

1. NAME OF THE MEDICINAL PRODUCT

Fluenz Tetra nasal spray suspension
Influenza vaccine (live attenuated, nasal)

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Reassortant influenza virus* (live attenuated) of the following four strains**:

A/Guangdong-Maonan/SWL1536/2019 (H1N1)pdm09 - like strain (A/Hawaii/66/2019, MEDI 326775)	10 ^{7.0±0.5} FFU***
A/Hong Kong/2671/2019 (H3N2) - like strain (A/Hong Kong/2671/2019, MEDI 325078)	10 ^{7.0±0.5} FFU***
B/Washington/02/2019 - like strain (B/Washington/02/2019, MEDI 323797)	10 ^{7.0±0.5} FFU***
B/Phuket/3073/2013 - like strain (B/Phuket/3073/2013, MEDI 306444)	10 ^{7.0±0.5} FFU***
.....per 0.2 ml dose	

* propagated in fertilised hens' eggs from healthy chicken flocks.

** produced in VERO cells by reverse genetic technology. This product contains genetically modified organisms (GMOs).

*** fluorescent focus units.

This vaccine complies with the WHO recommendation (Northern Hemisphere) and EU decision for the 2020/2021 season.

The vaccine may contain residues of the following substances: egg proteins (e.g. ovalbumin) and gentamicin. The maximum amount of ovalbumin is less than 0.024 micrograms per 0.2 ml dose (0.12 micrograms per ml).

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Nasal spray, suspension

The suspension is colourless to pale yellow, clear to opalescent with a pH of approximately 7.2. Small white particles may be present.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Prophylaxis of influenza in children and adolescents from 24 months to less than 18 years of age.

The use of Fluenz Tetra should be based on official recommendations.

4.2 Posology and method of administration

Posology

Children and adolescents from 24 months:
0.2 ml (administered as 0.1 ml per nostril).

For children who have not previously been vaccinated against seasonal influenza, a second dose should be given after an interval of at least 4 weeks.

Fluenz Tetra should not be used in infants and toddlers below 24 months of age because of safety concerns regarding increased rates of hospitalisation and wheezing in this population (see section 4.8).

Method of administration

Immunisation must be carried out by nasal administration.

Do not inject Fluenz Tetra.

Fluenz Tetra is administered as a divided dose in both nostrils. After administering half of the dose in one nostril, administer the other half of the dose in the other nostril immediately or shortly thereafter. The patient can breathe normally while the vaccine is being administered – there is no need to actively inhale or sniff.

See section 6.6 for administration instructions.

4.3 Contraindications

- Hypersensitivity to the active substances, to any of the excipients listed in section 6.1 (e.g. gelatin), or to gentamicin (a possible trace residue).
- Severe allergic reaction (e.g. anaphylaxis) to eggs or to egg proteins (e.g. ovalbumin).
- Children and adolescents with clinical immunodeficiency due to conditions or immunosuppressive therapy such as: acute and chronic leukaemias; lymphoma; symptomatic HIV infection; cellular immune deficiencies; and high-dose corticosteroids. Fluenz Tetra is not contraindicated for use in individuals with asymptomatic HIV infection; or individuals who are receiving topical/inhaled corticosteroids or low-dose systemic corticosteroids or those receiving corticosteroids as replacement therapy, e.g. for adrenal insufficiency.
- Children and adolescents younger than 18 years of age receiving salicylate therapy because of the association of Reye's syndrome with salicylates and wild-type influenza infection.

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.

As with most vaccines, appropriate medical treatment and supervision should always be readily available to manage an anaphylactic event or serious hypersensitivity event following the administration of Fluenz Tetra.

Fluenz Tetra should not be administered to children and adolescents with severe asthma or active wheezing because these individuals have not been adequately studied in clinical studies.

Vaccine recipients should be informed that Fluenz Tetra is an attenuated live virus vaccine and has the potential for transmission to immunocompromised contacts. Vaccine recipients should attempt to avoid, whenever possible, close association with severely immunocompromised individuals (e.g. bone marrow transplant recipients requiring isolation) for 1-2 weeks following vaccination. Peak incidence of vaccine virus recovery occurred 2-3 days post-vaccination in Fluenz clinical studies. In circumstances where contact with severely immunocompromised individuals is unavoidable, the potential risk of transmission of the influenza vaccine virus should be weighed against the risk of acquiring and transmitting wild-type influenza virus.

