

# Summary of Product characteristics

## 1. NAME OF THE MEDICINAL PRODUCT

AREXVY

Powder and suspension for suspension for injection  
Respiratory Syncytial Virus (RSV) vaccine (recombinant, adjuvanted)

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Before reconstitution, the powder (antigen) vial contains:

RSVPreF3<sup>1</sup> antigen<sup>2</sup> 163 micrograms

After reconstitution, one dose (0.5 mL) contains:

RSVPreF3<sup>1</sup> antigen<sup>2,3</sup> 120 micrograms

<sup>1</sup> Respiratory Syncytial Virus recombinant glycoprotein F stabilised in the pre-fusion conformation = RSVPreF3

<sup>2</sup> RSVPreF3 produced in Chinese Hamster Ovary (CHO) cells by recombinant DNA technology

<sup>3</sup> adjuvanted with AS01<sub>E</sub> containing:

plant extract <i>Quillaja saponaria</i> Molina, fraction 21 (QS-21)	25 micrograms
3-O-desacyl-4'-monophosphoryl lipid A (MPL) from <i>Salmonella minnesota</i>	25 micrograms

For the full list of excipients, see section 6.1.

## 3. PHARMACEUTICAL FORM

Powder and suspension for suspension for injection.

The powder is white.

The suspension is an opalescent, colourless to pale brownish liquid.

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Arexvy is indicated for active immunisation for the prevention of lower respiratory tract disease (LRTD) caused by respiratory syncytial virus in:

- adults 60 years of age and older;
- adults 50 through 59 years of age who are at increased risk for RSV disease.

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

### 4.2 Posology and method of administration

#### Posology

Arexvy is administered as a single dose of 0.5 mL.

The need for revaccination with a subsequent dose has not been established (see section 5.1).

#### *Paediatric population*

The safety and efficacy of Arexvy in children have not been established. No data are available.

#### *Adults 80 years of age and older*

The efficacy of AREXVY in adults 80 years of age and older was not established. For more information see section 5.1.

#### Method of administration

For intramuscular injection only, preferably in the deltoid muscle.

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

### **4.3 Contraindications**

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

### **4.4 Special warnings and precautions for use**

#### Traceability

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

#### Prior to immunisation

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

Vaccination should be postponed in individuals suffering from an acute severe febrile illness. The presence of a minor infection, such as a cold, should not result in the deferral of vaccination.

As with any vaccine, a protective immune response may not be elicited in all vaccinees.

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

#### Precautions for use

Do not administer the vaccine intravascularly or intradermally. No data are available on subcutaneous administration of Arexvy.

As with other intramuscular injections, Arexvy should be given with caution to individuals with thrombocytopenia or any coagulation disorder since bleeding may occur following intramuscular administration to these individuals.

#### Systemic immunosuppressive medicinal products and immunodeficiency

Safety and immunogenicity data on Arexvy are not available for immunocompromised individuals. Patients receiving immunosuppressive treatment or patients with immunodeficiency may have a reduced immune response to Arexvy.

## Excipients

This medicinal product contains potassium, less than 1 mmol (39 mg) per dose, i.e. essentially 'potassium-free'.

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

## **4.5 Interaction with other medicinal products and other forms of interaction**

### Use with other vaccines

Arexvy may be administered concomitantly with a COVID-19 mRNA vaccine, pneumococcal conjugate vaccine, herpes zoster vaccine (recombinant, adjuvanted), or inactivated seasonal influenza vaccine (standard dose unadjuvanted, high dose unadjuvanted, or standard dose adjuvanted).

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

Concomitant administration of Arexvy with other vaccines than those listed above has not been studied.

