merchant, L, Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

- Names with low similarity that have no overlap or similarity in strength and dose are generally acceptable (See Table 5) unless there are data to suggest that the name might be vulnerable to confusion (e.g., prescription simulation study suggests that the name is likely to be misinterpreted as a marketed product). In these instances, we would reassign a low similarity name to the moderate similarity category and review according to the moderately similar name pair checklist.

- c. FDA Prescription Simulation Studies: DMEPA staff also conducts a prescription simulation studies using FDA health care professionals.

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.

- d. 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.

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.

Table 3. Highly Similar Name Pair Checklist (i.e., combined Orthographic and Phonetic score is \geq 70%).

Answer the questions in the checklist below. Affirmative answers to some of these questions suggest that the pattern of orthographic or phonetic differences in the names may render the names less likely to confusion, provided that the pair does not share a common strength or dose.	
<u>Orthographic Checklist</u>	<u>Phonetic Checklist</u>

Y/N	Do the names begin with different first letters? <i>Note that even when names begin with different first letters, certain letters may be confused with each other when scripted.</i>	Y/N	Do the names have different number of syllables?
Y/N	Are the lengths of the names dissimilar* when scripted? <i>*FDA considers the length of names different if the names differ by two or more letters.</i>	Y/N	Do the names have different syllabic stresses?
Y/N	Considering variations in scripting of some letters (such as z and f), is there a different number or placement of upstroke/downstroke letters present in the names?	Y/N	Do the syllables have different phonologic processes, such vowel reduction, assimilation, or deletion?
Y/N	Is there different number or placement of cross-stroke or dotted letters present in the names?	Y/N	Across a range of dialects, are the names consistently pronounced differently?
Y/N	Do the infixes of the name appear dissimilar when scripted?		
Y/N	Do the suffixes of the names appear dissimilar when scripted?		

Table 4: Moderately Similar Name Pair Checklist (i.e., combined score is ≥55% to ≤69%).

Step 1	<p>Review the DOSAGE AND ADMINISTRATION and HOW SUPPLIED/STORAGE AND HANDLING sections of the prescribing information (or for OTC drugs refer to the Drug Facts label) to determine if strengths and doses of the name pair overlap or are very similar. Different strengths and doses for products whose names are moderately similar may decrease the risk of confusion between the moderately similar name pairs. Name pairs that have overlapping or similar strengths or doses have a higher potential for confusion and should be evaluated further (see Step 2). Because the strength or dose could be used to express an order or prescription for a particular drug product, overlap in one or both of these components would be reason for further evaluation.</p> <p>For single strength products, also consider circumstances where the strength may not be expressed.</p> <p>For any i.e. drug products comprised of more than one active ingredient, consider whether the strength or dose may be expressed using only one of the components.</p> <p>To determine whether the strengths or doses are similar to your proposed product, consider the following list of factors that may increase confusion:</p> <ul style="list-style-type: none"> Alternative expressions of dose: 5 mL may be listed in the prescribing information, but the dose may be expressed in metric weight (e.g., 500 mg) or in non-metric units (e.g., 1 tsp, 1 tablet/capsule). Similarly, a strength or dose of 1000 mg may be expressed, in practice, as 1 g, or vice versa.
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	<ul style="list-style-type: none"> • Trailing or deleting zeros: 10 mg is similar in appearance to 100 mg which may potentiate confusion between a name pair with moderate similarity. • Similar sounding doses: 15 mg is similar in sound to 50 mg 		
Step 2	<p>Answer the questions in the checklist below. Affirmative answers to some of these questions suggest that the pattern of orthographic or phonetic differences in the names may reduce the likelihood of confusion for moderately similar names with overlapping or similar strengths or doses.</p> <table border="1"> <tr> <td> <p>Orthographic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names begin with different first letters? Note that even when names begin with different first letters, certain letters may be confused with each other when scripted. • Are the lengths of the names dissimilar* when scripted? *FDA considers the length of names different if the names differ by two or more letters • Considering variations in scripting of some letters (such as <i>z</i> and <i>f</i>), is there a different number or placement of upstroke/downstroke letters present in the names? • Is there different number or placement of cross-stroke or dotted letters present in the names? • Do the infixes of the name appear dissimilar when scripted? • Do the suffixes of the names appear dissimilar when scripted? </td> <td> <p>Phonetic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names have different number of syllables? • Do the names have different syllabic stresses? • Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion? • Across a range of dialects, are the names consistently pronounced differently? </td> </tr> </table>	<p>Orthographic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names begin with different first letters? Note that even when names begin with different first letters, certain letters may be confused with each other when scripted. • Are the lengths of the names dissimilar* when scripted? *FDA considers the length of names different if the names differ by two or more letters • Considering variations in scripting of some letters (such as <i>z</i> and <i>f</i>), is there a different number or placement of upstroke/downstroke letters present in the names? • Is there different number or placement of cross-stroke or dotted letters present in the names? • Do the infixes of the name appear dissimilar when scripted? • Do the suffixes of the names appear dissimilar when scripted? 	<p>Phonetic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names have different number of syllables? • Do the names have different syllabic stresses? • Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion? • Across a range of dialects, are the names consistently pronounced differently?
<p>Orthographic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names begin with different first letters? Note that even when names begin with different first letters, certain letters may be confused with each other when scripted. • Are the lengths of the names dissimilar* when scripted? *FDA considers the length of names different if the names differ by two or more letters • Considering variations in scripting of some letters (such as <i>z</i> and <i>f</i>), is there a different number or placement of upstroke/downstroke letters present in the names? • Is there different number or placement of cross-stroke or dotted letters present in the names? • Do the infixes of the name appear dissimilar when scripted? • Do the suffixes of the names appear dissimilar when scripted? 	<p>Phonetic Checklist (Y/N to each question)</p> <ul style="list-style-type: none"> • Do the names have different number of syllables? • Do the names have different syllabic stresses? • Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion? • Across a range of dialects, are the names consistently pronounced differently? 		