Fluenz Tetra should under no circumstances be injected.

No data exist regarding the safety of intranasal administration of Fluenz Tetra in children with unrepaired craniofacial malformations.

4.5 Interaction with other medicinal products and other forms of interaction

Do not administer Fluenz Tetra to children and adolescents receiving salicylate therapy (see section 4.3). Do not use salicylates in children and adolescents for 4 weeks after vaccination unless medically indicated as Reye's syndrome has been reported following the use of salicylates during wild-type influenza infection.

The co-administration of trivalent Fluenz with the live attenuated vaccines: measles, mumps, rubella, varicella and orally-administered poliovirus has been studied. No clinically meaningful changes in immune responses to measles, mumps, varicella, orally-administered poliovirus or Fluenz have been observed. The immune response to rubella vaccine was significantly altered. However, this alteration might not be of clinical relevance with the two dose immunisation schedule of the rubella vaccine. This observation with trivalent Fluenz is relevant to the use of Fluenz Tetra because Fluenz Tetra (influenza vaccine-liveattenuated, nasal) is identical to Fluenz with the only difference being the addition of a fourth strain (a second B strain) to Fluenz Tetra.

The co-administration of Fluenz Tetra with inactivated vaccines has not been studied.

The concurrent use of Fluenz Tetra with antiviral agents that are active against influenza A and/or B viruses has not been evaluated. However, based upon the potential for influenza antiviral agents to reduce the effectiveness of Fluenz Tetra, it is recommended not to administer the vaccine until 48 hours after the cessation of influenza antiviral therapy. Administration of influenza antiviral agents within two weeks of vaccination may affect the response of the vaccine.

If influenza antiviral agents and Fluenz Tetra are administered concomitantly, revaccination should be considered based on clinical judgement.

4.6 Fertility, pregnancy and lactation

Pregnancy

There is a moderate amount of data from the use of Fluenz Tetra in pregnant women. There was no evidence of significant maternal adverse outcomes in 138 pregnant women who had a record of receiving trivalent Fluenz in a US-based health insurance claims database.

In more than 300 case reports in the AstraZeneca safety database of vaccine administration to pregnant women, no unusual patterns of pregnancy complications or foetal outcomes were observed.

While animal studies do not indicate direct or indirect harmful effects with respect to reproductive toxicity, and post-marketing data offer some reassurance in the event of inadvertent administration of the vaccine, Fluenz Tetra is not recommended during pregnancy.

Breast-feeding

It is not known whether Fluenz Tetra is excreted in human milk. Therefore, as some viruses are excreted in human milk, Fluenz Tetra should not be used during breast-feeding.

Limited available evidence suggests that the trivalent Fluenz is not excreted in breastmilk.

Fertility

No data exist regarding the possible effects of Fluenz Tetra on male and female fertility.

4.7 Effects on ability to drive and use machines

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

4.8 Undesirable effects

Summary of the safety profile

The safety experience with trivalent Fluenz is relevant to the use of Fluenz Tetra because Fluenz Tetra (influenza vaccine-live attenuated, nasal) is identical to Fluenz with the only difference being the addition of a fourth strain (a second B strain) to Fluenz Tetra.

Safety data regarding use of Fluenz Tetra are based on data from Fluenz Tetra clinical studies in 2,231 children and adolescents 2 to 17 years of age, Fluenz clinical studies in over 29,000 children and adolescents 2 to 17 years of age and Fluenz post-authorisation safety studies in over 84,000 children and adolescents 2 to 17 years of age. Additional experience has occurred with marketed use of Fluenz.

In clinical studies, the safety profile of Fluenz Tetra was similar to the safety profile of Fluenz. The most common adverse reaction observed in clinical studies was nasal congestion/rhinorrhoea.