## **4.6 Fertility, pregnancy and lactation**

### Pregnancy

There are no data from the use of Arexvy in pregnant women. After administration of an investigational unadjuvanted RSVPreF3 vaccine to 3 557 pregnant women in a single clinical study, an increase in preterm births was observed compared to placebo. Currently no conclusion on a causal relationship between administration of unadjuvanted RSVPreF3 and preterm birth can be drawn. Results from animal studies with Arexvy or with an investigational unadjuvanted RSVPreF3 vaccine do not indicate direct or indirect harmful effects with respect to developmental and reproductive toxicity (see section 5.3). Arexvy is not recommended during pregnancy.

### Breast-feeding

There are no data on the excretion of Arexvy in human or animal milk. Arexvy is not recommended in breast-feeding/lactating women.

### Fertility

There are no data on the effects of Arexvy on human fertility. Animal studies with Arexvy or with an investigational unadjuvanted RSVPreF3 vaccine do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see section 5.3).

## **4.7 Effects on ability to drive and use machines**

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

Arexvy has a minor influence on the ability to drive and use machines. Some of the effects mentioned under section 4.8 "Undesirable effects" (e.g. fatigue) may temporarily affect the ability to drive or use machines.

## **4.8 Undesirable effects**

### Summary of the safety profile

The safety profile presented in Table 1 is based on a pooled analysis of data generated in two placebo-controlled Phase III clinical studies (conducted in Europe, North America, Asia and Southern hemisphere) in adults  $\geq 60$ , and 50 through 59 years of age, and on post-marketing experience.

In study participants 60 years of age and older (more than 12 000 adults received one dose of Arexvy and more than 12 000 received placebo, with a follow-up period of approximately 12 months), the most commonly reported adverse reactions were injection site pain (61%), fatigue (34%), myalgia (29%), headache (28%), and arthralgia (18%). These adverse reactions were usually mild or moderate in intensity and resolved within a few days after vaccination.

Most other adverse reactions were uncommon and similarly reported between the study groups.

In study participants 50 through 59 years of age (769 participants, including 386 participants with pre-defined, stable, chronic medical conditions leading to an increased risk for RSV disease), a higher incidence of injection site pain (76%), fatigue (40%), myalgia (36%), headache (32%), and arthralgia (23%) was observed, compared with those 60 years of age and older (381 participants) in the same study. However, the duration and severity of these events were comparable across age groups in the study.

#### Tabulated list of adverse reactions

Adverse reactions are listed below by MedDRA system organ class and frequency.

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	( $< 1/10\ 000$ )
Not known	(Cannot be estimated from the available data)

Table 1 presents adverse reactions observed in clinical trials as well as adverse reactions which have been spontaneously reported during the post-marketing use of Arexvy worldwide.

#### **Table 1. Adverse reactions**

<b>System Organ Class</b>	<b>Frequency</b>	<b>Adverse reactions</b>
Blood and lymphatic system disorders	Uncommon	lymphadenopathy
Immune system disorders	Uncommon	hypersensitivity reactions (such as rash)
Nervous system disorders	Very common	headache
	Very rare	Guillain-Barré syndrome
Gastrointestinal disorders	Uncommon	nausea, abdominal pain, vomiting
Musculoskeletal and connective tissue disorders	Very common	myalgia, arthralgia
General disorders and administration site conditions	Very common	injection site pain, injection site erythema , fatigue
	Common	injection site swelling, fever, chills
	Uncommon	injection site pruritus
		pain, malaise
Not known	injection site necrosis <sup>1</sup>	

<sup>1</sup>Adverse reaction from spontaneous reporting.

#### Description of selected adverse reactions

In a US post-marketing observational study in individuals aged 65 years and older, an increased risk of Guillain-Barré syndrome (estimated 7 excess cases per million doses administered) was observed during the 42 days following vaccination with Arexvy.

#### 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.

Any suspected adverse events should be reported to the Ministry of Health according to the National Regulation by using an online form <https://sideeffects.health.gov.il>

Additionally, you should also report to GSK Israel (il.safety@gsk.com).

#### **4.9 Overdose**

No case of overdose has been reported in the clinical studies.

