

# CENTER FOR DRUG EVALUATION AND RESEARCH

## Approval Package for:

### ***APPLICATION NUMBER:***

**211855Orig1s000**

***Trade Name:*** VUMERITY™ delayed-release capsules, for oral use, 231 mg

***Generic or Proper Name:*** Diroximel Fumarate

***Sponsor:*** Alkermes, Inc.

***Approval Date:*** October 29<sup>th</sup>, 2019

***Indication:*** For the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

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## 211855Orig1s000

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**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

***APPLICATION NUMBER:***

**211855Orig1s000**

**APPROVAL LETTER**

NDA 211855

**NDA APPROVAL**

Alkermes, Inc.  
Attention: Georgianna Harris  
Senior Vice President, Regulatory Affairs  
852 Winter Street  
Waltham, MA 02451

Dear Ms. Harris:

Please refer to your new drug application (NDA) dated and received December 13, 2018, and your amendments, submitted pursuant to section 505(b)(2) of the Federal Food, Drug, and Cosmetic Act (FDCA) for Vumerity (diroximel fumarate) delayed-release capsules.

We acknowledge receipt of your amendment dated October 11, 2109, which constituted a complete response to our October 11, 2019, action letter.

This NDA provides for the use of Vumerity (diroximel fumarate) delayed-release capsules for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

**APPROVAL & LABELING**

We have completed our review of this application, as amended. It is approved, effective on the date of this letter, for use as recommended in the enclosed agreed-upon labeling.

**CONTENT OF LABELING**

As soon as possible, but no later than 14 days from the date of this letter, submit the content of labeling [21 CFR 314.50(l)] in structured product labeling (SPL) format using the FDA automated drug registration and listing system (eLIST), as described at FDA.gov.<sup>1</sup> Content of labeling must be identical to the enclosed labeling (text for the Prescribing Information, Patient Package Insert) as well as annual reportable changes not included in the enclosed labeling. Information on submitting SPL files using eLIST

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<sup>1</sup> <http://www.fda.gov/ForIndustry/DataStandards/StructuredProductLabeling/default.htm>

may be found in the guidance for industry *SPL Standard for Content of Labeling Technical Qs and As*.<sup>2</sup>

The SPL will be accessible via publicly available labeling repositories.

## **CARTON AND CONTAINER LABELING**

Submit final printed carton and container labeling that are identical to the carton and container labeling submitted on September 18, 2019, as soon as they are available, but no more than 30 days after they are printed. Please submit these labeling electronically according to the guidance for industry *Providing Regulatory Submissions in Electronic Format — Certain Human Pharmaceutical Product Applications and Related Submissions Using the eCTD Specifications*. For administrative purposes, designate this submission “**Final Printed Carton and Container Labeling for approved NDA 211855**”. Approval of this submission by FDA is not required before the labeling is used.

## **ADVISORY COMMITTEE**

Your application for Vumerity was not referred to an FDA advisory committee because this drug is not the first in its class.

## **REQUIRED PEDIATRIC ASSESSMENTS**

Under the Pediatric Research Equity Act (PREA) (21 U.S.C. 355c), all applications for new active ingredients (which includes new salts and new fixed combinations), new indications, new dosage forms, new dosing regimens, or new routes of administration are required to contain an assessment of the safety and effectiveness of the product for the claimed indication in pediatric patients unless this requirement is waived, deferred, or inapplicable.

We are waiving the pediatric study requirement for ages birth to 10 years because necessary studies are impossible or highly impracticable. The number of pediatric patients in this age group is small and geographically dispersed.

We are deferring submission of your pediatric studies for ages 10 to 17 years for this application because pediatric studies should be delayed until additional safety or effectiveness data have been collected. Pediatric clinical studies of diroximel fumarate will begin when a pediatric formulation has been developed and there is sufficient information, including the final results of a juvenile toxicity study in rats, to allow the studies to proceed safely.

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<sup>2</sup> We update guidances periodically. For the most recent version of a guidance, check the FDA Guidance Documents Database <https://www.fda.gov/RegulatoryInformation/Guidances/default.htm>.

Your deferred pediatric studies required under section 505B(a) of the FDCA are required postmarketing studies. The status of these postmarketing studies must be reported annually according to 21 CFR 314.81 and section 505B(a)(4)(C) of the Federal Food, Drug, and Cosmetic Act/FDCA. These required studies are listed below.

3742-1 A juvenile animal toxicology study.

