

ANNEX I

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

Supemtek Tetra solution for injection in pre-filled syringe
Quadrivalent Influenza Vaccine (recombinant, prepared in cell culture)

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One dose (0.5 mL) contains:

Influenza virus haemagglutinin (HA) proteins, of the following strains*:

A/XXXXXX (H1N1)45 micrograms HA

A/XXXXXX (H3N2)45 micrograms HA

B/XXXXXX45 micrograms HA

B/XXXXXX45 micrograms HA

* produced by recombinant DNA technology using a baculovirus expression system in a continuous insect cell line that is derived from Sf9 cells of the fall armyworm, *Spodoptera frugiperda*.

This vaccine complies with the World Health Organization (WHO) recommendation (Northern Hemisphere) and EU recommendation for the XXXX/XXXX season.

Supemtek Tetra may contain traces of octylphenol ethoxylate (see section 4.3).

Excipients with known effect

This medicine contains 0.0275 mg of polysorbate 20 (E432) in each 0.5 mL dose (see section 4.4).

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for injection in pre-filled syringe (injection).

Clear and colourless solution.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Supemtek Tetra is indicated for active immunization for the prevention of influenza disease in adults and children from 9 years of age and older.

Supemtek Tetra should be used in accordance with official recommendations.

4.2 Posology and method of administration

Posology

Adults and children from 9 years of age

One dose of 0.5 mL.

Paediatric population

Safety and efficacy of Supemtek Tetra have not been established in individuals below 3 years of age.

Currently available safety and immunogenicity data of Supemtek Tetra in children from 3 to less than 8 years of age are described in section 5.1 but no recommendation on a posology can be made.

Method of administration

For intramuscular injection only. The preferred site is in the deltoid muscle.

The vaccine must not be injected intravascularly and must not be mixed with other vaccines in the same syringe.

For instructions on the handling of the vaccine before administration, see section 6.6.

4.3 Contraindications

Hypersensitivity to the active substances, to any of the excipients listed in section 6.1 or to any trace residues such as octylphenol ethoxylate.

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 should always be readily available in case of an anaphylactic event following the administration of the vaccine.

Concurrent illness

Vaccination should be postponed in patients with acute febrile illness until the fever is resolved.

Immunodeficiency

Antibody response in patients with endogenous or iatrogenic immunosuppression may be insufficient to prevent influenza.

Thrombocytopenia and coagulation disorders

As with all injectable vaccines, Supemtek Tetra must be administered with caution to individuals with thrombocytopenia or a bleeding disorder since bleeding may occur following an intramuscular administration to these subjects.

Syncope

Syncope can occur following or even before any vaccination as a psychogenic response to the needle injection. This can be accompanied by several neurological signs such as transient visual disturbance, paraesthesia and tonic-clonic limb movements during recovery. Procedures should be in place to prevent falling and injury and to manage syncope.

Protection

As with any vaccine, vaccination with Supemtek Tetra may not protect all vaccinees.

Excipients with known effect

Sodium content

This medicinal product contains less than 1 mmol sodium (23 mg) per dose, that is to say essentially “sodium free”.

Polysorbate 20 content

This medicine contains 0.0275 mg of polysorbate 20 (E432) in each 0.5 mL dose. Polysorbates may cause allergic reactions.

4.5 Interaction with other medicinal products and other forms of interaction

No interaction studies have been performed, nor data to assess the concomitant administration of Supemtek Tetra with other vaccines.

If Supemtek Tetra is to be given at the same time as another injectable vaccine, the vaccines should always be administered at different injection sites.

4.6 Fertility, pregnancy and lactation

Pregnancy

A large amount of data on pregnant women (more than 14 500 pregnancy outcomes from a retrospective study), indicates no malformative nor foeto/neonatal toxicity of Quadrivalent Influenza Vaccine (recombinant, prepared in cell culture) (Supemtek Tetra) when administered during pregnancy.

One animal study performed with trivalent recombinant influenza vaccine did not indicate direct or indirect harmful effects with respect to pregnancy, embryo-foetal development or early post-natal development.

Supemtek Tetra can be used during pregnancy in accordance with official recommendations.

Breastfeeding

It is unknown whether Supemtek Tetra is excreted in human milk.

An assessment of the risks and benefits should be performed by a healthcare professional before administering Supemtek Tetra to a breastfeeding woman.

Fertility

No human fertility data are available.

The animal study with trivalent recombinant influenza vaccine did not indicate harmful effects on female fertility.

4.7 Effects on ability to drive and use machines

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

However, caution should be used when driving or using machines if the ability to react is reduced due to some of the effects mentioned under section 4.8.

4.8 Undesirable effects

Summary of the safety profile

The most common adverse reactions occurring after vaccine administration were injection-site reactions (tenderness and pain) reported overall by 48% and 37% of study participants 18-49 years of age receiving Supemtek Tetra respectively. In study participants 50 years of age and older, injection site tenderness was reported by 34% and injection site pain reported by 19%.

In children/adolescents 9 to 17 years of age who received Supemtek Tetra, the most common injection-site adverse reaction was pain (34.4%). The most common systemic adverse reactions were myalgia (19.3%), headache (18.5%) and malaise (16.1%).

The severity of the adverse reactions was mild to moderate. Onset usually occurred within the first 3 days after vaccination. All resolved without sequelae.

