PRODUCT MONOGRAPH

INCLUDING PATIENT MEDICATION INFORMATION

Trumenba®

Meningococcal group B vaccine
[Bivalent recombinant lipoprotein (rLP2086)]

Neisseria meningitidis serogroup B rLP2086 subfamily A 60 mcg, *Neisseria meningitidis* serogroup B rLP2086 subfamily B 60 mcg per 0.5 mL, Suspension for Intramuscular Injection

Active Immunizing Agent for the Prevention of Invasive Meningococcal Disease caused by *Neisseria meningitidis* serogroup B.

Pfizer Canada ULC
17,300 Trans-Canada Highway
Kirkland, Quebec H9J 2M5

Date of Initial Authorization:
October 5, 2017

Date of Revision:
October 11, 2022

Submission Control Number: 258009

RECENT MAJOR LABEL CHANGES

None	Not applicable

TABLE OF CONTENTS

Sections or subsections that are not applicable at the time of authorization are not listed .

PART I: HEALTH PROFESSIONAL INFORMATION

1 INDICATIONS

Trumenba (meningococcal group B vaccine [bivalent recombinant lipoprotein (rLP2086)]) is indicated for:

- active immunization to prevent invasive meningococcal disease (IMD) caused by *Neisseria meningitidis* serogroup B in individuals 10 through 25 years of age.

1.1 Pediatrics

Safety and efficacy of Trumenba in children below the age of 10 years of age have not been established (see 7.1.3 Pediatrics).

1.2 Geriatrics

Trumenba has not been studied in adults older than 65 years of age (see 7.1.4 Geriatrics).

2 CONTRAINDICATIONS

Trumenba is contraindicated in individuals who are hypersensitive to the active ingredient or to any ingredient in the formulation, including any non-medicinal ingredient, or component of the container. For a complete listing, see 6 DOSAGE FORMS, STRENGTHS, COMPOSITION AND PACKAGING.

4 DOSAGE AND ADMINISTRATION

4.2 Recommended Dose and Dosage Adjustment

Primary series
2 doses: (0.5 mL each) administered at a 6-month interval.

3 doses: 2 doses (0.5 mL each) administered at least 1 month apart, followed by a third dose at least 4 months after the second dose.

The choice of dosing schedule may depend on the risk of exposure and the subject's susceptibility to meningococcal serogroup B disease.

Booster dose
A booster dose may be considered following either dosing regimen for individuals at continued risk of invasive meningococcal disease.

4.4 Administration

For intramuscular injection only. The preferred site for injection is the deltoid muscle of the upper arm.

The vaccine should be shaken vigorously to ensure that a homogeneous white suspension is obtained. Do not use the vaccine if it cannot be resuspended.

The vaccine should be visually inspected for particulate matter and discoloration prior to administration. This product should not be used if particulate matter or discolouration is found.

Separate injection sites and different syringes must be used if more than one vaccine is administered at the same time.

There are no data available on the interchangeability of Trumenba with other meningococcal serogroup B vaccines to complete the vaccination series.

4.5 Missed dose

If a dose of Trumenba is missed, individuals should contact their healthcare professionals for advice on appropriate series completion.

5 OVERDOSAGE

Experience of overdose is limited. Overdose with Trumenba is unlikely because it is provided in a prefilled syringe.

In the event of overdose, monitoring of vital functions and possible symptomatic treatment is recommended.

For management of a suspected drug overdose, contact your regional poison control centre.

6 DOSAGE FORMS, STRENGTHS, COMPOSITION AND PACKAGING

To help ensure the traceability of vaccines for patient immunization record-keeping as well as safety monitoring, health professionals should record the time and date of administration, quantity of administered dose (if applicable), anatomical site and route of administration, brand name and generic name of the vaccine, the product lot number and expiry date.

Table 1 – Dosage Forms, Strengths, Composition and Packaging

Route of Administration	Dosage Form / Strength/Composition	Non-medicinal Ingredients
Intramuscular injection	Suspension for injection 1 dose (0.5 mL) contains: *Neisseria meningitidis* serogroup B rLP2086 subfamily A 60 mcg *Neisseria meningitidis* serogroup B rLP2086 subfamily B 60 mcg	Aluminum phosphate, histidine, polysorbate 80, sodium chloride and water for injection.

Trumenba is a sterile liquid suspension for intramuscular injection supplied in a single-dose prefilled syringe.

Trumenba is supplied in cartons of 1 and 10 single-dose prefilled syringes, without needles. The tip cap

and rubber plunger of the syringe are not made with natural rubber latex.

7 WARNINGS AND PRECAUTIONS

General

As with all injectable vaccines, appropriate medical treatment and supervision should always be readily available in case of a rare anaphylactic event following the administration of the vaccine.

As with other injectable vaccines, syncope (fainting) can occur in association with administration of Trumenba. Procedures should be in place to avoid injury from fainting.

Do not inject intravenously, intradermally, or subcutaneously.

As with any vaccine, vaccination with Trumenba may not protect all vaccine recipients.

Driving and Operating Machinery

Trumenba has no or negligible influence on the ability to drive or use machines. However, some of the effects (see 8 ADVERSE REACTIONS) may temporarily affect the ability to drive or use machines.

Hematologic

As with any intramuscular vaccine, Trumenba should be given with caution to individuals with thrombocytopenia or any coagulation disorder or to those receiving anticoagulant therapy, unless the potential benefit clearly outweighs the risk of administration.

Immune

There are no data available for immunocompromised individuals, including those receiving immunosuppressant therapy.

Individuals with certain complement deficiencies and individuals receiving treatment that inhibits terminal complement activation (for example, eculizumab) are at increased risk for invasive disease caused by *Neisseria meningitidis* serogroup B even if they develop antibodies following vaccination with Trumenba.

Reproductive Health: Female and Male Potential

- **Fertility**

  There are no data on fertility in humans.

  Animal studies do not indicate direct or indirect harmful effects with respect to fertility in females (see 16 NON-CLINICAL TOXICOLOGY). Trumenba has not been evaluated for impairment of fertility in males.

7.1 Special Populations

7.1.1 Pregnant Women

There are no data from the use of Trumenba in pregnant women.

Reproduction studies performed in female rabbits at doses equivalent to the highest administered human dose have revealed no evidence of impaired female fertility or harm to the fetus due to Trumenba. Because animal reproductive studies are not always predictive of the human response, Trumenba should be used during pregnancy only if the potential benefits clearly outweigh the potential risks.

7.1.2 Breast-feeding

It is unknown whether Trumenba is excreted in human milk.

Trumenba should only be used during breast-feeding when the potential benefits outweigh the potential risks.

7.1.3 Pediatrics

Pediatrics (< 10 years of age): Safety and efficacy of Trumenba in children below the age of 10 years of age have not been established.

7.1.4 Geriatrics

Geriatrics (> *65* years of age): Trumenba has not been studied in adults older than 65 years of age.

8 ADVERSE REACTIONS

8.1 Adverse Reaction Overview

In clinical studies, the most common solicited adverse reactions were pain at the injection site, fatigue, headache, and muscle pain (see Tables 2 to 5). Nausea was reported in up to 22% of subjects in early phase studies. Most local and systemic reactions were mild or moderate in severity and resolved within 1 to 3 days after vaccination. The frequencies of solicited adverse reactions were highest after the first dose regardless of the schedule. The frequencies of solicited adverse reactions after subsequent doses were similar.

Overall, data for adverse events (AEs) summarized by age, sex, and race were comparable to AEs reported for the overall population.

8.2 Clinical Trial Adverse Reactions

Clinical trials are conducted under very specific conditions. The adverse reaction rates observed in the clinical trials, therefore, may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse reaction information from clinical trials may be useful in identifying and approximating rates of adverse drug reactions in real-world use.

The safety of Trumenba was investigated in 12 completed clinical studies conducted in the United States, Europe, Canada, Chile, and Australia (see 14 CLINICAL TRIALS) that enrolled a total of 21,860 subjects, of which 16,351 subjects received at least 1 dose of Trumenba (any dose level or vaccination regimen) administered alone or concomitantly with a licensed vaccine. A total of 5,509 control subjects received either saline alone, a licensed vaccine alone, or saline and a licensed vaccine. The core safety dataset comprises data derived from the 8 controlled studies for subjects 10-25 years of age who received at least 1 dose of Trumenba 120 mcg administered alone or concomitantly with a licensed vaccine on a schedule of 0, 2, and 6 months (n=13,284) or control vaccine (n=5,509) (Table 6).

The safety evaluation in the clinical studies included an assessment of: (1) solicited local and systemic reactions, and use of antipyretic medication after each vaccination in an electronic diary maintained by the subject or the subject's parent/legal guardian; and (2) spontaneous reports of adverse events (AEs), including serious adverse events (SAEs) throughout the study (day of vaccination through 1 month or 6 months after the last vaccination, depending on the study and safety parameter).

Solicited Local and Systemic Reactions

Study B1971057 (Study 1057) was a Phase 3, randomized active-controlled, observer-blinded, multicenter trial in which 1057 subjects 10 through 25 years of age received at least 1 dose of Trumenba on a 0- and 6-month schedule. Trumenba was co-administered with meningococcal serogroups A,C,W,Y diphtheria CRM_{197} conjugate vaccine (MenACWY-CRM_{197}) for the first dose.

Study B1971009 (Study 1009) was a Phase 3, randomized, active-controlled, observer-blinded, global, multicenter trial in which 2,693 subjects 10 through 18 years of age received at least 1 dose of Trumenba on a 0-, 2-, and 6- month schedule. A control group received hepatitis A virus vaccine (HAV) at 0 and 6 months and received saline at 2 months. Subjects were randomized to receive 1 of 3 lots of Trumenba or HAV/saline.

