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

Fasenra 30 mg solution for injection in pre-filled syringe

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each pre-filled syringe contains 30 mg benralizumab* in 1 ml.

*Benralizumab is a humanised monoclonal antibody produced in Chinese hamster ovary (CHO) cells by recombinant DNA technology.

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for injection. (injection)

Clear to opalescent, colourless to yellow solution and may contain translucent or white to off-white particles.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Fasenra is indicated as an add-on maintenance treatment in adult patients with severe eosinophilic asthma inadequately controlled despite high-dose inhaled corticosteroids plus long-acting β-agonists (see section 5.1).

4.2 Posology and method of administration

Fasenra should be prescribed by physicians experienced in the diagnosis and treatment of severe asthma.

Posology

The recommended dose of benralizumab is 30 mg by subcutaneous injection every 4 weeks for the first 3 doses, and then every 8 weeks thereafter. If an injection is missed on the planned date, dosing should resume as soon as possible on the indicated regimen; a double dose must not be administered.

Fasenra is intended for long-term treatment. A decision to continue the therapy should be made at least annually based on disease severity, level of exacerbation control and blood eosinophil counts.

Elderly
No dose adjustment is required for elderly patients (see section 5.2).

Renal and hepatic impairment
No dose adjustment is required for patients with renal or hepatic impairment (see section 5.2).

Paediatric population
The safety and efficacy of Fasenra in children aged 5 to 18 years have not been established.

No data are available for children aged 5 to 11 years old. Currently available data in children 12 to less than 18 years old are described in sections 4.8, 5.1 and 5.2 but no recommendation on a posology can be made.

Method of administration

Fasenra is administered as a subcutaneous injection by a healthcare professional.

It should be injected into the upper arm, thighs, or the abdomen. It should not be injected into areas where the skin is tender, bruised, erythematous, or hardened (see section 6.6).

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

Fasenra should not be used to treat acute asthma exacerbations.

Patients should be instructed to seek medical advice if their asthma remains uncontrolled or worsens after initiation of treatment.

Abrupt discontinuation of corticosteroids after initiation of Fasenra therapy is not recommended. Reduction in corticosteroid doses, if appropriate, should be gradual and performed under the supervision of a physician.

Hypersensitivity reactions

Hypersensitivity reactions (e.g. urticaria, papular urticaria, rash) have occurred following administration of Fasenra. These reactions generally occur within hours of administration, but in some instances have a delayed onset (i.e. days).

In the event of a hypersensitivity reaction, Fasenra should be discontinued.

Parasitic (Helminth) Infection

Eosinophils may be involved in the immunological response to some helminth infections. Patients with known helminth infections were excluded from participation in clinical trials. It is unknown if Fasenra may influence a patient's response against helminth infections.

Patients with pre-existing helminth infections should be treated before initiating therapy with Fasenra. If patients become infected, while receiving treatment with Fasenra and do not respond to anti-helminth treatment, treatment with Fasenra should be discontinued until infection resolves.

4.5 Interaction with other medicinal products and other forms of interaction

No formal drug interaction studies have been conducted. An effect of benralizumab on the pharmacokinetics of co-administered medicinal products is not expected (see section 5.2).

Cytochrome P450 enzymes, efflux pumps and protein-binding mechanisms are not involved in the clearance of benralizumab. There is no evidence of IL-5Rα expression on hepatocytes. Eosinophil depletion does not produce chronic systemic alterations of proinflammatory cytokines.

4.6 Fertility, pregnancy and lactation

Pregnancy

There is a limited amount of data (less than 300 pregnancy outcomes) from the use of benralizumab in pregnant women.

Animal studies do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see section 5.3).

Monoclonal antibodies, such as benralizumab, are transported across the placenta linearly as pregnancy progresses; therefore, potential exposure to a fetus is likely to be greater during the second and third trimester of pregnancy.

It is preferable to avoid the use of Fasenra during pregnancy. Its administration to pregnant women should only be considered if the expected benefit to the mother is greater than any possible risk to the fetus.

Breast-feeding

It is unknown whether benralizumab or its metabolites are excreted in human or animal milk. Risk to the breast-fed child cannot be excluded.

A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from using Fasenra taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman.

Fertility

There are no fertility data in humans. Animal studies showed no adverse effects of benralizumab treatment on fertility (see section 5.3).

4.7 Effects on ability to drive and use machines

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

4.8 Undesirable effects

Summary of the safety profile

The most commonly reported adverse reactions during treatment are headache (8%) and pharyngitis (3%).

Tabulated list of adverse reactions

A total of 2,514 patients, out of whom 1,663 patients had severe uncontrolled eosinophilic asthma, received benralizumab during clinical studies of 48 to 56 weeks duration.

The frequency of adverse reactions is defined using the following 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); and not known (cannot be estimated from available data). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

Table 1. Tabulated list of adverse reactions

System organ class	Adverse reaction	Frequency
Infections & infestations	Pharyngitis*	Common
Immune system disorders	Hypersensitivity reactions**	Common
Nervous system disorders	Headache	Common
General disorders and administration site conditions	Pyrexia Injection site reaction	Common

* Pharyngitis was defined by the following grouped preferred terms: 'Pharyngitis', 'Pharyngitis bacterial', 'Viral pharyngitis', 'Pharyngitis streptococcal'.
** Hypersensitivity reactions were defined by the following grouped preferred terms: 'Urticaria', 'Papular urticaria', and 'Rash'. For examples of the associated manifestations reported and a description of the time to onset, see section 4.4

Description of selected adverse reaction

Injection site reactions
In placebo-controlled studies, injection site reactions (e.g. pain, erythema, pruritus, papule) occurred at a rate of 2.2% in patients treated with the recommended benralizumab dose compared with 1.9% in patients treated with placebo.