Tabulated list of adverse reactions

The adverse reactions are listed by MedDRA system organ class under headings of frequency using the following convention:

Very common ($\geq 1/10$);

Common ($\geq 1/100$ to $< 1/10$);

Uncommon ($\geq 1/1\ 000$ to $< 1/100$);

Rare ($\geq 1/10\ 000$ to $< 1/1\ 000$);

Very rare ($< 1/10\ 000$);

Frequency not known (cannot be estimated from the available data).

Within each frequency grouping, adverse reactions are presented in the order of decreasing seriousness.

Supemtek Tetra has been administered to and safety data collected from 998 adults 18-49 years of age (study 1) 4 328 adults 50 years of age and older (study 2), and from 658 adults 18-49 years of age (study 4) and from 641 children/adolescents 9-17 years of age (study 4).

Table 1: Adverse reactions reported following vaccination in adults and children 9 years and older during clinical trials and post-marketing surveillance

MedDRA system organ class	Very common	Common	Uncommon	Rare	Frequency not known
Immune system disorders					Hypersensitivity including anaphylactic reaction
Nervous system disorders	Headache, Malaise/Fatigue			Dizziness ^(4,6,8)	Guillain-Barré syndrome ⁷
Respiratory, thoracic and mediastinal disorders			Asthma ^(5,6,10) , Cough, Oropharyngeal pain ⁽⁹⁾ , Rhinorrhoea ^(5,6)		
Metabolism and nutrition disorders			Decreased appetite ^(5,6)		
Gastrointestinal disorders		Nausea ⁽⁸⁾	Abdominal discomfort ^(5,6) , Diarrhoea ⁽⁴⁾ , Vomiting ^(5,6)		
Skin and subcutaneous tissue disorders			Dermatitis ^(4,5,9) , Pruritus ^(2,4,9) , Rash ^(4,5,9)	Urticaria ^(4,6,9)	
Musculoskeletal and connective tissue disorders	Myalgia ⁽¹⁾ , Arthralgia ^(1,9)				
General disorders and administration site conditions	Local tenderness, Local pain/ Injection site pain	Fever ^(2,3) , Shivering ^(5,6) /Chills, Firmness ^(5,6) /Swelling, Redness/Injection site erythema, Bruising ^(5,6) , Induration ^(5,6)	Flu-like symptoms ^(4,6) , Injection site pruritus ⁽⁴⁾ , Rash ^(5,6)		

⁽¹⁾ Reported as common in adults 50 years of age and older.

- (2) Reported as rare in adults 50 years of age and older.
- (3) ≥ 38.0 °C.
- (4) Reported as unsolicited adverse reaction.
- (5) Not reported in adults 50 years of age and older.
- (6) Not reported in adults 18-49 years of age.
- (7) Reported from post-marketing surveillance.
- (8) Reported as uncommon in children/adolescents 9 to 17 years of age
- (9) Not reported in children/adolescents 9 to 17 years of age
- (10) Reported in one participant of 9 to 17 years of age with pre-existing asthma who experienced an exacerbation with onset on Day 2, assessed by the investigator as related to vaccination.

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

No cases of overdose reported with Supemtek Tetra.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Vaccines, influenza vaccine, ATC code: J07BB02

Mechanism of action

Supemtek Tetra contains recombinant HA proteins of the four strains of influenza virus specified by health authorities for inclusion in the annual seasonal vaccine. These proteins function as antigens which induce a humoral immune response, measured by hemagglutination inhibition (HI) antibody that is known to protect against influenza infection.

Antibodies against one influenza virus type or subtype confer limited or no protection against another. Furthermore, antibodies to one antigenic variant of influenza virus might not protect against a new antigenic variant of the same type or subtype. Frequent development of antigenic variants through antigenic drift is the virologic basis for seasonal epidemics and the reason for the usual replacement of one or more influenza virus strains in each year's influenza vaccine. Therefore, influenza vaccines are standardized to contain the hemagglutinins of influenza virus strains (i.e., typically two type A and two type B), representing the influenza viruses likely to be circulating in the upcoming season.

Immunogenicity

Supemtek Tetra was evaluated in healthy adults of 18-49 years of age in a randomized, observer-blind, active controlled, non-inferiority immunogenicity, multicenter study conducted during the 2014-2015 influenza season in the United States (study 1).

In the study 1, subjects received Supemtek Tetra (N=998) or an egg-based quadrivalent inactivated influenza vaccine (IIV4) (N=332). Immunogenicity was assessed before and 28 days after administration of a single dose of study vaccine.

Haemagglutination inhibition (HAI) geometric mean titers (GMTs) were determined for the two vaccine groups for each vaccine antigen. Immunogenicity was compared by calculating the difference in seroconversion rates (SCR) and the ratios of GMTs of Comparator to Supemtek Tetra.

Study 1 had two co-primary endpoints: GMTs and Day 28 HAI seroconversion rates for each of the four antigens contained in the study vaccines.

Supemtek Tetra met the success criterion for GMTs for three of the four antigens but did not meet the success criteria for the B/Victoria lineage antigen (Table 2). Antibody titres against the B/Victoria were low in both vaccine groups.

