ANNEX I

SUMMARY OF PRODUCT CHARACTERISTICS

▼This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See section 4.8 for how to report adverse reactions.

1. NAME OF THE MEDICINAL PRODUCT

mNEXSPIKE dispersion for injection in pre-filled syringe
COVID-19 mRNA Vaccine

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each single-dose pre-filled syringe contains one dose of 0.2 mL.

One dose (0.2 mL) contains 10 micrograms of SARS-CoV-2 mRNA.

mNEXSPIKE is a single-stranded, 5'-capped messenger RNA (mRNA) produced using a cell-free in vitro transcription from the corresponding DNA template, encoding the N-terminal domain and receptor-binding domain of the viral spike (S) protein of SARS-CoV-2 (XBB.1.5).

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Dispersion for injection
White to off-white dispersion (pH: 7.1 – 7.8).

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

mNEXSPIKE is indicated for active immunisation to prevent COVID-19 caused by SARS-CoV-2 in individuals 12 years of age and older.

The use of this vaccine should be in accordance with official recommendations.

4.2 Posology and method of administration

Posology

The recommended dose is one single dose of 10 micrograms.

If previously vaccinated with a COVID-19 vaccine, mNEXSPIKE should be administered at least 3 months after the most recent dose of a COVID-19 vaccine (see sections 4.4 and 5.1).

Elderly
No dose adjustment is required in elderly individuals ≥65 years of age.

Paediatric population
The safety and efficacy of mNEXSPIKE in children less than 12 years of age have not yet been established. No data are available.

Method of administration

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

Do not administer this vaccine intravascularly, subcutaneously or intradermally.

The vaccine should be administered by a trained healthcare professional using aseptic techniques to ensure sterility of the dispersion.

The vaccine should not be mixed in the same syringe with any other vaccines or medicinal products.

For instructions on preparation of the medicinal product before administration, see section 6.6.

For precautions to be taken before administering the vaccine, see section 4.4.

4.3 Contraindications

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.

4.4 Special warnings and precautions for use

Traceability

In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded.

Hypersensitivity and anaphylaxis

Appropriate medical treatment and supervision must be available to manage possible anaphylactic reactions following administration of the vaccine.

Close observation for at least 15 minutes is recommended following vaccination. No further dose of the vaccine should be given to those who have experienced anaphylaxis after a prior dose of the vaccine.

Myocarditis and pericarditis

An increased risk of myocarditis and pericarditis has been observed following vaccination with some other COVID-19 vaccines. These conditions can develop within a few days and primarily occur within 14 days. They have been observed more often in younger males. Healthcare professionals should be alert to the signs and symptoms of myocarditis and pericarditis. Vaccine recipients (including parents or caregivers) should be instructed to seek immediate medical attention if they develop symptoms indicative of myocarditis or pericarditis.

Anxiety-related reactions

Anxiety-related reactions, including vasovagal reactions (syncope), hyperventilation or stress-related reactions may occur in association with vaccination as a psychogenic response to the needle injection. It is important that precautions are in place to avoid injury from fainting.

Concurrent illness

Vaccination should be postponed in individuals suffering from acute severe febrile illness or acute infection. The presence of a minor infection and/or low-grade fever should not delay vaccination.

Thrombocytopenia and coagulation disorders

As with other intramuscular injections, the vaccine should be given with caution in individuals receiving anticoagulant therapy or those with thrombocytopenia or any coagulation disorder (such as haemophilia) because bleeding or bruising may occur following an intramuscular administration in these individuals.

Immunocompromised individuals

Safety and immunogenicity data on mNEXSPIKE are not available for immunocompromised individuals. Individuals receiving immunosuppressant therapy or patients with immunodeficiency may have a diminished immune response to this vaccine.

Limitations of vaccine effectiveness

As with all vaccines, vaccination with mNEXSPIKE may not protect all vaccine recipients.

Duration of protection

The duration of protection afforded by the vaccine is unknown as it is still being determined by ongoing clinical trials.

4.5 Interaction with other medicinal products and other forms of interaction

No interaction studies have been performed.

Concomitant administration of mNEXSPIKE with other vaccines has not been studied.

4.6 Fertility, pregnancy and lactation

Pregnancy

There are no or limited amount of data (less than 300 pregnancy outcomes) from the use of mNEXSPIKE in pregnant women. Animal studies do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see section 5.3). As a precautionary measure, it is preferable to avoid the use of mNEXSPIKE during pregnancy.

Breast-feeding

No effects on the breastfed newborn/infant are anticipated since the systemic exposure of the breast-feeding woman to mNEXSPIKE active substance is negligible. Observational data from women who were breastfeeding after vaccination with elasomeran and its variants have not shown a risk for adverse effects in breastfed newborns/infants.

mNEXSPIKE can be used during breast-feeding.