Paediatric population

There are limited data in paediatric patients (see section 5.1). The frequency, type and severity of adverse reactions in the adolescent population were observed to be similar to those seen in adults.

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

Doses of up to 200 mg were administered subcutaneously in clinical trials to patients with eosinophilic asthma without evidence of dose-related toxicities.

There is no specific treatment for an overdose with benralizumab. If overdose occurs, the patient should be treated supportively with appropriate monitoring as necessary.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Drugs for obstructive airway diseases, other systemic drugs for obstructive airway diseases, ATC code: R03DX10

Mechanism of action

Benralizumab is an anti-eosinophil, humanised afucosylated, monoclonal antibody (IgG1, kappa). It binds to the alpha subunit of the human interleukin-5 receptor (IL-5Rα) with high affinity and specificity. The IL-5 receptor is specifically expressed on the surface of eosinophils and basophils. The absence of fucose in the Fc domain of benralizumab results in high affinity for FcγRIII receptors on immune effectors cells such as natural killer (NK) cells. This leads to apoptosis of eosinophils and basophils through enhanced antibody-dependent cell-mediated cytotoxicity (ADCC), which reduces eosinophilic inflammation.

Pharmacodynamic effects

Effect on blood eosinophils
Treatment with benralizumab results in near complete depletion of blood eosinophils within 24 hours following the first dose which is maintained throughout the treatment period. The depletion of blood eosinophils is accompanied by a reduction in serum eosinophil granule proteins eosinophil derived neurotoxin (EDN) and eosinophil cationic protein (ECP) and a reduction in blood basophils.

Effect on eosinophils in the airway mucosa
The effect of benralizumab on eosinophils in the airway mucosa in asthmatic patients with elevated sputum eosinophil counts (at least 2.5%) was evaluated in a 12-week, phase 1, randomised, double-blind, placebo-controlled clinical study with benralizumab 100 or 200 mg SC. In this study there was a median reduction from baseline in airway mucosa eosinophils of 96% in the benralizumab treated group compared to a 47% reduction in the placebo group (p=0.039).

Clinical efficacy

The efficacy of Fasenra was evaluated in 3 randomised, double-blind, parallel-group, placebo-controlled clinical trials between 28 to 56 weeks duration, in patients aged 12 to 75 years.

In these studies, Fasenra was administered at a dose of 30 mg once every 4 weeks for the first 3 doses, and then every 4 or 8 weeks thereafter as add-on to background treatment and was evaluated in comparison with placebo.

The two exacerbation trials, SIROCCO (Trial 1) and CALIMA (Trial 2), enrolled a total of 2,510 patients with severe uncontrolled asthma, 64% females, with a mean age of 49 years. Patients had a history of 2 or more asthma exacerbations requiring oral or systemic corticosteroid treatment (mean of 3) in the past 12 months, ACQ-6 score of 1.5 or more at screening, and reduced lung function at baseline (mean predicted pre-bronchodilator forced expiratory volume in 1 second [FEV_1] of 57.5%), despite regular treatment with high-dose inhaled corticosteroid (ICS) (Trial 1) or with medium or high-dose ICS (Trial 2) and a long-acting β-agonist (LABA); at least one additional controller was administered to 51% and 41% of these patients, respectively.

For the oral corticosteroid (OCS) reduction trial ZONDA (Trial 3), a total of 220 asthma patients (61% female; mean age of 51 years) were enrolled; they were treated with daily OCS (8 to 40 mg per day; median of 10 mg) in addition to regular use of high-dose ICS and LABA with at least one additional controller to maintain asthma control in 53% of the cases. The trial included an 8-week run-in period during which the OCS was titrated to the minimum effective dose without losing asthma control. Patients had blood eosinophil counts ≥150 cells/μL and a history of at least one exacerbation in the past 12 months.

While 2 dosing regimens were studied in Trials 1, 2, and 3, the recommended dosing regimen is Fasenra administered every 4 weeks for the first 3 doses, then every 8 weeks thereafter (see section 4.2) as no additional benefit was observed by more frequent dosing. The results summarised below are those for the recommended dosing regimen.

Exacerbation trials

The primary endpoint was the annual rate of clinically significant asthma exacerbations in patients with baseline blood eosinophil counts ≥300 cells/μL who were taking high-dose ICS and LABA.

Clinically significant asthma exacerbation was defined as worsening of asthma requiring use of oral/systemic corticosteroids for at least 3 days, and/or emergency department visits requiring use of oral/systemic corticosteroids and/or hospitalisation. For patients on maintenance oral corticosteroids, this was defined as a temporary increase in stable oral/systemic corticosteroids for at least 3 days or a single depo-injectable dose of corticosteroids.

In both trials, patients receiving Fasenra experienced significant reductions in annual exacerbation rates compared to placebo in patients with blood eosinophils ≥300 cells/µL. In addition, change from baseline in mean FEV_1 showed benefit as early as 4 weeks, which was maintained through to end of treatment (**Table 2**).

Reductions in exacerbation rates were observed irrespective of baseline eosinophil count; however, increasing baseline eosinophil counts was identified as a potential predictor of improved treatment response particularly for FEV_1.

Table 2. Results of annual exacerbation rate and lung function at end of treatment of Trial 1 and 2 by eosinophil count.