Study B1971016 (Study 1016) was a Phase 3, randomized, placebo-controlled, observer-blinded, global, multicenter trial in which 2,471 subjects 18 through 25 years of age received at least 1 dose of Trumenba or saline on a 0-, 2-, and 6- month schedule.

Tables 2, 3, 4 and 5 present the percentage of subjects who reported solicited local (Tables 2 and 3) and systemic (Tables 4 and 5) reactions, regardless of causality, within 7 days of each dose of Trumenba for Study 1057 and following each dose of Trumenba or control (hepatitis A virus vaccine [HAV]/saline or saline) for pivotal Phase 3 studies 1009 and 1016, which both included Canadian subjects.

Table 2: Percentages of Subjects 10 through 25 Years of Age (Study 1057) Reporting Local Adverse Reactions Within 7 Days After Each Vaccination

Local Reaction	Dose 1 Trumenba+MenACWY-CRM[a] N=1044	Dose 2 Trumenba[a] N=903
Pain[b]		
Any[c]	85.0	82.2
Mild	41.2	38.9
Moderate	39.1	37.9
Severe	4.7	5.4
Redness[d]		
Any[c] (>2.0 cm)	16.9	14.7
Mild	6.8	5.2
Moderate	8.0	8.4
Severe	2.0	1.1
Swelling[d]		
Any[c] (>2.0 cm)	17.0	14.3
Mild	9.8	6.4
Moderate	6.9	7.5
Severe	0.3	0.3

a. Trumenba and MenACWY-CRM were administered at 0 month followed by Trumenba alone at 6 months. Local reactions were recorded at the Trumenba injection site only.
b. Mild (does not interfere with activity); moderate (interferes with activity); severe (prevents daily activity).
c. "Any" is defined as the cumulative frequency of subjects who reported a reaction as "mild", "moderate", or "severe" within 7 days of vaccination.
d. Mild (>2.0-5.0 cm); moderate (>5.0-10.0 cm); severe (>10.0 cm).

Table 3: Percentage of Subjects 10 through 18 Years of Age (Study 1009) and 18 through 25 Years of Age (Study 1016) Reporting Solicited Local Reactions Within 7 Days After Each Vaccination

	Study 1009						Study 1016					
	Trumenba[a]			HAV/Saline[a]			Trumenba[a]			Saline[a]		
Local Reaction	Dose 1 N=2681	Dose 2 N=2545	Dose 3 N=2421	Dose 1 N=890	Dose 2 N=843	Dose 3 N=821	Dose 1 N=2425	Dose 2 N=2076	Dose 3 N=1823	Dose 1 N=798	Dose 2 N=706	Dose 3 N=624
Pain[b]												
Any[c]	86.7	77.7	76.0	47.0	15.2	34.0	84.2	79.3	80.4	11.8	7.8	6.7
Mild	41.1	39.4	34.1	36.5	12.3	23.8	42.3	42.2	36.1	10.7	6.8	6.4
Moderate	40.7	33.2	36.5	9.9	2.7	9.9	37.1	32.7	38.9	1.1	1.0	0.3
Severe	5.0	5.1	5.4	0.6	0.1	0.4	4.8	4.4	5.3	0.0	0.0	0.0
Redness[d]												
Any[c] (≥ 2.5 cm)	16.2	12.5	13.9	1.3	0.6	1.1	13.8	11.8	17.1	0.6	0.3	0.2
Mild	5.6	5.2	4.9	1.2	0.6	1.0	5.8	4.6	6.2	0.5	0.1	0.2
Moderate	8.8	6.1	6.8	0.1	0.0	0.1	7.1	6.3	8.6	0.0	0.0	0.0
Severe	1.9	1.1	2.2	0.0	0.0	0.0	0.9	0.9	2.3	0.1	0.1	0.0
Swelling[d]												
Any[c] (≥ 2.5 cm)	18.0	13.9	15.4	2.2	0.6	0.9	15.5	14.0	16.6	0.6	0.4	0.3

Table 3: Percentage of Subjects 10 through 18 Years of Age (Study 1009) and 18 through 25 Years of Age (Study 1016) Reporting Solicited Local Reactions Within 7 Days After Each Vaccination

	Study 1009						Study 1016					
	Trumenba[a]			HAV/Saline[a]			Trumenba[a]			Saline[a]		
Local Reaction	Dose 1 N=2681	Dose 2 N=2545	Dose 3 N=2421	Dose 1 N=890	Dose 2 N=843	Dose 3 N=821	Dose 1 N=2425	Dose 2 N=2076	Dose 3 N=1823	Dose 1 N=798	Dose 2 N=706	Dose 3 N=624
Mild	8.5	6.3	7.9	1.8	0.5	0.7	8.5	7.7	8.8	0.3	0.3	0.0
Moderate	8.8	7.3	6.8	0.4	0.1	0.1	6.8	6.0	7.2	0.3	0.1	0.3
Severe	0.7	0.2	0.7	0.0	0.0	0.0	0.2	0.3	0.5	0.1	0.0	0.0

a. Trumenba, hepatitis A virus vaccine (HAV)/saline, and saline were administered at 0, 2, and 6 months.
b. Mild (does not interfere with activity); Moderate (interferes with activity); Severe (prevents daily activity)
c. "Any" is defined as the cumulative frequency of subjects who reported a reaction as "mild", "moderate", or "severe" within 7 days of vaccination.
d. Mild (2.5-5.0 cm); Moderate (5.5-10.0 cm); Severe (>10.0 cm).

Table 4: Percentages of Subjects 10 through 25 Years of Age (Study 1057) Reporting Systemic Adverse Reactions and Use of Antipyretic Medications Within 7 Days After Each Vaccination

	Dose 1	Dose 2
	Trumenba+MenACWY-CRM[a]	Trumenba[a]
Systemic Reaction	N=1044	N=903
Fever (≥38°C)		
≥38.0°C	6.7	3.2
38.0°C to <38.5°C	4.0	1.9
38.5°C to <39.0°C	2.1	0.7
39.0°C to ≤40.0°C	0.6	0.7
>40.0°C	0.0	0.0
Vomiting[b]		
Any[c]	3.7	2.8
Mild	2.9	2.0
Moderate	0.9	0.8
Severe	0.0	0.0
Diarrhea[d]		
Any[c]	14.1	10.6
Mild	10.7	7.6
Moderate	3.3	2.5
Severe	0.1	0.4
Headache[e]		
Any[c]	46.5	41.6
Mild	25.1	23.1
Moderate	19.0	16.5
Severe	2.4	2.0
Fatigue[e]		
Any[c]	51.9	45.2
Mild	25.4	23.0
Moderate	23.7	19.2
Severe	2.9	3.0
Chills[e]		
Any[c]	18.5	18.5

Table 4: Percentages of Subjects 10 through 25 Years of Age (Study 1057) Reporting Systemic Adverse Reactions and Use of Antipyretic Medications Within 7 Days After Each Vaccination

	Dose 1	Dose 2
	Trumenba+MenACWY-CRM[a]	Trumenba[a]
Systemic Reaction	N=1044	N=903
Mild	11.5	11.6
Moderate	5.7	6.2
Severe	1.2	0.7
Muscle pain (other than muscle pain at the injection site)[e]		
Any[c]	28.4	21.4
Mild	15.8	11.5
Moderate	11.6	7.8
Severe	1.1	2.1
Joint pain[e]		
Any[c]	19.6	18.7
Mild	10.2	11.2
Moderate	8.6	6.5
Severe	0.8	1.0
Use of antipyretic medication	18.6	14.4

a. Trumenba and MenACWY-CRM were administered at 0 month followed by Trumenba alone at 6 months.
b. Mild (1-2 times in 24 hours); moderate (>2 times in 24 hours); severe (requires intravenous hydration).
c. "Any" is defined as the cumulative frequency of subjects who reported a reaction as "mild", "moderate", or "severe" within 7 days of vaccination.
d. Mild (2-3 loose stools in 24 hours); moderate (4-5 loose stools in 24 hours); severe (6 or more loose stools in 24 hours).
e. Mild (does not interfere with activity); moderate (some interference with activity); severe (prevents daily routine activity).

Table 5: Percentage of Subjects 10 through 18 Years of Age (Study 1009) and 18 through 25 Years of Age (Study 1016) Reporting Solicited Systemic Reactions and Use of Antipyretic Medications Within 7 Days After Each Vaccination

	Study 1009						Study 1016					
	Trumenba[a]			HAV/Saline[a]			Trumenba[a]			Saline[a]		
Systemic Reaction	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3
	N=2681	N=2545	N=2421	N=890	N=843	N=821	N=2425	N=2076	N=1823	N=798	N=706	N=624
Fever (≥38°C)[b,c]												
≥38.0°C	6.4	2.0	2.7	1.9	1.5	2.3	2.4	1.2	2.0	0.6	1.0	0.6
38.0° to 38.5°C	4.0	1.2	1.8	1.3	0.7	1.3	1.6	0.7	1.4	0.4	0.6	0.5
38.5° to 39.0°C	1.9	0.7	0.6	0.3	0.7	0.4	0.7	0.4	0.4	0.0	0.3	0.2
39.0° to £40.0°C	0.5	0.1	0.3	0.2	0.1	0.5	0.0	0.1	0.1	0.3	0.1	0.0
>40.0°C	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Vomiting[d]												
Any[e]	3.7	2.2	1.7	1.9	1.4	2.2	2.6	2.1	2.0	2.1	1.6	1.4
Mild	2.8	1.7	1.4	1.7	1.1	1.7	2.2	1.6	1.8	2.1	1.3	1.1
Moderate	0.9	0.4	0.3	0.2	0.4	0.5	0.4	0.5	0.2	0.0	0.3	0.3
Severe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diarrhea[f]												

Table 5: Percentage of Subjects 10 through 18 Years of Age (Study 1009) and 18 through 25 Years of Age (Study 1016) Reporting Solicited Systemic Reactions and Use of Antipyretic Medications Within 7 Days After Each Vaccination