Fertility

No human data on the effect of mNEXSPIKE on fertility are available. Animal studies do not indicate direct or indirect harmful effects with respect to female reproductive toxicity. Animal studies conducted with the vaccine are insufficient to assess functional effects on male reproductive toxicity (see section 5.3).

4.7 Effects on ability to drive and use machines

mNEXSPIKE has no or negligible influence on the ability to drive and use machines.

However, some of the effects mentioned under section 4.8 (e.g. fatigue) may temporarily affect the ability to drive or use machines.

4.8 Undesirable effects

Summary of the safety profile

The most commonly reported adverse reactions are injection site pain (68.5%), fatigue (50.4%), headache (44.2%), myalgia (38.2%), arthralgia (29.7%), chills (22.7%), axillary swelling or tenderness (19.7 %) and nausea/vomiting (12.1%).

The following adverse reactions were more common in participants below 18 years of age: pain at the injection site (68.8%), headache (54.5%), myalgia (39.2%), axillary swelling/tenderness (34.6%), chills (31.6%) and nausea/vomiting (16.1%).

Tabulated list of adverse reactions

The safety of mNEXSPIKE was evaluated in one Phase 3 clinical study. Study 1 (EUDRA CT number 2023-000884-30) included 11 417 participants 12 years of age and older. The median duration of follow-up for safety was 8.8 months.

The safety profile and the frequencies of adverse reactions presented below are based on data of 5 706 individuals ≥12 years of age. Age-stratified analysis indicates a trend of decreasing reactogenicity with increasing age.

Adverse reactions reported are listed according to the following frequency convention: very common (≥1/10), common (≥1/100 to <1/10), uncommon (≥1/1 000 to <1/100), rare (≥1/10 000 to <1/1 000), very rare (<1/10 000), not known (cannot be estimated from the available data). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness (Table 1).

Table 1. Adverse reactions

MedDRA system organ class	Frequency	Adverse reactions
Blood and lymphatic system disorders	Very common	Lymphadenopathy (ipsilateral axillary swelling or tenderness)
	Rare	Lymphadenopathy (e.g. supraclavicular)
Nervous system disorders	Very common	Headache
	Rare	Hypoaesthesia
Immune system disorders	Uncommon	Hypersensitivity reactions (e.g. urticaria, chronic urticaria, rash, pruritus)
	Not known	Anaphylactic reaction
Gastrointestinal disorders	Very common	Nausea/vomiting
	Rare	Diarrhoea
Skin and subcutaneous tissue disorders	Very rare	Rash
Musculoskeletal and connective tissue disorders	Very common	Myalgia Arthralgia
General disorders and administration site conditions	Very common	Injection site pain Fatigue Chills
	Common	Pyrexia Injection site swelling Injection site erythema
	Rare	Injection site pruritus

MedDRA system organ class	Frequency	Adverse reactions
		Injection site bruising

Paediatric population

Safety data for mNEXSPIKE in adolescents were collected in a 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. In this study, 8.7% (N=992/11 417) of participants were 12 years through 17 years.

The incidence of solicited systemic adverse reactions was similar for the mNEXSPIKE group for the population overall and across all age subgroups. In Study 1, assessment of unsolicited adverse events did not reveal any safety concerns for the adolescent population, and no differences of clinical concern were noted between the two vaccine groups or when compared to the adult population.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the national reporting system listed in Appendix V.

4.9 Overdose

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

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Vaccines, COVID-19 vaccines, ATC code: J07BN01

Mechanism of action

mNEXSPIKE is a nucleoside-modified mRNA-based vaccine formulated in lipid nanoparticles, which encodes the membrane-bound, linked N-terminal domain (NTD) and receptor-binding domain (RBD) of the spike (S) glycoprotein from SARS-CoV-2 strains. The vaccine elicits an immune response to the NTD and RBD of the S antigen, to generate neutralising antibodies, which contributes to protection against COVID-19.

Clinical efficacy and safety

Study 1
Study 1 was a 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. Randomisation was stratified by age: 12 to 17 years, 18 to 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, as well as participants with stable human immunodeficiency virus (HIV) infection. A total of 11 454 participants were randomised in a 1:1 ratio to receive mNEXSPIKE (10 micrograms of SARS-CoV-2 mRNA; n=5 728) or elasomeran/davesomeran, 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 since the last dose. Participants were followed for efficacy and safety for one year.

In Study 1, the median age of the safety population was 56 years (range 12-96 years); 8.7% of participants were 12 years through 17 years, 62.6% were 18 years through 64 years, 28.7% were 65 years and older and 5.2% were over 75 years old. Overall, 45.7% of the participants were male, 54.3% were female, 13.2% were Hispanic or Latino, 82.2% were White, 11.2% were Black or African American, 3.6% were Asian, and 2.4% reported "Other". Demographic characteristics were similar between participants who received mNEXSPIKE and those who received elasomeran/davesomeran.