List of adverse reactions

Adverse reaction frequencies are reported as:

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 ($< 1/10,000$)

Immune system disorders

Uncommon: Hypersensitivity reactions (including facial oedema, urticaria and very rare anaphylactic reactions)

Metabolism and nutrition disorders

Very common: Decreased appetite

Nervous system disorders

Common: Headache

Respiratory, thoracic and mediastinal disorders

Very common: Nasal congestion/rhinorrhoea

Uncommon: Epistaxis

Skin and subcutaneous tissue disorders

Uncommon: Rash

Musculoskeletal and connective tissue disorders

Common: Myalgia

General disorders and administration site conditions

Very common: Malaise

Common: Pyrexia

Paediatric population

In an active-controlled clinical study (MI-CP111), an increased rate of hospitalisations (for any cause) through 180 days after final vaccination dose was observed in infants and toddlers 6-11 months of age (6.1% Fluenz versus 2.6% injectable influenza vaccine). Most hospitalisations were due to gastrointestinal and respiratory tract infections and occurred more than 6 weeks post vaccination. The rate of hospitalisations was not increased in Fluenz recipients 12 months and older. In the same study, an increased rate of wheezing through 42 days was observed in infants and toddlers 6-23 months of age (5.9% Fluenz versus 3.8% injectable influenza vaccine). The rate of wheezing was not increased in Fluenz recipients 24 months and older. Fluenz Tetra is not indicated for use in infants and toddlers younger than 24 months (see section 4.2).

Very rare reports of Guillain-Barré syndrome and exacerbation of symptoms of Leigh syndrome (mitochondrial encephalomyopathy) have also been observed in the post-marketing setting with Fluenz.

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 [national reporting system](#) listed in [Appendix V](#).

4.9 Overdose

Overdose with Fluenz Tetra is unlikely due to its presentation as a pre-filled sprayer. Administration of a higher than recommended dose of Fluenz Tetra was reported rarely and the adverse reaction profile was comparable to that observed with the recommended dose of Fluenz Tetra.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Influenza vaccines, influenza live attenuated; ATC Code: J07BB03

Since 1985, two distinct lineages of influenza B viruses (Victoria and Yamagata) have circulated worldwide. Fluenz Tetra is a tetravalent vaccine that contains antigens for four influenza virus strains, an A/(H1N1) strain, an A/(H3N2) strain, and two B strains (one from each lineage). Fluenz Tetra is manufactured according to the same process as Fluenz. The influenza virus strains in Fluenz Tetra are (a) *cold-adapted (ca)*; (b) *temperature-sensitive (ts)*; and (c) *attenuated (att)*. As a result, they replicate in the nasopharynx and induce protective immunity.

Clinical studies

Clinical experience with Fluenz is relevant to Fluenz Tetra because both vaccines are manufactured using the same process and have overlapping compositions.

Paediatric studies

Fluenz efficacy

Fluenz's efficacy data in the paediatric population consist of 9 controlled studies comprising over 20,000 infants and toddlers, children and adolescents, conducted during 7 influenza seasons. Four placebo-controlled studies included second season revaccination. Fluenz has demonstrated superiority in 3 active-controlled studies with injectable influenza vaccine. See Table 1 and 2 for a summary of efficacy results in the paediatric population.

Table 1 Fluenz Efficacy in Placebo Controlled Paediatric Studies

Study Number	Region	Age Range ^a	Number of Study Participants ^b	Influenza Season	Efficacy (95% CI) ^c Matched strains	Efficacy (95% CI) ^c All strains regardless of match
D153-P502	Europe	6 to 35 M	1,616	2000-2001	85.4% (74.3, 92.2)	85.9% (76.3, 92.0)
				2001-2002	88.7% (82.0, 93.2)	85.8% (78.6, 90.9)
D153-P504	Africa, Latin America	6 to 35 M	1,886	2001	73.5% (63.6, 81.0) ^d	72.0% (61.9, 79.8) ^d
				2002	73.6% (33.3, 91.2)	46.6% (14.9, 67.2)
D153-P513	Asia/Oceania	6 to 35 M	1,041	2002	62.2% (43.6, 75.2)	48.6% (28.8, 63.3)
D153-P522	Europe, Asia/Oceania, Latin America	11 to 24 M	1,150	2002-2003	78.4% (50.9, 91.3)	63.8% (36.2, 79.8)
D153-P501	Asia/Oceania	12 to 35 M	2,764	2000-2001	72.9% (62.8, 80.5)	70.1% (60.9, 77.3)
				2001-2002	84.3% (70.1, 92.4) ^e	64.2% (44.2, 77.3) ^e
AV006	USA	15 to 71 M	1,259	1996-1997	93.4% (87.5, 96.5)	93.4% (87.5, 96.5)
				1997-1998	100% (63.1, 100)	87.1% (77.7, 92.6) ^f