	Trial 1		**Trial 2**	
	Fasenra	**Placebo**	**Fasenra**	**Placebo**
Blood eosinophil count ≥300 cells/µL[a]	n = 267	n =267	n =239	n =248
Clinically significant exacerbations				
Rate	0.74	1.52	0.73	1.01
Difference	-0.78		-0.29	
Rate ratio (95% CI)	0.49 (0.37, 0.64)		0.72 (0.54, 0.95)	
p-value	<0.001		0.019	
Pre-bronchodilator FEV_1 (L)				
Mean baseline	1.660	1.654	1.758	1.815
Improvement from baseline	0.398	0.239	0.330	0.215
Difference (95% CI)	0.159 (0.068, 0.249)		0.116 (0.028, 0.204)	
p-value	0.001		0.010	
Blood eosinophil count <300 cells/µL[b]	n =131	n =140	n =125	n =122
Clinically significant exacerbations				
Rate	1.11	1.34	0.83	1.38
Difference	-0.23		-0.55	
Rate ratio (95% CI)	0.83 (0.59, 1.16)		0.60 (0.42, 0.86)	
Pre-bronchodilator FEV_1 (L)				
Mean change	0.248	0.145	0.140	0.156
Difference (95% CI)	0.102 (-0.003, 0.208)		-0.015 (-0.127, 0.096)	

a. Intent to treat population (patients on high-dose ICS and blood eosinophils ≥300 cells/µl).

b. Not powered to detect a treatment difference in patients with blood eosinophils <300 cells/µl.

Across Trials 1 and 2 combined, there was a numerically greater exacerbation rate reduction and greater improvements in FEV_1 with increasing baseline blood eosinophils.

The rate of exacerbations requiring hospitalisation and/or emergency room visits for patients receiving Fasenra compared to placebo for Trial 1 were 0.09 versus 0.25 (rate ratio 0.37, 95% CI: 0.20, 0.67, p=<0.001) and for Trial 2 were 0.12 versus 0.10 (rate ratio 1.23, 95% CI: 0.64, 2.35, p=0.538). In Trial 2, there were too few events in the placebo treatment arm to draw conclusions for exacerbations requiring hospitalisation or emergency room visits.

In both Trials 1 and 2, patients receiving Fasenra experienced statistically significant reductions in asthma symptoms (Total Asthma Score) compared to patients receiving placebo. Similar improvement in favour of Fasenra was observed for the Asthma Control Questionnaire-6 (ACQ-6) and Standardised Asthma Quality of Life Questionnaire for 12 Years and Older (AQLQ(S)+12) (**Table 3**).

Table 3. Treatment difference in mean change from baseline in total asthma symptom score, ACQ-6 and AQLQ(s)+12 at end of treatment - Patients on high-dose ICS and blood eosinophils ≥300 cells/µL

	Trial 1		**Trial 2**	
	Fasenra (n^a=267)	**Placebo** (n^a=267)	**Fasenra** (n^a=239)	**Placebo** (n^a=248)
Total asthma symptom score[b]				
Mean baseline	2.68	2.74	2.76	2.71
Improvement from baseline	-1.30	-1.04	-1.40	-1.16
Difference (95% CI)	-0.25 (-0.45, -0.06)		-0.23 (-0.43, -0.04)	
p-value	0.012		0.019	
ACQ-6				
Mean baseline	2.81	2.90	2.80	2.75
Improvement from baseline	-1.46	-1.17	-1.44	-1.19
Difference (95% CI)	-0.29 (-0.48, -0.10)		-0.25 (-0.44, -0.07)	
AQLQ(S)+12				
Mean baseline	3.93	3.87	3.87	3.93
Improvement from baseline	1.56	1.26	1.56	1.31
Difference (95% CI)	0.30 (0.10, 0.50)		0.24 (0.04, 0.45)	

a. Number of patients (n) varies slightly due to the number of patients for whom data were available for each variable. Results shown based on last available data for each variable.

b. Asthma symptom scale: total score from 0 (least) to 6 (most); day and night time asthma symptom scores from 0 (least) to 3 (most) symptoms. Individual day and night time scores were similar.

Subgroup analyses by prior exacerbation history

Subgroup analyses from Trials 1 and 2 identified patients with higher prior exacerbation history as a potential predictor of improved treatment response. When considered alone or in combination with baseline blood eosinophils count, these factors may further identify patients who may achieve greater response from benralizumab treatment (**Table 4**).

Table 4. Exacerbation rate and pulmonary function (FEV_1) at end of treatment by number of exacerbations in the previous year - Patients on high-dose ICS and blood eosinophils ≥300 cells/µL

	Trial 1		Trial 2	
	Fasenra (N=267)	**Placebo** (N=267)	**Fasenra** (N=239)	**Placebo** (N=248)
Baseline of 2 exacerbations				
n	164	149	144	151
Exacerbation rate	0.57	1.04	0.63	0.62
Difference	-0.47		0.01	
Rate ratio (95% CI)	0.55 (0.37, 0.80)		1.01 (0.70, 1.46)	
Pre-bronchodilator FEV_1 mean change	0.343	0.230	0.266	0.236
Difference (95% CI)	0.113 (-0.02, 0.228)		0.029 (-0.079, 0.137)	
Baseline of 3 or more exacerbations				
n	103	118	95	97
Exacerbation rate	0.84	2.15	0.82	1.65
Difference	-1.28		-0.84	
Rate ratio (95% CI)	0.43 (0.29, 0.63)		0.49 (0.33, 0.74)	
Pre-bronchodilator FEV_1 mean change	0.486	0.251	0.440	0.174
Difference (95% CI)	0.235 (0.088, 0.382)		0.265 (0.115, 0.415)	

Oral corticosteroid dose reduction trial

Trial 3 evaluated the effect of Fasenra on reducing the use of maintenance oral corticosteroids. The primary endpoint was percent reduction from baseline of the final OCS dose during Weeks 24 to 28, while maintaining asthma control. **Table 5** summarizes the study results for Trial 3.