The primary efficacy analysis population (referred to as the Per-Protocol Set for Efficacy) demographics were similar to those in the safety population and included 11 366 participants who received either mNEXSPIKE (SARS-CoV-2 mRNA) (n=5 679) or elasomeran/davesomeran (n=5 687). There were no notable differences in demographics between participants who received mNEXSPIKE and those who received elasomeran/davesomeran.

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 8 months.

The primary efficacy objective in this study was to demonstrate the non-inferior vaccine efficacy against COVID-19 starting 14 days after vaccination compared to that of elasomeran/davesomeran. The statistical criterion to demonstrate non-inferiority required that the lower bound of the 99.4% CI be >-10% for relative vaccine efficacy. This pre-specified primary objective was successfully met (see Table 2). During this period, the effectiveness of elasomeran/davesomeran against COVID-19 medical encounters and hospitalisations was seen in observational studies.

Table 2. Relative vaccine efficacy against COVID-19* in participants 12 years of age and older starting 14 days after a single dose of mNEXSPIKE or elasomeran/davesomeran – Per-Protocol Set for efficacy

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

* 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), 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.

[a] Dosing was a single dose (10 micrograms of SARS-CoV-2 mRNA).

[b] Dosing was a single dose (50 micrograms mRNA).

[c] Relative Vaccine Efficacy (rVE) = 1-hazard ratio (mNEXSPIKE vs. elasomeran/davesomeran). Hazard ratio and CI are estimated using a stratified Cox proportional hazard 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 for Centers for Disease Control and Prevention (CDC)-defined COVID-19 is calculated using Lan-DeMets O'Brien Fleming approximation spending function (nominal one-sided alpha = 0.0028).

The primary immunogenicity analysis population included 621 participants who received mNEXSPIKE and 568 participants who received elasomeran/davesomeran. The baseline characteristics were similar to the safety population/ Per-Protocol Set for Efficacy, as described further above.

A comparison of neutralising antibody concentrations against a pseudovirus expressing SARS-CoV-2 Spike proteins from the original and Omicron BA.4/BA.5 strains was conducted. In the primary immunogenicity analyses of the geometric mean concentration (GMC) ratio following mNEXSPIKE compared to after elasomeran/davesomeran, 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 (SRR) 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 3.

Table 3. Comparison of GMC and SRR 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of elasomeran/davesomeran – Per-Protocol immunogenicity subset*

Assay	mNEXSPIKE[a] GMC N=621 (95% CI)[b]	elasomeran/ davesomeran[c] GMC N=568 (95% CI)[b]	GMC ratio (mNEXSPIKE / elasomeran/davesomeran) (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)
	mNEXSPIKE[a] seroresponse[c] N=621 % (95% CI)[e]	**elasomeran/davesomeran seroresponse[d] N=568 % (95% CI)[e]**	**Difference in SRR (mNEXSPIKE – elasomeran/davesomeran) % (95% CI)[f]**
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] Dosing was a single dose (10 micrograms of SARS-CoV-2 mRNA).

[b] The log-transformed antibody levels are analysed using an analysis of covariance (ANCOVA) model with the group variable (mNEXSPIKE vs. elasomeran/davesomeran) as fixed effect, adjusted by SARS-CoV-2 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 (LS) 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] Elasomeran/davesomeran dosing was a single dose (50 micrograms mRNA).

[d] 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.

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

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

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.

Study 2

Study 2 was a Phase 3 randomised, observer-blind, active-controlled clinical trial that evaluated the immunogenicity and safety of mNEXSPIKE in participants 12 years of age and older in Japan. Randomisation was stratified by age: 12 to 17 years, 18 to 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 two months before enrolment, as well as participants with stable human immunodeficiency virus (HIV) infection. A total of 692 participants were randomised in a 1:1 ratio to receive mNEXSPIKE

(10 micrograms of SARS-CoV-2 mRNA; n=344), or andusomeran [targeting Omicron XBB.1.5 strain (50 micrograms 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 andusomeran. Among participants assessed for immunogenicity, 65.0% were male, 35.0% were female, and all participants were Asian. The median age of participants was 52 years (range: 12 to 83 years) and 20.7% of participants were 65 years of age and older.

A comparison of neutralising antibody concentrations against a pseudovirus expressing Omicron XBB.1.5 was conducted. In the primary immunogenicity analyses of the GMC ratio following mNEXSPIKE compared to after andusomeran, 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 are summarised as well (Table 4).

Table 4. Comparison of GMC and SRR 28 days after a single dose of mNEXSPIKE versus 28 days after a single dose of andusomeran – Per-Protocol immunogenicity set*

Assay	mNEXSPIKE[a] GMC (95% CI)[b] N=334	andusomeran[c] GMC (95% CI)[b] N=334	GMC ratio (mNEXSPIKE/ andusomeran) (95% CI)[b]
Omicron XBB.1.5	1757.2 (1580.1, 1954.3)	1470.4 (1322.4, 1635.0)	1.20 (1.03, 1.39)
	mNEXSPIKE[a] seroresponse[d] % (95% CI)[e] N=334	**andusomeran[c] seroresponse[d] % (95% CI)[e] N=334**	**Difference in SRR (mNEXSPIKE-andusomeran) % (95% CI)[f]**
	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] mNEXSPIKE dosing was a single dose (10 micrograms of SARS-CoV-2 mRNA).