Table 5: Low Similarity Name Pair Checklist (i.e., combined score is ≤54%).

Names with low similarity are generally acceptable unless there are data to suggest that the name might be vulnerable to confusion (e.g., prescription simulation study suggests that the name is likely to be misinterpreted as a marketed product). In these instances, we would reassign a low similarity name to the moderate similarity category and review according to the moderately similar name pair checklist.

Appendix B: Prescription Simulation Samples and Results

Figure 1. Palynziq Study (Conducted on August 30, 2017)

Handwritten Medication Order/Prescription	Verbal Prescription
<p data-bbox="191 415 430 451"><u>Medication Order:</u></p> <p data-bbox="191 472 933 556"><i>Palynziq 2.5mg/ml inject as directed</i></p>	<p data-bbox="982 415 1226 451">Palynziq 20 mg/mL</p> <p data-bbox="982 472 1177 504">Use as directed</p> <p data-bbox="982 525 1015 556">#1</p>
<p data-bbox="191 583 511 619"><u>Outpatient Prescription:</u></p> <p data-bbox="191 640 527 787"><i>Palynziq 20mg/ml use as directed #1</i></p>	

FDA Prescription Simulation Responses (Aggregate 1 Rx Studies Report)

291 people received study

67 people responded

Study name: Palynzig

<u>Total</u>	<u>22</u>	<u>23</u>	<u>22</u>	<u>-</u>
<u>Interpretation</u>	<u>Outpatient</u>	<u>Voice</u>	<u>Inpatient</u>	<u>Total</u>
Alinzig	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Olimzic	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Olinzic	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Olinzyc	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Palynzig	<u>5</u>	<u>0</u>	<u>2</u>	<u>7</u>
Palynzig	<u>14</u>	<u>0</u>	<u>16</u>	<u>30</u>
Palyrzig	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Palyvzig	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Playnzek	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polensik	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polenzic	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>
Polenzig	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polinczik	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polinesic	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polinsic	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Polinzic	<u>0</u>	<u>5</u>	<u>0</u>	<u>5</u>
Polinzik	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Poliynzic	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>

<u>Polynzic</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
<u>Polynzig</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
<u>Polynzik</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
<u>Polynziq</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>3</u>
<u>Pulansic</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
<u>Pulinsik</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>

Appendix C: Highly Similar Names (e.g., combined POCA score is $\geq 70\%$)

No.	Proposed name: Palynziq Established name: pegvaliase Dosage form: Solution for injection Strength(s): 2.5 mg/0.5 mL, 10 mg/0.5 mL, 20 mg/mL Usual Dose: 2.5 mg weekly, 2.5 mg twice weekly, 10 mg once weekly, 10 mg twice weekly, 10 mg four times a week, 10 mg daily; 20 mg daily	POCA Score (%)	Orthographic and/or phonetic differences in the names sufficient to prevent confusion Other prevention of failure mode expected to minimize the risk of confusion between these two names.
1.	Palynziq	100	This name is the subject of the review.

Appendix D: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with no overlap or numerical similarity in Strength and/or Dose

No.	Name	POCA Score (%)
2.	Pliaglis	56

Appendix E: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with overlap or numerical similarity in Strength and/or Dose

No.	Proposed name: Palynziq Established name: pegvaliase Dosage form: Solution for injection Strength(s): 2.5 mg/0.5 mL, 10 mg/0.5 mL, 20 mg/mL Usual Dose: 2.5 mg weekly, 2.5 mg twice weekly, 10 mg once weekly, 10 mg twice weekly, 10 mg four times a week, 10 mg daily; 20 mg daily	POCA Score (%)	Orthographic and/or phonetic differences in the names sufficient to prevent confusion Other prevention of failure mode expected to minimize the risk of confusion between these two names.
3.	Polycin	58	This name pair has sufficient orthographic and phonetic differences.
4.	Prandin	56	This name pair has sufficient orthographic and phonetic differences.

Appendix F: Low Similarity Names (e.g., combined POCA score is $\leq 54\%$)-N/A

Appendix G: Names not likely to be confused or not used in usual practice settings for the reasons described.

No.	Name	POCA Score (%)	Failure preventions
5.	Panzyga***	60	Name identified in Name entered by Safety Evaluator database. Unable to find product characteristics in internal databases.

Appendix H: Names not likely to be confused due to absence of attributes that are known to cause name confusion^h.

No.	Name	POCA Score (%)
6.	Clenpiq***	63
7.	Zolinza	57
8.	Calanif	56
9.	Dilantin	56
10.	Dilantin-125	56
11.	Dilantin-30	56
12.	(b) (4)***	55
13.	Delazinc	55
14.	Gallimycin	55

^h Shah, M, Merchant, L, Chan, I, and Taylor, K. Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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/s/

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10/24/2017

SARAH K VEE
10/24/2017