	Study 1009						Study 1016					
	Trumenba[a]			HAV/Saline[a]			Trumenba[a]			Saline[a]		
Systemic Reaction	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3
	N=2681	N=2545	N=2421	N=890	N=843	N=821	N=2425	N=2076	N=1823	N=798	N=706	N=624
Any[e]	10.6	7.6	7.7	12.1	9.1	7.6	12.7	8.6	7.5	11.8	8.1	6.9
Mild	9.1	6.2	6.4	10.9	7.6	6.2	10.2	6.4	6.1	9.8	4.7	5.3
Moderate	0.3	1.3	1.0	1.1	1.2	1.1	2.4	1.7	1.2	1.9	2.8	1.3
Severe	0.3	0.1	0.3	0.1	0.4	0.2	0.2	0.5	0.2	0.1	0.6	0.3
Headache[g]												
Any[e]	51.8	37.8	35.4	37.2	28.1	24.8	43.9	33.1	32.5	36.2	24.9	21.6
Mild	28.7	20.2	18.9	24.0	15.7	13.5	24.3	18.4	17.6	22.1	13.6	12.5
Moderate	21.0	16.0	15.2	12.5	10.9	10.4	17.9	13.3	13.3	13.5	10.1	8.3
Severe	2.2	1.7	1.3	0.7	1.5	1.0	1.6	1.4	1.6	0.6	1.3	0.8
Fatigue[g]												
Any[e]	54.0	38.3	35.9	40.3	26.3	24.4	50.9	39.2	39.3	39.8	27.3	24.5
Mild	27.8	20.6	18.4	23.5	13.2	13.5	25.4	20.6	18.9	23.2	13.9	13.1
Moderate	23.2	15.8	15.2	15.2	11.7	10.0	22.1	16.4	18.8	15.8	11.5	9.6
Severe	3.0	1.9	2.3	1.7	1.4	0.9	3.4	2.2	1.6	0.9	2.0	1.8
Chills[g]												
Any[e]	25.3	16.0	13.1	17.2	10.3	8.3	18.1	12.4	12.6	9.8	8.5	6.4
Mild	16.2	10.6	8.7	13.3	8.1	6.5	12.0	8.1	7.7	8.1	6.9	4.3
Moderate	8.0	4.8	3.8	3.5	1.8	1.7	4.9	3.5	4.2	1.6	1.6	2.1
Severe	1.2	0.6	0.5	0.4	0.5	0.1	1.1	0.8	0.8	0.0	0.0	0.0
Muscle pain[g] (other than muscle pain at injection site)												
Any[e]	24.4	17.8	17.6	19.2	10.3	11.1	25.9	15.6	16.9	14.5	8.5	7.5
Mild	13.2	8.7	9.5	13.5	5.2	6.6	13.0	7.6	8.9	9.6	5.8	4.5
Moderate	10.1	7.9	7.2	5.4	4.5	4.3	11.3	7.1	6.8	4.4	2.3	2.9
Severe	1.2	1.2	0.8	0.3	0.6	0.2	1.6	0.8	1.2	0.5	0.4	0.2
Joint pain[g]												
Any[e]	21.9	16.7	16.0	13.6	9.1	8.9	19.6	15.1	12.6	10.9	6.5	5.3
Mild	11.8	8.4	8.9	8.3	5.0	5.5	10.3	8.1	6.6	6.9	3.7	2.9
Moderate	8.7	7.5	5.9	4.6	3.4	3.0	7.9	6.2	5.4	3.5	2.5	2.4
Severe	1.4	0.8	1.2	0.7	0.7	0.4	1.4	0.9	0.6	0.5	0.3	0.0
Use of antipyretic medication	20.7	13.6	12.7	10.4	8.9	6.8	13.4	12.3	12.8	8.9	7.6	6.6

a. Trumenba, hepatitis A virus vaccine (HAV)/saline, and saline were administered at 0, 2, and 6 months.
b. Study 1009: Fever (≥38°C): N=2679, 2540, and 2414 for Trumenba at Dose 1, Dose 2, and Dose 3, respectively; N=890, 840, and 819 for HAV/saline at Dose 1, Dose 2, and Dose 3, respectively.
c. Study 1016: Fever (≥38°C): N=2415, 2067, and 1814 for Trumenba at Dose 1, Dose 2, and Dose 3, respectively; N=796, 705, and 621 for saline at Dose 1, Dose 2, and Dose 3, respectively.
d. Mild (1-2 times in 24 hours); Moderate (>2 times in 24 hours); Severe (requires intravenous hydration).
e. "Any" is defined as the cumulative frequency of subjects who reported a reaction as "mild", "moderate", or "severe" within 7 days of vaccination.
f. Mild (2-3 loose stools in 24 hours); Moderate (4-5 loose stools in 24 hours); Severe (6 or more loose stools in 24 hours).
g. Mild (does not interfere with activity); Moderate (interferes with activity); Severe (prevents daily activity).

Study 1042 was a Phase 2 safety and immunogenicity study in US microbiology laboratory workers (n = 13, 24 to 62 years of age; 8 subjects >40 years of age) who received Trumenba on a 0, 2, 6-month schedule. No new safety signal was identified with the limited number of subjects.

Study B1971033 (Study 1033) was a Phase 3 open-label, follow-up study of subjects previously enrolled in a primary study, including Study B1971012 (Study 1012). Subjects attended visits over 4 years for collection of blood samples and received a single booster dose of Trumenba approximately 4 years after receipt of a primary series of 2 or 3 doses of Trumenba. Adverse reactions following booster vaccination in 301 subjects aged 15 through 23 years were similar to adverse reactions during the primary Trumenba vaccination series approximately 4 years earlier.

Adverse Events

In Study 1057 investigating the two-dose (0 and 6 months) schedule (N=1057), adverse events that occurred within 30 days of vaccination were reported in 255 (24.1%) subjects who received at least one dose of Trumenba.

In the 8 controlled studies (as described above) adverse events within 30 days after any dose were reported in 30.95% of subjects receiving Trumenba (n=13,284) and 28.37% of subjects in the control group (n=5,509). Adverse events that occurred at a frequency of at least 2% and were more frequently observed in subjects who received Trumenba than subjects in the control group were injection site pain (6.84% vs 3.59%), headache (3.78% vs 3.47%), and fever (2.61% vs 1.43%).

Serious Adverse Events

In Study 1057 and Study 1012 investigating the two-dose (0 and 6 months) schedule, serious adverse events (SAEs) were reported by 8 (0.8%) and 7 (1.6%) subjects who received at least one dose of Trumenba, respectively.

In the 8 controlled studies investigating the three-dose (0, 1-2, and 6 months) schedule, serious adverse events (SAEs) were reported by 1.6% and 1.9% of subjects who received at least one dose of Trumenba or control, respectively.

8.5 Post-Market Adverse Reactions

The following are considered adverse reactions for Trumenba and were reported in the post-marketing experience. Because these reactions were derived from spontaneous reports, the frequency could not be determined.

Immune system disorders: Allergic reactions
Nervous system disorders: Syncope (fainting)

9 DRUG INTERACTIONS

9.4 Drug-Drug Interactions

Trumenba can be given concomitantly with any of the following vaccines: quadrivalent human papillomavirus vaccine (HPV4), meningococcal serogroups A, C, W, Y conjugate vaccine (MenACWY) and tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine adsorbed (Tdap) (see 14 CLINICAL TRIALS).

Do not mix Trumenba with other vaccines or products in the same syringe.

9.5 Drug-Food Interactions

Interactions with food have not been established.

9.6 Drug-Herb Interactions

Interactions with herbal products have not been established.

9.7 Drug-Laboratory Test Interactions

Interactions with laboratory tests have not been established.

10 CLINICAL PHARMACOLOGY

10.1 Mechanism of Action

Protection against invasive meningococcal disease is mediated by serum bactericidal antibodies to bacterial surface antigens. Bactericidal antibodies act in concert with human complement to kill meningococci. This process is measured in vitro with a serum bactericidal assay using human complement (hSBA). A positive response in the hSBA is the only accepted correlate of protection from meningococcal disease.

Factor H binding protein (fHbp) is a meningococcal surface-exposed antigen expressed by >95% of serogroup B strains. Factor H is a soluble glycoprotein found in human blood which regulates the alternative complement pathway and prevents the damage of human cells by complement. Meningococcal fHbp binds human factor H to prevent complement activation, allowing bacteria to avoid host immune defenses. Meningococcal fHbp variants segregate into two immunologically distinct subfamilies (designated A and B).

Trumenba is a bivalent vaccine composed of two recombinant lipidated factor H binding proteins – one each from subfamilies A and B. The lipidated protein (which is the naturally occurring form of fHbp) induces antibodies that can kill MnB strains expressing fHbps that are heterologous to those in the vaccine, whereas non-lipidated variants are unable to induce broadly cross-reactive bactericidal responses. Each Trumenba fHbp antigen elicits cross-protective responses against serogroup B strains expressing diverse fHbp variants from the same subfamily. Trumenba prevents serogroup B disease by inducing broadly protective bactericidal antibody responses against diverse fHbp variants expressed by serogroup B strains. Bactericidal antibodies elicited by Trumenba may also prevent factor H from binding to fHbp and render the bacteria more susceptible to complement-mediated killing.

Epidemiology

Invasive meningococcal disease is caused by the Gram-negative bacterium *Neisseria meningitidis.* Out of 12 known serogroups of *N. meningitidis*, serogroups B, C, W, and Y are most commonly reported in Canada. While healthy individuals (particularly adolescents and young adults) can carry *N. meningitidis* asymptomatically, invasive meningococcal disease (IMD) can progress rapidly. Invasive disease typically presents as meningitis and/or septicemia, and can have substantial consequences, with case fatality rates ranging from 5.3% to 10.7%. Approximately 19% of survivors suffer long-term sequelae.

