Product Monograph

Including Patient Medication Information

mNEXSPIKE™

COVID-19 mRNA vaccine

Dispersion for intramuscular injection

Single-dose, pre-filled syringe, 10 mcg/0.2 mL

Active Immunizing Agent

Omicron XBB.1.5 variant

ATC Classification: J07BN01 (COVID-19, RNA-based Vaccine)

Moderna Biopharma Canada Corp.
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M5V 3H1

Date of Authorization:
2026-04-09

Control Number: 304546

Recent Major Label Changes

Not applicable

Table of Contents

Certain sections or subsections that are not applicable at the time of the preparation of the most recent authorized product monograph are not listed.

Part 1: Healthcare Professional Information

1. Indications

mNEXSPIKE (COVID-19 mRNA vaccine) is indicated for active immunization against coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus in previously vaccinated individuals 18 years of age and older.

The National Advisory Committee on Immunization (NACI) provides additional guidance on the use of the COVID-19 vaccines in Canada. Please refer to the COVID-19 vaccine: Canadian Immunization Guide and current vaccine statements.

1.1. Pediatrics

Pediatrics (<18 years of age): Based on the data submitted and reviewed by Health Canada, the safety and efficacy of mNEXSPIKE in children under 18 years of age have not yet been established; therefore Health Canada has not authorized an indication for pediatric use in children under 18 years of age (see Adverse Reactions, and Clinical Trials sections).

1.2. Geriatrics

Geriatrics (≥65 years of age): Clinical studies of mNEXSPIKE included participants 65 years of age and older, and their data contribute to the overall assessment of the safety and effectiveness of mNEXSPIKE (see Adverse Reactions, and Clinical Trials sections).

2. Contraindications

mNEXSPIKE 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 Dosage Forms, Strengths, Composition, and Packaging.

4. Dosage and Administration

4.1. Dosing Considerations

mNEXSPIKE is a dispersion in a single-dose, pre-filled syringe for intramuscular injection that should be administered by a trained healthcare professional.

4.2. Recommended Dose and Dosage Adjustment

mNEXSPIKE is administered as a single dose of 0.2 mL intramuscularly.

Health Canada has not authorized an indication for pediatric use in children under 18 years of age (see Adverse Reactions, and Clinical Trials sections).

4.3. Reconstitution

mNEXSPIKE **must not** be reconstituted, mixed with other medicinal products, or diluted. No dilution is required prior to administration.

4.4. Administration

Preparation
mNEXSPIKE is supplied as a dispersion in a pre-filled syringe that does not contain preservative.

Do not shake the pre-filled syringe before use.

The pre-filled syringes may be stored at 8°C to 25°C for a total of 12 hours after removal from refrigerated conditions.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration. mNEXSPIKE is a white to off-white dispersion that is practically free of visible particles. Do not administer if vaccine is discolored or contains other particulate matter.

Administration
Administer a single 0.2 mL dose of mNEXSPIKE intramuscularly (IM). The preferred site is the deltoid muscle of the upper arm. Do not administer this product intravenously.

- Use a sterile needle of the appropriate size for intramuscular injection.
- With tip cap upright, remove tip cap by twisting counter-clockwise until tip cap releases. Remove tip cap in a slow, steady motion. Avoid pulling tip cap while twisting.
- Attach the needle by twisting in a clockwise direction until the needle fits securely on the syringe.
- Uncap the needle when ready for administration.
- Administer the entire dose intramuscularly.

For individuals previously vaccinated with any COVID-19 vaccine, administer the dose of mNEXSPIKE at least 6 months after the last dose of COVID-19 vaccine.

Disposal
Discard syringe after use.

5. Overdose

For the most recent information in the management of a suspected drug overdose, contact your regional poison control centre or Health Canada's toll-free number, 1-844 POISON-X (1-844-764-7669).

6. Dosage Forms, Strengths, Composition, and Packaging

To help ensure the traceability of vaccines for patient immunization record-keeping as well as safety monitoring, healthcare 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, and Composition

Route of Administration	Dosage Form/ Strength/Composition	Non-Medicinal Ingredients
Intramuscular injection	Dispersion, (50 mcg/mL) Each 0.2 mL dose contains 10 mcg of mRNA encoding SARS-COV-2 spike protein NTD-RBD subdomains, 5' (m7G-5'-ppp-5'-Gm) cap, 100-nucleotide 3' poly(A) tail. Single-dose, pre-filled syringe (0.2 mL)	• Cholesterol • DSPC (1,2-distearoyl-sn-glycero-3-phosphocholine) • SM-102 (heptadecan-9-yl 8-((2-hydroxyethyl) (6-oxo-6-(undecyloxy) hexyl)amino) octanoate) • PEG2000-DMG (1,2-dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000) • Sucrose • Trometamol • Trometamol hydrochloride • Water for Injection

Description

Each 0.2 mL single-dose, pre-filled syringe of mNEXSPIKE contains 10 micrograms of mRNA encoding SARS-CoV-2 spike protein NTD-RBD subdomains. The mRNA encoding spike protein NTD-RBD subdomains is derived from the Omicron variant XBB.1.5.

mNEXSPIKE is provided as a white to off-white, sterile, preservative-free dispersion for intramuscular injection. mNEXSPIKE contains lipid nanoparticle (LNP), comprised of a messenger ribonucleic acid (mRNA) encoding the subdomains of spike (RBD and NTD) protein of SARS-CoV-2, formulated with the non-medicinal ingredients listed in **Table 1**. mNEXSPIKE does not contain any preservatives, antibiotics, adjuvants, or human- or animal-derived materials. The rubber tip cap and plunger used for the pre-filled syringes are not made with natural rubber latex.

mNEXSPIKE is available in cartons containing 1 or 10 single-dose, pre-filled syringes.

7. Warnings and Precautions

General

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

Consideration should be given to postponing immunization in persons with severe febrile illness or severe acute infection. Persons with moderate or severe acute illness should be vaccinated as soon as the acute illness has improved.

Syncope (fainting) can occur following, or even before, any vaccination as a psychogenic response to the needle injection. Procedures should be in place to avoid injury from fainting and manage syncopal reactions.

Cardiovascular

Myocarditis and pericarditis

Postmarketing data with authorised or approved COVID-19 vaccines demonstrate increased risks of myocarditis and pericarditis, particularly within the first week following vaccination and the observed risk is highest in adolescent and young adult males.

Although some cases required intensive care support, available data from short-term follow-up suggest that most individuals have had resolution of symptoms with conservative management. Information is not yet available about potential long-term sequelae. No cases of vaccine-related myocarditis or pericarditis have been reported in clinical studies of mNEXSPIKE.

Healthcare professionals are advised to consider the possibility of myocarditis and/or pericarditis in their differential diagnosis if individuals present with chest pain, shortness of breath, palpitations or other signs and symptoms of myocarditis and/or pericarditis following immunization with a COVID-19 vaccine. This could allow for early diagnosis and treatment. Cardiology consultation for management and follow up should be considered. Vaccinees should be instructed to seek immediate medical attention if they develop the signs or symptoms indicative of myocarditis or pericarditis as described above.