^a M=months.

^b Number of study participants for year 1 efficacy analysis.

^c Reduction in culture-confirmed influenza illness relative to placebo.

^d Data presented for clinical trial D153-P504 are for study participants who received two doses of study vaccine. In previously unvaccinated study participants who received one dose in year 1, efficacy was 57.7% (95% CI: 44.7, 67.9) and 56.3% (95% CI: 43.1, 66.7), respectively, thus supporting the need for two doses of vaccine in previously unvaccinated children.

^e In study participants who received 2 doses in year 1 and placebo in year 2, efficacy in year 2 was 56.2% (95% CI: 30.5, 72.7) and 44.8% (95% CI: 18.2, 62.9), respectively, in D153-P501, thus supporting the need for second-season revaccination.

^f The primary circulating strain was antigenically dissimilar from the H3N2 strain represented in the vaccine; efficacy against the mismatched A/H3N2 strain was 85.9% (95% CI: 75.3, 91.9).

Table 2 Fluenz Relative Efficacy in Active-controlled Paediatric Studies with Injectable Influenza Vaccine

Study Number	Region	Age Range ^a	Number of Study Participants	Influenza Season	Improved Efficacy (95% CI) ^b Matched strains	Improved Efficacy (95% CI) ^b All strains regardless of match
MI-CP111	USA, Europe, Asia/Oceania	6 to 59 M	7,852	2004-2005	44.5% (22.4, 60.6) fewer cases than injectable	54.9% (45.4, 62.9) ^c fewer cases than injectable
D153-P514	Europe	6 to 71 M	2,085	2002-2003	52.7% (21.6, 72.2) fewer cases than injectable	52.4% (24.6, 70.5) ^d fewer cases than injectable
D153-P515	Europe	6 to 17 Y	2,211	2002-2003	34.7% (3.9, 56.0) fewer cases than injectable	31.9% (1.1, 53.5) fewer cases than injectable

^a M=months. Y=years. Age range as described in the protocol for the study.

^b Reduction in culture-confirmed influenza illness relative to injectable influenza vaccine.

^c Fluenz demonstrated 55.7% (39.9, 67.6) fewer cases than injectable influenza vaccine in 3,686 infants and toddlers 6-23 months of age and 54.4% (41.8, 64.5) fewer cases in 4,166 children 24-59 months of age.

^d Fluenz demonstrated 64.4% (1.4, 88.8) fewer cases than injectable influenza vaccine in 476 infants and toddlers 6-23 months of age and 48.2% (12.7, 70.0) fewer cases in 1,609 children 24-71 months of age.

Fluenz safety

Chronic conditions

Although safety in children and adolescents with mild to moderate asthma has been established, data in children with other pulmonary diseases or with chronic cardiovascular, metabolic or renal diseases are limited.

In a study (D153-P515) of children 6 to 17 years of age with asthma (trivalent Fluenz: n=1,114, trivalent injectable influenza vaccine: n=1,115), there were no significant differences between treatment groups in the incidence of asthma exacerbations, mean peak expiratory flow rate, asthma symptom scores, or night-time awakening scores. The incidence of wheezing within 15 days after vaccination was lower in Fluenz recipients relative to inactivated vaccine recipients (19.5% vs. 23.8%, P=0.02).

In a study of children and adolescents 9 to 17 years of age with moderate to severe asthma (trivalent Fluenz: n=24, placebo: n=24), the primary safety criterion, change in percent predicted forced expiratory volume in 1 second (FEV₁) measured before and after vaccination, did not differ between treatment arms.