Prior to 2001, serogroup C disease was most prevalent in Canada, representing approximately 40% of

IMD cases. Following the introduction of routine serogroup C conjugate immunization programs starting between 2001 and 2005 in all provinces, a significant decline of serogroup C disease was noted, leaving serogroup B as the predominant disease-causing serogroup in Canada. In recent years (2013-2017), a total of 548 IMD cases were reported. The majority of cases were attributed to serogroup B (53%) which accounted for the largest proportion of cases in all age groups except in adults 60 years and older. During this period, an epidemic of serogroup B meningococcal disease has been observed in the province of Quebec[1]. In 2017, the incidence of IMD due to serogroup B was 0.13 cases per 100,000 population.[2] When examining the age distribution of cases of serogroup B IMD reported by the Canadian Notifiable Disease Surveillance System (CNDSS), 37% of 669 cases reported between 2006 and 2011 occurred in children under 5 years of age; approximately 28% occurred in individuals 10-24 years of age and another 28% in individuals 25 years of age and older. The median age for contracting serogroup B IMD (2009-2011) was 16 years.[3] The genotype of invasive serogroup B strains collected in Canada (2006-2012; n=258) as part of the Canadian Immunization Monitoring Program Active (IMPACT) surveillance network, including common epidemiological markers such as clonal complex (CC) and the fHbp variant type, has been determined. All isolates were found to contain the gene that codes for fHbp, with approximately 38% of strains expressing fHbp belonging to subfamily A and 62% to subfamily B. Consistent with findings from other countries, the distribution of Canadian strains expressing subfamily A and B differed as a function of patient age. Compared with adolescents and young adults, considerably more meningococcal disease in infants < 1 year of age and in patients ≥65 years of age was due to serogroup B isolates expressing subfamily A fHbp variants. Additionally, meningococcal carriage strains predominantly express subfamily A fHbp variants. A total of 50 different fHbp variants were identified in the IMPACT collection of MnB strains; however, 80% of the isolates expressed 1 of the following 10 most prevalent fHbp variants: B44, A22, B16, B09, A19, A05, A20, A12, B03, B24 (listed in order of decreasing prevalence). The CC profile of the Canadian MnB invasive isolates from 2006-2012 was largely composed of CC269 and CC41/44, representing approximately 39% and 29% of the total collection, respectively.[4] Unlike IMD in other provinces, cases associated with the Quebec epidemic have been dominated by CC269 serogroup B strains, the majority of which express fHbp variant B44.

11 STORAGE, STABILITY AND DISPOSAL

Store in a refrigerator (2°C – 8°C).

Syringes should be stored in the refrigerator horizontally (laying flat on the shelf) to minimize the re-dispersion time. Do not freeze. Discard if the vaccine has been frozen.

---

[1] 2. Zhou J, et al. J Clin Microbiol. 2012; 50(5):1545-51.

[2] https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/bivalent-factor-h-binding-protein-meningococcal-serogroup-b-prevention-meningococcal-b-disease.html

[3] Canada Communicable Disease Report (2014). Enhanced surveillance of invasive meningococcal disease in Canada, 2006-2011. 2014 May 1; 40(9)

[4] Reference for the genotype of predominant strains: Canadian Immunization Monitoring Program Active (IMPACT). Comparative Analysis of Canadian Neisseria meningitidis Serogroup B (MnB) Isolates. International Pathogenic Neisseria Conference 2014.

Trumenba has been shown to be stable at temperatures of up to 25°C for 4 days. Cumulative multiple temperature excursions between 8°C and 25°C are permitted, as long as the total time does not exceed 4 days (96 hours). These data are not recommendations for shipping or storage, but may guide decisions for use in case of temporary temperature excursions.

12 SPECIAL HANDLING INSTRUCTIONS

Any unused product or waste material should be disposed of in accordance with local requirements.

PART II: SCIENTIFIC INFORMATION

13 PHARMACEUTICAL INFORMATION

Drug Substances

Trumenba is composed of two recombinant lipidated factor H binding protein (fHbp) variants (rLP2086) from *Neisseria meningitidis* serogroup B, one from fHbp subfamily A and one from subfamily B (A05 and B01, respectively).

Product Characteristics

The rLP2086 (subfamily A and B) proteins are individually produced in *Escherichia coli*. Production strains are grown in defined fermentation growth media to a specific density. The recombinant proteins are extracted from the production strains and purified through a series of column chromatography steps. Polysorbate 80 is added to the drug substances and is present in the final drug product.

Trumenba is a sterile homogeneous white suspension for intramuscular injection available in single-dose prefilled syringes with a dosage strength of 60 mcg of subfamily A and 60 mcg of subfamily B rLP2086 (120 mcg total protein) per 0.5 mL dose.

14 CLINICAL TRIALS

14.1 Trial Design and Study Demographics

The immunogenicity and safety profile of Trumenba is based on data from 12 completed clinical trials in 21,860 subjects. Study demographics and trial design for the key clinical trials are presented in Table 6.

Table6: Study Demographics and Design

Study No.	Study Objective	Study Design	Study Vaccine/ Regimen	No. Subjects Randomized	Mean Age In Years (Range)	Gender (%)
Pivotal Phase 3 Studies						
B1971057 (Stage 1)	Immunogenicity, safety and tolerability of bivalent rLP2086 in subjects aged ≥10 to <26 years	Phase 3, randomized, active-controlled, observer-blinded, multicentre study	Group 2: Bivalent rLP2086 + MenACWY-CRM; 0 month Bivalent rLP2086; 6 months Group 4: Bivalent rLP2086 + MenACWY-CRM; 0 month Bivalent rLP2086; (6 months)	Group 2: n =534 Group 4: n = 523	17.2 (10-25) (Groups 2 & 4)	M: 41.2 F: 58.8 (Groups 2 & 4)

Table6: Study Demographics and Design

Study No.	Study Objective	Study Design	Study Vaccine/ Regimen	No. Subjects Randomized	Mean Age In Years (Range)	Gender (%)
B1971009	Lot consistency, safety, tolerability, and immunogenicity of bivalent rLP2086 in healthy subjects aged ≥10 to <19 years	Phase 3, randomized, active-controlled, observer-blinded, multicenter study	Bivalent rLP2086: Lot 1, Lot 2, Lot 3; 0, 2, and 6 months Control HAV; 0 and 6 months; saline at 2 months to maintain blinding	Bivalent rLP2086: Lot 1: n=1509 Lot 2: n=600 Lot 3: n=589 Control: n=898	13.9 (10-19)	M: 51.5 F: 48.5
B1971016	Safety, tolerability, and immunogenicity of bivalent rLP2086 in healthy young adults aged ≥18 to <26 years	Phase 3, randomized, placebo-controlled, observer-blinded, multicenter study	Group 1: Bivalent rLP2086: 0, 2, and 6 months Group 2: Saline; 0, 2, and 6 months	Group 1: n =2480 Group 2: n=824	21.5 (18-25)	M: 41.3 F: 58.7
B1971014	Safety and tolerability of bivalent rLP2086 in healthy subjects aged ≥10 to <26 years	Phase 3, randomized, active-controlled, observer-blinded multicenter study	Group 1: Bivalent rLP2086: 0, 2, and 6 months Group 2: HAV at 0 and 6 months; saline at 2 months	Group 1: n=3804 Group 2: n =1908	17.4 (10-25)	M: 48.2 F: 51.8
B1971033	Persistence of hSBA response up to 48 months after completion of vaccination with bivalent rLP2086 Safety, tolerability, and immunogenicity of a booster dose of bivalent rLP2086	Phase 3, open-label, follow-up study of subjects previously enrolled in primary study, including Study B1971012	Bivalent rLP2086 Various 2 and 3 dose schedules	301	18.9 (15-23)	M: 45.2 F: 54.8

Table6: Study Demographics and Design

Study No.	Study Objective	Study Design	Study Vaccine/ Regimen	No. Subjects Randomized	Mean Age In Years (Range)	Gender (%)
Phase 2 Study Evaluating Various 2 and 3 Dose Schedules						
B1971012	Safety and immunogenicity of various 2 and 3 dose schedules of bivalent rLP2086	Phase 2, randomized, placebo-controlled, single-blind, multicenter study	Bivalent rLP2086: Group 1: 0, 1, and 6 months Group 2: 0, 2, and 6 months Group 3: 0 and 6 months Group 4: 0 and 2 months Group 5: 0 and 4 months	Group 1: n=427 Group 2: n=430 Group 3: n=427 Group 4: n=286 Group 5: n=143	14.4 (11-18)	M: 49.2 F: 50.8
Phase 2 Concomitant Vaccine Studies						
B1971011	Immunogenicity of HPV when administered concomitantly with bivalent rLP2086; safety, tolerability and immunogenicity of bivalent rLP2086	Phase 2, randomized, active-controlled, observer-blinded, multicenter study	Group 1: Bivalent rLP2086 + HPV; 0, 2, and 6 months Group 2: Bivalent rLP2086 + saline; 0, 2, and 6 months Group 3: Saline + HPV; 0, 2, and 6 months	Group 1: n=999 Group 2: n=998 Group 3: n=502	13.6 (11-17)	M: 66.5 F: 33.5

Table6: Study Demographics and Design

Study No.	Study Objective	Study Design	Study Vaccine/ Regimen	No. Subjects Randomized	Mean Age In Years (Range)	Gender (%)
B1971015	Safety, tolerability and immunogenicity of bivalent rLP2086 when used concomitantly with MenACWY and Tdap vaccines	Phase 2, randomized, active-controlled, observer-blinded multicenter study	Group 1: Bivalent rLP2086: 0, 2, and 6 months MenACWY: 0 months Tdap: 0 months Group 2: Saline; 0, 2, and 6 months MenACWY: 0 months Tdap: 0 months Group 3: Bivalent rLP2086: 0, 2, and 6 months Saline, 2 vaccinations: 0 months MenACWY: 7 months Tdap: 7 months	Group 1: n=888 Group 2: n=878 Group 3: n=882	10.6 (10-12)	M: 51.0 F: 49.0