Driving and Operating Machinery

No studies on the effects of mNEXSPIKE on the ability to drive and use machines have been performed.

mNEXSPIKE is unlikely to affect the ability to drive or use machines.

Hematologic

As with other vaccines administered intramuscularly, mNEXSPIKE should be given with caution to individuals with thrombocytopenia or any coagulation disorder since bleeding may occur following an intramuscular administration to these individuals.

Immune

As with any vaccine, the administration of mNEXSPIKE may not protect all vaccine recipients.

Immunocompromised persons, including individuals receiving immunosuppressive therapy, may have a diminished immune response to mNEXSPIKE.

7.1. Special Populations

7.1.1. Pregnancy

No adequate and well-controlled studies of mNEXSPIKE use in pregnant women have been conducted. Available clinical data on mNEXSPIKE administered to pregnant women are insufficient to inform vaccine-associated risks in pregnancy.

Pregnant women infected with SARS-CoV-2 are at increased risk of severe COVID-19 compared with non-pregnant individuals.

A developmental toxicity study was performed in female rats administered 80 micrograms of mNEXSPIKE twice prior to mating and twice during gestation. The study revealed no evidence of harm to the fetus due to the vaccine (see Non-Clinical Toxicology section).

7.1.2. Breastfeeding

It is unknown if mNEXSPIKE is excreted in human milk. A risk to the newborns/infants cannot be excluded. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for immunization against COVID-19.

7.1.3. Pediatrics

Pediatrics (<18 years of age): Based on the data submitted and reviewed by Health Canada, the safety and efficacy of mNEXSPIKE in children under 18 years of age have not yet been established; therefore Health Canada has not authorized an indication for pediatric use in children under 18 years of age (see Adverse Reactions, and Clinical Trials sections).

7.1.4. Geriatrics

Clinical studies of mNEXSPIKE included participants 65 years of age and older, and their data contribute to the overall assessment of the safety and effectiveness of mNEXSPIKE COVID-19 mRNA vaccine (see Adverse Reactions, and Clinical Trials sections).

8. Adverse Reactions

8.1. Adverse Reaction Overview

The safety profile of mNEXSPIKE is based on data generated from the safety analysis of Part 1 of the ongoing pivotal Study mRNA-1283-P301 [NCT05815498], a Phase 3 randomised, observer-blind, active-controlled clinical trial conducted in the United States, United Kingdom, and Canada involving 11,417 participants 12 years of age and older who received a single dose of mNEXSPIKE (10 mcg mRNA-1283.222; n=5,706) or SPIKEVAX bivalent Original/Omicron BA.4-5 (50 micrograms mRNA-1273.222; n=5,711) hereafter referred to as SPIKEVAX vaccine (i.e., the active comparator). The vaccine formula of mNEXSPIKE vaccine and the SPIKEVAX comparator vaccine administered in the study targeted the SARS-CoV-2 Wuhan-Hu 1 strain (Original) and Omicron variant lineages BA.4 and BA.5 (Omicron BA.4/BA.5). Among adults ≥18 years of age who received a study vaccine, the median duration of follow-up for safety analysis was 8.8 months. For adolescents 12 through 17 years of age, the median duration was 6.5 months. All study participants in Part 1 are planned to be followed for up to 12 months.

8.2. Clinical Trial Adverse Reactions

Clinical trials are conducted under very specific conditions. Therefore, the frequencies of adverse reactions observed in the clinical trials may not reflect frequencies observed in clinical practice and should not be compared to frequencies reported in clinical trials of another drug.

In Study mRNA-1283-P301 [Part 1], the median age of the population was 56 years (range 12-96); 8.7% of participants (n=497 given mNEXSPIKE vaccine versus n=495 given the SPIKEVAX vaccine) were 12 through 17 years, 62.6% (n=3,575 vs n=3,576) were 18 through 64 years, and 28.7% (n=1,634 vs n=1,640) were 65 years and older, including 322 (5.6%) vs 269 (4.7%) participants ≥75 years of age. Overall, 54.3% were female, 82.2% were White, 11.2% were Black, 3.6% were Asian, 2.4% were of other racial groups, 13.2% were of Hispanic or Latino ethnicity, and 74.3% had SARS-CoV-2 positive serostatus at baseline.

Except for 9 participants, the overall study population received 2 or more prior COVID-19 vaccine doses

with the median interval from last prior dose of COVID-19 vaccine to study vaccination being 9.8 months. Demographic characteristics were similar between participants who received mNEXSPIKE and those who received the SPIKEVAX comparator vaccine.

Most commonly (≥10%) reported adverse reactions following administration of mNEXSPIKE for participants 18 through 64 years of age were pain at the injection site (74.8%), fatigue, (54.3%), headache (47.8%), myalgia (41.6%), arthralgia (32.4%), chills (24.3%), axillary swelling or tenderness (21.7%), and nausea/vomiting (13.8%). For participants 65 years of age and older, most common AEs were pain at the injection site (54.6%), fatigue (43.0%), headache (33.1%), myalgia (30.5%), arthralgia (25.6%), chills (16.5%), and axillary swelling or tenderness (10.7%).

Solicited Adverse Reactions

For adults 18 years of age and older, local and systemic adverse reactions and use of antipyretic medication were solicited in an electronic diary for 7 days following injection (i.e., day of vaccination and the next 6 days) among study participants who received mNEXSPIKE vaccine (n=5,205) or received SPIKEVAX comparator vaccine (n=5,211). Events that persisted for more than 7 days were followed until resolution.

The reported number and percentage of solicited local and systemic adverse reactions for 18 through 64 years of age are presented in **Table 2** and **Table 3**, and 65 years of age and older are presented in **Table 4** and **Table 5**, respectively. The observed imbalance in local reactogenicity, notably injection site pain, may be partially attributed to the higher injection volume of SPIKEVAX (0.5 mL dose) compared with mNEXSPIKE (0.2 mL dose) and higher total RNA content of SPIKEVAX (50 mcg) compared with mNEXSPIKE (10 mcg).

Table 2 – Number and Percentage of Participants with Solicited Local Adverse Reactions Starting Within 7 Days* After Injection in Participants 18 Through 64 Years (Solicited Safety Set)

Local Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=3,573 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=3,574 n (%)
Injection site pain, any Grade[b]	2,672 (74.8)	2,920 (81.7)
Grade 3[b]	38 (1.1)	49 (1.4)
Axillary swelling/tenderness, any Grade[b]	777 (21.7)	749 (21.0)
Grade 3[b]	11 (0.3)	15 (0.4)
Swelling (hardness) ≥25 mm, any Grade[c]	140 (3.9)	246 (6.9)
Grade 3[c]	11 (0.3)	19 (0.5)
Erythema (redness) ≥25 mm, any Grade[c]	85 (2.4)	152 (4.3)
Grade 3[c]	9 (0.3)	17 (0.5)

* 7 days included day of vaccination and the subsequent 6 days. Events were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set.
n= Number of participants with listed solicited adverse reactions.
[a] No Grade 4 adverse reactions were reported.
[b] Injection site pain and axillary swelling or tenderness grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Swelling and erythema grading scale: 25-50 mm / 2.5-5 cm (Grade 1); 51-100 mm / 5.1-10 cm (Grade 2); >100 mm / >10 cm (Grade 3).