In studies of adults in which a high percentage of individuals had underlying chronic medical conditions, the safety profile of trivalent Fluenz was comparable to the safety profile observed in individuals without these conditions.

Immunocompromised

In 24 HIV-infected children and 25 HIV-negative children 1 through 7 years of age, and in 243 HIV-infected children and adolescents 5 through 17 years of age receiving stable anti-retroviral therapy, the frequency and duration of vaccine virus shedding were comparable to that seen in healthy individuals. No adverse effects on HIV viral load or CD4 counts were identified following trivalent Fluenz administration. Twenty mild to moderately immunocompromised children and adolescents 5 through 17 years of age (receiving chemotherapy and/or radiation therapy or who had recently received chemotherapy) were randomised 1:1 to trivalent Fluenz or placebo. Frequency and

duration of vaccine virus shedding in these immunocompromised children and adolescents were comparable to that seen in healthy children and adolescents. The effectiveness of Fluenz and Fluenz Tetra in preventing influenza illness in immunocompromised individuals has not been evaluated.

Fluenz Tetra immunogenicity

A multicentre, randomised, double-blind, active-controlled, non-inferiority study was conducted to assess the immunogenicity of Fluenz Tetra compared to Fluenz (active control) in children and adolescents 2-17 years of age. A total of 2,312 children and adolescents were randomised by site at a 3:1:1 ratio to receive either Fluenz Tetra or one of two formulations of comparator vaccine Fluenz, each containing a B strain that corresponded to one of the two B strains in Fluenz Tetra (a B strain of the Yamagata lineage and a B strain of the Victoria lineage).

Immunogenicity was evaluated by comparing geometric mean titres (GMTs) of strain-specific serum haemagglutination inhibition (HAI) antibodies post dosing. Fluenz Tetra demonstrated immunologic non-inferiority to the two formulations of Fluenz as the upper bound for each of the four 95% CIs for the post-dose strain-specific GMT HAI antibody ratios was ≤ 1.5 .

Adult studies

Several studies against placebo have shown that Fluenz may have some efficacy in adults. However, a conclusion on clinical benefit of this vaccine in adults could not be made given that results observed in some studies versus injectable influenza vaccines were suggestive of a lower efficacy of Fluenz.

5.2 Pharmacokinetic properties

Not applicable.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on conventional non-clinical studies of repeated dose toxicity, reproduction and developmental toxicity, local tolerance and neurovirulence.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Sucrose
Dipotassium phosphate
Potassium dihydrogen phosphate
Gelatin (porcine, Type A)
Arginine hydrochloride
Monosodium glutamate monohydrate
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

18 weeks.

6.4 Special precautions for storage

Store in a refrigerator (2°C – 8°C).

Do not freeze.

Keep the nasal applicator in the outer carton in order to protect from light.

Before use, the vaccine may be taken out of the refrigerator once for a maximum period of 12 hours at a temperature not above 25°C. Stability data indicate that the vaccine components are stable for 12 hours when stored at temperatures from 8°C to 25°C. At the end of this period, Fluenz Tetra should be used immediately or discarded.

6.5 Nature and contents of container

Fluenz Tetra is supplied as a 0.2 ml suspension in a single-use nasal applicator (Type 1 glass), with nozzle (polypropylene with polyethylene transfer valve), nozzle tip-protector cap (synthetic rubber), plunger rod, plunger-stopper (butyl rubber) and a dose-divider clip.

Pack size of 1 or 10.

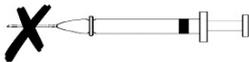
Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

Administration

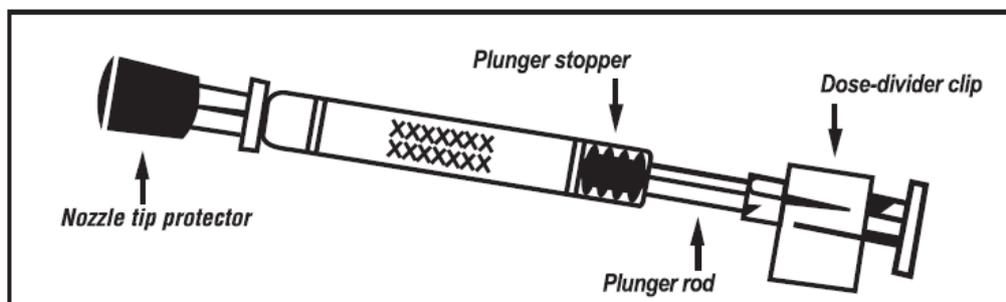
Fluenz Tetra IS FOR NASAL USE ONLY.