Abbreviations: bivalent rLP2086 = bivalent recombinant lipoprotein 2086 vaccine; HAV = hepatitis A virus vaccine; HPV = human papillomavirus vaccine; MenACWY = quadrivalent meningococcal polysaccharide conjugate vaccine; Tdap = tetanus, low-dose diphtheria, and low-dose acellular pertussis vaccine; M = male; F = female

14.2 Study Results

Clinical Efficacy

The efficacy of Trumenba has not been evaluated through clinical trials. Vaccine efficacy has been inferred by demonstrating the induction of serum bactericidal antibody responses to four meningococcal serogroup B test strains (see Immunogenicity subsection below). The four test strains express fHbp variants representing the two subfamilies (A and B) and, when taken together, are representative of prevalent strains causing invasive disease in Canada, the United States and Europe. The studies assessed the proportions of subjects with a 4-fold or greater increase from baseline in hSBA titer for each of the four strains, and the proportion of subjects who achieved a titer greater than or equal to 1:8 (3 strains) or 1:16 (1 strain) for the four strains combined (composite response). The studies also assessed the proportion of subjects achieving a defined hSBA titer against a panel of 10 additional strains, each expressing a different fHbp variant. These additional hSBAs support and extend the breadth of vaccine coverage demonstrated by the 4 representative primary strains.

14.4 Immunogenicity

The immunogenicity of Trumenba described in this section includes results from Phase 2 and Phase 3 clinical studies:

- Following the 2-dose schedule (0 and 6 months) in subjects 10 through 25 years of age (Study 1057);
- Following the 3-dose schedule (0, 2, and 6 months) in subjects 10 through 25 years of age (Studies 1009 and 1016); and
- Following the 2-dose (0 and 6 months) and 3-dose schedules (0, 1-2, and 6 months) in subjects 11 through 18 years of age (Study 1012).

Study 1057 is a Phase 3, randomized, active-controlled, observer-blinded, multicenter trial in which subjects received Trumenba at 0 and 6 months (Trumenba was coadministered with MenACWY-CRM for the first dose) or an investigational vaccine at 0 and 6 months. The hSBA responses to four test strains observed after the second dose of Trumenba are presented in Table 7. The hSBA responses after the second dose of Trumenba in Study 1057 against a panel of 10 additional strains representing the diversity of meningococcal fHbp types prevalent among strains circulating in the US and Canada are presented in Table 8.

Table 7: Percentages of Subjects 10 through 25 Years of Age With ≥4-fold Rise in hSBA Titer and Composite Response Following Administration of Trumenba on a 0-and 6-Month Schedule for Four Primary Strains (Study 1057)[a,b]

fHbp Variant[c]		N[d]	% (95% CI)[e]
≥4-Fold Increase			
PMB80 (A22)	Dose 2	827	73.8 (70.6, 76.7)
PMB2001 (A56)	Dose 2	823	95.0 (93.3, 96.4)
PMB2948 (B24)	Dose 2	835	67.4 (64.1, 70.6)
PMB2707 (B44)	Dose 2	850	86.4 (83.9, 88.6)
Composite hSBA response[f]			
	Before Dose 1	799	1.8 (1.0, 2.9)
	Dose 2	814	74.3 (71.2, 77.3)

Abbreviations: CI=confidence interval; fHbp=factor H binding protein; hSBA=serum bactericidal assay using human complement; LLOQ=lower limit of quantitation; LOD=limit of detection.

Note: LLOQ = 1:16 for A22; 1:8 for A56, B24, and B44.

Note: The 4-fold increase is defined as follows: (1) For subjects with a baseline hSBA titer <1:4, a response is defined as an hSBA titer ≥1:16. (2) For subjects with a baseline hSBA titer ≥ LOD and < LLOQ, a response is defined as an hSBA titer ≥4 times the LLOQ. (3) For subjects with a baseline hSBA titer ≥ LLOQ, a response is defined as an hSBA titer ≥4 times the baseline titer.

Note: Pre-specified criteria for assessment of hSBA responses (4-fold rise in titer to each primary test strain, and titer above LLOQ for all four primary test strains) among subjects in the U.S. and Europe were met in this study for all test strains except strain A22, which was marginally lower than the pre-specified lower bound of the 95% confidence interval.

a. Evaluable immunogenicity population.
b. Study 1057: NCT03135834.
c. For the second dose, serum was obtained approximately 1 month after vaccination.
d. For ≥4-fold increase, N=number of subjects with valid and determinate hSBA titers for the given strain at both the specified time point and baseline. For composite hSBA response, N=number of subjects with valid and determinate hSBA results on all 4 strains at the given time point. U.S. subjects constituted approximately 80% of the total subjects evaluated for immunogenicity.
e. Exact 2-sided confidence interval (Clopper-Pearson method) based upon the observed proportion of subjects.

f. Composite response = hSBA ≥ LLOQ for all 4 primary meningococcal B strains.

Table 8. Percentages of Subjects 10 through 25 Years of Age With a hSBA Titer ≥ LLOQ Against 10 Additional Strains Following Administration of Trumenba on a 0- and 6-Month Schedule (Study 1057)[a,b]

fHbp Variant[c]		N[d]	% (95% CI)[e]
PMB3175 (A29)	Before Dose 1	166	4.8 (2.1, 9.3)
	Dose 2	166	95.2 (90.7, 97.9)
PMB3010 (A06)	Before Dose 1	157	5.7 (2.7, 10.6)
	Dose 2	159	89.3 (83.4, 93.6)
PMB3040 (A07)	Before Dose 1	150	32.0 (24.6, 40.1)
	Dose 2	157	96.8 (92.7, 99.0)
PMB824 (A12)	Before Dose 1	154	5.2 (2.3, 10.0)
	Dose 2	157	83.4 (76.7, 88.9)
PMB1672 (A15)	Before Dose 1	166	22.9 (16.7, 30.0)
	Dose 2	165	89.1 (83.3, 93.4)
PMB1989 (A19)	Before Dose 1	167	5.4 (2.5, 10.0)
	Dose 2	167	90.4 (84.9, 94.4)
PMB1256 (B03)	Before Dose 1	172	3.5 (1.3, 7.4)
	Dose 2	164	74.4 (67.0, 80.9)
PMB866 (B09)	Before Dose 1	171	9.9 (5.9, 15.4)
	Dose 2	166	71.1 (63.6, 77.8)
PMB431 (B15)	Before Dose 1	172	6.4 (3.2, 11.2)
	Dose 2	167	85.0 (78.7, 90.1)
PMB648 (B16)	Before Dose 1	172	8.1 (4.5, 13.3)
	Dose 2	164	77.4 (70.3, 83.6)

Abbreviations: CI=confidence interval; fHbp=factor H binding protein; hSBA=serum bactericidal assay using human complement; LLOQ=lower limit of quantitation.
Note: LLOQ = 1:16 for A06, A12, and A19; 1:8 for A07, A15, A29, B03, B09, B15, and B16.

a. The evaluable immunogenicity population was used for the analysis.
b. Study 1057: NCT03135834.
c. For the second dose, serum was obtained approximately 1 month after vaccination.
d. N=number of subjects with valid and determinate hSBA titers for the given strain. U.S. subjects constituted approximately 80% of the total subjects evaluated for immunogenicity.
e. Exact 2-sided confidence interval (Clopper and Pearson) based upon the observed proportion of subjects.

Study 1009 was a Phase 3, randomized, active-controlled, observer-blinded, multicenter trial in which subjects aged 10 through 18 years received 1 of 3 lots (Groups 1, 2, and 3) of Trumenba or the active control hepatitis A virus (HAV) vaccine/saline. The study assessed the safety, tolerability, immunogenicity, and demonstration of manufacturability (consistency) of 3 lots of Trumenba administered on a 0-, 2-, and 6-month schedule. The hSBA responses observed after the third dose in Group 1 are presented in Table 9.

Study 1016 was a Phase 3, randomized, placebo-controlled, observer-blinded, multicenter trial in which subjects 18 through 25 years of age were assigned to 2 groups in a 3:1 ratio (Group 1: Group 2). Group 1 received Trumenba at months 0, 2, and 6. Group 2 received saline at months 0, 2, and 6. The hSBA responses observed after the third dose in Group 1 are presented in Table 9.

Table 9: Percentage of Individuals 10 through 25 Years of Age With a ≥ 4-Fold Rise in hSBA Titer and Composite Response Following Administration of Trumenba on a 0-, 2-, and 6- Month Schedule for Four Primary Strains (Studies 1009 and 1016)[a,b,c,d]

fHbp Variant[e]		Study 1009 Aged 10 to 18 Years		Study 1016 Aged 18 to 25 Years	
		N	% (95% CI)[f]	N	% (95% CI)[f]
≥ 4-Fold Rise in hSBA Titer					
PMB80 (A22)	Dose 3	1225	83.2 (81.0, 85.2)	1695	80.5 (78.6, 82.4)
PMB2001 (A56)	Dose 3	1128	90.2 (88.4, 91.9)	1642	90.0 (88.4, 91.4)
PMB2948 (B24)	Dose 3	1235	79.8 (77.4, 82.0)	1675	79.3 (77.3, 81.2)
PMB2707 (B44)	Dose 3	1203	85.9 (83.8, 87.8)	1696	79.6 (77.6, 81.5)
Composite hSBA Response[g]					
	Before Dose 1	1088	1.1(0.6, 1.9)	1612	7.3 (6.0, 8.6)
	Dose 3	1170	83.5 (81.3, 85.6)	1664	84.9 (83.1, 86.6)

Abbreviations: fHbp = factor H binding protein; hSBA = serum bactericidal assay using human complement; LLOQ = lower limit of quantitation; LOD = limit of detection.