Table 5. Effect of Fasenra on OCS dose reduction, Trial 3

	Fasenra	**Placebo**
Wilcoxon rank sum test (primary analysis method)		
Median % reduction in daily OCS dose from baseline (95% CI)	75 (60, 88)	25 (0, 33)
Wilcoxon rank sum test p-value	<0.001	
Proportional odds model (sensitivity analysis)		
Percent reduction in OCS from baseline at Week 28		
≥90% reduction	27 (37%)	9 (12%)
≥75% reduction	37 (51%)	15 (20%)
≥50% reduction	48 (66%)	28 (37%)
>0% reduction	58 (79%)	40 (53%)
No change or no decrease in OCS	15 (21%)	35 (47%)
Odds ratio (95% CI)	4.12 (2.22, 7.63)	
Reduction in the daily OCS dose to 0 mg/day*	22 (52%)	8 (19%)
Odds ratio (95% CI)	4.19 (1.58, 11.12)	
Reduction in the daily OCS dose to ≤5 mg/day	43 (59%)	25 (33%)

	Fasenra	Placebo
Odds ratio (95% CI)	2.74 (1.41, 5.31)	
Exacerbation rate	0.54	1.83
Rate ratio (95% CI)	0.30 (0.17, 0.53)	
Exacerbation rate requiring hospitalisation/emergency room visit	0.02	0.32
Rate ratio (95% CI)	0.07 (0.01, 0.63)	

* Only patients with an optimised baseline OCS dose of 12.5 mg or less were eligible to achieve a 100% reduction in OCS dose during the study.

Lung function, asthma symptom score, ACQ-6 and AQLQ(S)+12 were also assessed in Trial 3 and showed results similar to those in Trials 1 and 2.

Immunogenicity

Overall, treatment-emergent anti-drug antibody response developed in 107 out of 809 (13%) patients treated with Fasenra at the recommended dosing regimen during the 48 to 56 week treatment period of the exacerbation trials. Most antibodies were neutralising and persistent. Anti-benralizumab antibodies were associated with increased clearance of benralizumab and increased blood eosinophil levels in patients with high anti-drug antibody titres compared to antibody negative patients; in rare cases, blood eosinophil levels returned to pre-treatment levels. Based on current patient follow-up, no evidence of an association of anti-drug antibodies with efficacy or safety was observed.

Paediatric population

There were 108 adolescents aged 12 to 17 with asthma enrolled in the phase 3 trials (Trial 1: n=53, Trial 2: n=55). Of these, 46 received placebo, 40 received Fasenra every 4 weeks for 3 doses, followed by every 8 weeks thereafter, and 22 received Fasenra every 4 weeks. In these trials, the asthma exacerbation rate in adolescent patients treated with Fasenra administered at the recommended dosing regimen was 0.70 (n=40, 95% CI: 0.42, 1.18) compared to 0.41 for placebo (n=46, 95% CI: 0.23, 0.73) [rate ratio 1.70, 95% CI: 0.78, 3.69]. No conclusion can be drawn regarding asthma efficacy in the paediatric population.

The European Medicines Agency has waived the obligation to submit the results of studies with Fasenra in paediatric population aged from birth to less than 5 years in asthma (see section 4.2 for information on paediatric use).

The European Medicines Agency has deferred the obligation to submit the results of studies with Fasenra in one or more subsets of the paediatric population in asthma (see section 4.2 for information on paediatric use).

5.2 Pharmacokinetic properties

The pharmacokinetics of benralizumab were dose-proportional in patients with asthma following subcutaneous administration over a dose range of 2 to 200 mg.

Absorption

Following subcutaneous administration to patients with asthma, the absorption half-life was 3.6 days. Based on population pharmacokinetic analysis, the estimated absolute bioavailability was approximately 58% and there was no clinically relevant difference in relative bioavailability in the administration to the abdomen, thigh, or upper arm.

Distribution

Based on population pharmacokinetic analysis, central and peripheral volume of distribution of benralizumab was 3.2 L and 2.5 L, respectively, for a 70 kg individual.

Biotransformation

Benralizumab is a humanised IgG1 monoclonal antibody that is degraded by proteolytic enzymes widely distributed in the body and not restricted to hepatic tissue.

Elimination

From population pharmacokinetic analysis, benralizumab exhibited linear pharmacokinetics and no evidence of target receptor-mediated clearance pathway. The estimated systemic clearance (CL) for benralizumab was at 0.29 L/d. Following subcutaneous administration, the elimination half-life was approximately 15 days.

Special populations

Elderly patients (≥65 years old)
Based on population pharmacokinetic analysis, age did not affect benralizumab clearance. However, no data are available in patients over 75 years of age.

Paediatric
Based on the population pharmacokinetic analysis, the pharmacokinetics of benralizumab in adolescents aged 12 to 17 years were consistent with adults. Benralizumab has not been studied in children (5 to 11 years old) (see section 4.2).

Gender, Race
A population pharmacokinetics analysis, indicated that there was no significant effect of gender and race on benralizumab clearance.

Renal impairment
No formal clinical studies have been conducted to investigate the effect of renal impairment on benralizumab. Based on population pharmacokinetic analysis, benralizumab clearance was comparable in subjects with creatinine clearance values between 30 and 80 mL/min and patients with normal renal function. There are limited data available in subjects with creatinine clearance values less than 30 mL/min; however, benralizumab is not cleared renally.