Final Report Submission: 03/20

3742-2 Conduct a two-part study of Vumerity (diroximel fumarate) in pediatric patients with relapsing forms of multiple sclerosis (RMS) at least 10 years and less than 18 years of age. Part A is an open-label study of the safety, tolerability, pharmacokinetics (PK), and pharmacodynamics (PD) of Vumerity (diroximel fumarate) in pediatric patients. Part A will include two cohorts, one with body weights less than 40 kg and the other with body weights 40 kg or more. The objective of Part A is to determine titration and maintenance doses of Vumerity (diroximel fumarate) that will result in PK and PD effects that are comparable to those of the maintenance doses administered to adult patients. Part B is a randomized, double-blind, parallel-group study to evaluate the efficacy and safety of Vumerity (diroximel fumarate) compared to an appropriate control.

Draft Protocol Submission: 10/20

Final Protocol Submission: 08/21

Study Completion: 08/28

Final Report Submission: 02/29

Submit the protocol(s) to your IND 120446, with a cross-reference letter to this NDA.

Reports of these required pediatric postmarketing studies must be submitted as a new drug application (NDA) or as a supplement to your approved NDA with the proposed labeling changes you believe are warranted based on the data derived from these studies. When submitting the reports, please clearly mark your submission **"SUBMISSION OF REQUIRED PEDIATRIC ASSESSMENTS"** in large font, bolded type at the beginning of the cover letter of the submission.

### **POSTMARKETING REQUIREMENTS UNDER 505(o)**

Section 505(o)(3) of the FDCA authorizes FDA to require holders of approved drug and biological product applications to conduct postmarketing studies and clinical trials for certain purposes, if FDA makes certain findings required by the statute.

We have determined that an analysis of spontaneous postmarketing adverse events reported under subsection 505(k)(1) of the FDCA will not be sufficient to identify an

unexpected serious risk of adverse maternal, fetal, and infant outcomes resulting from the use of Vumerity (diroximel fumarate) during pregnancy.

Furthermore, the new pharmacovigilance system that FDA is required to establish under section 505(k)(3) of the FDCA will not be sufficient to assess this serious risk.

Therefore, based on appropriate scientific data, FDA has determined that you are required to conduct the following studies:

- 3742-3      Conduct prospective pregnancy exposure registry cohort analyses in the United States that compare the maternal, fetal, and infant outcomes of women with multiple sclerosis exposed to diroximel fumarate during pregnancy with two unexposed comparator populations: an internal comparator consisting of women with multiple sclerosis who have not been exposed to diroximel fumarate before or during pregnancy, and the other consisting of women without multiple sclerosis. The registry will identify and record pregnancy complications, major and minor congenital malformations, spontaneous abortions, stillbirths, elective terminations, preterm births, small for gestational-age births, and any other adverse outcomes, including postnatal growth and development. Outcomes will be assessed throughout pregnancy. Infant outcomes, including effects on postnatal growth and development, will be assessed through at least the first year of life.

The timetable you submitted on October 23, 2019, states that you will conduct this study according to the following schedule:

|                                    |       |
|------------------------------------|-------|
| Draft Protocol Submission:         | 05/20 |
| Final Protocol Submission:         | 02/21 |
| Annual Interim Report Submissions: | 02/22 |
|                                    | 02/23 |
|                                    | 02/24 |
|                                    | 02/25 |
|                                    | 02/26 |
|                                    | 02/27 |
|                                    | 02/28 |
|                                    | 02/29 |
|                                    | 02/30 |
|                                    | 02/31 |
| Study Completion:                  | 02/32 |
| Final Report Submission:           | 02/33 |

- 3742-4 Conduct a pregnancy outcomes study using a different study design than provided for in PMR 3742-3 (for example, a retrospective cohort study using claims or electronic medical record data with outcome validation or a case control study) to assess major congenital malformations, spontaneous abortions, stillbirths, and small-for-gestational-age births in women exposed to diroximel fumarate during pregnancy compared to an unexposed control population.