[b] The log-transformed antibody levels are analysed using an analysis of covariance (ANCOVA) model with the group variable (mNEXSPIKE vs. andusomeran) as fixed effect, adjusted by SARS-CoV-2 status at baseline, randomisation age group, number of prior 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.

[c] single dose.

[d] 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.

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

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

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.

Paediatric population

The European Medicines Agency has deferred the obligation to submit the results of studies with mNEXSPIKE in one or more subsets of the paediatric population in active immunisation to prevent COVID-19 caused by SARS-CoV-2 (see section 4.2 for information on paediatric use).

5.2 Pharmacokinetic properties

Not applicable.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on conventional studies of repeated dose toxicity, genotoxicity, and toxicity to reproduction and development.

Genotoxicity/carcinogenicity

Carcinogenicity studies were not performed. The components of the vaccine (lipids and mRNA) are not expected to have genotoxic potential.

Developmental and reproductive toxicity

Animal studies conducted with mNEXSPIKE are insufficient to assess functional effects on male reproductive toxicity.

Reproductive and developmental studies in rats with mNEXSPIKE vaccine did not reveal vaccine-related effects on female fertility, pregnancy, or embryo-foetal or offspring development.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Heptadecan-9-yl 8-{(2-hydroxyethyl)[6-oxo-6-(undecyloxy)hexyl]amino}octanoate (SM-102)
Cholesterol
1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC)
1,2-dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000 (PEG2000-DMG)
Trometamol
Trometamol hydrochloride
Sucrose
Water for injections

6.2 Incompatibilities

In the absence of compatibility studies, this vaccine must not be mixed with other medicinal products.

6.3 Shelf life

1 year at -40 ºC to -15 ºC.

Within the shelf life of 1 year, the vaccine is stable for 30 days when stored at 2 °C to 8 °C and protected from light. At the end of 30 days, the vaccine should be used immediately or discarded (see section 6.4).

Once thawed, the vaccine should not be refrozen.

Upon moving the vaccine to 2 °C to 8 °C storage, the outer carton should be marked with the new expiry date at 2 °C to 8 °C.

Pre-filled syringes may be stored at 8 °C to 25 °C for up to 24 hours after removal from refrigerated conditions. Within this period of time, pre-filled syringes may be handled in ambient light conditions. Do not refrigerate after being stored at 8 °C to 25 °C. Discard the syringe if not used within this time.

6.4 Special precautions for storage

Store in a freezer at -40 ºC to -15 ºC.
Once thawed, store in a refrigerator (2 °C to 8 °C) and do not refreeze.
Keep the pre-filled syringes in the outer carton in order to protect from light.
For storage conditions after thawing of the vaccine, see section 6.3.

After thawing, pre-filled syringes may be stored refrigerated between 2 °C to 8 °C for up to 30 days prior to use.

6.5 Nature and contents of container

0.2 mL dispersion in a pre-filled syringe (cyclic olefin copolymer) with plunger stopper (coated bromobutyl rubber) and a tip cap (bromobutyl rubber, without needle).

The pre-filled syringe is packaged in either a blister pack or a paper inner tray within a carton containing 1, 2 or 10 pre-filled syringes.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

The vaccine should be administered by a trained healthcare professional using aseptic techniques to ensure sterility of the dispersion.

Handling instructions before use

The vaccine is ready to use once thawed.

Do not dilute the product.

Do not shake the pre-filled syringe before use.

The pre-filled syringe is for single-use only.

Do not use if the pre-filled syringe has been dropped or damaged or the security seal on the carton has been broken.

One (1) dose of 0.2 mL can be administered from each pre-filled syringe.

mNEXSPIKE is shipped and supplied as a frozen pre-filled syringe (see section 6.4). If the vaccine is frozen, it must be completely thawed before use. Thaw each pre-filled syringe before use, either in the refrigerator or at room temperature, following the instructions in Table 5.

Prior to immediate use, single syringes may be removed from a carton of 1, 2, or 10 pre-filled syringes and thawed either in the refrigerator or at room temperature. The remaining syringes must continue to be stored in their original carton in the freezer or refrigerator.

If the vaccine has been thawed at room temperature (15 °C to 25 °C), the pre-filled syringe is ready to administer. Syringes should not be returned to the refrigerator after being thawed at room temperature.

The pre-filled syringes may be stored at 8 °C to 25 °C for a total of 24 hours after removal from refrigerated conditions. Within this period of time, pre-filled syringes may be handled in ambient light conditions. Discard the syringe if not used within this time.