Hepatic impairment
No formal clinical studies have been conducted to investigate the effect of hepatic impairment on benralizumab. IgG monoclonal antibodies are not primarily cleared via hepatic pathway; change in hepatic function is not expected to influence benralizumab clearance. Based on population pharmacokinetic analysis, baseline hepatic function biomarkers (ALT, AST, and bilirubin) had no clinically relevant effect on benralizumab clearance.

Drug-Drug interaction
No formal drug-drug interaction studies have been conducted. An effect of benralizumab on the pharmacokinetics of co-administered medicinal products is not expected. Based on the population pharmacokinetic analysis, commonly co-administered medicinal products (montelukast, paracetamol, proton pump inhibitors, macrolides and theophylline/aminophylline) had no effect on benralizumab clearance in patients with asthma.

5.3 Preclinical safety data

As benralizumab is a monoclonal antibody, no genotoxicity or carcinogenicity studies have been conducted.

Animal toxicology and/or pharmacology

Non-clinical data reveal no special hazards for humans based on conventional studies of safety pharmacology or repeated dose toxicity studies in monkeys. Intravenous and subcutaneous administration to cynomolgus monkeys was associated with reductions in peripheral blood and bone marrow eosinophil counts, with no toxicological findings.

Pregnancy

In a prenatal and postnatal development study in pregnant cynomolgus monkeys, there were no benralizumab-related maternal, embryo-foetal, or postnatal effects observed.

Fertility

No dedicated animal studies have been conducted. No benralizumab-related impairment was observed in reproductive parameters of male and female cynomolgus monkeys. Examination of surrogate fertility parameters (including organ weights and histopathology of reproductive tissues) in animals treated with benralizumab suggested no impairment of fertility. However, in the offspring of monkeys dosed while pregnant, there was a reduction in eosinophils.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Histidine
Histidine hydrochloride monohydrate
Trehalose dihydrate
Polysorbate 20
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

3 years

6.4 Special precautions for storage

Store in a refrigerator (2°C to 8°C). Store the pre-filled syringe in the original package in order to protect from light. Do not freeze. Do not shake.

6.5 Nature and contents of container

One mL solution in a single-use pre-filled syringe made from type I glass with a staked 29-gauge ½-inch stainless steel needle, rigid needle shield, and Fluorotec-coated plunger stopper in a passive safety device.

Pack containing 1 single-use pre-filled syringe.

6.6 Special precautions for disposal and other handling

Fasenra solution for injection is supplied in a sterile single-use pre-filled syringe for individual use. Do not shake. Do not use if frozen.

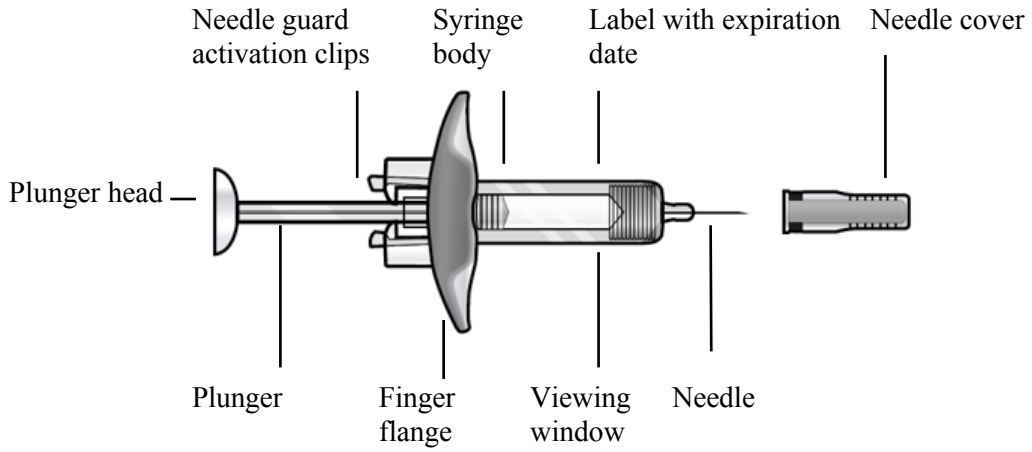
Instructions for administration

Prior to administration, warm Fasenra by leaving carton at room temperature. This generally takes 30 minutes. Administer within 24 hours or discard into sharps container.

Instructions for Pre-filled Syringe with Needle Safety Guard

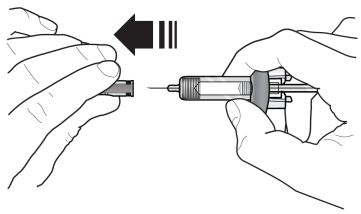
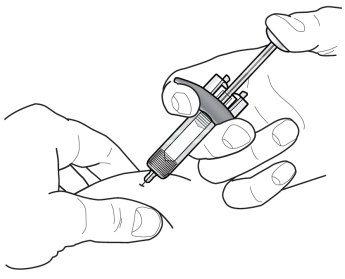
Refer to **Figure 1** below to identify the pre-filled syringe components for use in the administration steps.

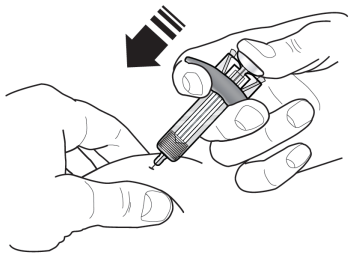
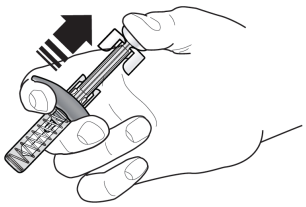
Figure 1



Do not touch the needle guard activation clips to prevent premature activation of the needle safety guard.