### **5. PHARMACOLOGICAL PROPERTIES**

#### **5.1 Pharmacodynamic properties**

Pharmacotherapeutic group: Vaccines, other viral vaccines, ATC code: J07BX05.

## Mechanism of action

By combining the RSV-specific antigen, F-protein in prefusion conformation, with an adjuvant system (AS01<sub>E</sub>), Arexvy is designed to enhance antigen-specific cellular immune response and neutralizing antibodies response in individuals with pre-existing immunity against RSV. The adjuvant AS01<sub>E</sub> facilitates the recruitment and activation of antigen presenting cells carrying vaccine-derived antigens in the draining lymph node, which in turn leads to the generation of RSVPreF3-specific CD4<sup>+</sup> T cells.

## Efficacy

Efficacy against RSV-associated LRTD in adults 60 years and older was evaluated for up to 3 RSV seasons in a Phase III, randomised, placebo-controlled, observer-blind clinical study conducted in 17 countries from Northern and Southern Hemispheres.

The primary population for efficacy analysis (referred to as the modified Exposed Set) included adults 60 years of age and older who received 1 dose of Arexvy or placebo and who did not report an RSV-confirmed acute respiratory illness [ARI] prior to Day 15 after vaccination.

Overall, 24 960 participants were randomised equally to receive 1 dose of Arexvy (N=12 466) or placebo (N=12 494) during the first season.

Pre-Season 2, participants who received Arexvy during the first season were re-randomised to receive placebo (N= 4 991) or a second dose of Arexvy (N= 4 966). Participants who received placebo before Season 1 received a second dose of placebo before Season 2. The participants were followed up to the end of the third RSV season (median follow-up time 30.6 months).

The median age of participants was 69 years (range: 59 to 102 years), with approximately 74% over 65 years of age, approximately 44% over 70 years of age and approximately 8% over 80 years of age. Approximately 52% were female. At baseline, 39.3% of participants had at least one comorbidity of interest; 19.7% of participants had an underlying cardiorespiratory condition (COPD, asthma, any chronic respiratory/pulmonary disease, or chronic heart failure) and 25.8% of participants had endocrinometabolic conditions (diabetes, advanced liver or renal disease).

Confirmed RSV cases were determined by quantitative Reverse Transcription Polymerase Chain Reaction (qRT-PCR) on nasopharyngeal swab.

LRTD was defined based on the following criteria: the participant must have experienced at least 2 lower respiratory symptoms/signs including at least 1 lower respiratory sign for at least 24 hours, or experienced at least 3 lower respiratory symptoms for at least 24 hours. Lower respiratory symptoms included: new or increased sputum, new or increased cough, new or increased dyspnoea (shortness of breath). Lower respiratory signs included: new or increased wheezing, crackles/rhonchi, respiratory rate  $\geq 20$  respirations/min, low or decreased oxygen saturation ( $O_2$  saturation  $< 95\%$  or  $\leq 90\%$  if baseline is  $< 95\%$ ) or need for oxygen supplementation.

### *Efficacy against RSV-associated LRTD during the first RSV season (confirmatory analysis)*

The primary objective was to demonstrate efficacy in the prevention of a first episode of confirmed RSV-A and/or B associated LRTD during the first RSV season.

Vaccine efficacy overall and by subgroups is presented in Table 2.

Efficacy in preventing first RSV-associated LRTD with an onset from 15 days after vaccination compared to placebo was 82.6% (96.95% confidence interval of 57.9% to 94.1%) in participants 60 years of age and older. Vaccine efficacy against RSV-LRTD was observed through the median follow-up period of 6.7 months. Vaccine efficacy against RSV A-associated LRTD and RSV B-associated LRTD was 84.6% (95% CI [32.1, 98.3]) and 80.9% (95% CI [49.4, 94.3]), respectively.

