PRODUCT MONOGRAPH

INCLUDING PATIENT MEDICATION INFORMATION

Trumenba™

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

Suspension for Injection

Active Immunizing Agent for the Prevention of Meningococcal Disease

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Table of Contents

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

PART I: HEALTH PROFESSIONAL INFORMATION

SUMMARY PRODUCT INFORMATION

Route of Administration	Dosage Form / Strength	Clinically Relevant Nonmedicinal 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	*For a complete listing see DOSAGE FORMS, COMPOSITION AND PACKAGING.*

DESCRIPTION

Trumenba is a bivalent vaccine that consists of two purified *Neisseria meningitidis* serogroup B recombinant lipoprotein 2086 (rLP2086) antigens, one from each of the two factor H binding protein (fHBP) subfamilies (A and B). The antigens are fHBP variants A05 (subfamily A) and B01 (subfamily B).

INDICATIONS AND CLINICAL USE

Trumenba 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.

CONTRAINDICATIONS

Hypersensitivity to this vaccine or to any ingredient in the formulation or component of the container. For a complete listing, see DOSAGE FORMS, COMPOSITION AND PACKAGING.

Severe allergic reaction (e.g., anaphylaxis) after any previous dose of Trumenba or to any component of this vaccine.

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.

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.

Sexual Function/Reproduction
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 TOXICOLOGY). Trumenba has not been evaluated for impairment of fertility in males.

Special Populations

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.

Nursing Women:
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.

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

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

ADVERSE REACTIONS

Adverse Drug Reaction Overview
In clinical studies, the most common solicited adverse reactions were pain at the injection site, fatigue, headache, and muscle pain (see Tables 1 and 2). 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.

Clinical Trial Adverse Drug Reactions
Because clinical trials are conducted under very specific conditions the adverse reaction rates observed in the clinical trials may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse drug reaction information from clinical trials is useful for identifying drug-related adverse events and for approximating rates.

The safety of Trumenba was investigated in 11 completed clinical studies (see CLINICAL TRIALS, Table 3) that enrolled a total of 20,803 subjects, of which 15,294 subjects received at least 1 dose of Trumenba (any dose level or vaccination regimen) administered alone or concomitantly with a licensed vaccine and 5509 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 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=5509).

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

Tables 1 and 2 present the percentage of subjects who reported solicited local (Table 1) and systemic (Table 2) reactions, regardless of causality, within 7 days of 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 patients.

Study 1009 was a Phase 3, randomized, active-controlled, observer-blinded, global, multicenter trial in which 2,693 subjects 10 to 18 years of age received at least 1 dose of Trumenba on a 0-, 2-, and 6- month schedule. A control group received 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 1016 was a Phase 3, randomized, placebo-controlled, observer-blinded, global, multicenter trial in which 2,471 subjects 18 to 25 years of age received at least 1 dose of Trumenba or saline on a 0-, 2,- and 6- month schedule.

Table 1: Percentage of Subjects 10 to 18 Years of Age (Study 1009) and 18 to 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	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3
Reaction	N=2681	N=2545	N=2421	N=890	N=843	N=821	N=2425	N=2076	N=1823	N=798	N=706	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]	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]	18.0	13.9	15.4	2.2	0.6	0.9	15.5	14.0	16.6	0.6	0.4	0.3
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 2: Percentage of Subjects 10 to 18 Years of Age (Study 1009) and 18 to 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	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3	Dose 1	Dose 2	Dose 3
Reaction	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]												
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

Table 2: Percentage of Subjects 10 to 18 Years of Age (Study 1009) and 18 to 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 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

[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[1] 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 120 mcg on a 0, 2, 6-month schedule. No new safety signal was identified with the limited number of subjects.

Adverse Events

Overall, 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=5509). 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 the 8 controlled studies, 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.

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)

DRUG INTERACTIONS

Drug-Drug Interactions

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

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

Drug-Lifestyle Interactions

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

DOSAGE AND ADMINISTRATION

Recommended Dose and Dosage Adjustment

Standard schedule for routine immunization: 2 doses (0.5 mL each) administered at 0 and 6 months.

Schedule for individuals at increased risk of invasive meningococcal disease: 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.

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.

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 overdose, contact your regional Poison Control Centre.

ACTION AND CLINICAL PHARMACOLOGY

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.[2]

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.[3] Meningococcal fHBP binds human factor H to prevent complement activation, allowing bacteria to avoid host immune defenses.[4,5] 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.[3] Trumenba prevents serogroup B disease by inducing broadly protective bactericidal antibody responses against diverse fHBP variants expressed by serogroup B strains. [3,6] Bactericidal antibodies elicited by Trumenba may also prevent factor H from binding to fHBP and render the bacteria more susceptible to complement-mediated killing.[5]

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.[7] 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.[8,9,10]

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 (2006-2011), serogroup B has caused 50%-62% of all IMD cases, resulting in an incidence rate of 0.33 cases per 100,000 population.[7,10] A prolonged epidemic of serogroup B meningococcal disease has been observed in the province of Quebec.[11]

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. [7]

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.[12] 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.[13] 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. Unlike IMD in other provinces, cases associated with the Quebec epidemic have been dominated by CC269 serogroup B strains,[11] the majority of which express fHBP variant B44.

STORAGE AND STABILITY

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.

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.

