U.S. FOOD & DRUG ADMINISTRATION

Vaccines and Related Biological Products Advisory Committee Meeting
September 13, 2017

Zoster Vaccine Recombinant, Adjuvanted
SHINGRIX

Applicant: GlaxoSmithKline Biologicals

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Overview of Today's Agenda

- Introduction and Presentation of Questions
  - Carmen M. Collazo-Custodio, Ph.D. (FDA, DHHS)
- Epidemiology and Disease Burden of Herpes Zoster in Adults Aged 50 Years and Older
  - Jeffrey Cohen, M.D. (NIH, DHHS)
- Sponsor Presentations
  - GlaxoSmithKline Biologicals
- Lunch
- FDA Presentation
  - Paula Agger, M.D., M.P.H (FDA, DHHS)
- Open Public Hearing
- Committee Discussion and Vote
- Adjournment

Introduction Outline

- Currently Licensed Herpes Zoster Vaccine in the United States
- Description of SHINGRIX
- Overview of the SHINGRIX BLA
  - Clinical Package
- Questions to the Committee

Currently Licensed Herpes Zoster Vaccine in the United States

ZOSTAVAX

- A live attenuated varicella zoster virus (VZV) vaccine manufactured by Merck
- Indicated for the prevention of herpes zoster (shingles) in individuals 50 years of age and older
- Administered as a single dose by subcutaneous injection in the upper arm

SHINGRIX: Description

The vaccine consists of a lyophilized recombinant varicella zoster virus (VZV) **glycoprotein E (gE) antigen** that is reconstituted at the time of use with **$AS01_B$ adjuvant** suspension.

- The antigen is a purified truncated form of the VZV gE protein expressed in Chinese Hamster Ovary cells
- The $AS01_B$ adjuvant is not contained in any currently licensed US vaccine

SHINGRIX: Description
The $AS01_B$ Adjuvant

The **$AS01_B$ adjuvant** is composed of:

- **MPL** (3-O-desacyl-4'-monophosphoryl lipid A) from *Salmonella minnesota*
- **QS-21** (a saponin molecule from the plant extract *Quillaja saponaria* Molina)

combined in a liposomal formulation consisting of dioleoyl phosphatidylcholine (**DOPC**) and **cholesterol** in phosphate-buffered saline solution

SHINGRIX: Dosage and Administration

- SHINGRIX is supplied as a vial of lyophilized recombinant VZV gE antigen, which is reconstituted at the time of use with the accompanying vial of $AS01_B$ adjuvant suspension
- After reconstitution, each **0.5-mL dose** of SHINGRIX contains:
  - 50 µg of the recombinant VZV gE antigen
  - 50 µg of MPL
  - 50 µg of QS-21
- SHINGRIX is administered intramuscularly in two doses at Month 0 and Month 2

SHINGRIX: Proposed Indication

The applicant is proposing the following indication:

SHINGRIX is a non-live, recombinant vaccine indicated for prevention of herpes zoster (shingles) in adults aged 50 years and older. By preventing herpes zoster, SHINGRIX reduces the overall incidence of postherpetic neuralgia.

SHINGRIX:
Biologics License Application (BLA)

- GSK submitted a BLA for SHINGRIX on October 21, 2016
- The clinical package included data from:
  - Two randomized, placebo-controlled, observer-blind clinical endpoint studies which evaluated vaccine efficacy
    - **Zoster-006** enrolled subjects ≥ 50 years of age
    - **Zoster-022** enrolled subjects ≥ 70 years of age
  - Additional supportive studies
  - Total vaccine exposure of >17,000 recipients

Questions to the Committee

1. Are the available data adequate to support the efficacy of SHINGRIX for the prevention of herpes zoster (shingles) in adults 50 years of age and older?

Please vote Yes or No.

Questions to the Committee

2. Are the available data adequate to support the safety of SHINGRIX when administered to adults 50 years of age and older?

Please vote Yes or No.

Thank you!