**Table 2. Efficacy analysis during the first RSV season (confirmatory analysis): First RSV-associated LRTD overall, by age and co-morbidity subgroups (modified Exposed Set)**

Subgroup	Arexvy			Placebo			% Efficacy (CI) <sup>a</sup>
	N	n	Incidence rate per 1 000 person-years	N	n	Incidence rate per 1 000 person-years	
<b>Overall (≥ 60 years)<sup>b</sup></b>	12 466	7	1.0	12 494	40	5.8	82.6 (57.9, 94.1)
<b>60-69 years</b>	6 963	4	1.0	6 979	21	5.5	81.0 (43.6, 95.3)
<b>70-79 years</b>	4 487	1	0.4	4 487	16	6.5	93.8 (60.2, 99.9)
<b>Participants with at least 1 comorbidity of interest</b>	4 937	1	0.4	4 861	18	6.6	94.6 (65.9, 99.9)

<sup>a</sup>CI = Confidence Interval (96.95% for the overall (≥ 60 years) and 95% for all subgroup analyses). Two-sided exact CI for vaccine efficacy is derived based on Poisson model adjusted by age categories and regions.

<sup>b</sup>Confirmatory objective with pre-specified success criterion of lower limit of the 2-sided CI for vaccine efficacy above 20%

N = Number of participants included in each group

n = Number of participants having first occurrence of RSV-confirmed LRTD occurring from Day 15 post vaccination

Vaccine efficacy in the subgroup of participants 80 years of age and older (1 016 participants in Arexvy vs 1 028 participants in placebo) cannot be reliably estimated due to the low number of total cases accrued (5 cases).

Amongst 18 RSV-LRTD cases with at least 2 lower respiratory signs or preventing everyday activities, 4 cases of severe RSV-LRTD requiring oxygen supplementation occurred in the placebo group compared to none in the Arexvy group.

*Efficacy against RSV-associated LRTD over 2 RSV seasons and over 3 RSV seasons*

Participants 60 years of age and older who received 1 dose of Arexvy or placebo were followed over 3 RSV seasons (up to the end of the second and third seasons in the Northern Hemisphere), with a median follow-up time of 17.8 months over 2 RSV seasons and 30.6 months over 3 RSV seasons. Vaccine efficacy against RSV-associated LRTD over 2 RSV seasons was 67.2% (97.5% CI [48.2, 80.0]) and over 3 RSV seasons was 62.9% (97.5% CI [46.7, 74.8]).

Vaccine efficacy against RSV A-associated LRTD and RSV B-associated LRTD over 3 RSV seasons was 69.8% (97.5% CI [42.2, 85.7]) and 58.6% (97.5% CI [35.9, 74.1]), respectively. Vaccine efficacy against RSV-associated LRTD was similar in the subgroup of participants with at least one comorbidity of interest.

A second dose of vaccine administered 12 months after the first dose did not confer additional efficacy benefit.

## Immunogenicity in adults 50 through 59 years of age at increased risk for RSV disease

The non-inferiority of the immune response to Arexvy in adults 50 through 59 years of age compared to adults 60 years of age and older, where vaccine efficacy against RSV-associated LRTD was demonstrated, was evaluated in a Phase III, observer-blind, randomised, placebo-controlled study.

Cohort 1 consisted of participants 50 through 59 years of age separated in 2 sub-cohorts (Adults-AIR and Adults-non-AIR) according to their medical history. Adults-AIR (adults at increased risk) sub-cohort consisted of participants with pre-defined, stable, chronic medical conditions leading to an increased risk for RSV disease (Arexvy, N= 386; placebo, N= 191) such as chronic pulmonary disease, chronic cardiovascular disease, diabetes, chronic kidney or liver disease. Adults-non-AIR sub-cohort consisted of participants without pre-defined, stable, chronic medical conditions (Arexvy, N= 383; placebo, N= 192). Cohort 2 (OA; older adults) consisted of participants 60 years of age and older (Arexvy, N= 381).