SPECIAL HANDLING INSTRUCTIONS

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

DOSAGE FORMS, COMPOSITION AND PACKAGING

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

Each dose (0.5 mL) of vaccine contains:

Neisseria meningitidis serogroup B rLP2086 subfamily A	60 micrograms
Neisseria meningitidis serogroup B rLP2086 subfamily B	60 micrograms

The vaccine also contains the following excipients: aluminum phosphate, histidine, polysorbate 80, sodium chloride and water for injection.

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.

PART II: SCIENTIFIC INFORMATION

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.

CLINICAL TRIALS

Study Demographics and Trial Design

The immunogenicity and safety profile of Trumenba is based on data from 11 completed clinical trials in 20,803 subjects. Study demographics and trial design for the key clinical trials are presented in Table 3.

Table 3 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						
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: 120 mcg; 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: 120 mcg; 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[14]	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: 120 mcg; 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
Phase 2 Study Evaluating Various 2 and 3 Dose Schedules						
B1971012[15]	Safety and immunogenicity of various 2 and 3 dose schedules of bivalent rLP2086	Phase 2, randomized, placebo-controlled, single-blind, multicenter study	Bivalent rLP2086: 120 mcg; 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[16]	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 120 mcg; + HPV; 0, 2, and 6 months Group 2: Bivalent rLP2086 120 mcg; + 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

Table 3 Study Demographics and Design

Study No.	Study Objective	Study Design	Study Vaccine/ Regimen	No. Subjects Randomized	Mean Age In Years (Range)	Gender (%)
B1971015[17]	Safety, tolerability and immunogenicity of bivalent rLP2086 when used concomitantly with MCV4 and Tdap vaccines	Phase 2, randomized, active-controlled, observer-blinded multicenter study	Group 1: Bivalent rLP2086: 120 mcg; 0, 2, and 6 months MCV4: 0 months Tdap: 0 months Group 2: Saline; 0, 2, and 6 months MCV4: 0 months Tdap: 0 months Group 3: Bivalent rLP2086: 120 µg; 0, 2, and 6 months Saline, 2 vaccinations: 0 months MCV4: 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; MCV4 = quadrivalent meningococcal polysaccharide conjugate vaccine; Tdap = tetanus, low-dose diphtheria, and low-dose acellular pertussis vaccine; M = male; F = female

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 group 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[12], 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).

Immunogenicity

The immunogenicity of Trumenba following three vaccinations was evaluated in individuals 10 to 25 years of age in studies 1009 and 1016 and following two or three vaccinations in individuals 11 to 18 years of age in study 1012.

Study 1009 was a Phase 3, randomized, active-controlled, observer-blinded, multicenter trial in which subjects aged 10 to 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 4.

Study 1016 was a Phase 3, randomized, placebo-controlled, observer-blinded, multicenter trial in which subjects 18 to 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 4.

Table 4 Percentage of Individuals 10 to 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 5).

Table 5 Percentages of Individuals 10 to 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[15], 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 6.

Table 6: Immune Responses Among Individuals 11 to 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.

Table 6: Immune Responses Among Individuals 11 to 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]

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.

Concomitant Vaccine Administration

In Study 1011[16], 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 1015[17], the immunogenicity of concomitantly administered Trumenba with quadrivalent meningococcal polysaccharide conjugate (MCV4) 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 MCV4 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.

TOXICOLOGY

The data from nonclinical studies are summarized in Table 7.

Table 7: 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.

[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.

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READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE

PATIENT MEDICATION INFORMATION

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

Read this carefully before you or your child receives **Trumenba**. This leaflet is a summary and will not tell you everything about this vaccine. Talk to your healthcare professional about your 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 or your child receives Trumenba. Talk about any health conditions or problems you or your child may have, including if you or 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.
- 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 or 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, steroids or some types of cancer chemotherapies), you may not get the full benefit of Trumenba.

Trumenba can be given at the same time as any of the following vaccines: quadrivalent human papillomavirus vaccine (HPV4), meningococcal serogroups A, C, Y, W conjugate vaccine (MnACYW) 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.

Usual dose:

Schedule for routine immunization
You or your child will receive two injections of the vaccine. The second injection is given 6 months after the first injection.

Schedule for those at increased risk of invasive meningococcal disease
You or your child will receive two injections of the vaccine given at least 1 month apart and a third injection at least 4 months after the second injection.

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 your 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 or your child may feel when receiving Trumenba.

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

Reporting Suspected Vaccine Adverse Events

For the general public:
If you suspect you have had a serious or unexpected event following receipt of a vaccine, please ask your healthcare professional to complete the Adverse Events Following Immunization (AEFI) Form and send it to your local health unit in your province/territory.

For healthcare professionals:
If a patient experiences an adverse event following immunization, please complete the Adverse Events Following Immunization (AEFI) Form and send it to your local health unit in your province/territory.

If you have any questions or have difficulty contacting your local health unit, please contact Vaccine Safety Section at Public Health Agency of Canada:
Toll-free telephone: 1-866-844-0018
Toll-free fax: 1-866-844-5931
By email: caefi@phac-aspc.gc.ca

NOTE: Should you require information related to the management of the adverse events, please contact your health professional before notifying the Public Health Agency of Canada. The Public Health Agency of Canada does not provide medical advice.

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, the manufacturer's website www.pfizer.ca, or by calling 1-800-463-6001 (Pfizer Medical Information).

This leaflet was prepared by Pfizer Canada Inc.

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