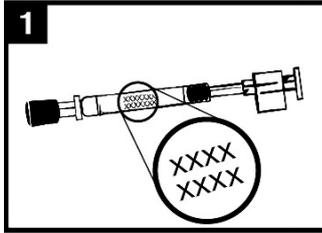
- DO NOT USE WITH A NEEDLE. Do not inject.



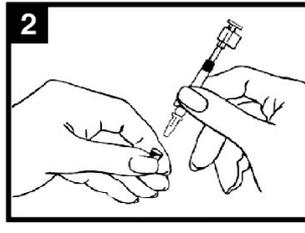
- Do not use Fluenz Tetra if the expiry date has passed or the sprayer appears damaged, for example, if the plunger is loose or displaced from the sprayer or if there are any signs of leakage.
- Check the appearance of the vaccine before administration. The suspension should be colourless to pale yellow, clear to opalescent. Small white particles may be present.
- Fluenz Tetra is administered as a divided dose in both nostrils.
- After administering half of the dose in one nostril, administer the other half of the dose in the other nostril immediately or shortly thereafter.
- The patient can breathe normally while the vaccine is being administered – there is no need to actively inhale or sniff.
- Refer to the Fluenz Tetra administration diagram (Figure 1) for step-by-step administration instructions.

Figure 1 Fluenz Tetra Administration

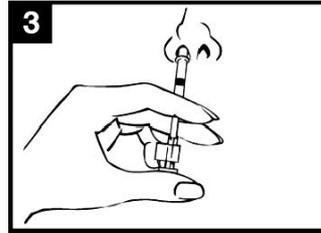




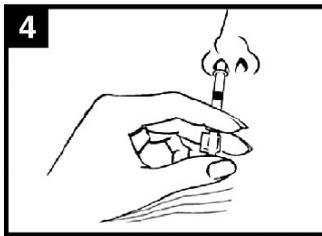
1
Check expiry date
 Product must be used before date on applicator label.



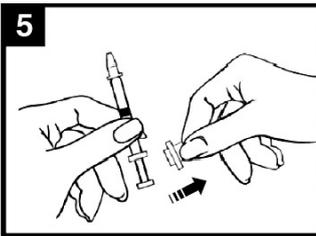
2
Prepare the applicator
 Remove rubber tip protector. Do not remove dose-divider clip at the other end of the applicator.



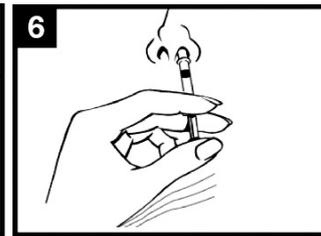
3
Position the applicator
 With the patient in an upright position, place the tip just inside the nostril to ensure Fluenz Tetra is delivered into the nose.



4
Depress the plunger
 With a single motion, depress plunger as **rapidly as possible** until the dose-divider clip prevents you from going further.



5
Remove dose-divider clip
 For administration in the other nostril, pinch and remove the dose-divider clip from plunger.



6
Spray in other nostril
 Place the tip just **inside the other nostril** and with a single motion, depress plunger as **rapidly as possible** to deliver remaining vaccine.

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

7. MARKETING AUTHORISATION HOLDER

AstraZeneca AB
 SE-151 85 Södertälje
 Sweden

8. MARKETING AUTHORISATION NUMBER(S)

EU/1/13/887/003 Top load carton assembly. 1 sprayer.
 EU/1/13/887/004 Top load carton assembly. 10 sprayers.

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 04 December 2013
 Date of latest renewal: 20 November 2018

10. DATE OF REVISION OF THE TEXT

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