Thaw each pre-filled syringe before use following the instructions below. Pre-filled syringes may be thawed outside the carton or in the carton itself, either in the refrigerator or at room temperature (Table 5).

Table 5. Thawing instructions for pre-filled syringes and cartons before use

Configuration	**Thaw instructions and duration**			
	Thaw temperature (in a refrigerator) (°C)	**Thaw duration (minutes)**	**Thaw temperature (at room temperature) (°C)**	**Thaw duration (minutes)**
One pre-filled syringe or a carton of 1 or 2 pre-filled syringes	2 – 8	100	15 – 25	40
Carton of 10 pre-filled syringes	2 – 8	160	15 – 25	80

Administration

- Pre-filled syringe should be inspected visually for particulate matter and discolouration prior to administration.
- Do not administer if vaccine is discoloured or contains other particulate matter.
- Needles are not included in the pre-filled syringe cartons.
- Use a sterile needle of the appropriate size for intramuscular injection (21-gauge or thinner needles).
- 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.
- The vaccine should be administered immediately after uncapping.
- Administer the entire dose intramuscularly.
- Discard the pre-filled syringe after single use.

Disposal

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

7. MARKETING AUTHORISATION HOLDER

MODERNA BIOTECH SPAIN, S.L.
C/ Julián Camarillo nº 31
28037 Madrid
Spain

8. MARKETING AUTHORISATION NUMBER(S)

EU/1/25/2010/001
EU/1/25/2010/002

EU/1/25/2010/003
EU/1/25/2010/004
EU/1/25/2010/005
EU/1/25/2010/006

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 12 February 2026

10. DATE OF REVISION OF THE TEXT

Detailed information on this medicinal product is available on the website of the European Medicines Agency https://www.ema.europa.eu

ANNEX II

A. MANUFACTURER OF THE BIOLOGICAL ACTIVE SUBSTANCE(S) AND MANUFACTURER RESPONSIBLE FOR BATCH RELEASE

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

D. CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT

A. MANUFACTURER OF THE BIOLOGICAL ACTIVE SUBSTANCE(S) AND MANUFACTURER RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturer of the biological active substance(s)

ModernaTX, Inc.
One Moderna Way
Norwood, MA 02062
USA

Name and address of the manufacturer responsible for batch release

MODERNA BIOTECH SPAIN, S.L.
C/ Julián Camarillo n° 31
28037 Madrid
Spain

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

Medicinal product subject to medical prescription.

- **Official batch release**

In accordance with Article 114 of Directive 2001/83/EC, the official batch release will be undertaken by a state laboratory or a laboratory designated for that purpose.

C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

- **Periodic safety update reports (PSURs)**

The requirements for submission of PSURs for this medicinal product are set out in the list of Union reference dates (EURD list) provided for under Article 107c(7) of Directive 2001/83/EC and any subsequent updates published on the European medicines web-portal.

D. CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT

- **Risk management plan (RMP)**

The marketing authorisation holder (MAH) shall perform the required pharmacovigilance activities and interventions detailed in the agreed RMP presented in Module 1.8.2 of the marketing authorisation and any agreed subsequent updates of the RMP.

An updated RMP should be submitted:

- At the request of the European Medicines Agency;
- Whenever the risk management system is modified, especially as the result of new information being received that may lead to a significant change to the benefit/risk profile or as the result of an important (pharmacovigilance or risk minimisation) milestone being reached.

ANNEX III

LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE OUTER PACKAGING

OUTER CARTON

1. NAME OF THE MEDICINAL PRODUCT

mNEXSPIKE dispersion for injection in pre-filled syringe
COVID-19 mRNA Vaccine

2. STATEMENT OF ACTIVE SUBSTANCE(S)

Each pre-filled syringe contains one dose of 0.2 mL. One dose contains 10 micrograms of SARS-CoV-2 mRNA.

3. LIST OF EXCIPIENTS

Excipients: SM-102 (heptadecan-9-yl 8-{(2-hydroxyethyl)[6-oxo-6-(undecyloxy)hexyl]amino}octanoate), cholesterol, 1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC), 1,2-Dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000 (PEG2000-DMG), trometamol, trometamol hydrochloride, sucrose, water for injections.

See leaflet for further information.

4. PHARMACEUTICAL FORM AND CONTENTS

Dispersion for injection
1 pre-filled syringe
2 pre-filled syringes
10 pre-filled syringes

5. METHOD AND ROUTE(S) OF ADMINISTRATION

Intramuscular use.
For single use only.
Read the package leaflet before use.

6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN

Keep out of the sight and reach of children.

7. OTHER SPECIAL WARNING(S), IF NECESSARY

8. EXPIRY DATE

EXP (-40 °C to -15 °C)
EXP (2 °C to 8 °C)

9. SPECIAL STORAGE CONDITIONS

Store in a freezer (-40 ºC to -15 ºC).
Keep the pre-filled syringe in the outer carton in order to protect from light.
For additional information on shelf-life and storage, see the package leaflet.