Table 2: Comparison of day 28 post-vaccination geometric mean titers (GMT) for Supemtek Tetra and comparator in adults 18-49 years of age, study 1 (Immunogenicity population)^{1,2,3}

Antigen	Post-vaccination GMT Supemtek Tetra N=969	Post-vaccination GMT Comparator N=323	GMT Ratio Comparator/ Supemtek Tetra (95% CI)
A/H1N1	493	397	0.81 (0.71, 0.92)
A/H3N2	748	377	0.50 (0.44, 0.57)
B/Yamagata	156	134	0.86 (0.74, 0.99)
B/Victoria	43	64	1.49 (1.29, 1.71)

Abbreviations: CI, confidence interval; GMT, geometric mean titer.

¹ HI titers were assayed using egg-derived antigens.

² Comparator: egg-based quadrivalent inactivated influenza vaccine.

³ Success in meeting the GMTs endpoint was pre-defined as an upper bound (UB) of the two-sided 95% CI of GMT Comparator / GMT Supemtek Tetra ≤ 1.5 .

Supemtek Tetra met the success criterion for SCRs for three of the four antigens (Table 3), but not for the B/Victoria lineage. The HAI response to the B/Victoria lineage antigen was low in both vaccine groups.

Table 3: Comparison of day 28 seroconversion rates for Supemtek Tetra and comparator in adults 18-49 years of age, study 1 (Immunogenicity population)^{1,2,3,4}

Antigen	SCR (% , 95% CI) Supemtek Tetra N=969	SCR (% , 95% CI) Comparator N=323	SCR Difference (%) Comparator - Supemtek Tetra [95% CI]
A/H1N1	66.7 (63.6, 69.6)	63.5 (58.0, 68.7)	-3.2 (-9.2, 2.8)
A/H3N2	72.1 (69.2, 74.9)	57.0 (51.4, 62.4)	-15.2 (-21.3, -9.1)
B/Yamagata	59.6 (56.5, 62.8)	60.4 (54.8, 65.7)	0.7 (-5.4, 6.9)
B/Victoria	40.6 (37.4, 43.7)	58.2 (52.6, 63.6)	17.6 (11.4, 23.9)

Abbreviations: CI, confidence interval; SCR, seroconversion rate

¹ HI titers were assayed using egg-derived antigens.

² Comparator was an egg-based quadrivalent inactivated influenza vaccine.

³ Seroconversion was defined as either a pre-vaccination HAI titer of < 1:10 and a post-vaccination HAI titer of ≥ 1:40, or a pre-vaccination HAI titer of ≥ 1:10 and a minimum 4- fold rise in post vaccination HAI titer, at Day 28.

⁴ Success in meeting the seroconversion rate (SCR) endpoint was pre-defined as an upper bound (UB) of the two-sided 95% CI of SCR Comparator – SCR Supemtek Tetra ≤ 10%.

The study 1 in adults 18-49 years of age was conducted in parallel to the study 2 in adults of 50 years of age and older. These adults 18-49 years of age were vaccinated during the same influenza season (2014-2015 Northern Hemisphere influenza season) and received the same Supemtek Tetra formulation (same vaccine strain composition) as adults of 50 years of age and older in the study 2. The immune response induced by Supemtek Tetra was assessed by the same HAI assay and performed by the same laboratory for both studies. The immunogenicity results in adults 18-49 years of age (study 1) and adults 50 years of age and older (study 2) are presented in Table 4.

Table 4: Summary of HAI antibody response to Supemtek Tetra for each strain in adults 18-49 years of age (study 1) and adults ≥ 50 years of age (study 2) - Immunogenicity analysis set

	Adults 18-49 years of age N=969	Adults ≥ 50 years of age N=314
GMT post-vaccination (95% CI)		
A/California/7/2009 (H1N1)	493 (460; 527)	190 (164; 221)
A/Texas/50/2012 (H3N2)	748 (700; 800)	522(462; 589)
B/Massachusetts/02/2012 (Yamagata lineage)	156 (145; 168)	55 (48; 64)
B/Brisbane/60/2008 (Victoria lineage)	43 (40; 46)	29 (26; 33)
SCR % (95% CI)		
A/California/7/2009 (H1N1)	66.7 (63.6; 69.6)	44.9 (39.3; 50.6)
A/Texas/50/2012 (H3N2)	72.1 (69.2; 74.9)	54.5 (48.8; 60.1)
B/Massachusetts/02/2012 (Yamagata lineage)	59.6 (56.5; 62.8)	38.9 (33.4; 44.5)
B/Brisbane/60/2008 (Victoria lineage)	40.6 (37.4; 43.7)	21.0 (16.6; 25.9)
GMTR % (95% CI)		
A/California/7/2009 (H1N1)	8.35 (7.59; 9.19)	4.31 (3.71; 5.02)
A/Texas/50/2012 (H3N2)	10.1 (9.12; 11.1)	6.01 (5.03; 7.18)

B/Massachusetts/02/2012 (Yamagata lineage)	3.59 (3.35; 3.85)	2.16 (1.94; 2.40)
B/Brisbane/60/2008 (Victoria lineage)	5.89 (5.43; 6.40)	3.18 (2.81; 3.59)

N=number of subjects with available data for the considered endpoint

GMT: Geometric Mean Titer; CI: Confidence Interval; SCR: Seroconversion rate; GMTR: Geometric Mean Titer of individuals ratios (post dose / pre dose)

These immunogenicity data provide supportive information for the 18-49 years of age group in addition to vaccine efficacy data available in adults ≥ 50 years of age (see Clinical efficacy).