Table 3 – Number and Percentage of Participants with Solicited Systemic Adverse Reactions Starting Within 7 Days* After Injection in Participants 18 Through 64 Years (Solicited Safety Set)

Systemic Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=3,573 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=3,574 n (%)
Fatigue, any Grade[b]	1,939 (54.3)	1,876 (52.5)
Grade 3[b]	170 (4.8)	156 (4.4)
Headache, any Grade[b]	1,708 (47.8)	1,583 (44.3)
Grade 3[b]	90 (2.5)	76 (2.1)
Myalgia, any Grade[b]	1,485 (41.6)	1,469 (41.1)
Grade 3[b]	144 (4.0)	105 (2.9)
Arthralgia, any Grade[b]	1,159 (32.4)	1,094 (30.6)
Grade 3[b]	86 (2.4)	62 (1.7)
Chills, any Grade[c]	867 (24.3)	760 (21.3)
Grade 3[c]	26 (0.7)	22 (0.6)
Nausea/vomiting, any Grade[d]	492 (13.8)	424 (11.9)
Grade 3[d]	4 (0.1)	3 (<0.1)
Fever, any Grade[e]	193 (5.4)	138 (3.9)
Grade 3[e]	27 (0.8)	17 (0.5)
Use of antipyretic or pain medication	1,243 (34.8)	1,226 (34.3)

* 7 days included day of vaccination and the subsequent 6 days. Events and use of antipyretic or pain medication were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set
n =Number of participants with listed solicited adverse reactions
[a] No Grade 4 adverse reactions were reported.
[b] Fatigue, headache, myalgia, arthralgia grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Chills grading scale:
no interference with activity (Grade 1); some interference with activity not requiring medical intervention (Grade 2); prevents daily activity and requires medical intervention (Grade 3).
[d] Nausea/vomiting grading scale: no interference with activity or 1-2 episodes/24 hours (Grade 1); some interference with activity or >2 episodes/24 hours (Grade 2); prevents daily activity; requires outpatient intravenous hydration (Grade 3).
[e] Fever grading scale: ≥38.0° – ≤38.4°C / ≥100.4° – ≤101.1°F (Grade 1); ≥38.5° – ≤38.9°C / ≥101.2°– ≤102.0°F (Grade 2); ≥39.0° – ≤40.0°C / ≥102.1° – ≤104.0°F (Grade 3).

Table 4 – Number and Percentage of Participants with Solicited Local Adverse Reactions Starting Within 7 Days* After Injection in Participants 65 Years and Older (Solicited Safety Set)

Local Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=1,632 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=1,637 n (%)
Injection site pain, any Grade[b]	891 (54.6)	1,109 (67.7)
Grade 3[b]	12 (0.7)	7 (0.4)
Axillary swelling/tenderness, any Grade[b]	174 (10.7)	164 (10.0)
Grade 3[b]	2 (0.1)	2 (0.1)
Swelling (hardness) ≥25 mm, any Grade[c]	48 (2.9)	88 (5.4)
Grade 3[c]	1 (<0.1)	11 (0.7)
Erythema (redness) ≥25 mm, any Grade[c]	32 (2.0)	60 (3.7)
Grade 3[c]	2 (0.1)	7 (0.4)

* 7 days included day of vaccination and the subsequent 6 days. Events were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set.
n= Number of participants with listed solicited adverse reactions.
[a] No Grade 4 adverse reactions were reported.
[b] Injection site pain and axillary swelling or tenderness grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Swelling and erythema grading scale: 25-50 mm / 2.5-5 cm (Grade 1); 51-100 mm / 5.1-10 cm (Grade 2); >100 mm / >10 cm (Grade 3).

Table 5 – Number and Percentage of Participants with Solicited Systemic Adverse Reactions Starting Within 7 Days* After Injection in Participants 65 Years and Older (Solicited Safety Set)

Systemic Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=1,632 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=1,637 n (%)
Fatigue, any Grade[b]	702 (43.0)	671 (41.0)
Grade 3[b]	59 (3.6)	41 (2.5)
Headache, any Grade[b]	540 (33.1)	479 (29.3)
Grade 3[b]	22 (1.3)	22 (1.3)
Myalgia, any Grade[b]	498 (30.5)	467 (28.5)
Grade 3[b]	33 (2.0)	27 (1.6)
Arthralgia, any Grade[b]	418 (25.6)	366 (22.4)
Grade 3[b]	24 (1.5)	21 (1.3)
Chills, any Grade	269 (16.5)	209 (12.8)
Grade 3[c]	10 (0.6)	8 (0.5)
Nausea/vomiting, any Grade[d]	119 (7.3)	114 (7.0)
Grade 3[d]	2 (0.1)	5 (0.3)

Table 5 – Number and Percentage of Participants with Solicited Systemic Adverse Reactions Starting Within 7 Days* After Injection in Participants 65 Years and Older (Solicited Safety Set)

Systemic Adverse Reactions[a]	mNEXSPIKE (mRNA-1283.222 10 mcg) N=1,632 n (%)	SPIKEVAX (mRNA-1273.222 50 mcg) N=1,637 n (%)
Fever, any Grade[e]	75 (4.6)	70 (4.3)
Grade 3[e]	2 (0.1)	9 (0.6)
Grade 4[e]	0 (0)	1 (<0.1)
Use of antipyretic or pain medication	429 (26.3)	393 (24.0)

* 7 days included day of vaccination and the subsequent 6 days. Events and use of antipyretic or pain medication were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set
n =Number of participants with listed solicited adverse reactions
[a] No Grade 4 adverse reactions were reported.
[b] Fatigue, headache, myalgia, arthralgia grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Chills grading scale: no interference with activity (Grade 1); some interference with activity not requiring medical intervention (Grade 2); prevents daily activity and requires medical intervention (Grade 3).
[d] Nausea/vomiting grading scale: no interference with activity or 1-2 episodes/24 hours (Grade 1); some interference with activity or >2 episodes/24 hours (Grade 2); prevents daily activity; requires outpatient intravenous hydration (Grade 3).
[e] Fever grading scale: ≥38.0° – ≤38.4°C / ≥100.4° – ≤101.1°F (Grade 1); ≥38.5° – ≤38.9°C / ≥101.2°– ≤102.0°F (Grade 2); ≥39.0° – ≤40.0°C / ≥102.1° – ≤104.0°F (Grade 3).

Among study participants, any solicited (local and systemic) adverse reactions reported following vaccine administration had a median onset of 2 days and a median duration of 3 days for the mNEXSPIKE vaccine group compared with a median onset of 1 day and a median duration of and 3 days for the SPIKEVAX comparator vaccine.