The primary immunogenicity objectives were to demonstrate non-inferiority of the humoral immune response (in terms of RSV-A and RSV-B neutralising titres) following the administration of Arexvy at 1-month post-vaccination in participants 50 through 59 years of age with and without pre-defined, stable, chronic medical conditions leading to an increased risk for RSV disease, compared to participants 60 years of age and older.

**Table 3. Summary of adjusted GMT and SRR values, and adjusted GMT ratios and SRR differences in terms of RSV-A and RSV-B neutralising titres (ED60) in adults 60 years of age and older (OA) relative to adults 50 through 59 years of age with (Adults-AIR) and without (Adults-non-AIR) pre-defined, stable, chronic medical conditions<sup>a</sup> leading to an increased risk for RSV disease – Per Protocol Set**

<b>RSV-A neutralising titres (ED60)</b>				
	<b>Adjusted GMT (95% CI)</b>	<b>Adjusted GMT ratio (95% CI)<sup>b</sup></b>	<b>SRR (%) (95% CI)</b>	<b>SRR difference (95% CI)<sup>c</sup></b>
<b>OA</b>	7 440.1 (6 768.4, 8 178.5)	0.8 (0.7, 1.0)	80.4 (75.8, 84.5)	-6.5 (-12.1, -0.9)
<b>Adults-AIR</b>	8 922.7 (8 118.2, 9 806.9)		86.9 (82.8, 90.3)	
<b>OA</b>	7 492.6 (6 819.1, 8 232.7)	1.0 (0.8, 1.1)	80.4 (75.8, 84.5)	-2.4 (-8.3, 3.5)
<b>Adults-non-AIR</b>	7 893.5 (7 167.5, 8 692.9)		82.8 (78.3, 86.8)	
<b>RSV-B neutralising titres (ED60)</b>				
	<b>Adjusted GMT (95% CI)</b>	<b>Adjusted GMT ratio<sup>b</sup></b>	<b>SRR (95% CI)</b>	<b>SRR difference<sup>c</sup></b>
<b>OA</b>	8 062.8 (7 395.9, 8 789.9)	0.8 (95% CI [0.7, 0.9])	74.5 (69.5, 79.0)	-7.2 (95% CI [-13.3, -0.9])
<b>Adults-AIR</b>	10 054.7 (9 225.4, 10 958.7)		81.6 (77.1, 85.6)	
<b>OA</b>	8 058.2 (7 373.1, 8 807.0)	0.9 (97.5% CI [0.8, 1.0])	74.5 (69.5, 79.0)	-3.7 (97.5% CI [-11.1, 3.7])
<b>Adults-non-AIR</b>	9 009.5 (8 226.8, 9 866.6)		78.2 (73.3, 82.6)	

<sup>a</sup> Pre-defined, stable, chronic medical conditions such as chronic pulmonary disease, chronic cardiovascular disease, diabetes, chronic kidney or liver disease.

<sup>b,c</sup> The prespecified criteria for non-inferiority of the immune responses were defined as the 2-sided 95% or 97.5% CI upper limits (UL) on the adjusted GMT ratios (OA over Adults-AIR or Adults-non-AIR)  $\leq 1.5$  and the UL of the 2-sided 95% or 97.5% CI on the SRR difference (OA minus Adults-AIR or Adults-non-AIR)  $\leq 10\%$  in participants 60 years of age and older (OA) relative to participants 50 through 59 years of age with (Adults-AIR) or without (Adults-non-AIR) pre-defined, stable, chronic medical conditions leading to an increased risk for RSV disease

ED60: Estimated dilution 60; CI = Confidence interval; GMT = Geometric mean titre; SRR = Seroresponse rate

The non-inferiority criteria of the immune responses for the RSV-A and RSV-B neutralising titres were met. The efficacy of Arexvy, in adults 50 through 59 years of age at increased risk for RSV disease, can be inferred following comparison of the immune response in adults 50 through 59 years of age with the immune response in adults 60 years of age and older in whom vaccine efficacy was demonstrated.

