

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*  
**201517Orig1s000**

**MICROBIOLOGY REVIEW(S)**

# Product Quality Microbiology Review

10 MAY 2011

**NDA:** 201517

**Drug Product Name**

**Proprietary:** N/A

**Non-proprietary:** Morphine Sulfate Oral Solution

**Review Number:** 2

**Dates of Submission(s) Covered by this Review**

Submit	Received	Review Request	Assigned to Reviewer
21 December 2010	23 December 2010	N/A	N/A
3 December 2010	7 December 2010	N/A	N/A

**Submission History (for amendments only):**

Submit Date(s)	Microbiology Review #	Review Date(s)
26 February 2010	1	30 August 2010

**Applicant/Sponsor**

**Name:** Lannett Holdings, Inc.

**Address:** 9000 State Road, Philadelphia, PA 19136

**Representative:** Ernest Sabo, VP Regulatory and Compliance

**Telephone:** 215-333-9000

**Name of Reviewer:** Bryan S. Riley, Ph.D.

**Conclusion:** Recommend Approval

## Product Quality Microbiology Data Sheet

- A.
1. **TYPE OF SUBMISSION:** Amendments to a 505(b)(2) NDA
  2. **SUBMISSION PROVIDES FOR:** A new drug product
  3. **MANUFACTURING SITE:** Cody Laboratories  
601 Yellowstone Ave
  4. **DOSAGE FORM, ROUTE OF ADMINISTRATION AND STRENGTH/POTENCY:** (b) (4), preserved aqueous solution for oral administration
  5. **METHOD(S) OF STERILIZATION:** (b) (4)
  6. **PHARMACOLOGICAL CATEGORY:** Opioid Analgesic
- B. **SUPPORTING/RELATED DOCUMENTS:** N/A
- C. **REMARKS:** This was an eCTD submission. A product quality microbiology deficiency was sent to the applicant in a Discipline Review Letter dated 8 September 2010. The deficiency concerned the lack of a specification for the absence of *Burkholderia cepacia* in the drug product. The applicant responded in amendments dated 3 and 21 December 2010.

**filename:** N201517R1.doc

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## **Executive Summary**

### **I. Recommendations**

- A. Recommendation on Approvability** – This submission is recommended for approval on the basis of product quality microbiology.
- B. Recommendations on Phase 4 Commitments and/or Agreements, if Approvable** – N/A

### **II. Summary of Microbiology Assessments**

- A. Brief Description of the Manufacturing Processes that relate to Product Quality Microbiology** – The drug product is a (b) (4) preserved aqueous solution. The applicant has added a test method for the presence of *Burkholderia cepacia*.
- B. Brief Description of Microbiology Deficiencies** – N/A
- C. Assessment of Risk Due to Microbiology Deficiencies** – N/A

### **III. Administrative**

- A. Reviewer's Signature** \_\_\_\_\_  
Bryan S. Riley, Ph.D.  
Senior Review Microbiologist, OPS/NDMS
- B. Endorsement Block** \_\_\_\_\_  
Stephen E. Langille, Ph.D.  
Senior Review Microbiologist, OPS/NDMS
- C. CC Block**  
N/A

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/s/  
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BRYAN S RILEY  
05/10/2011

STEPHEN E LANGILLE  
05/10/2011

# Product Quality Microbiology Review

30 AUGUST 2010

**NDA:** 201517

**Drug Product Name**

**Proprietary:** N/A

**Non-proprietary:** Morphine Sulfate Oral Solution

**Review Number:** 1

**Dates of Submission(s) Covered by this Review**

<b>Submit</b>	<b>Received</b>	<b>Review Request</b>	<b>Assigned to Reviewer</b>
26 February 2010	1 March 2010	14 July 2010	15 July 2010

**Submission History (for amendments only):** N/A

**Applicant/Sponsor**

**Name:** Lannett Holdings, Inc.

**Address:** 9000 State Road, Philadelphia, PA 19136

**Representative:** Ernest Sabo, VP Regulatory and Compliance

**Telephone:** 215-333-9000

**Name of Reviewer:** Bryan S. Riley, Ph.D.

**Conclusion:** Approvable pending resolution of product quality microbiology deficiencies. Please see "List of Product Quality Microbiology Deficiencies" at the end of this review.

## Product Quality Microbiology Data Sheet

- A.**
- 1. TYPE OF SUBMISSION:** 505(b)(2) NDA
  - 2. SUBMISSION PROVIDES FOR:** A new drug product
  - 3. MANUFACTURING SITE:** Cody Laboratories  
601 Yellowstone Ave
  - 4. DOSAGE FORM, ROUTE OF ADMINISTRATION AND STRENGTH/POTENCY:** (b) (4) preserved aqueous solution for oral administration
  - 5. METHOD(S) OF STERILIZATION:** (b) (4)
  - 6. PHARMACOLOGICAL CATEGORY:** Opioid Analgesic
- B. SUPPORTING/RELATED DOCUMENTS:** N/A
- C. REMARKS:** This was an eCTD submission. The consult request asked for a review of the preservative effectiveness testing.

**filename:** N201517R1.doc

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## **Executive Summary**

### **I. Recommendations**

- A. Recommendation on Approvability** – This submission is approvable pending resolution of a product quality microbiology deficiency. Please see “List of Product Quality Microbiology Deficiencies” at the end of this review.
- B. Recommendations on Phase 4 Commitments and/or Agreements, if Approvable** – N/A

### **II. Summary of Microbiology Assessments**

- A. Brief Description of the Manufacturing Processes that relate to Product Quality Microbiology** – The drug product is a (b) (4) preserved aqueous solution.
- B. Brief Description of Microbiology Deficiencies** - The drug product manufacturing process does not provide for control of *Burkholderia cepacia*.
- C. Assessment of Risk Due to Microbiology Deficiencies** – *Burkholderia cepacia* is a potential human pathogen which is often resistant to antimicrobial preservatives. Preservative-resistant *B. cepacia* could proliferate in the drug product and cause disease in the patient.

### **III. Administrative**

- A. Reviewer's Signature** \_\_\_\_\_  
Bryan S. Riley, Ph.D.  
Senior Review Microbiologist, OPS/NDMS
- B. Endorsement Block** \_\_\_\_\_  
Stephen E. Langille, Ph.D.  
Senior Review Microbiologist, OPS/NDMS
- C. CC Block**  
N/A

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Application Type/Number	Submission Type/Number	Submitter Name	Product Name
NDA-201517	ORIG-1	LANNETT HOLDINGS INC	morphine sulfate oral solution 20 mg/mL

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/s/

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BRYAN S RILEY  
08/31/2010

STEPHEN E LANGILLE  
09/01/2010