10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE

11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

MODERNA BIOTECH SPAIN, S.L.
C/ Julián Camarillo nº 31
28037 Madrid
Spain

12. MARKETING AUTHORISATION NUMBER(S)

EU/1/25/2010/001 1 pre-filled syringe in blister pack
EU/1/25/2010/002 2 pre-filled syringes in blister pack
EU/1/25/2010/003 10 pre-filled syringes in blister pack
EU/1/25/2010/004 1 pre-filled syringe in a tray
EU/1/25/2010/005 2 pre-filled syringes in a tray
EU/1/25/2010/006 10 pre-filled syringes in a tray

13. BATCH NUMBER

Lot

14. GENERAL CLASSIFICATION FOR SUPPLY

15. INSTRUCTIONS ON USE

16. INFORMATION IN BRAILLE

Justification for not including Braille accepted.

17. UNIQUE IDENTIFIER – 2D BARCODE

2D barcode carrying the unique identifier included.

18. UNIQUE IDENTIFIER - HUMAN READABLE DATA

PC
SN
NN

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

PRE-FILLED SYRINGE LABEL

1. NAME OF THE MEDICINAL PRODUCT AND ROUTE(S) OF ADMINISTRATION

mNEXSPIKE dispersion for injection
COVID-19 mRNA Vaccine
IM

2. METHOD OF ADMINISTRATION

Intramuscular use

3. EXPIRY DATE

EXP

4. BATCH NUMBER

Lot

5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT

0.2 mL

6. OTHER

B. PACKAGE LEAFLET

Package leaflet: Information for the user

mNEXSPIKE dispersion for injection in pre-filled syringe
COVID-19 mRNA Vaccine

▼This medicine is subject to additional monitoring. This will allow quick identification of new safety information. You can help by reporting any side effects you may get. See the end of section 4 for how to report side effects.

Read all of this leaflet carefully before you receive this vaccine because it contains important information for you.
- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, pharmacist or nurse.
- If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. See section 4.

What is in this leaflet

1. What mNEXSPIKE is and what it is used for
2. What you need to know before you are given mNEXSPIKE
3. How mNEXSPIKE is given
4. Possible side effects
5. How to store mNEXSPIKE
6. Contents of the pack and other information

1. What mNEXSPIKE is and what it is used for

mNEXSPIKE is a vaccine that helps to protect adults and children aged 12 years and older against COVID-19 caused by the SARS-CoV-2 virus. The active substance in mNEXSPIKE is mRNA that has instructions to make parts of the SARS-CoV-2 spike protein. The mRNA is embedded in lipid nanoparticles, very small spheres made of fatty substances.

The vaccine uses a substance called messenger ribonucleic acid (mRNA) to carry instructions that cells in the body can use to make parts of the spike protein that is also on the virus. When the body then recognises these parts, it causes the immune system (the body's natural defences) to produce antibodies (substances in the blood that recognise and fight infections) and certain white blood cells that work against the virus. This then helps protect against COVID-19.

As mNEXSPIKE does not contain the virus, it cannot give you COVID-19.

2. What you need to know before you are given mNEXSPIKE

The vaccine must not be given if you are **allergic** to the active substance or any of the other ingredients of this vaccine (listed in section 6).

Warnings and precautions
Talk to your doctor, pharmacist or nurse before you are given mNEXSPIKE if:

- you have previously had a severe, life-threatening allergic reaction after any other vaccine injection or after you were given a COVID-19 mRNA vaccine in the past.
- you have a very weak or compromised immune system.
- you have a bleeding disorder.
- you have a high fever or severe infection. If this is the case, then vaccination will be postponed. However, you can have your vaccination if you have a mild fever or upper airway infection like a cold. Talk to your doctor first.

- you have any serious illness.
- you have anxiety related to injections.

Get **urgent** medical attention if you get any of the following signs and symptoms of an allergic reaction following your vaccine:
- feeling faint or light-headed;
- changes in your heartbeat;
- shortness of breath;
- wheezing;
- swelling of your lips, face, or throat;
- hives or rash;
- nausea or vomiting;
- stomach pain.

Cases of myocarditis and pericarditis (inflammation of the heart muscle or the membrane around the heart) have been reported for some other COVID-19 vaccines.

These conditions can develop within a few days; most cases occur within 14 days. They have been observed more often in younger males.

Following vaccination, you should be alert to signs of myocarditis and pericarditis, such as breathlessness, palpitations and chest pain, and seek immediate medical attention should these occur.

Some people may experience anxiety or anxiety-related reactions in response to the vaccine injection. Your healthcare providers will be sure that precautions are in place to avoid injury from fainting.

If any of the above apply to you (or you are not sure), talk to your doctor, pharmacist or nurse before you are given mNEXSPIKE.