Note: LLOQ = 1:16 for A22; 1:8 for A56, B24, and B44.

Note: The 4-fold increase is defined as follows: (1) For subjects with a baseline hSBA titer below the LOD (hSBA titer <1:4), a response is defined as an hSBA titer ≥1:16 or the LLOQ (whichever titer is higher). (2) For subjects with a baseline hSBA titer ≥LOD and <LLOQ, a response is defined as an hSBA titer ≥4 times the LLOQ. (3) For subjects with a baseline hSBA titer ≥LLOQ, a response is defined as an hSBA titer ≥4 times the baseline titer.

Note: Pre-specified criteria for assessment of hSBA responses (4-fold rise in titer to each primary test strain, and titer above LLOQ for all four primary test strains) were met in these studies.

a. Evaluable immunogenicity population.
b. Study 1009 = NCT01830855 and Study 1016 = NCT01352845.
c. Study 1009: Group 1 (0, 2, and 6 months).
d. Study 1016: Group 1 (0, 2, and 6 months).
e. For the third dose, serum was obtained approximately 1 month after vaccination.
f. Exact 2-sided confidence interval (Clopper-Pearson method) based upon the observed proportion of subjects.
g. Composite response = hSBA ≥ LLOQ for all 4 primary meningococcal B strains.

In Studies 1009 and 1016, the proportion of subjects achieving a defined hSBA titer after 3 doses of Trumenba, administered on a 0-, 2-, and 6-month schedule, was evaluated against a panel of 10 additional representative strains, each expressing a different fHbp variant (Table 10).

Table 10: Percentages of Individuals 10 through 25 Years of Age With hSBA Titer ≥ LLOQ Against 10 Additional Strains (Study 1009 and Study 1016)[a,b]

fHbp Variant[c]	Study 1009 (10 to 18 Years of Age) (0, 2, and 6 Months)		Study 1016 (18 to 25 Years of Age) (0, 2, and 6 Months)	
	N	% (95% CI)[d]	N	% (95% CI)[d]
LLOQ = hSBA titer 1:8				
PMB3040 (A07)				
Before Dose 1	269	43.1 (37.1, 49.3)	274	55.8 (49.7, 61.8)
Dose 3	280	96.4 (93.5, 98.3)	277	95.7 (92.6, 97.7)
PMB1672 (A15)				
Before Dose 1	270	20.7 (16.1, 26.1)	279	37.3 (31.6, 43.2)
Dose 3	266	87.2 (82.6, 91.0)	279	91.8 (87.9, 94.7)
PMB3175 (A29)				
Before Dose 1	269	17.5 (13.1, 22.5)	280	31.1 (25.7, 36.9)
Dose 3	278	98.6 (96.4, 99.6)	283	99.3 (97.5, 99.9)
PMB1256 (B03)				
Before Dose 1	280	4.3 (2.2, 7.4)	277	11.2 (7.7, 15.5)
Dose 3	279	92.5 (88.7, 95.3)	273	86.4 (81.8, 90.3)
PMB866 (B09)				
Before Dose 1	277	15.2 (11.2, 19.9)	277	23.5 (18.6, 28.9)
Dose 3	276	86.2 (81.6, 90.1)	274	77.0 (71.6, 81.9)
PMB431 (B15)				
Before Dose 1	275	28.7 (23.5, 34.5)	274	43.8 (37.8, 49.9)
Dose 3	281	98.2 (95.9, 99.4)	276	96.7 (93.9, 98.5)
PMB648 (B16)				
Before Dose 1	276	7.6 (4.8, 11.4)	270	21.9 (17.1, 27.3)
Dose 3	278	81.7 (76.6, 86.0)	273	78.0 (72.6, 82.8)
LLOQ = hSBA titer 1:16				
PMB3010 (A06)				
Before Dose 1	277	9.4 (6.2, 13.5)	275	16.0 (11.9, 20.9)
Dose 3	280	95.7 (92.6, 97.8)	275	92.0 (88.1, 94.9)
PMB824 (A12)				
Before Dose 1	280	3.9 (2.0, 6.9)	278	5.0 (2.8, 8.3)
Dose 3	277	75.1 (69.6, 80.1)	275	71.3 (65.5, 76.5)
PMB1989 (A19)				
Before Dose 1	274	11.3 (7.8, 15.7)	278	28.8 (23.5, 34.5)
Dose 3	275	92.7 (89.0, 95.5)	284	95.8 (92.7, 97.8)

Abbreviations: fHbp = factor H binding protein; hSBA = serum bactericidal assay using human complement; LLOQ = lower limit of quantitation.

Note: LLOQ = 1:16 for A06, A12, and A19; 1:8 for A07, A15, A29, B03, B09, B15, and B16.

a. The evaluable immunogenicity population was used for the evaluation at Dose 3.
b. Study 1009 = NCT01830855 and Study 1016 = NCT01352845.
c. For the third dose, serum was obtained approximately 1 month after vaccination.
d. Exact 2-sided confidence interval (Clopper and Pearson) based upon the observed proportion of subjects.

The 4 primary and 10 secondary meningococcal B test strains evaluated in phase 3 studies 1016 and 1009 express fHbp variants that are heterologous from the vaccine antigens and epidemiologically relevant in Canada, the US and Europe.

In Study 1012, Trumenba was administered according to the following schedules: Group 1 (0, 1, and 6 months), Group 2 (0, 2, and 6 months), and Group 3 (0 and 6 months). The hSBA responses observed after the second dose in Groups 1, 2 and 3 and completion of the three-dose series in Group 1 and 2 are presented in Table 11.

Table 11: Immune Responses Among Individuals 11 through 18 Years of Age Administered Trumenba After 2- and 3-Dose Schedules (Study 1012)[a, b]

fHbp Variant[f]		Group 1	Group 2	Group 3
		3-Dose Schedule (0, 1, and 6 Months)[c]	3-Dose Schedule (0, 2, and 6 Months)[d]	2-Dose Schedule (0 and 6 Months)[e]
		% (95% CI)[g]	% (95% CI)[g]	% (95% CI)[g]
PMB80 (A22)				
	% Subjects With ≥4-Fold rise in hSBA titer			
	Dose 2	58.8 (51.4, 66.0)	72.5 (66.4, 78.0)	82.3 (76.3, 87.3)
	Dose 3	77.6 (70.9, 83.4)	87.7 (81.6, 92.3)	--
PMB2001 (A56)				
	% Subjects With ≥4-Fold rise in hSBA titer			
	Dose 2	87.8 (82.2, 92.2)	90.7 (86.2, 94.1)	90.1 (85.1, 93.8)
	Dose 3	91.2 (86.1, 94.9)	93.8 (88.8, 97.0)	--
PMB2948 (B24)				
	% Subjects With ≥4-Fold rise in hSBA titer			
	Dose 2	51.1 (43.6, 58.5)	54.2 (47.7, 60.7)	64.5 (57.4, 71.1)
	Dose 3	74.1 (67.1, 80.2)	78.3 (71.1, 84.4)	--
PMB2707 (B44)				
	% Subjects With ≥4-Fold rise in hSBA titer			
	Dose 2	48.1 (40.7, 55.6)	53.4 (46.8, 59.9)	66.0 (58.9, 72.6)
	Dose 3	80.9 (74.5, 86.2)	78.6 (71.4, 84.7)	--
Composite response[f,h]				
	Before Dose 1	4.6 (2.0, 8.8)	2.2 (0.7, 5.0)	1.5 (0.3, 4.4)
	Dose 2	52.0 (44.3, 59.7)	52.0 (45.3, 58.6)	72.9 (65.9, 79.1)
	Dose 3	80.3 (73.7, 85.9)	81.8 (74.9, 87.4)	--

Abbreviations: fHbp = factor H binding protein; GMT = geometric mean titer; hSBA = serum bactericidal assay using human complement; LLOQ = lower limit of quantitation.
Note: LLOQ = 1:16 for PMB80 (A22) and 1:8 for PMB2001 (A56), PMB2948 (B24), and PMB2707 (B44).
Note: The 4-fold increase is defined as follows: (1) For subjects with a baseline hSBA titer <1:4, a 4-fold response was defined as an hSBA titer ≥1:16. (2) For subjects with a baseline hSBA titer ≥1:4, a 4-fold response was defined as an hSBA titer ≥4 times the LLOQ or ≥4 times the baseline titer, whichever was higher.

a. Per-schedule evaluable populations. Dose 2 data include subjects who received two doses, irrespective of whether they received the third dose.
b. NCT01299480.
c. Group 1 (0, 1, and 6 months). The denominators ranged from 173 to 187 after Dose 2 and 178 to 188 after Dose 3, depending on the strain.
d. Group 2 (0, 2, and 6 months). The denominators ranged from 229 to 240 after Dose 2 and 159 to 162 after Dose 3, depending on the strain.
e. Group 3 (0 and 6 months). The denominators ranged from 188 to 203 after Dose 2.

f. For the second and third doses, serum was obtained approximately 1 month after vaccination.
g. Exact 2-sided confidence interval (Clopper and Pearson) based upon the observed proportion of subjects.
h. Composite response = hSBA ≥ LLOQ for all 4 primary meningococcal B strains combined.

Persistence of immunity and response to booster vaccination

Study 1033 was an open-label, follow-up study of subjects previously enrolled in a primary study, including Study 1012. Subjects attended visits over 4 years for collection of blood samples and received a single booster dose of Trumenba approximately 4 years after receipt of a primary series of 2 or 3 doses of Trumenba.