In Study mRNA-1283-P301 [Part 1], 74.3% of all study participants (n=4,211 given mNEXSPIKE vaccine vs n=4,270 given SPIKEVAX vaccine) had evidence of prior SARS-CoV-2 infection at baseline (immunologic or virologic evidence of prior SARS-CoV-2 infection [defined as positive RT-PCR test and/or positive Elecsys immunoassay result at Day 1]). Overall, among the 4,211 participants given mNEXSPIKE vaccine, there were no notable differences in reactogenicity compared with the 1,402 participants given mNEXSPIKE vaccine and who had no evidence of prior SARS-CoV-2 infection at baseline (negative RT-PCR test and negative Elecsys immunoassay result at Day 1).

Unsolicited Adverse Events

Participants were monitored for unsolicited adverse events for 28 days following injection. Serious adverse events and medically attended adverse events were recorded for the entire study duration (1 year). Among the 11,417 participants who received mNEXSPIKE (n=5,706) or SPIKEVAX (n=5,711), unsolicited adverse events that occurred within 28 days following injection were reported by 12.3% of participants (n=701) who received mNEXSPIKE and 11.9% of participants (n=680) who received SPIKEVAX.

Unsolicited adverse events within 28 days assessed by the investigator as vaccine-related were uncommon (0.8% or 45 participants in the mNEXSPIKE group vs 0.9% or 51 participants in the SPIKEVAX group) and primarily representing local and systemic reactogenicity. There were no notable patterns or

numerical imbalances between treatment groups for specific categories of adverse events (including other neurologic, neuro-inflammatory, and thrombotic events) that would suggest a causal relationship to mNEXSPIKE.

Serious Adverse Events

Through the data cutoff date (February 23, 2024), serious adverse events were reported by 2.7% (n=156) of participants who received mNEXSPIKE and 2.6% (n=151) who received the comparator vaccine. There were no serious adverse events considered causally related to mNEXSPIKE.

There were no notable patterns or imbalances between treatment groups for specific categories of serious adverse events (including neurologic, neuro-inflammatory, and thrombotic events) that would suggest a causal relationship to mNEXSPIKE.

No deaths related to the vaccine were reported in the study.

8.2.1. Clinical Trial Adverse Reactions – Pediatrics

Most commonly (≥10%) reported adverse reactions following administration of MNEXSPIKE for participants 12 through 17 years of age: pain at the injection site (68.8%), headache (54.5%), fatigue (47.3%), myalgia (39.2%), axillary swelling or tenderness (34.6%), chills (31.6%), arthralgia (23.9%), and nausea/vomiting (16.1%).

Solicited Adverse Reactions

For adolescents 12 through 17 years of age, local and systemic adverse reactions and use of antipyretic medication were solicited in an electronic diary for 7 days following injection (i.e., day of vaccination and the next 6 days) among study participants who received mNEXSPIKE vaccine (n=497) or received SPIKEVAX comparator vaccine (n=495). Events that persisted for more than 7 days were followed until resolution.

The reported number and percentage of solicited local and systemic adverse reactions for 12 through 17 years of age are presented in **Table 6** and **Table 7**. The observed imbalance in local reactogenicity, notably injection site pain, may be partially attributed to the higher injection volume of SPIKEVAX (0.5 mL dose) compared with mNEXSPIKE (0.2 mL dose) and higher total RNA content of SPIKEVAX (50 mcg) compared with mNEXSPIKE (10 mcg).

Table 6 – Number and Percentage of Participants with Solicited Local Adverse Reactions Starting Within 7 Days* After Injection in Participants 12 Through 17 Years (Solicited Safety Set)

Local Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=497 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=495 n (%)
Injection site pain, any Grade[b]	342 (68.8)	390 (78.8)
Grade 3[b]	10 (2.0)	19 (3.8)
Axillary swelling/tenderness, any Grade[b]	172 (34.6)	134 (27.1)
Grade 3[b]	6 (1.2)	2 (0.4)
Swelling (hardness) ≥25 mm, any Grade[c]	18 (3.6)	25 (5.1)
Grade 3[c]	4 (0.8)	2 (0.4)
Erythema (redness) ≥25 mm, any Grade[c]	6 (1.2)	13 (2.6)
Grade 3[b]	0	0

* 7 days included day of vaccination and the subsequent 6 days. Events were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set.
n= Number of participants with listed solicited adverse reactions.
[a] No Grade 4 adverse reactions were reported.
[b] Injection site pain and axillary swelling or tenderness grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Swelling and erythema grading scale: 25-50 mm / 2.5-5 cm (Grade 1); 51-100 mm / 5.1-10 cm (Grade 2); >100 mm / >10 cm (Grade 3).

Table 7 – Number and Percentage of Participants with Solicited Systemic Adverse Reactions Starting Within 7 Days* After Injection in Participants 12 Through 17 Years (Solicited Safety Set)

Systemic Adverse Reactions[a]	**mNEXSPIKE (mRNA-1283.222 10 mcg)** N=497 n (%)	**SPIKEVAX (mRNA-1273.222 50 mcg)** N=495 n (%)
Headache, any Grade[b]	271 (54.5)	287 (58.0)
Grade 3[b]	35 (7.0)	20 (4.0)
Fatigue, any Grade[b]	235 (47.3)	251 (50.7)
Grade 3[b]	34 (6.8)	22 (4.4)
Myalgia, any Grade[b]	195 (39.2)	178 (36.0)
Grade 3[b]	28 (5.6)	17 (3.4)
Chills, any Grade[c]	157 (31.6)	158 (31.9)
Grade 3[c]	6 (1.2)	1 (0.2)
Arthralgia, any Grade[b]	119 (23.9)	117 (23.6)
Grade 3[b]	10 (2.0)	6 (1.2)
Nausea/vomiting, any Grade[d]	80 (16.1)	87 (17.6)
Grade 3[d]	0 (0)	2 (0.4)
Fever, any Grade[e]	49 (9.9)	46 (9.3)
Grade 3[e]	4 (0.8)	2 (0.4)
Use of antipyretic or pain medication	186 (37.4)	211 (42.6)

* 7 days included day of vaccination and the subsequent 6 days. Events and use of antipyretic or pain medication were collected in the electronic diary (e-diary).
N=Number of participants in the Solicited Safety Set
n =Number of participants with listed solicited adverse reactions
[a] No Grade 4 adverse reactions were reported.
[b] Fatigue, headache, myalgia, arthralgia grading scale: no interference with activity (Grade 1); some interference with activity (Grade 2); prevents daily activity (Grade 3).
[c] Chills grading scale: no interference with activity (Grade 1); some interference with activity not requiring medical intervention (Grade 2); prevents daily activity and requires medical intervention (Grade 3).
[d] Nausea/vomiting grading scale: no interference with activity or 1-2 episodes/24 hours (Grade 1); some interference with activity or >2 episodes/24 hours (Grade 2); prevents daily activity; requires outpatient intravenous hydration (Grade 3).
[e] Fever grading scale: ≥38.0° – ≤38.4°C / ≥100.4° – ≤101.1°F (Grade 1); ≥38.5° – ≤38.9°C / ≥101.2°– ≤102.0°F (Grade 2); ≥39.0° – ≤40.0°C / ≥102.1° – ≤104.0°F (Grade 3).