Clinical efficacy

Supemtek Tetra efficacy in terms of prevention of laboratory-confirmed influenza-like illness (ILI) caused by any strain of influenza, was evaluated in adults ≥ 50 years of age and conducted during the 2014-2015 influenza season in the United States (study 2).

A total of 8 963 healthy, medically stable adults were randomized in a 1:1 ratio to receive a single dose of Supemtek Tetra (N=4 474) or an egg-based quadrivalent inactivated influenza vaccine (N=4 489).

A total of 5 412 (60.4%) subjects were 50-64 years of age, 2 532 (28.2%) were 65-74 years of age and 1 019 (11.4 %) were ≥ 75 years of age.

The primary efficacy endpoint of study 2 was reverse transcriptase polymerase chain reaction (rtPCR)-positive, protocol-defined ILI due to any strain of influenza.

Laboratory-confirmed protocol defined ILI was defined as having at least one symptom in each of two categories of respiratory and systemic symptoms, which could include sore throat, cough, sputum production, wheezing and difficulty breathing, or systemic symptoms such as fever $> 99^{\circ}\text{F}$ ($> 37^{\circ}\text{C}$), chills, fatigue, headache and myalgia, laboratory-confirmed by rtPCR.

US epidemiological data for the 2014-2015 influenza season indicated that Influenza A (H3N2) viruses predominated and that most influenza A/H3N2 viruses were antigenically dissimilar while A/H1N1 and B viruses were antigenically similar to vaccine antigens. Supemtek Tetra met the pre-specified success criterion for non-inferiority to the comparator pre-defined as a lower bound of the two-sided 95% CI $> -20\%$.

Of the 4 474 participants exposed to Supemtek Tetra in a phase 3 active-controlled study (study 2), a total of 1 761 were 65 years or older. Although no differences in safety or efficacy were observed between older and younger participants, the number of patients aged 65 and over in this study was not sufficient to determine statistically whether this age group will respond differently from younger individuals.

Table 5: Relative vaccine efficacy (rVE) of Supemtek Tetra versus comparator against laboratory-confirmed influenza, regardless of antigenic similarity to vaccine antigens, adults 50 years of age and older, study 2 (Efficacy population)^{1,2}

	Supemtek Tetra (N=4 303)		Comparator (N=4 301)		RR	rVE % (95% CI)
	n	Attack rate % (n/N)	N	Attack rate % (n/N)		
All rtPCR-positive influenza ³	96	2.2	138	3.2	0.70	30 (10 ⁵ , 47)

All rtPCR-positive Influenza A ³	73	1.7	114	2.7	0.64	36 (14, 53)
All rtPCR-positive Influenza B ³	23	0.5	24	0.6	0.96	4 (-72, 46)
All culture-confirmed protocol-defined ILI ^{3,4}	58	1.3	101	2.3	0.57	43 (21, 59)

Abbreviations: rtPCR=reverse transcriptase polymerase chain reaction; Comparator=an egg-based quadrivalent inactivated influenza vaccine; n=number of influenza cases; N=number of subjects in treatment group; RR=relative risk (Attack rate Supemtek Tetra/Attack rate IIV4); rVE=[(1-RR) x 100].

¹ Excluded subjects with protocol deviations that could adversely affect efficacy.

² Primary Analysis. All cases of rtPCR-confirmed influenza are included.

³ *Post hoc* analyses. All cases of influenza A were A/H3N2. Cases of influenza B were not distinguished by lineage.

⁴ Culture of rtPCR-positive samples was performed in Madin-Darby Canine Kidney cells.(MDCK) cells.

⁵ The lower bound (LB) of the 95% confidence interval met the pre-specified, exploratory criterion for superior relative vaccine efficacy, LB > 9%.

Efficacy of trivalent recombinant influenza vaccine (RIV3)

The efficacy of trivalent recombinant influenza vaccine (RIV3) is relevant to Supemtek Tetra because both vaccines are manufactured using the same process and have overlapping compositions.

The efficacy of trivalent recombinant influenza vaccine in protecting against influenza illness was evaluated in a randomized, observer-blind, placebo-controlled multicenter study conducted in the United States during the 2007-2008 influenza season in adults 18-49 years of age (study 3).

Study 3 enrolled and vaccinated 4 648 healthy adults randomized in a 1:1 ratio to receive a single dose of RIV3 (N=2 344) or saline placebo (N=2 304).

The primary efficacy endpoint of study 3 was defined as an influenza-like illness (ILI) with a positive culture for an influenza virus strain antigenically resembling a strain represented in RIV3. ILI is defined as fever of $\geq 100^{\circ}\text{F}$ (37.8°C) oral accompanied by cough, sore throat, or both, on the same or consecutive days. Attack rates and vaccine efficacy (VE), defined as the reduction in the influenza rate for RIV3 relative to placebo, were calculated for the total vaccinated cohort (N=4 648).