1 **Grasp the syringe body,** not the plunger, to remove pre-filled syringe from the tray. Check the expiry date on the syringe. Visually inspect Fasenra for particulate matter and discolouration prior to administration. Fasenra is clear to opalescent, colourless to yellow, and may contain translucent or white to off-white particles. Do not use Fasenra if liquid is cloudy, discoloured, or if it contains large particles or foreign particulate matter. The syringe may contain a small air bubble; this is normal. **Do not** expel the air bubble prior to administration.

2 	Do not remove needle cover until ready to inject. Hold the syringe body and remove the needle cover by pulling straight off. Do not hold the plunger or plunger head while removing the needle cover or the plunger may move. If pre-filled syringe is damaged or contaminated (for example, dropped without needle cover in place), discard and use a new pre-filled syringe.
3 	Gently pinch the skin and insert the needle at the recommended injection site (i.e. upper arm, thighs, or abdomen).

4 	Inject all of the solution by pushing in the plunger all the way until the plunger head is **completely between** the needle guard activation clips. **This is necessary to activate the needle guard.**
5 	After injection, maintain pressure on the plunger head and remove the needle from the skin. Release pressure on the plunger head to allow the needle guard to cover the needle. **Do not re-cap the pre-filled syringe.**
6 Discard the used syringe into a sharps container.	

7. MARKETING AUTHORISATION HOLDER

AstraZeneca AB
SE-151 85 Södertälje
Sweden

8. MARKETING AUTHORISATION NUMBER(S)

EU/1/17/1252/001

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

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.

ANNEX II

A. MANUFACTURER OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURERS 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 AND MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturer of the biological active substance

AstraZeneca Pharmaceuticals LP Frederick Manufacturing Center (FMC)
633 Research Court
Frederick, Maryland
21703
United States

Name and address of the manufacturers responsible for batch release

MedImmune UK Ltd
6 Renaissance Way
Liverpool, L24 9JW
United Kingdom

MedImmune Pharma B.V., Nijmegen
Lagelandseweg 78
Nijmegen, 6545CG
Netherlands

The printed package leaflet of the medicinal product must state the name and address of the manufacturer responsible for the release of the concerned batch.

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

Medicinal product subject to restricted medical prescription (see Annex I: Summary of Product Characteristics, section 4.2).

C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

- **Periodic safety update reports**

The requirements for submission of periodic safety update reports 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.

The marketing authorisation holder shall submit the first periodic safety update report for this product within 6 months following authorisation.

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

- **Risk Management Plan (RMP)**

The 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- PRE-FILLED SYRINGE

1. NAME OF THE MEDICINAL PRODUCT

Fasenra 30 mg solution for injection in pre-filled syringe
benralizumab

2. STATEMENT OF ACTIVE SUBSTANCE(S)

One pre-filled syringe contains 30 mg benralizumab in 1 mL.

3. LIST OF EXCIPIENTS

Excipients: histidine, histidine hydrochloride monohydrate, trehalose dihydrate, polysorbate 20, water for injections.

4. PHARMACEUTICAL FORM AND CONTENTS

Solution for injection
1 pre-filled syringe

5. METHOD AND ROUTE(S) OF ADMINISTRATION

Subcutaneous 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.
Do not shake.

Keep the pre-filled 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

AstraZeneca AB
SE-151 85 Södertälje
Sweden

12. MARKETING AUTHORISATION NUMBER(S)

EU/1/17/1252/001

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 BLISTERS OR STRIPS

BLISTERED PRE-FILLED SYRINGE

1. NAME OF THE MEDICINAL PRODUCT

Fasenra 30 mg solution for injection in pre-filled syringe
benralizumab

2. NAME OF THE MARKETING AUTHORISATION HOLDER

AstraZeneca

3. EXPIRY DATE

EXP

4. BATCH NUMBER<, DONATION AND PRODUCT CODES>

Lot

5. OTHER

Subcutaneous use
Store in a refrigerator. Do not freeze. Do not shake.
Keep the pre-filled syringe in the outer carton in order to protect from light.

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

PRE-FILLED SYRINGE LABEL

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

Fasenra 30 mg
injection
benralizumab
SC

2. METHOD OF ADMINISTRATION

3. EXPIRY DATE

EXP

4. BATCH NUMBER

Lot

5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT

1 mL

6. OTHER

B. PACKAGE LEAFLET

Package leaflet: Information for the patient

Fasenra 30 mg solution for injection in pre-filled syringe
benralizumab

▼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 start using 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, 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 Fasenra is and what it is used for

What Fasenra is
Fasenra is a medicine containing the active substance benralizumab, which is a monoclonal antibody, a type of protein that recognises and attaches to a specific target substance in the body. The target of benralizumab is a protein called interleukin-5 receptor, which is found particularly on a type of white blood cell called an eosinophil.

What Fasenra is used for
Fasenra is used to treat **severe eosinophilic asthma** in adults. Eosinophilic asthma is a type of asthma where patients have too many eosinophils in the blood or lungs.

Fasenra is used together with other medicines to treat asthma (high doses of 'corticosteroid inhalers' plus other asthma medicines) when the disease is not well controlled by those other medicines alone.

How Fasenra works
Eosinophils are white blood cells involved in asthma inflammation. By attaching to the eosinophils, Fasenra helps to reduce their numbers.

What are the benefits of using Fasenra
Fasenra may reduce the number of asthma attacks you are experiencing, help you breathe better and decrease your asthma symptoms. If you are taking medicines called 'oral corticosteroids', using Fasenra may also allow you to reduce the daily dose or stop the oral corticosteroids you need to control your asthma.