Serious Adverse Events
There were no notable patterns or imbalances between treatment groups for specific categories of serious adverse events.

8.3. Less Common Clinical Trial Adverse Reactions

The following events were reported in the ongoing Phase 3, active-controlled clinical study of mNEXSPIKE in participants ≥ 18 years of age:

Gastrointestinal disorders: diarrhoea

8.3.1. Less Common Clinical Trial Adverse Reactions – Pediatrics

The following events were reported in the ongoing Phase 3, active-controlled clinical study of mNEXSPIKE in participants 12 through 17 years of age:

Nervous system disorders: syncope

8.5. Post-Market Adverse Reactions

There are no post-marketing data available for mNEXSPIKE.

9. Drug Interactions

No interaction studies have been performed.

10. Clinical Pharmacology

10.1. Mechanism of Action

The nucleoside-modified mRNA in mNEXSPIKE, formulated in lipid particles, encodes the membrane-bound, linked N-terminal domain (NTD) and receptor-binding domain (RBD) of the spike (S) glycoprotein from SARS-CoV-2 strains, which are known to contain the immuno-dominant epitopes for neutralizing antibody immune responses. After intramuscular injection, cells take up the lipid nanoparticle, effectively delivering the mRNA sequences into cells for expression of the SARS-CoV-2 RBD and NTD subdomains of the S antigen. The delivered mRNA does not enter the cellular nucleus or interact with the genome, is nonreplicating, and is expressed transiently. The proteins undergo posttranslational modification and trafficking resulting in properly folded, RBD-NTD proteins that are inserted into the cellular membrane of the expressing cell(s). The vaccine elicits an immune response to the NTD and RBD of the S antigen, which may contribute to protection against COVID-19.

11. Storage, Stability, and Disposal

Store refrigerated between 2°C to 8°C. Do not use after the expiration date shown on the label.

Store in the original package to protect from light.

mNEXSPIKE may be stored between 8°C to 25°C up to 12 hours after removal from refrigerated conditions.

12. Special Handling Instructions

Do not dilute the product.

Do not shake the pre-filled syringe.

Pre-filled syringe should be inspected visually for particulate matter and discolouration prior to administration. mNEXSPIKE is a white to off-white dispersion that is practically free of visible particles. Do not administer if vaccine is discoloured or contains other particulate matter.

mNEXSPIKE dispersion for injection does not contain a preservative, is for single use, and should be administered immediately after uncapping.

mNEXSPIKE must not be mixed with other medicinal products or diluted.

Any unused mNEXSPIKE should be disposed of in accordance with local requirements.

Part 2: Scientific Information

13. Pharmaceutical Information

Drug Substance

Proper name: COVID-19 mRNA vaccine

Medicinal Ingredient: mRNA encoding SARS-CoV-2 spike protein NTD-RBD subdomains, 5' (m7G-5'-ppp-5'-Gm) cap, 100-nucleotide 3' poly(A) tail

Product Characteristics:

mNEXSPIKE is manufactured with a cell-free process; mRNA including a 5' cap and poly(A) tail is transcribed in vitro from a DNA template encoding the linked RBD and NTD of the SARS-CoV-2 spike protein and purified.

mNEXSPIKE is supplied as a sterile, single-dose, ready-to-use liquid solution at 10 mcg/0.2 mL for intramuscular (IM) administration in a 1-mL prefilled syringe (PFS).

14. Clinical Trials

14.1. Clinical Trials by Indication

Table 8 – Summary of patient demographics for clinical trials in individuals 12 years and older

Study #	Study design	Dosage, route of administration and duration	Study subjects (n)	Median age (Range)	Sex
Study 1: mRNA-1283-P301 [Part 1]	Phase 3, randomised, observer-blind, active-controlled study	1 dose of mNEXSPIKE, intramuscular injection, month 0	11,454 total; 215 Canadian participants; 5,728 mNEXSPIKE; 5,726 comparator	56 years (12 to 96)	Females: 54.3% Males: 45.7%
Study 2: mRNA-1283-P301 - Japan	Phase 3, randomised, observer-blind, active-controlled study	1 dose of mNEXSPIKE, intramuscular injection, month 0	692 total; 344 mNEXSPIKE; 348 comparator	52 years (12 to 83)	Females: 35.0% Males: 65.0%

14.1.1. Efficacy and Immunogenicity in Individuals 12 Years of Age and Older

Efficacy in Individuals 12 years of age and older

Study 1: mRNA-1283-P301 [Part 1]

Part 1 of pivotal Study mRNA-1283-P301 [NCT05815498] is an ongoing Phase 3 randomised, observer-blind, active-controlled clinical trial that evaluated the relative vaccine efficacy, safety and immunogenicity of mNEXSPIKE in participants 12 years of age and older in the United States, United Kingdom, and Canada. Regionally, during the study, the primary circulating SARS-CoV-2 variants were XBB.1.5, XBB.1.16, and JN.1. Randomisation was stratified by age: 12 through 17 years, 18 through 64 years, and 65 years of age and older. The study allowed for the inclusion of participants with stable pre-existing medical conditions, defined as disease not requiring significant change in therapy or hospitalisation for worsening disease during the 2 months before enrolment. Reported history of

congenital or acquired immunodeficiency, immunosuppressive condition, or immune-mediated disease requiring immunosuppressive treatment or other immunosuppressive condition was an exclusion criteria. A total of 11,454 participants were randomised in a 1:1 ratio to receive mNEXSPIKE (10 micrograms mRNA; n=5,728), a vaccine formulation targeting Original and Omicron BA.4/BA.5 strains, or SPIKEVAX bivalent Original/Omicron BA.4-5, the comparator vaccine (50 micrograms mRNA; n=5,726). All participants except one in the mNEXSPIKE group had previously received at least one dose of a COVID-19 vaccine prior to the study with a median time of 9.8 months (0.1 – 37.9 months) since the last dose. Participants were planned to be followed for efficacy and safety for one year.

The primary efficacy analysis population (referred to as the Per-Protocol Set for Efficacy) included 11,366 participants who received either mNEXSPIKE (n=5,679) or SPIKEVAX bivalent Original/Omicron BA.4-5 (n=5,687). In the Per-Protocol Set for Efficacy, 54.3% were female, 82.2% were White, 11.1% were African American, 3.6% were Asian, 2.3% of other racial groups. Thirteen percent (13.1%) of participants identified as Hispanic or Latino. The median age of participants was 56 years (range 12-96) and 28.7% of participants were 65 years of age and older. There were no notable differences in demographics between participants who received mNEXSPIKE and those who received comparator vaccine.

The population for the relative vaccine efficacy analysis included participants 12 years of age and older who were enrolled from 28 March 2023, and followed for the development of COVID-19 through 31 January 2024. The median length of follow-up was 7.6 months (0.1 months – 9.5 months).