Due to very small number of cultured confirmed influenza cases with matched strains, an exploratory analysis of VE of RIV3 against all strains, regardless of antigenic match, isolated from any subject with an ILI, not necessarily meeting ILI criteria was done, demonstrated an efficacy estimate of 44.8% (95% CI 24.4, 60.0). See Table 6 for VE by case definition.

Table 6: Vaccine efficacy against culture-confirmed influenza in healthy adults 18-49 years of age, study 3^{1,3}

Case definition	RIV3 (N=2 344)		Saline Placebo (N=2 304)		RIV3 Vaccine efficacy ⁴ %	95% Confidence interval
	Cases, n	Rate, %	Cases, n	Rate, %		
Positive culture with a strain represented in the vaccine						
CDC-ILI ² , all matched strains ⁵	1	0.04	4	0.2	75.4	(-148.0, 99.5)
Any ILI, all matched strains	2	0.1	6	0.3	67.2	(-83.2, 96.8)
Positive culture with any strain, regardless of match to the vaccine						

CDC-ILI ² , all strains	44	1.9	78	3.4	44.6	(18.8, 62.6)
Tub-Type A	26	1.1	56	2.4	54.4	(26.1, 72.5)
Type B	18	0.8	23	1.0	23.1	(-49.0, 60.9)
Any ILI, all strains	64	2.7	114	4.9	44.8	(24.4, 60.0)
Sub-Type A	41	1.7	79	3.4	49.0	(24.7, 65.9)
Type B	23	1.0	36	1.6	37.2	(-8.9, 64.5)

¹ Vaccine efficacy (VE)=1 minus the ratio of RIV3 /placebo infection rates (10).

² Centers for Disease Control and Prevention - defined influenza-like illness (CDC-ILI) defined as fever of $\geq 100^{\circ}\text{F}$ (37.8°C) oral accompanied by cough and/or sore throat, on the same day or on consecutive days.

³ The pre-defined success criterion for the primary efficacy analysis was that the lower bound of the 95% confidence interval (CI) of VE should be at least 40%.

⁴ Determined under the assumption of Poisson event rates, according to Breslow and Day, 1987.

⁵ Primary endpoint of study.

Paediatric population

Supemtek Tetra was evaluated in healthy participants of age 9 to 17 years of age in a phase 3 non-randomised, open label, uncontrolled, multi-centre study (study 4), enrolled a total of 1 308 participants.

The primary objective was to demonstrate that vaccination with Supemtek Tetra induced an immune response (as assessed by haemagglutination inhibition [HAI], geometric mean titres [GMTs] and seroconversion [SCR] rates) in children and adolescents 9 to 17 years of age that was non-inferior to responses induced by Supemtek Tetra in adults 18 to 49 years of age for the 4 virus strains at Day 29 post-vaccination.

Non-inferiority of HAI immune response induced by Supemtek Tetra in children/adolescents 9 to 17 years of age relative to the immune response induced by Supemtek Tetra in adults 18 to 49 years of age was demonstrated for all four strains. (Table 7 and 8).

Table 7: Comparison of Post vaccination HAI GMTs* of 9 to 17 years vs 18 to 49 years, Study 4 (Per-Protocol Analysis Set)[†]

Antigen/strain	GMT 9 to 17 years (N=609)	GMT 18 to 49 years (N=606)	GMT Ratio 9 to 17 years / 18 to 49 years (95% CI)
A/H1N1	1 946	982	1.98(1.73; 2.27)
A/H3N2	1 975	604	3.27 (2.76; 3.87)
B/Victoria	405	258	1.57 (1.35; 1.82)
B/Yamagata	1 941	1 593	1.22 (1.09; 1.37)

Abbreviations: CI, confidence interval; GMT, geometric mean titer.

* Non-inferiority demonstrated based on pre-specified criteria (lower limit of the 2-sided 95% CIs of the ratios of GMTs between age groups (9 to 17 years/18 to 49 years) > 0.667.

[†] The per-protocol analysis set is the subset of the full analysis set population with no major and/or critical deviations affecting immunogenicity.

Table 8: Comparison of seroconversion rates* after vaccination of 9 to 17 years vs 18 to 49 years, Study 4 (Per-Protocol Analysis Set)[†]

Antigen/strain	SCR %, (95% CI) 9 to 17 years (N=609)	SCR %, (95% CI) 18 to 49 years (N=606)	SCR Difference (%) 9 to 17 years minus 18 to 49 years (95% CI)
A/H1N1	78.3 (74.8 ; 81.5)	76.4 (72.8 ; 79.7)	1.92 (-2.78; 6.62)
A/H3N2	86.5 (83.6 ; 89.1)	87.1 (84.2 ; 89.7)	-0.59 (-4.41; 3.23)
B/Victoria	76.8 (73.3 ; 80.1)	73.6 (69.8 ; 77.0)	3.29 (-1.57; 8.14)
B/Yamagata	77.2 (73.6 ; 80.5)	62.9 (58.9 ; 66.7)	14.3 (9.17; 19.3)

Abbreviations: CI, confidence interval; SCR, seroconversion rates

Seroconversion is defined as either a pre-dose titer < 1:10 at Day 1 and a post-dose titer ≥ 1:40 at Day 29 or a pre-dose titer ≥ 1:10 at Day 29 and ≥ 4-fold increase in post-vaccination titer

* Non-inferiority demonstrated based on pre-specified criteria of lower limit of the 2-sided 95% CI of the difference in seroconversion rates > -10 at Day 29 post-vaccination

[†] The per-protocol analysis set is the subset of the full analysis set population with no major and/or critical deviations affecting immunogenicity.