Duration of protection
As with any vaccine, mNEXSPIKE may not fully protect all people who are vaccinated.

Children and adolescents
mNEXSPIKE is not indicated for use in children below the age of 12 years because the effects of this vaccine in this population have not been studied.

Other medicines and mNEXSPIKE
Tell your doctor, pharmacist or nurse if you are taking, have recently taken, or might take any other medicines.

Immunocompromised individuals
mNEXSPIKE may not work as well in people who are immunocompromised. If your immune system is weakened because of disease or medical treatment, you should continue to maintain physical precautions to help prevent COVID-19. In addition, your close contacts should be vaccinated as appropriate. Discuss appropriate individual recommendations with your doctor.

Pregnancy, breast-feeding and fertility
If you are pregnant or think you may be pregnant, tell your doctor, nurse or pharmacist before you receive this vaccine. No or limited data are available yet regarding the use of mNEXSPIKE during pregnancy or breast feeding.

Driving and using machines
Do not drive or use machines if you are feeling unwell after vaccination. Wait until any effects of the vaccine have worn off before you drive or use machines.

Some of the effects of vaccination mentioned in section 4 (Possible side effects), like feeling tired, may temporarily affect your ability to drive or use machines. If you experience such side effects, wait until these effects have worn off before you drive or use machines.

3. How mNEXSPIKE is given

The recommended dose is one dose of 10 micrograms. If you have previously had a COVID-19 vaccine, mNEXSPIKE should be given at least 3 months after the last vaccination.

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

After injection of the vaccine, your doctor, pharmacist or nurse will watch over you for at least **15 minutes** to monitor for signs of an allergic reaction.

If you have any further questions on the use of this medicine, ask your doctor, pharmacist or nurse.

4. Possible side effects

Like all medicines, this medicine can cause side effects, although not everybody gets them.

Talk to your doctor or nurse if you develop any side effects. These can include:

Very common (may affect more than 1 in 10 people)
- swelling/tenderness in the underarm (lymphadenopathy)
- headache
- feeling sick (nausea)/vomiting
- muscle ache (myalgia)
- joint aches (arthralgia)
- pain at the injection site
- feeling tired (fatigue)
- chills

Common (may affect up to 1 in 10 people)
- fever (pyrexia)
- swelling at the injection site
- redness (erythema) at the injection site

Uncommon (may affect up to 1 in 100 people)
- reaction of increased sensitivity or intolerance by the immune system (hypersensitivity)

Rare (may affect up to 1 in 1 000 people)
- swelling/tenderness above the collarbone (lymphadenopathy)
- decreased sense of touch or sensation
- diarrhoea
- itchiness at the injection site
- bruising at the injection site

Very rare (may affect up to 1 in 10 000 people)
- rash

Frequency not known
- severe allergic reactions with breathing difficulties (anaphylactic reaction)

If any of the side effects gets serious, or if you notice any side effects not listed in this leaflet, please tell your doctor or pharmacist.

Reporting of side effects
If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed in Appendix V. By reporting side effects you can help provide more information on the safety of this medicine.

5. How to store mNEXSPIKE

Your doctor, pharmacist or nurse is responsible for storing this vaccine and disposing of any unused product correctly. The following information is intended for healthcare professionals.

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

Keep this vaccine out of the sight and reach of children.

Frozen vaccine
Store in a freezer between -40 °C to -15 °C up to 1 year.
Keep the pre-filled syringes in the outer carton in order to protect from light.

Thawed vaccine
Within the shelf life of 1 year, the vaccine is stable for 30 days when stored at 2 °C to 8 °C and protected from light. At the end of 30 days, the vaccine should be used immediately or discarded. Upon moving the vaccine to 2 °C to 8 °C storage, the outer carton should be marked with the new expiry date at 2 °C to 8 °C.

Once thawed, the vaccine should not be refrozen.

The pre-filled syringes may be stored at 8 °C to 25 °C for up to 24 hours after removal from the refrigerated conditions. Within this period of time, pre-filled syringes may be handled in ambient light conditions. Do not refrigerate after being stored at 8 °C to 25 °C. Discard the syringe if not used within this time.

Do not throw away any medicines via wastewater or household waste. Ask your pharmacist how to throw away medicines you no longer use. These measures will help protect the environment.

6. Contents of the pack and other information

What mNEXSPIKE contains

The active substance is a single-stranded, 5'-capped messenger RNA (mRNA) produced using a cell-free in vitro transcription from the corresponding DNA template, encoding the N-terminal domain and receptor-binding domain of the viral spike (S) protein of SARS-CoV-2 (XBB.1.5).

Each pre-filled syringe contains one dose of 0.2 mL. One dose contains 10 micrograms of SARS-CoV-2 mRNA.