The primary efficacy objective in this study was to demonstrate the non-inferior vaccine efficacy against COVID-19 starting 14 days after mNEXSPIKE compared to that after the comparator vaccine. The primary endpoint was defined as any symptomatic COVID-19 case* confirmed by reverse transcription-polymerase chain reaction (RT-PCR) using a validated assay. The statistical criterion to demonstrate non-inferiority required that the lower bound of the 99.4% CI be >-10% for relative vaccine efficacy; this objective was successfully met (**Table 9**). The noninferiority margin of -10% for rVE was selected based on FDA guidance and real-world evidence supporting the effectiveness of the active control in an adult population in a similar period to that of the pivotal efficacy study. This margin ensures that mRNA-1283 preserves a clinically meaningful proportion of established efficacy of SPIKEVAX.

Table 9 – Relative vaccine efficacy against COVID-19* in participants 12 years of age and older starting 14 days after a single dose of mNEXSPIKE or comparator mRNA vaccine – Per-Protocol Set for efficacy

Age	mNEXSPIKE[a]			Comparator vaccine[b]			% Relative vaccine efficacy[c] (99.4% CI)[c, ¥]
	Participants (N)	COVID-19 cases (n)	Incidence rate of COVID-19 per 100 person-months[e]	Participants (N)	COVID-19 cases (n)	Incidence rate of COVID-19 per 100 person-months[e]	
All participants	5,679	560	1.4	5,687	617	1.5	9.3% (-6.6%, 22.8%)[d]

* Presence of at least one symptom from a list of COVID-19 symptoms and a positive NP swab for SARS-CoV-2 by RT-PCR. Listed symptoms were fever (temperature >38°C / ≥100.4°F), or chills, cough, shortness of breath or

difficulty breathing, fatigue, muscle aches, or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea, or vomiting or diarrhoea. ¥CI=Confidence interval.
[a] Dosing was a single dose (10 micrograms mRNA).
[b] Dosing was a single dose (50 micrograms mRNA).
[c] Relative Vaccine Efficacy (rVE) = 1-hazard ratio (mNEXSPIKE vs. SPIKEVAX bivalent Original/Omicron BA.4-5). Hazard ratio and 99.4% CI are estimated using a stratified Cox proportional hazards model (stratified by age group per randomisation) with Efron's method of tie handling and with the treatment group as a fixed effect. Alpha-adjusted 2-sided (99.4%) CI is calculated using Lan-DeMets O'Brien-Fleming spending function (nominal one-sided alpha = 0.0028).
[d] Non-inferiority was demonstrated, if the lower bound of the 99.4% confidence interval is above -10%.
[e] Person-months is defined as the total months from study injection date to the date of event (COVID-19), date of off-study COVID-19 vaccine, last date of study participation, death date or efficacy data cutoff date, which ever is the earliest. 1 month = 30.4375 days.

A descriptive subgroup analysis of incidence of COVID-19 by age group was conducted (**Table 10**).

Table 10 – Descriptive analysis of incidence of COVID-19* in participants 12 years of age and older by age subgroup starting 14 days after a single dose of mNEXSPIKE or comparator mRNA vaccine – Per-Protocol Set for efficacy

Age subgroup (years)	mNEXSPIKE[a]			Comparator vaccine[b]			% Descriptive relative vaccine efficacy[c] (95% CI)[c, ¥]
	Participants (N)	COVID-19 cases (n)	Incidence rate of COVID-19 per 100 person-months[e]	Participants (N)	COVID-19 cases (n)	Incidence rate of COVID-19 per 100 person-months[e]	
12 to <18	491	29	1.0	490	23	0.8	-29.2% (-123.3%, 25.3%)[d]
18 to <65	3,558	382	1.4	3,562	422	1.6	9.7% (-3.8%, 21.3%)
≥65	1,630	149	1.3	1,635	172	1.5	13.5% (-7.7%, 30.6%)
≥75	319	22	0.9	267	24	1.2	23.9% (-35.7, 57.3)[d]

* Presence of at least one symptom from a list of COVID-19 symptoms and a positive NP swab for SARS-CoV-2 by RT-PCR. Listed symptoms were fever (temperature >38°C / ≥100.4°F), or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle aches, or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea, or vomiting or diarrhoea. ¥CI=Confidence interval.
[a] Dosing was a single dose (10 mcg mRNA).
[b] Dosing was a single dose (50 mcg mRNA).
[c] Relative vaccine efficacy (rVE) = 1-hazard ratio (mNEXSPIKE vs. SPIKEVAX bivalent Original/Omicron BA.4-5). Hazard ratio and 95% CI were estimated using a Cox proportional hazards model with Efron's method of tie handling and with the treatment group as a fixed effect.

[d] rVE cannot be reliably estimated due to the low number of cases accrued in these age groups.
[e] Person-months is defined as the total months from study injection date to the date of event (COVID-19), date of off-study COVID-19 vaccine, last date of study participation, death date or efficacy data cutoff date, which ever is the earliest. 1 month = 30.4375 days.

Immunogenicity in Individuals 12 Years of Age and Older

Study 1: mRNA-1283-P301 [Part 1]

The primary immunogenicity analysis population included 621 participants who received mNEXSPIKE and 568 participants who received comparator vaccine. Among participants assessed for immunogenicity, 54.7% were female, 80.7% were White, 11.9% were Black, 4.0% were Asian, 2.6% of other racial groups. Thirteen and a half percent (13.5%) of participants identified as Hispanic or Latino.

A comparison of neutralizing antibody concentrations against a pseudovirus expressing SARS-CoV-2 Spike proteins from the original and Omicron BA.4/BA.5 strains was conducted using validated assays. In the primary immunogenicity analyses of the GMC ratio following mNEXSPIKE compared to after the comparator vaccine, mNEXSPIKE met the pre-specified non-inferiority criterion of the lower bound of the 95% CI >0.667. Analyses of the difference in seroresponse rates also met the pre-specified non-inferiority criterion with the lower bound of the 95% CI of the SRR-difference >-10%. These analyses are summarised in **Table 11** and **Table 12**.

Table 11 – Comparison of geometric mean concentration (GMC) 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of comparator mRNA vaccine – Per-Protocol immunogenicity subset*

Assay	mNEXSPIKE[a] GMC N=621 (95% CI)[b]	Comparator[c] GMC N=568 (95% CI)[b]	GMC Ratio (mNEXSPIKE / Comparator) (95% CI)[b]
Omicron BA.4/BA.5	2340.9 (2167.0, 2528.8)	1753.8 (1618.2, 1900.7)	1.3 (1.2, 1.5)
Original SARS-CoV-2 (D614G)	10631.9 (9960.2, 11348.9)	8576.5 (8012.5, 9180.1)	1.2 (1.1, 1.4)

N=Number of participants with non-missing data at the corresponding timepoint(s).
* Per-Protocol Immunogenicity Subset included a randomly selected subset of subjects who received study vaccine and did not have a major protocol deviation that impacted immune response and had both pre-dose and post-dose immunogenicity assessment at timepoint of primary interest (28 days post-dose).
[a] Dosing was a single dose (10 micrograms mRNA).
[b] The log-transformed antibody levels are analysed using an analysis of covariance (ANCOVA) model with the group variable (mNEXSPIKE vs. comparator vaccine) as fixed effect, adjusted by SARS-CoV-2 infection status at baseline, randomisation age group, number of prior COVID-19 boosters (0, 1, 2, >=3), and type of last prior COVID-19 vaccine. Coefficients for Least Square Means use margins by level. The resulted LS means, difference of LS means, and 95% CI are back transformed to the original scale for presentation.
[c] Comparator vaccine dosing was a single dose (50 micrograms mRNA).
Note: Antibody values < the lower limit of quantitation (LLOQ) are replaced by 0.5 × LLOQ. Values > the upper limit of quantitation (ULOQ) are replaced by the ULOQ if actual values are not available.

