CENTER FOR DRUG EVALUATION AND RESEARCH

APPLICATION NUMBER:

22-154

PHARMACOLOGY REVIEW(S)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION
CENTER FOR DRUG EVALUATION AND RESEARCH

PHARMACOLOGY/TOXICOLOGY REVIEW AND EVALUATION

NDA NUMBER:	**22-011 & 22-154**
SERIAL NUMBER:	**053 & 001**
DATE RECEIVED BY CENTER:	**12/21/07**
PRODUCT:	**TYZEKA™**
INTENDED CLINICAL POPULATION:	**Chronic hepatitis B infected patients with evidence of viral replication and active liver inflammation**
SPONSOR:	**Idenix Pharmaceuticals, Inc.**
DOCUMENTS REVIEWED:	**Vol.**
REVIEW DIVISION:	**Division of Antiviral Products (HFD-530)**
PHARM/TOX REVIEWER:	**Ita Yuen, Ph.D.**
PHARM/TOX SUPERVISOR:	**Hanan Ghantous, Ph.D.**
DIVISION DIRECTOR:	**Debra Birnkrant, MD**
PROJECT MANAGER:	**Kenny Shade, JD**

Date of review submission to Division File System (DFS): **10/21/2008**

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EXECUTIVE SUMMARY

I. Recommendations

A. Recommendation on approvability

Yes

B. Recommendation for nonclinical studies

None. No new toxicology studies were requested or submitted.

C. Recommendations on labeling

No revision was made on "Pregnancy", "Labor and Delivery", "Nursing Mothers", and "Nonclinical Toxicology" sections.

II. Summary of nonclinical findings

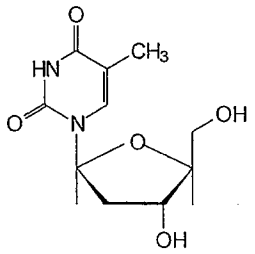
No new information.

2.6 PHARMACOLOGY/TOXICOLOGY REVIEW

2.6.1 INTRODUCTION AND DRUG HISTORY

NDA number:	22-011 & 22-154
Review number:	1
Sequence number/date/type of submission:	053/Dec. 21, 2007/Supplement
Information to sponsor:	Yes ( ) No (X)
Sponsor and/or agent:	Idenix Pharmaceuticals, Inc. 60 Hampshire St. Cambridge, MA 02139 617-995-9800
Manufacturer for drug substance:	Novartis Pharma Stei, Switzerland Novartis Grimsby Ltd., UK
Reviewer name:	Ita Yuen, Ph.D.
Division name:	Division of Antiviral Products
HFD #:	530
Review completion date:	10/21/2008

Drug:

Trade name:	**TYZEKA** ™
Generic name:	Telbivudine
Code name:	L-dT; NV-02B; β-L-2'-deoxythymidine; 2'-deoxy-β-L-thymidine, β-L-thymidine; L-thymidine
Chemical name:	1-(2-deoxy-β-L-ribofuranosyl)-5-methyl-uracil
CAS registry number:	3424-98-4
Molecular formula/molecular mass:	$C_{10}H_{14}N_2O_5$/243.33 daltons
Structure:	

Relevant INDs/NDAs/DMFs: IND 60,459

Drug class: Unnatural nucleoside

Intended clinical population:	Patients with chronic hepatitis B infection, evidence of viral replication, and active liver inflammation
Clinical formulation:	Film-coated tablets containing 600 mg telbivudine, microcrystalline cellulose, povidone, sodium starch glycolate, and & b(4)
	Oral solution containing 20 mg/ml telbivudin, citric acid anhydrous, benzoic acid, passion fruit flavor, saccharin sodium, purified water, & sodium hydroxide for b(4) b(4)
Route of administration:	Oral

OVERALL CONCLUSIONS AND RECOMMENDATIONS

Conclusions: Telbivudine was approved for marketing on Oct. 25, 2006. At the time of market approval, all of the required nonclinical toxicology studies were submitted for review. The present NDA supplement contains the 2-year safety and efficacy update. No nonclinical toxicology study was included in the supplement. In addition, no revision on the "Nonclinical Toxicology", "Pregnancy", "Labor and Delivery", and "Nursing Mothers" section was made.

Unresolved toxicology issues (if any): None.

Recommendations: None.

Suggested labeling: None.

Signatures (optional):

Reviewer Signature _____

Supervisor Signature_____ Concurrence Yes ___ No ___

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

/s/

Ita Yuen
10/21/2008 12:49:23 PM
PHARMACOLOGIST

Laine P Myers
10/21/2008 01:46:38 PM
PHARMACOLOGIST