Supemtek Tetra induced a robust immune response in both age groups irrespective of age subgroup, sex, race, serological status at baseline, or prior influenza vaccination status.

Safety and immunogenicity of Supemtek Tetra has been evaluated in children 3 to 8 years of age. The data showed that while Supemtek Tetra induced an immune response in children 3 to 8 years of age, 1 or 2 doses of Supemtek Tetra did not induce an acceptable level of immunogenicity versus the IIV4 vaccine for all strains (see sections 4.2).

5.2 Pharmacokinetic properties

Not applicable.

5.3 Preclinical safety data

Non-clinical safety data on the trivalent formulation revealed no special hazard for humans based on conventional studies of repeat dose and local toxicity, reproductive and developmental (including teratogenicity) toxicity and safety pharmacology studies. The results of these studies with trivalent recombinant influenza vaccine are relevant to Supemtek Tetra because both vaccines are manufactured using the same process and have overlapping compositions.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Polysorbate 20 (E432)
Sodium chloride
Sodium phosphate monobasic
Sodium phosphate dibasic
Water for injections

6.2 Incompatibilities

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

6.3 Shelf life

1 year

6.4 Special precautions for storage

Store in a refrigerator (2 °C – 8 °C).
Do not freeze.
Keep the pre-filled syringe in the outer carton in order to protect from light.

6.5 Nature and contents of container

0.5 mL solution in a pre-filled syringe (type I borosilicate glass) with plunger stopper (grey butyl rubber), with separate needle or without needle.

Pack sizes

Pack of 1 pre-filled syringe with separate needle or without needle.
Pack of 5 pre-filled syringes, with separate needle or without needle.
Pack of 10 pre-filled syringes, with separate needle or without needle.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

The vaccine should be visually inspected for particulate matter and/or discoloration prior to administration. If either of these conditions exists, the vaccine should be discarded.

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

7. MARKETING AUTHORISATION HOLDER

Sanofi Winthrop Industrie
82 Avenue Raspail
94250 Gentilly
France

8. MARKETING AUTHORISATION NUMBER(S)

EU/1/20/1484/001
EU/1/20/1484/002
EU/1/20/1484/003
EU/1/20/1484/004
EU/1/20/1484/005
EU/1/20/1484/006

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 16 November 2020

Date of latest renewal:

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 SUBSTANCES 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 SUBSTANCES AND MANUFACTURER RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturer of the biological active substances

Unigen Inc.
11 Azakamikasugo Miyaji Ikeda-cho
Ibi-gun Gifu
Japan

Name and address of the manufacturer responsible for batch release

Sanofi Winthrop Industrie
Voie de l'Institut - Parc Industriel d'Incarville
B P 101
27100 Val de Reuil
France

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 box, without needle or with separate needle – pack of 1, 5 and 10

1. NAME OF THE MEDICINAL PRODUCT

Supemtek Tetra solution for injection in pre-filled syringe
Quadrivalent Influenza Vaccine (recombinant, prepared in cell culture)

2. STATEMENT OF ACTIVE SUBSTANCE(S)

Influenza virus haemagglutinin proteins of the following strains:

A/xxxxxx (H1N1) - like virus

A/xxxxxx (H3N2) - like virus

B/xxxxxx - like virus

B/xxxxxx - like virus

xxxx/xxxx season

45 micrograms haemagglutinin per strain per 0.5 mL dose.

3. LIST OF EXCIPIENTS

Polysorbate 20 (E432), sodium chloride, sodium phosphate monobasic, sodium phosphate dibasic, water for injections. See leaflet for further information.

4. PHARMACEUTICAL FORM AND CONTENTS

Solution for injection in pre-filled syringe

1 pre-filled syringe (0.5 mL) without needle

5 pre-filled syringes (0.5 mL) without needle

10 pre-filled syringes (0.5 mL) without needle

1 pre-filled syringe (0.5 mL) with separate needle

5 pre-filled syringes (0.5 mL) with separate needle

10 pre-filled syringes (0.5 mL) with separate needle

5. METHOD AND ROUTE OF ADMINISTRATION

Intramuscular use

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

9. SPECIAL STORAGE CONDITIONS

Store in a refrigerator. Do not freeze.

Keep the syringe in the outer carton in order to protect from light.

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

Sanofi Winthrop Industrie
82 Avenue Raspail, 94250 Gentilly
France

12. MARKETING AUTHORISATION NUMBER(S)

EU/1/20/1484/001 1 pre-filled syringe without needle
EU/1/20/1484/002 1 pre-filled syringe with separate needle
EU/1/20/1484/003 5 pre-filled syringes without needle
EU/1/20/1484/004 5 pre-filled syringes with separate needle
EU/1/20/1484/005 10 pre-filled syringes without needle
EU/1/20/1484/006 10 pre-filled syringes with separate needle