Table 12 – Comparison of seroresponse rate 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of comparator mRNA vaccine – Per-Protocol immunogenicity subset*

Assay	mNEXSPIKE[a] Seroresponse rate[b] N=621 % (95% CI)[c]	Comparator vaccine[d] Seroresponse rate[b] N=568 % (95% CI)[c]	Difference in seroresponse rate (mNEXSPIKE - comparator) % (95% CI)[e]
Omicron BA.4/BA.5	79.9 (76.5, 83.0)	65.5 (61.4, 69.4)	14.4 (9.3, 19.4)
Original SARS-CoV-2 (D614G)	83.6 (80.4, 86.4)	72.9 (69.0, 76.5)	10.7 (6.0, 15.4)

N=Number of participants with non-missing data at the corresponding timepoint(s).

* Per-Protocol immunogenicity subset included a randomly selected subset of subjects who received study vaccine, and did not have a major protocol deviation that impacted immune response and had both pre-dose and post-dose immunogenicity assessment at timepoint of primary interest (28 days post-dose).

[a] mNEXSPIKE dosing was a single dose (10 micrograms mRNA).

[b] Seroresponse is defined as an antibody value change from baseline below the LLOQ to ≥4 × LLOQ, or at least a 4-fold rise if baseline is ≥ LLOQ and <4 × LLOQ, or at least a 2-fold rise if baseline is ≥4 × LLOQ, where baseline refers to pre-dose.

[c] 95% CI is calculated using the Clopper-Pearson method.

[d] Comparator dosing was a single dose (50 micrograms mRNA).

[e] 95% CI is calculated using the Miettinen-Nurminen (score) confidence limits.

Study 2: mRNA-1283-P301 – Japan

mRNA-1283-P301 – Japan [jRCT2031230699] was a Phase 3 randomized, observer-blind, active-controlled clinical trial that evaluated the immunogenicity and safety of mNEXSPIKE in participants 12 years of age and older in Japan. Randomization was stratified by age: 12 through 17 years, 18 through 64 years, and 65 years of age and older. The study allowed for the inclusion of participants with stable pre-existing medical conditions, defined as disease not requiring significant change in therapy or hospitalization for worsening disease during the two months before enrolment. Reported history of congenital or acquired immunodeficiency, immunosuppressive condition, or immune-mediated disease requiring immunosuppressive treatment or other immunosuppressive condition was an exclusion criteria. A total of 692 participants were randomized in a 1:1 ratio to receive mNEXSPIKE (10 micrograms mRNA; n=344), a vaccine formulation targeting the Omicron XBB.1.5 strain, or comparator vaccine [targeting the Omicron XBB.1.5 strain (50 mcg mRNA; n=348)]. All participants had previously received at least one dose of a COVID-19 vaccine prior to the study with a median time of 16.7 months since the last dose.

The primary immunogenicity analysis population included 334 participants who received mNEXSPIKE and 334 participants who received comparator vaccine. Among participants assessed for immunogenicity, 35.0% were female, and all participants were Asian. The median age of participants was 52 years (range 12-83) and 20.7% of participants were 65 years of age and older.

A comparison of neutralizing antibody concentrations against a pseudovirus expressing Omicron XBB.1.5 strains was conducted using a validated assay. In the primary immunogenicity analyses of the GMC ratio following mNEXSPIKE compared to after the comparator vaccine, mNEXSPIKE met the pre-specified non-inferiority criterion of the lower bound of the 95% CI >0.667 (**Table 13**). Analyses of the difference in seroresponse rates are summarized in **Table 14**.

Table 13 – Comparison of geometric mean concentration (GMC) 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of comparator mRNA vaccine – Per-Protocol immunogenicity set*

Assay	mNEXSPIKE GMC (95% CI)[a] N=334	Comparator[b] GMC (95% CI)[a] N=334	GMC Ratio (mNEXSPIKE/ comparator) (95% CI)[a]
Omicron XBB.1.5	1,757.2 (1,580.1, 1,954.3)	1,470.4 (1,322.4, 1,635.0)	1.2 (1.0, 1.4)

N=Number of participants with non-missing data at baseline and the corresponding timepoint(s).
* Per-Protocol immunogenicity set included subjects who received study vaccine, did not have a major protocol deviation that impacted immune response, and had both pre-dose and post-dose immunogenicity assessment at timepoint of primary interest (28 days post-dose).
[a] The log-transformed antibody levels are analysed using an analysis of covariance (ANCOVA) model with the group variable (mNEXSPIKE vs. comparator vaccine) as fixed effect, adjusted by SARS-CoV-2 infection status at baseline, randomisation age group, number of prior COVID-19 boosters (0, 1, 2, >=3), and type of last prior COVID-19 vaccine. LS means are based on observed margin. The resulted LS means, difference of LS means, and 95% CI are back transformed to the original scale for presentation.
[b] Comparator vaccine dosing was a single dose (SPIKEVAX [mRNA-1273.815] 50 mcg mRNA). Note: Antibody values < the lower limit of quantitation (LLOQ) are replaced by 0.5 × LLOQ. Values > the upper limit of quantitation (ULOQ) are replaced by the ULOQ if actual values are not available.

Table 14 – Comparison of seroresponse rate 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of comparator mRNA vaccine – Per-Protocol immunogenicity set*

Assay	mNEXSPIKE Seroresponse rate[a] % (95% CI)[b] N=334	Comparator Seroresponse rate[a] % (95% CI)[b] N=334	Difference in seroresponse rate (mNEXSPIKE-comparator) % (95% CI)[c]
Omicron XBB.1.5	92.2 (88.8, 94.9)	86.8 (82.7, 90.3)	5.4 (0.8, 10.2)

N=Number of participants with non-missing data at baseline and the corresponding timepoint(s).
* Per-Protocol immunogenicity set included subjects who received study vaccine, did not have a major protocol deviation that impacted immune response, and had both pre-dose and post-dose immunogenicity assessment at timepoint of primary interest (28 days post-dose).
[a] Seroresponse is defined as an antibody value change from baseline below the LLOQ to ≥4 × LLOQ, or at least a 4-fold rise if baseline is ≥ LLOQ and <4 × LLOQ, or at least a 2-fold rise if baseline is ≥4 × LLOQ, where baseline refers to pre-dose.
[b] 95% CI is calculated using the Clopper-Pearson method.
[c] 95% CI is calculated using the Miettinen-Nurminen (score) confidence limits.

15. Microbiology

No microbiological information is required for this vaccine product.