2. What you need to know before you use Fasenra

Do not use Fasenra:
- If you are **allergic** to benralizumab or any of the other ingredients of this medicine (listed in section 6). **Check with your doctor, nurse or pharmacist** if you think this applies to you.

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

- if you have a **parasitic infection** or if you live in an area where parasitic infections are common or you are travelling to such a region. This medicine may weaken your ability to fight certain types of parasitic infections,
- if you have had an **allergic reaction to an injection or medicine in the past** (see section 4 for symptoms of an allergic reaction).

Also, talk to your doctor, nurse or pharmacist when you are given Fasenra:

- if your **asthma remains uncontrolled or worsens** during treatment with this medicine.
- if you have any symptoms of an **allergic reaction** (see section 4). Allergic reactions have occurred in patients receiving this medicine.

Other medicines for asthma
Do not suddenly stop taking your preventer medicines for your asthma once you have started Fasenra.

If your response to the treatment allows it, your doctor may try to reduce the dose of some of these medicines, especially ones called 'corticosteroids'. This should be done gradually, under the direct supervision of your doctor.

Other medicines and Fasenra
Tell your doctor if you are taking, have recently taken or might take any other medicines before using Fasenra.

Children and adolescents
The safety and benefits of this medicine are not known in children below the age of 18.

Pregnancy and breast-feeding
If you are pregnant, think you may be pregnant or are planning to have a baby, **ask your doctor for advice** before using this medicine.

Do not use Fasenra if you are pregnant unless your doctor tells you otherwise. It is not known whether Fasenra could harm your unborn baby.

It is not known whether the ingredients of Fasenra can pass into breast milk. **If you are breast-feeding or plan to breast-feed, talk to your doctor**.

Driving and using machines
It is unlikely that Fasenra will affect your ability to drive and use machines.

3. How to use Fasenra

Fasenra is given to you by a doctor, nurse or healthcare professional, as an injection just under the skin (subcutaneously).

The recommended dose is an injection of 30 mg. The first 3 injections are given every 4 weeks. After this, you will be given 30 mg every 8 weeks.

If a dose of Fasenra is missed
Contact your healthcare professional or hospital as soon as possible to re-schedule your appointment.

Stopping treatment with Fasenra

Do not stop treatment with Fasenra unless your doctor advises you to. Interrupting or stopping the treatment with Fasenra may cause your asthma symptoms and attacks to come back.

If your asthma symptoms get worse while receiving injections of Fasenra, **call your doctor.**

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.

Allergic reactions
Some people may have allergic reactions. These reactions are common (they can affect **up to 1 in 10 people**) and can happen hours or days after the injection.

Symptoms usually include:
- hives
- rash

Seek medical attention immediately if you think you may be having an allergic reaction.

Other side effects:

Common (these may affect **up to 1 in 10 people**)
- headache
- pharyngitis (sore throat)
- fever (high temperature)
- injection site reaction (for example pain, redness, itching, swelling near where the injection was given)

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 Fasenra

Keep this medicine out of the sight and reach of children.
Do not use this medicine after the expiry date which is stated on the label. The expiry date refers to the last day of that month.
Store in the original package to protect from light.
Store in a refrigerator (2°C to 8°C). Discard if left out of the refrigerator more than 24 hours.
Do not shake or freeze.

Fasenra is for single use only. 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 Fasenra contains

The active substance is benralizumab. One pre-filled syringe of 1 ml solution contains 30 mg benralizumab.

The other ingredients are histidine, histidine hydrochloride monohydrate, trehalose dihydrate, polysorbate 20 and water for injections.

What Fasenra looks like and contents of the pack
Fasenra is a solution in a clear glass syringe. Its colour may vary from colourless to yellow. It may contain particles.

Fasenra is available in a pack containing 1 pre-filled syringe.