The other ingredients are heptadecan-9-yl 8-{(2-hydroxyethyl)[6-oxo-6-(undecyloxy)hexyl]amino}octanoate (SM-102), cholesterol, 1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC), 1,2-Dimyristoyl-rac-glycero-3-methoxypolyethylene glycol-2000 (PEG2000-DMG), trometamol, trometamol hydrochloride, sucrose, water for injections.

What mNEXSPIKE looks like and contents of the pack

mNEXSPIKE is a white to off white dispersion (pH: 7.1 – 7.8) supplied in a pre-filled syringe (cyclic olefin copolymer) with plunger stopper and a tip cap (without needle).

The pre-filled syringe is available in packs containing 1, 2 or 10 pre-filled syringes.

Not all pack sizes may be marketed.

Marketing Authorisation Holder and Manufacturer
MODERNA BIOTECH SPAIN, S.L.
C/ Julián Camarillo nº 31
28037 Madrid
Spain

For any information about this vaccine, please contact the local representative of the Marketing Authorisation Holder:

België/Belgique/Belgien
Tél/Tel: 0800 81 460

България
Тел: 0800 115 4477
Česká republika
Tel: 800 050 719

Danmark
Tlf.: 80 81 06 53

Deutschland
Tel.: 0800 100 9632

Eesti
Tel: 800 0044 702

Ελλάδα
Τηλ: +30 800 000 0030

España
Tel: 900 031 015

France
Tél: 0805 54 30 16

Hrvatska
Tel: 08009614

Ireland
Tel: 1800 800 354

Ísland
Sími: 800 4382

Italia
Tel: 800 928 007

Κύπρος

Lietuva
Tel.: 88 003 1114

Luxembourg/Luxemburg
Tél/Tel: 800 85 499
Magyarország
Tel.: 06 809 87488

Malta
Tel: 8006 5066

Nederland
Tel: 0800 409 0001

Norge
Tlf: 800 31 401

Österreich
Tel: 0800 909636

Polska
Tel.: 800 702 406

Portugal
Tel: 800 210 256

România
Tel: 0800 400 625

Slovenija
Tel: 080 083082

Slovenská republika
Tel: 0800 191 647

Suomi/Finland
Puh/Tel: 0800 774198

Sverige

Τηλ: 80091080 Tel: 020 10 92 13

Latvija
Tel: 80 005 898

This leaflet was last revised in.

Other sources of information

Detailed information on this vaccine is available on the European Medicines Agency web site: https://www.ema.europa.eu.

The following information is intended for healthcare professionals only:

The vaccine should be administered by a trained healthcare professional using aseptic techniques to ensure sterility of the dispersion.

Handling instructions for mNEXSPIKE before use

The vaccine is ready to use once thawed.

Do not dilute the product.

Do not shake the pre-filled syringe before use.

The pre-filled syringe is for single-use only.

Do not use if the pre-filled syringe has been dropped or damaged or the security seal on the carton has been broken.

One (1) dose of 0.2 mL can be administered from each pre-filled syringe.

mNEXSPIKE is shipped and supplied as a frozen pre-filled syringe (see section 5). If the vaccine is frozen, it must be completely thawed before use. Thaw each pre-filled syringe before use, either in the refrigerator or at room temperature, following the instructions in Table 1.

Prior to immediate use, single syringes may be removed from a carton of 1, 2 or 10 pre-filled syringes and thawed either in the refrigerator or at room temperature. The remaining syringes must continue to be stored in their original carton in the freezer or refrigerator.

If the vaccine has been thawed at room temperature (15 °C to 25 °C), the pre-filled syringe is ready to administer. Syringes should not be returned to the refrigerator after being thawed at room temperature.

The pre-filled syringes may be stored at 8 °C to 25 °C for a total of 24 hours after removal from refrigerated conditions. Within this period of time, pre-filled syringes may be handled in ambient light conditions. Discard the syringe if not used within this time.

Thaw each pre-filled syringe before use following the instructions below. Pre-filled syringes may be thawed outside the carton or in the carton itself, either in the refrigerator or at room temperature (Table 1).

Table 1. Thawing instructions for mNEXSPIKE pre-filled syringes and cartons before use

Configuration	Thaw instructions and duration			
	Thaw temperature (in a refrigerator) (°C)	**Thaw duration (minutes)**	**Thaw temperature (at room temperature) (°C)**	**Thaw duration (minutes)**
One syringe or a carton of 1 or 2 syringes	2 – 8	100	15 – 25	40
Carton of 10 syringes	2 – 8	160	15 – 25	80

Administration

- Pre-filled syringe should be inspected visually for particulate matter and discolouration prior to administration.
- Do not administer if vaccine is discoloured or contains other particulate matter.
- Needles are not included in the pre-filled syringe cartons.
- Use a sterile needle of the appropriate size for intramuscular injection (21-gauge or thinner needles).
- 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.
- The vaccine should be administered immediately after uncapping.
- Administer the entire dose intramuscularly.
- Discard after single use.

Disposal

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