The timetable you submitted on October 23, 2019, states that you will conduct this study according to the following schedule:

|                                    |       |
|------------------------------------|-------|
| Draft Protocol Submission:         | 05/20 |
| Final Protocol Submission:         | 02/21 |
| Annual Interim Report Submissions: | 02/22 |
|                                    | 02/23 |
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|                                    | 02/31 |
| Study Completion:                  | 02/32 |
| Final Report Submission:           | 02/33 |

Submit clinical protocols to your IND 120446 with a cross-reference letter to this NDA. Submit nonclinical and chemistry, manufacturing, and controls protocols and all final reports to your NDA. Prominently identify the submission with the following wording in bold capital letters at the top of the first page of the submission, as appropriate:

**Required Postmarketing Protocol Under 505(o), Required Postmarketing Final Report Under 505(o), Required Postmarketing Correspondence Under 505(o).**

Submission of the protocol(s) for required postmarketing observational studies to your IND is for purposes of administrative tracking only. These studies do not constitute clinical investigations pursuant to 21 CFR 312.3(b) and therefore are not subject to the IND requirements under 21 CFR part 312 or FDA's regulations under 21 CFR parts 50 (Protection of Human Subjects) and 56 (Institutional Review Boards).

Section 505(o)(3)(E)(ii) of the FDCA requires you to report periodically on the status of any study or clinical trial required under this section. This section also requires you to periodically report to FDA on the status of any study or clinical trial otherwise undertaken to investigate a safety issue. Section 506B of the FDCA, as well as 21 CFR 314.81(b)(2)(vii) requires you to report annually on the status of any postmarketing commitments or required studies or clinical trials.

FDA will consider the submission of your annual report under section 506B and 21 CFR 314.81(b)(2)(vii) to satisfy the periodic reporting requirement under section 505(o)(3)(E)(ii) provided that you include the elements listed in 505(o) and 21 CFR 314.81(b)(2)(vii). We remind you that to comply with 505(o), your annual report must also include a report on the status of any study or clinical trial otherwise undertaken to investigate a safety issue. Failure to submit an annual report for studies or clinical trials required under 505(o) on the date required will be considered a violation of FDCA section 505(o)(3)(E)(ii) and could result in enforcement action.

## **PROMOTIONAL MATERIALS**

You may request advisory comments on proposed introductory advertising and promotional labeling. To do so, submit, in triplicate, a cover letter requesting advisory comments, the proposed materials in draft or mock-up form with annotated references, and the Prescribing Information, Medication Guide, and Patient Package Insert (as applicable) to:

OPDP Regulatory Project Manager  
Food and Drug Administration  
Center for Drug Evaluation and Research  
Office of Prescription Drug Promotion  
5901-B Ammendale Road  
Beltsville, MD 20705-1266

Alternatively, you may submit a request for advisory comments electronically in eCTD format. For more information about submitting promotional materials in eCTD format, see the draft guidance for industry *Providing Regulatory Submissions in Electronic and Non-Electronic Format—Promotional Labeling and Advertising Materials for Human Prescription Drugs*.<sup>3</sup>

As required under 21 CFR 314.81(b)(3)(i), you must submit final promotional materials, and the Prescribing Information, at the time of initial dissemination or publication, accompanied by a Form FDA 2253. Form FDA 2253 is available at FDA.gov.<sup>4</sup> Information and Instructions for completing the form can be found at FDA.gov.<sup>5</sup> For more information about submission of promotional materials to the Office of Prescription Drug Promotion (OPDP), see FDA.gov.<sup>6</sup>

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<sup>3</sup> When final, this guidance will represent the FDA's current thinking on this topic. For the most recent version of a guidance, check the FDA guidance web page at <https://www.fda.gov/RegulatoryInformation/Guidances/default.htm>.

<sup>4</sup> <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Forms/UCM083570.pdf>

<sup>5</sup> <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Forms/UCM375154.pdf>

<sup>6</sup> <http://www.fda.gov/AboutFDA/CentersOffices/CDER/ucm090142.htm>

## **REPORTING REQUIREMENTS**

We remind you that you must comply with reporting requirements for an approved NDA (21 CFR 314.80 and 314.81).

If you have any questions, please call Sandra Folkendt, Regulatory Project Manager, at (240) 402-2804.

Sincerely,

*{See appended electronic signature page}*

Nick Kozauer, MD  
Acting Deputy Director  
Division of Neurology Products  
Office of Drug Evaluation I  
Center for Drug Evaluation and Research

### ENCLOSURE(S):

- Content of Labeling
  - o Prescribing Information
  - o Patient Package Insert

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**This is a representation of an electronic record that was signed electronically. Following this are manifestations of any and all electronic signatures for this electronic record.**  
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/s/  
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NICHOLAS A KOZAUER  
10/29/2019 12:48:48 PM