The hSBA responses up to 4 years after the primary series and up to 26 months after the booster dose for subjects enrolled from primary Study 1012 Group 1 (0, 1, and 6 months), Group 2 (0, 2, and 6 months), and Group 3 (0 and 6 months) are presented in Table 12.

Table 12: hSBA titres up to 48 months post-primary series completion among subjects 11 to 18 years of age who received Trumenba on a 0-, 1-, 6-month; 0-, 2-, 6-month; and 0-, 6-month schedules; and up to 26 months post booster given 4 years after primary series completion (Study B1971033)

			Primary Study B1971012 Vaccine Groups (as Randomized)								
			0, 1, and 6 months			0, 2, and 6 months			0 and 6 months		
Strain	Timepoint		N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)	N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)	N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)
A22	Post-primary	month 1	59	89.8 (79.2, 96.2)	53.0 (40.4, 69.6)	57	91.2 (80.7, 97.1)	59.5 (45.5, 77.8)	61	98.4 (91.2, 100.0	55.8 (46.2, 67.4)
		month 12	99	41.4 (31.6, 51.8)	14.9 (12.6, 17.7)	111	45.0 (35.6, 54.8)	15.8 (13.4, 18.6)	113	36.3 (27.4, 45.9)	15.6 (13.0, 18.8)
		month 48	59	49.2 (35.9, 62.5)	16.6 (13.0, 21.1)	57	56.1 (42.4, 69.3)	20.7 (15.6, 27.4)	61	55.7 (42.4, 68.5)	16.6 (13.4, 20.5)
	Post-booster	month 1	59	100.0 (93.9, 100.0)	126.5 (102.7, 155.8)	58	100.0 (93.8, 100.0)	176.7 (137.8, 226.7)	60	96.7 (88.5, 99.6)	142.0 (102.9, 196.1)
		month 12	58	74.1 (61.0, 84.7)	33.6 (24.5, 46.1)	54	77.8 (64.4, 88.0)	44.1 (31.2, 62.4)	60	80.0 (67.7, 89.2)	31.6 (23.5, 42.5)
		month 26	0	NE[2]	NE[2]	34	73.5 (55.6, 87.1)	34.7 (23.0, 52.4)	42	61.9 (45.6, 76.4)	27.1 (18.6, 39.6)
A56	Post-primary	month 1	58	100.0 (93.8, 100.0)	158.7 (121.5, 207.3)	57	98.2 (90.6, 100.0)	191.2 (145.8, 250.8)	62	98.4 (91.3, 100.0	143.1 (109.6, 187.0)
		month 12	98	73.5 (63.6, 81.9)	25.7 (19.4, 34.0)	109	76.1 (67.0, 83.8)	27.3 (21.0, 35.4)	106	60.4 (50.4, 69.7)	18.5 (13.8, 24.7)
		month 48	53	43.4 (29.8, 57.7)	10.7 (7.4, 15.3)	55	56.4 (42.3, 69.7)	15.0 (10.2, 22.2)	62	43.5 (31.0, 56.7)	10.8 (7.6, 15.3)
	Post-booster	month 1	57	100.0 (93.7, 100.0)	359.8 (278.7, 464.7)	56	100.0 (93.6, 100.0)	414.8 (298.8, 575.9)	62	98.4 (91.3, 100.0	313.1 (221.3, 442.8)
		month 12	55	90.9 (80.0, 97.0)	47.3 (34.3, 65.3)	55	89.1 (77.8, 95.9)	64.0 (42.6, 96.2)	59	81.4 (69.1, 90.3)	41.0 (26.7, 62.7)
		month 26	0	NE[2]	NE[2]	29	82.8 (64.2, 94.2)	37.8 (21.3, 67.2)	40	57.5 (40.9, 73.0)	16.0 (9.9, 25.8)
B24	Post-	month 1	59	88.1 (77.1, 95.1)	25.6 (19.7, 33.3)	58	91.4 (81.0, 97.1)	30.5 (23.8, 39.1)	60	85.0 (73.4, 92.9)	29.2 (21.5, 39.6)

Strain	Timepoint		Primary Study B1971012 Vaccine Groups (as Randomized)								
			0, 1, and 6 months			0, 2, and 6 months			0 and 6 months		
			N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)	N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)	N	% ≥ 1:8[1] (95% CI)	GMT (95% CI)
		month 12	98	40.8 (31.0, 51.2)	9.7 (7.5, 12.4)	108	49.1 (39.3, 58.9)	11.5 (9.0, 14.6)	103	36.9 (27.6, 47.0)	8.4 (6.7, 10.6)
		month 48	59	40.7 (28.1, 54.3)	10.7 (7.6, 15.1)	57	49.1 (35.6, 62.7)	11.4 (8.2, 15.9)	62	40.3 (28.1, 53.6)	8.9 (6.8, 11.8)
	Post-booster	month 1	58	100.0 (93.8, 100.0)	94.9 (74.6, 120.9)	57	100.0 (93.7, 100.0)	101.6 (83.1, 124.2)	62	96.8 (88.8, 99.6)	79.1 (60.6, 103.5)
		month 12	58	65.5 (51.9, 77.5)	21.1 (14.2, 31.3)	54	74.1 (60.3, 85.0)	25.7 (17.7, 37.5)	62	77.4 (65.0, 87.1)	22.4 (16.4, 30.5)
		month 26	0	NE[2]	NE[2]	33	78.8 (61.1, 91.0)	24.4 (16.1, 36.8)	42	59.5 (43.3, 74.4)	14.5 (9.9, 21.3)
B44	Post-primary	month 1	58	86.2 (74.6, 93.9)	46.3 (31.7, 67.8)	57	89.5 (78.5, 96.0)	50.2 (35.3, 71.3)	60	81.7 (69.6, 90.5)	35.5 (24.5, 51.4)
		month 12	100	24.0 (16.0, 33.6)	6.4 (5.2, 7.8)	111	22.5 (15.1, 31.4)	6.0 (5.1, 7.2)	115	16.5 (10.3, 24.6)	5.6 (4.8, 6.5)
		month 48	57	36.8 (24.4, 50.7)	8.3 (6.3, 11.0)	57	35.1 (22.9, 48.9)	7.6 (5.8, 10.0)	62	12.9 (5.7, 23.9)	4.6 (4.1, 5.1)
	Post-booster	month 1	59	100.0 (93.9, 100.0)	137.3 (100.3, 188.0)	58	100.0 (93.8, 100.0)	135.9 (108.0, 171.0)	61	93.4 (84.1, 98.2)	74.2 (51.6, 106.8)
		month 12	56	75.0 (61.6, 85.6)	23.2 (16.2, 33.2)	53	81.1 (68.0, 90.6)	24.3 (17.8, 33.3)	61	59.0 (45.7, 71.4)	13.3 (9.7, 18.3)
		month 26	0	NE[2]	NE[2]	33	66.7 (48.2, 82.0)	16.0 (10.4, 24.7)	43	62.8 (46.7, 77.0)	13.6 (9.8, 18.9)
Composite[3]											
	Post-primary	month 1	57	80.7 (68.1, 90.0)	NE	55	87.3 (75.5, 94.7)	NE	57	77.2 (64.2, 87.3)	NE
		month 12	55	10.9 (4.1, 22.2)	NE	51	13.7 (5.7, 26.3)	NE	49	20.4 (10.2, 34.3)	NE
		month 48	51	19.6 (9.8, 33.1)	NE	53	30.2 (18.3, 44.3)	NE	61	9.8 (3.7, 20.2)	NE
	Post-booster	month 1	56	100 (93.6, 100.0)	NE	55	100.0 (93.5, 100.0)	NE	59	91.5 (81.3, 97.2)	NE
		month 12	53	52.8 (38.6, 66.7)	NE	48	64.6 (49.5, 77.8)	NE	57	61.4 (47.6, 74.0)	NE
		month 26	0	NE[2]	NE	27	48.1 (28.7, 68.1)	NE	36	44.4 (27.9, 61.9)	NE

Abbreviations: hSBA=serum bactericidal assay using human complement; NE=not evaluated; GMT=geometric mean titre.

[1] All strains used a 1:8 titre threshold except A22 which was 1:16.

[2] Subjects were not followed beyond 12 months post booster.

[3] Proportion of subjects with a composite of hSBA titres ≥ 1:8 or 16 for all four primary strains combined.

Serum samples were analysed concurrently in the same serology campaign for all time points except the 12 months post-primary dose time point for which results are from the interim analysis.

Concomitant Vaccine Administration

In Study 1011, the immunogenicity of concomitantly administered Trumenba and quadrivalent human papillomavirus (HPV4) vaccine was evaluated in adolescents 11 to <18 years of age. Immune responses were evaluated by comparisons of geometric mean titers (GMTs) for each human papillomavirus (HPV) type at 1 month after the third HPV4 vaccination and hSBA GMTs using two meningococcal serogroup B test strains [variants A22 and B24] 1 month after the third vaccination with Trumenba. The noninferiority criteria for comparisons of the GMT ratio (lower limit of the 2-sided 95% confidence interval of the GMT ratio >0.67) were met for three HPV types (6, 11, and 16) and for the meningococcal serogroup B strains. For HPV-18, the lower bound of the 95% confidence interval (CI) for the GMT ratio was 0.62 at 1 month after the third HPV4 vaccination. One month after Dose 3 with HPV4, ≥99% of subjects seroconverted to all 4 HPV antigens in both the saline + HPV4 and Trumenba + HPV4 groups.

In Study B1971015 (Study 1015), the immunogenicity of concomitantly administered Trumenba with quadrivalent meningococcal polysaccharide conjugate (MenACWY) and Tdap vaccines was evaluated in adolescents 10 to <13 years of age. Immune responses were evaluated by comparisons of GMTs for each of 10 MenACWY and Tdap antigens 1 month after the first Trumenba vaccination, and hSBA GMTs using two meningococcal serogroup B strains [variants A22 and B24] 1 month after the third Trumenba vaccination. The criterion for the noninferiority margin of 1.5-fold was met for all antigens.