16. Non-Clinical Toxicology

General Toxicology: Non-clinical data reveal no special hazards for humans based on repeated dose toxicity studies in rats.

Carcinogenicity: mNEXSPIKE has not been evaluated for its carcinogenic or mutagenic potential or for impairment of male fertility in animals.

Reproductive and Developmental Toxicology: A developmental toxicity study was conducted in female rats that received a vaccine formulation containing 80 micrograms nucleoside-modified messenger ribonucleic acid (mRNA) and other ingredients included in a single human dose of mNEXSPIKE. No impact on female fertility was reported.

Patient Medication Information

READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE

mNEXSPIKE™

COVID-19 mRNA vaccine, Dispersion for Intramuscular Injection

This Patient Medication Information is written for the person who will be receiving **mNEXSPIKE**. This may be you or a person you are caring for. Read this information carefully. Keep it as you may need to read it again.

This Patient Medication Information is a summary. It will not tell you everything about this medication. If you have more questions about this medication or want more information about **mNEXSPIKE**, talk to a healthcare professional.

What mNEXSPIKE is used for:

mNEXSPIKE is a vaccine to protect you against coronavirus disease 19 (COVID-19) caused by the SARS-CoV-2 virus. mNEXSPIKE is for adults 18 years of age and older.

How mNEXSPIKE works:

mNEXSPIKE works by causing the body to produce its own protection (through your immune system) against the SARS-CoV-2 virus that causes the COVID-19 infection. mNEXSPIKE uses a molecule called messenger ribonucleic acid (mRNA, the genetic code for a piece of the virus) to deliver the set of instructions that cells in your body can use to make antibodies to help fight the virus that causes COVID-19. The vaccine is given by injection with a needle in the upper arm.

mNEXSPIKE does not contain SARS-CoV-2, the virus that causes COVID-19. You cannot get COVID-19 from this vaccine.

As with all vaccines, mNEXSPIKE may not fully protect all people who receive the vaccine.

Even after you have had the vaccine, continue to follow the recommendations of local public health officials to prevent the spread of COVID-19.

The ingredients in mNEXSPIKE are:

Medicinal ingredient(s): One 0.2 mL dose of mNEXSPIKE contains 10 micrograms of mRNA encoding SARS-COV-2 spike protein NTD-RBD subdomains.

Non-medicinal ingredients:

- cholesterol
- DSPC (1,2-distearoyl-sn-glycero-3-phosphocholine)
- SM-102 (heptadecan-9-yl 8-((2-hydroxyethyl) (6-oxo-6-(undecyloxy) hexyl)amino) octanoate)
- PEG2000-DMG (1,2-dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000)
- sucrose
- trometamol
- trometamol hydrochloride
- water for injection

mNEXSPIKE does not contain preservatives.

mNEXSPIKE comes in the following dosage form(s):
mNEXSPIKE is available as a dispersion for intramuscular injection. mNEXSPIKE comes in a single-dose (0.2 mL), pre-filled syringe.

Do not receive mNEXSPIKE if:
- you are allergic to the active substance or any of the other ingredients of this vaccine (see What are the ingredients in mNEXSPIKE?)
- you have had an allergic reaction to a previous dose of Moderna COVID-19 vaccine

To help avoid side effects and ensure proper use, talk to your healthcare professional before you receive mNEXSPIKE. Talk about any health conditions or problems you may have, including if you:
- have any allergies
- had a severe allergic reaction after receiving a previous dose of any COVID-19 vaccine
- have had myocarditis (inflammation of the heart muscle) or pericarditis (inflammation of the lining outside the heart)
- have a fever
- have a bleeding disorder or are on a blood thinner
- are immunocompromised or are on a medicine that affects your immune system
- are pregnant or plan to become pregnant
- are breastfeeding
- have received any other COVID-19 vaccine
- have ever fainted in association with an injection

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

The following may interact with mNEXSPIKE:
There is limited information on the use of mNEXSPIKE with other vaccines. Tell your healthcare professional if you have recently received any other vaccine.

How is mNEXSPIKE given:
Your doctor, pharmacist or nurse will inject the vaccine into a muscle (intramuscular injection) in your upper arm.

Usual dose:
mNEXSPIKE is given as a single dose of 0.2 mL as an injection.

Overdose:

If you think you, or a person you are caring for, have received too much mNEXSPIKE, contact a healthcare professional, hospital emergency department, regional poison control centre or Health Canada's toll-free number, 1-844 POISON-X (1-844-764-7669) immediately, even if there are no signs or symptoms.

Possible side effects from using mNEXSPIKE:
Like all vaccines, mNEXSPIKE can cause side effects, although not everyone gets them.

The following side effects may occur after receiving mNEXSPIKE. Most of these side effects are mild and do not last long. These are not all the possible side effects you may have when receiving mNEXSPIKE.

Very common (these may occur with more than 1 in 10 doses of the vaccine):
- chills
- enlarged lymph nodes
- headache
- muscle ache and stiffness
- nausea and/or vomiting
- pain at the injection site
- tiredness, sleepiness

Common (these may occur with up to 1 in 10 doses of the vaccine):
- fever
- swelling or redness at the injection site

Severe allergic reactions have occurred in some people who have received mNEXSPIKE and other COVID-19 vaccines. There is a very small chance that mNEXSPIKE could cause a severe allergic reaction. A severe allergic reaction would usually occur within a few minutes to 1 hour after getting a dose of mNEXSPIKE. For this reason, your healthcare provider may ask you to stay for a short time at the place where you received the vaccine. Signs of a severe allergic reaction can include:
- trouble breathing
- swelling of your face and throat
- a fast heartbeat
- a rash all over your body
- dizziness and weakness

If you experience a severe allergic reaction, call 9-1-1, or go to the nearest hospital.

Myocarditis (inflammation of the heart muscle) and pericarditis (inflammation of the lining outside the heart) have occurred in some people who have received COVID-19 vaccines, most commonly in adolescent and young adult males. In most of these individuals, symptoms began within a few days following vaccination. The chance of having this occur is very low. You should seek medical attention right away if you have any of the following symptoms after receiving the vaccine, particularly during the 2 weeks after receiving a dose of the vaccine:
- chest pain
- shortness of breath
- feelings of having a fast-beating, fluttering, or pounding heart

If you 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 (PHAC), Health Canada (HC), and Moderna Biopharma Canada Corporation 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 (Reporting Adverse Events Following Immunization (AEFI) in Canada) and send it to your local Health Unit.

Storage:
Your doctor or pharmacist is responsible for storing, supplying and administering mNEXSPIKE, as well as disposing of any unused product correctly.

Keep out of reach and sight of children.

If you want more information about mNEXSPIKE:

- Talk to your healthcare professional
- Find the full product monograph that is prepared for healthcare professionals and includes the Patient Medication Information by visiting the Health Canada Drug Product Database website (Drug Product Database: Access the database); the manufacturer's website https://www.modernatx.com/en-ca/products, or by calling 1-866-MODERNA (1-866-663-3762).

This leaflet was prepared by Moderna Biopharma Canada Corp.

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