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
--

Supemtek Tetra injection
Quadrivalent Influenza Vaccine
xxxx/xxxx season

2. METHOD OF ADMINISTRATION

IM

3. EXPIRY DATE

EXP

4. BATCH NUMBER

Lot

5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT
--

1 dose – 0.5 mL

6. OTHER

B. PACKAGE LEAFLET

Package leaflet – Information for the user

Supemtek Tetrasolution for injection in pre-filled syringe Quadrivalent Influenza Vaccine (recombinant, prepared in cell culture)

Read all of this leaflet carefully before you receive this medicine 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, nurse or pharmacist.
- This vaccine has been prescribed for you only. Do not pass it on to others.
- 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 Supemtek Tetra is and what it is used for
2. What you need to know before you receive Supemtek Tetra
3. How Supemtek Tetra is given
4. Possible side effects
5. How to store Supemtek Tetra
6. Contents of the pack and other information

1. What Supemtek Tetra is and what it is used for

Supemtek Tetra is a vaccine for adults and children who are 9 years of age and older. This vaccine helps to protect you against flu (influenza). Supemtek Tetra is egg-free because of the technology used to produce it.

When a person is given Supemtek Tetra, the body's natural defence (the immune system) produces protection against the influenza virus. None of the ingredients in the vaccine can cause flu.

As with all vaccines, Supemtek Tetra may not fully protect all persons who are vaccinated.

When to have a flu vaccine

Flu can spread very fast.

- It is caused by different types of flu virus that can change every year. This is why you might need to be vaccinated every year.
- The greatest risk of catching flu is during the cold months between October and March.
- If you were not vaccinated in the autumn, it is still sensible to be vaccinated up until the spring since you run the risk of catching flu until then.

Your doctor will be able to recommend the best time to be vaccinated.

2. What you need to know before you receive Supemtek Tetra

Do not use Supemtek Tetra if you are allergic to:

- the active ingredients or any of the other ingredients of this medicine (listed in section 6).
- octylphenol ethoxylate, a trace residue from the manufacturing process.

Warnings and precautions

Talk to your doctor, pharmacist or nurse before receiving Supemtek Tetra.

As with all vaccines, Supemtek Tetra may not fully protect all persons who are vaccinated.

Before receiving the vaccine, tell your doctor, nurse or pharmacist if:

- you have a **short-term illness** with fever. Vaccination may need to be delayed until your fever has gone.
- you have a **weakened immune system** (immunodeficiency or you are taking medicines that affect the immune system such as cancer medicine (chemotherapy) or corticosteroid medicines).
- you have a **bleeding problem** or **bruise easily**.
- you have **fainted** with an injection before. Fainting can happen after, or even before an injection.

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

Other medicines and Supemtek Tetra

Tell your doctor or nurse if you are using, have recently used or might use any other medicines, including medicines obtained without a prescription or if you have recently received any other vaccine.

Supemtek Tetra may be given at the same time as other vaccines by using separate limbs.

Pregnancy and breast-feeding

If you are pregnant or breast-feeding, think you may be pregnant or are planning to have a baby, ask your doctor or pharmacist for advice before using this vaccine. Your doctor or pharmacist will help you to decide if you should receive Supemtek Tetra.

Driving and using machines

Supemtek Tetra has no or negligible effect on your ability to drive and use machine.

However, use caution when driving or using machines if your ability to react is reduced due to some of the effects mentioned under section 4 (Possible side effects).

Supemtek Tetra contains sodium and polysorbate 20

This vaccine contains less than 1 mmol sodium (23 mg) per dose, that is to say essentially 'sodium free'.

This medicine contains 0.0275 mg of polysorbate 20 (E432) in each 0.5 mL dose. Polysorbates may cause allergic reactions.

3. How Supemtek Tetra is given

Supemtek Tetra is given to you by your doctor, nurse or pharmacist as an injection into the muscle at the top of the upper arm (deltoid muscle).

Adults and children from 9 years of age and older:

One dose of 0.5 mL.

4. Possible side effects

Like all medicines, this medicine can cause side effects, although not everybody gets them. The following side effects have been reported with Supemtek Tetra:

Very serious side effects

Contact your doctor or healthcare professional **immediately** or go to the nearest hospital emergency room right away if you have a severe allergic reaction (anaphylactic reaction). It can be life-threatening.

Symptoms include:

- difficulty breathing, shortness of breath
- swelling of the face, lips, throat or tongue
- cold, clammy skin
- palpitations
- feeling dizzy, feeling weak, fainting
- rash or itching

Serious side effects

Contact your doctor or healthcare professional **immediately** or go to the nearest hospital emergency room right away if you experience any of the following side effects:

- stiff neck, confusion, numbness, pain and weakness of the limbs, loss of balance, loss of reflexes, paralysis of part or all the body (Guillain-Barré syndrome).

Other side effects

Very common (may affect more than 1 in 10 people)

- headache
- feeling tired (fatigue)
- muscle pain
- joint pain
- tenderness at the injection site
- pain at the injection site

Muscle pain and joint pain are common in adults aged 50 years and older.

Common (may affect up to 1 in 10 people)

- feeling sick (nausea)
- redness, swelling, hardening around the area and bruising where the vaccine is injected
- fever, shivering/chills

Fever is rare in adults aged 50 years and older.

Bruising is reported in children/adolescents 9 to 17 years of age.