Marketing Authorisation Holder

AstraZeneca AB
SE-151 85
Södertälje
Sweden

Manufacturer

MedImmune UK Ltd
6 Renaissance Way
Liverpool, L24 9JW
United Kingdom

MedImmune Pharma B.V., Nijmegen
Lagelandseweg 78
Nijmegen, 6545CG
Netherlands

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

België/Belgique/Belgien
AstraZeneca S.A./N.V.
Tel: +32 2 370 48 11

България
АстраЗенека България ЕООД
Тел.: +359 24455000

Česká republika
AstraZeneca Czech Republic s.r.o.
Tel: +420 222 807 111

Danmark
AstraZeneca A/S
Tlf: +45 43 66 64 62

Deutschland
AstraZeneca GmbH
Tel: +49 41 03 7080

Lietuva
UAB AstraZeneca Lietuva
Tel: +370 5 2660550

Luxembourg/Luxemburg
AstraZeneca S.A./N.V.
Tél/Tel: +32 2 370 48 11

Magyarország
AstraZeneca Kft.
Tel.: +36 1 883 6500

Malta
Associated Drug Co. Ltd
Tel: +356 2277 8000

Nederland
AstraZeneca BV
Tel: +31 79 363 2222

Eesti
AstraZeneca
Tel: +372 6549 600

Ελλάδα
AstraZeneca A.E.
Τηλ: +30 210 6871500

España
AstraZeneca Farmacéutica Spain, S.A.
Tel: +34 91 301 91 00

France
AstraZeneca
Tél: +33 1 41 29 40 00

Hrvatska
AstraZeneca d.o.o.
Tel: +385 1 4628 000

Ireland
AstraZeneca Pharmaceuticals (Ireland) DAC
Tel: +353 1609 7100

Ísland
Vistor hf.
Sími: +354 535 7000

Italia
AstraZeneca S.p.A.
Tel: +39 02 9801 1

Κύπρος
Αλέκτωρ Φαρμακευτική Λτδ
Τηλ: +357 22490305

Latvija
SIA AstraZeneca Latvija
Tel: +371 67377100

Norge
AstraZeneca AS
Tlf: +47 21 00 64 00

Österreich
AstraZeneca Österreich GmbH
Tel: +43 1 711 31 0

Polska
AstraZeneca Pharma Poland Sp. z o.o.
Tel.: +48 22 245 73 00

Portugal
AstraZeneca Produtos Farmacêuticos, Lda.
Tel: +351 21 434 61 00

România
AstraZeneca Pharma SRL
Tel: +40 21 317 60 41

Slovenija
AstraZeneca UK Limited
Tel: +386 1 51 35 600

Slovenská republika
AstraZeneca AB, o.z.
Tel: +421 2 5737 7777

Suomi/Finland
AstraZeneca Oy
Puh/Tel: +358 10 23 010

Sverige
AstraZeneca AB
Tel: +46 8 553 26 000

United Kingdom
AstraZeneca UK Ltd
Tel: +44 1582 836 836

This leaflet was last revised in

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

<----------->

The following information is intended for healthcare professionals only:

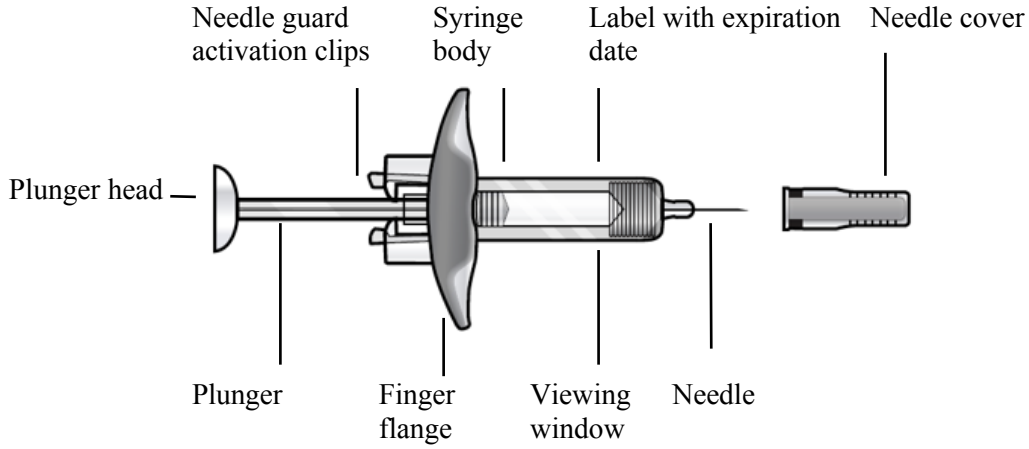
Instructions for administration

Prior to administration, warm Fasenra by leaving carton at room temperature. This generally takes 30 minutes. Administer within 24 hours or discard into sharps container.

Instructions for Pre-filled Syringe with Needle Safety Guard

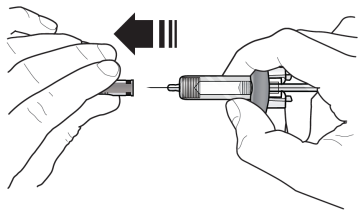
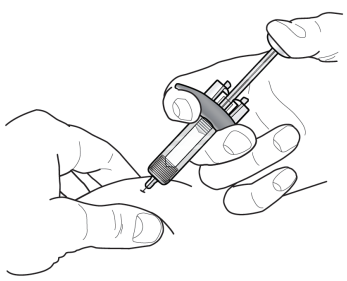
Refer to **Figure 1** below to identify the pre-filled syringe components for use in the administration steps.

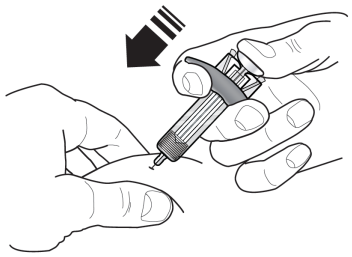
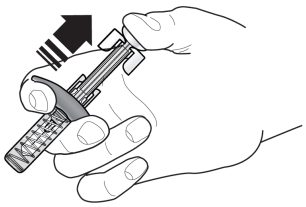
Figure 1



Do not touch the needle guard activation clips to prevent premature activation of the needle safety guard.

1 **Grasp the syringe body,** not the plunger, to remove pre-filled syringe from the tray. Check the expiry date on the syringe. Visually inspect Fasenra for particulate matter and discolouration prior to administration. Fasenra is clear to opalescent, colourless to yellow, and may contain translucent or white to off-white particles. Do not use Fasenra if liquid is cloudy, discoloured, or if it contains large particles or foreign particulate matter. The syringe may contain a small air bubble; this is normal. **Do not** expel the air bubble prior to administration.

2 	Do not remove needle cover until ready to inject. Hold the syringe body and remove the needle cover by pulling straight off. Do not hold the plunger or plunger head while removing the needle cover or the plunger may move. If pre-filled syringe is damaged or contaminated (for example, dropped without needle cover in place), discard and use a new pre-filled syringe.
3 	Gently pinch the skin and insert the needle at the recommended injection site (i.e. upper arm, thighs, or abdomen).

4 	Inject all of the solution by pushing in the plunger all the way until the plunger head is **completely between** the needle guard activation clips. **This is necessary to activate the needle guard.**
5 	After injection, maintain pressure on the plunger head and remove the needle from the skin. Release pressure on the plunger head to allow the needle guard to cover the needle. **Do not re-cap the pre-filled syringe.**
6 Discard the used syringe into a sharps container.	