16 NON-CLINICAL TOXICOLOGY

The data from nonclinical studies are summarized in Table 13.

Table 13: Nonclinical Toxicology Studies

Study Type and Species	rLP2086 Dose[a] (mcg) Dosing Schedule	Results
Single[b] and Repeat Dose		
Initial[c] 5-cycle (1 dose/2 weeks) IM toxicity study in rabbits	0 (saline control), 0 (vehicle control), 100, 400 Days 1, 15, 29, 43 and 57	Bivalent rLP2086 was well tolerated and there were no adverse effects of the vaccine on any measured parameter.
Repeat[d] 5-cycle (1 dose/2 weeks) IM toxicity study in rabbits	0 (saline control), 0 (vehicle control), 400 Days 1, 15, 29, 43 and 57	Bivalent rLP2086 was well tolerated and there were no adverse effects of the vaccine on any measured parameter.
Reproductive and Developmental		
Initial[c] IM fertility and developmental toxicity study in rabbits	0 (saline control), 0 (vehicle control), 200 Days 17 and 4 prior to mating and gestation days 10 and 24	Bivalent rLP2086 was well tolerated and there were no vaccine-related effects on fertility or embryo-fetal development.
Repeat[d] IM fertility and developmental toxicity study in rabbits	0 (saline control), 0 (vehicle control), 200 Days 17 and 4 prior to mating and gestation days 10 and 24	Bivalent rLP2086 was well tolerated and there were no vaccine-related effects on fertility or embryo-fetal development.

Table 13: Nonclinical Toxicology Studies

Study Type and Species	rLP2086 Dose[a] (mcg) Dosing Schedule	Results

a. Total amount of rLP2086 subfamily A and B proteins at 1:1 ratio.
b. Single-dose toxicity was evaluated using data collected after the first dose administered to rabbits in repeat-dose toxicity studies.
c. Studies conducted with initial vaccine formulation of bivalent rLP2086.
d. Studies conducted using the final formulation of bivalent rLP2086.

General Toxicology:
Non-clinical data revealed no special hazard for humans based on conventional studies of repeat dose toxicity and local tolerance.

Carcinogenicity:
Carcinogenic potential was not assessed, as carcinogenicity studies were not considered relevant to this vaccine.

Genotoxicity:
Genotoxic potential was not assessed, as genotoxicity studies were not considered relevant to this vaccine.

Reproductive and Developmental Toxicity:
Reproduction studies performed in female rabbits at doses equivalent to the highest administered human dose have revealed no evidence of impaired female fertility or harm to the fetus due to Trumenba.

PATIENT MEDICATION INFORMATION

READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE

Trumenba®

Meningococcal group B vaccine

[Bivalent recombinant lipoprotein (rLP2086)]

***Neisseria meningitidis* serogroup B rLP2086 subfamily A 60 mcg, *Neisseria meningitidis* serogroup B rLP2086 subfamily B 60 mcg per 0.5 mL, Suspension for Intramuscular Injection**

Read this carefully before you/your child receives **Trumenba**. This leaflet is a summary and will not tell you everything about this vaccine. Talk to your/your child's healthcare professional about your/your child's medical condition and treatment and ask if there is any new information about **Trumenba**.

What is Trumenba used for?

- Trumenba is a vaccine to prevent invasive meningococcal disease, caused by *Neisseria meningitidis* serogroup B bacteria, for use in people aged 10 through 25 years. Invasive meningococcal group B disease (also known as meningitis B) is a serious and sometimes life-threatening bacterial infection that can result in meningitis (inflammation of the covering of the brain and spinal cord) and sepsis (blood poisoning). Meningitis B can spread from person to person through close contact (such as coughing or kissing) or lengthy contact, especially among people living in the same household.

How does Trumenba work?

Trumenba targets a protein found in over 95% of bacteria that cause meningitis B. It works by helping the body to make antibodies (the body's natural defences), which protect you or your child against this disease. These antibodies kill the bacteria that cause meningitis B. If a vaccinated person comes into contact with the bacteria that cause this disease, their body is usually ready to destroy them.

What are the ingredients in Trumenba?

Medicinal ingredients: 1 dose (0.5 mL) contains the following active substances:
Neisseria meningitidis serogroup B recombinant lipoprotein (rLP2086) subfamily A: 60 micrograms
Neisseria meningitidis serogroup B recombinant lipoprotein (rLP2086) subfamily B: 60 micrograms

Non-medicinal ingredients: aluminum phosphate, histidine, polysorbate 80, sodium chloride, water for injection

Trumenba comes in the following dosage forms:

A white suspension for injection, provided in a single-dose, pre-filled syringe.

Do not use Trumenba if:

- You or your child are allergic to the active substance or any of the other ingredients of this vaccine.

To help avoid side effects and ensure proper use, talk to your healthcare professional before you/your child receives Trumenba. Talk about any health conditions or problems you/your child may have, including if you/your child:

- Have any problems after any dose of Trumenba such as an allergic reaction or problems with breathing.

- Have any problem that may stop your blood from clotting properly.
- Have a weakened immune system, which may prevent you or your child from getting the full benefit from Trumenba, for example due to complement deficiencies or medicines that suppress the immune system (for example eculizumab).
- Are pregnant or breast-feeding, think you may be pregnant or are planning to have a baby. Ask your healthcare professional for advice before receiving Trumenba. Your healthcare professional may still recommend that you receive Trumenba if you are at risk of meningococcal disease.

Fainting, feeling faint, or other stress-related reactions can occur as a response to any needle injection. Tell your doctor, pharmacist or nurse if you or your child have experienced this kind of reaction previously.

Trumenba has little or no influence on the ability to drive or use machines. However, some of the effects mentioned under the section "**What are possible side effects from using Trumenba?"** may temporarily affect the ability to drive or use machines.

Other warnings you should know about:

- As with any vaccine, Trumenba may not fully protect everyone who is vaccinated.

Tell your healthcare professional about all the medicines you/your child take, including any drugs, vitamins, minerals, natural supplements or alternative medicines.

The following may interact with Trumenba:

- If you or your child take medicines or receive therapies that affect your immune system (such as radiation therapy, eculizumab, steroids or some types of cancer chemotherapies), you or your child may not get the full benefit of Trumenba, or may remain at increased risk for disease caused by meningococcal group B bacteria even if you develop antibodies following vaccination with Trumenba.

Trumenba can be given at the same time as any of the following vaccines: quadrivalent human papillomavirus vaccine (HPV4), meningococcal serogroups A, C, W, Y conjugate vaccine (MenACWY) and tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine adsorbed (Tdap).

When Trumenba is given at the same time as another vaccine, the vaccines must be given in different syringes and at separate injection sites.

How Trumenba is given:

Trumenba (0.5 mL) will be given to you or your child by a healthcare professional (doctor, nurse or pharmacist). It will be injected into the upper arm muscle.

It is important to follow the instructions from the healthcare professional so that you or your child receives all of the injections.

Dosing schedule (depending on the risk from disease):

Individuals 10 through 25 years

- You or your child will receive 2 injections of the vaccine. The second injection is given 6 months after the first injection.

or

- You or your child will receive 2 injections of the vaccine given at least 1 month apart and a third injection at least 4 months after the second injection.
- You or your child may be given a booster.

Overdose:

Overdose with Trumenba is unlikely as it is supplied as a single-dose pre-filled syringe.

If you think you/your child have received too much Trumenba, contact a healthcare professional, hospital emergency department, or regional poison control centre immediately, even if there are no symptoms.

Missed Dose:

If you forget to go back to your healthcare professional at the scheduled time for your/your child's next dose, ask your healthcare professional for advice.

What are possible side effects from using Trumenba?

Like all vaccines, Trumenba can cause side effects, although not everybody gets them.

These are not all the possible side effects you/your child may have when taking Trumenba. If you/your child experience any side effects not listed here, tell your healthcare professional.

When Trumenba is given to you or your child, the following side effects may occur:

Very common (these may affect more than 1 in 10 people)
- headache
- nausea
- diarrhea
- muscle pain, joint pain
- redness, swelling and pain at injection site
- chills
- fatigue (tiredness)

Common (these may affect more than 1 in 100 people)
- vomiting
- fever ≥ 38°C

Side effects that have been reported during marketed use include:

- allergic reactions
- fainting

If you/your child have a troublesome symptom or side effect that is not listed here or becomes bad enough to interfere with your daily activities, tell your healthcare professional.

Reporting Suspected Side Effects for Vaccines

For the general public: Should you experience a side effect following immunization, please report it to your healthcare professional.

Should you require information related to the management of the side effect, please contact your healthcare professional. The Public Health Agency of Canada, Health Canada and Pfizer Canada ULC cannot provide medical advice.

For healthcare professionals: If a patient experiences a side effect following immunization, please complete the Adverse Events Following Immunization (AEFI) Form appropriate for your province/territory (http://www.phac-aspc.gc.ca/im/aefi-essi-form-eng.php) and send it to your local Health Unit.

Storage:

Store in a refrigerator (2°C to 8°C).

Store syringes in the refrigerator horizontally (laying flat on the shelf).

Do not freeze. Discard if the vaccine has been frozen.

Do not use this vaccine after the expiry date which is stated on the label and carton after EXP. The expiry date refers to the last day of that month.

Keep out of reach and sight of children.

If you want more information about Trumenba:

- Talk to your healthcare professional
- Find the full product monograph that is prepared for healthcare professionals and includes this Patient Medication Information by visiting the Health Canada website: (https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/drug-product-database.html; the manufacturer's website www.pfizer.ca, or by calling 1-800-463-6001 (Pfizer Medical Information).

This leaflet was prepared by Pfizer Canada ULC.

Last Revised: October 11, 2022