Uncommon (may affect up to 1 in 100 people)

- asthma
- cough
- mouth and throat pain
- diarrhoea, vomiting, abdominal discomfort and decreased appetite
- itching
- skin irritation
- rash
- flu-like symptoms
- itching where the vaccine is injected

Itching is rare in adults aged 50 years and older.

Skin irritation and rash have not been reported in adults aged 50 years and older.

Flu-like symptoms have not been reported in adults aged 18-49 years.

Vomiting, decreased appetite, abdominal discomfort and asthma has not been reported in adults 18 years and older.

Rare (may affect up to 1 in 1 000 people)

- feeling dizzy
- hives

Feeling dizzy and hives have not been reported in adults aged 18-49 years.
Feeling dizzy is uncommon in children/adolescents 9 to 17 years of age.

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 Supemtek Tetra

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

Store in a refrigerator (2 °C - 8 °C). Do not freeze.

Keep the pre-filled syringe in the outer carton in order to protect from light.

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

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 Supemtek Tetra contains

One dose (0.5 mL) contains:

The active substances are influenza virus haemagglutinin (HA) proteins, of the following strains*:

A/xxxxxx (H1N1) -like virus 45 micrograms HA

A/xxxxxx (H3N2) -like virus 45 micrograms HA

B/xxxxxx- like virus 45 micrograms HA

B/xxxxxx - like virus 45 micrograms HA

* produced by recombinant DNA technology using a baculovirus expression system in a continuous insect cell line that is derived from Sf9 cells of the fall armyworm, *Spodoptera frugiperda*.

This vaccine complies with the World Health Organisation (WHO) recommendation (northern hemisphere) and EU recommendation for the {year/year} season.

The other ingredients are: polysorbate 20 (E432), sodium chloride, sodium phosphate monobasic, sodium phosphate dibasic, water for injections (see section 2).

What Supemtek Tetra looks like and contents of the pack

Supemtek Tetra is a solution for injection in a pre-filled syringe (injection) (ready to use syringe).

Supemtek Tetra is a clear and colourless solution.

Each pre-filled syringe contains a single dose (0.5 mL) of solution for injection.

Supemtek Tetra is available in packs containing 1, 5 or 10 pre-filled syringes without needle or with separate needle.

Not all pack sizes may be marketed.

Marketing Authorisation Holder

Sanofi Winthrop Industrie
82 Avenue Raspail
94250 Gentilly
France

Manufacturer

Sanofi Winthrop Industrie
Voie de l'Institut - Parc Industriel d'Incarville
B P 101
27100 Val de Reuil
France

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

België/ Belgique /Belgien Sanofi Belgium Tél/Tel.: +32 2 710.54.00	Lietuva Swixx Biopharma UAB Tel: +370 5 236 91 40
България Swixx Biopharma EOOD Тел.: +359 (0) 2 4942 480	Luxembourg/Luxemburg Sanofi Belgium Tél/Tel: +32 2 710.54.00
Česká republika Sanofi s.r.o. Tel: +420 233 086 111	Magyarország sanofi-aventis zrt Tel.: +36 1 505 0055
Danmark Sanofi A/S Tel: +45 4516 7000	Malta Sanofi S.r.l. Tel: +39 02 39394275
Deutschland Sanofi-Aventis Deutschland GmbH Tel: 0800 54 54 010 Tel. aus dem Ausland: +49 69 305 21 130	Nederland Sanofi B.V. Tel: +31 20 245 4000
Eesti Swixx Biopharma OÜ Tel: +372 640 10 30	Norge Sanofi-aventis Norge AS Tlf: + 47 67 10 71 00
Ελλάδα BIANEE A.E. Τηλ: +30.210.8009111	Österreich Sanofi-Aventis GmbH Tel: +43 (1) 80185-0.
España sanofi-aventis, S.A. Tel: +34 93 485 94 00	Polska Sanofi sp. z o. o. Tel.: +48 22 280 00 00
France Sanofi Winthrop Industrie Tél: 0800 222 555 Appel depuis l'étranger : +33 1 57 63 23 23	Portugal Sanofi – Produtos Farmacêuticos, Lda. Tel: + 351 21 35 89 400
Hrvatska Swixx Biopharma d.o.o. Tel: +385 1 2078 500	România Sanofi Romania SRL Tel: +40(21) 317 31 36
Ireland sanofi-aventis Ireland T/A SANOFI Tel: + 353 (0) 1 4035 600	Slovenija Swixx Biopharma d.o.o. Tel: +386 1 235 51 00
Ísland Vistor Sími: +354 535 7000	Slovenská republika Swixx Biopharma s.r.o. Tel: +421 2 208 33 600
Italia Sanofi S.r.l. Tel: 800536389	Suomi/Finland Sanofi Oy Puh/Tel: +358 (0) 201 200 300
Κύπρος C.A. Papaellinas Ltd. Τηλ: +357 22 741741	Sverige Sanofi AB Tel: +46 8-634 50 00
Latvija Swixx Biopharma SIA Tel: +371 6 616 47 50	

This leaflet was last revised in .

Other sources of information

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

The following information is intended for healthcare professionals only:

Appropriate medical treatment and supervision should always be readily available in case of a rare anaphylactic event following the administration of the vaccine.

The vaccine should be visually inspected for particulate matter and discoloration prior to administration. In the event of any foreign particulate matter and/or variation of physical aspect being observed, do not administer the vaccine.