## **5.2 Pharmacokinetic properties**

Not applicable

## **5.3 Preclinical safety data**

Non-clinical data reveal no special hazard for humans based on conventional studies of repeated dose toxicity.

Reproductive and developmental studies in rabbits with Arexvy or with an unadjuvanted RSVPreF3 vaccine did not reveal vaccine-related effects on female fertility, pregnancy, or embryo-foetal or offspring development.

# **6. PHARMACEUTICAL PARTICULARS**

## **6.1 List of excipients**

### Powder (RSVPreF3 antigen)

Trehalose dihydrate  
Potassium dihydrogen phosphate  
Dipotassium phosphate  
Polysorbate 80

### Suspension (AS01E Adjuvant System)

Sodium chloride  
Potassium dihydrogen phosphate  
Dioleoyl phosphatidylcholine  
Disodium phosphate anhydrous  
Cholesterol  
3-O-desacyl-4'-monophosphoryl lipid A (MPL)  
Purified Quillaja Saponin (QS-21)  
Water for injection

For adjuvant see also section 2

## **6.2 Incompatibilities**

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

## **6.3 Shelf life**

The expiry date of the product is indicated on the packaging materials.

### After reconstitution

Chemical and physical in-use stability has been demonstrated for 4 hours at 2 °C – 8 °C or at room temperature up to 25 °C.

From a microbiological point of view, the product should be used immediately. If not used immediately, in-use storage times and conditions prior to use are the responsibility of the user and should not be longer than 4 hours.

#### 6.4 Special precautions for storage

Store in a refrigerator (2 °C – 8 °C).

Do not freeze.

Store in the original package in order to protect from light.

For storage conditions after reconstitution of the medicinal product, see section 6.3

#### 6.5 Nature and contents of container

Arexvy is presented as:

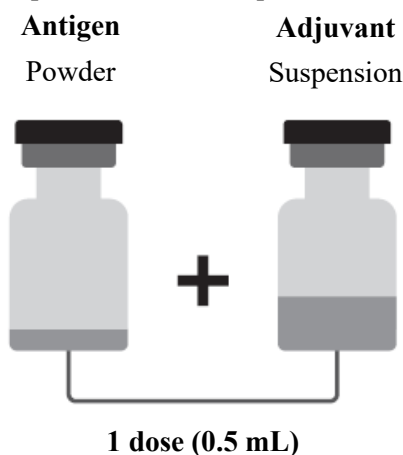
- Powder for 1 dose in a vial (type I glass) with a stopper (butyl rubber) and a mustard green flip-off cap (antigen).
- Suspension for 1 dose in a vial (type I glass) with a stopper (butyl rubber) and a brown flip-off cap (adjuvant).

Arexvy is available in a pack size of 1 vial of powder plus 1 vial of suspension or in a pack size of 10 vials of powder plus 10 vials of suspension.

Not all pack sizes may be marketed.

#### 6.6 Special precautions for disposal and other handling

The powder and the suspension must be reconstituted prior to administration.



The powder and suspension should be inspected visually for any foreign particulate matter and/or variation of appearance. If either is observed, do not reconstitute the vaccine.

#### How to prepare Arexvy

Arexvy must be reconstituted prior to administration.

1. Withdraw the entire contents of the vial containing the suspension into a syringe.
2. Add the entire contents of the syringe into the vial containing the powder.
3. Gently swirl until the powder is completely dissolved.

The reconstituted vaccine is an opalescent, colourless to pale brownish liquid.

The reconstituted vaccine should be inspected visually for any foreign particulate matter and/or variation of appearance. If either is observed, do not administer the vaccine.

Chemical and physical in-use stability has been demonstrated for 4 hours at 2 °C – 8 °C or at room temperature up to 25 °C.

From a microbiological point of view, the product should be used immediately. If not used immediately, in-use storage times and conditions prior to use are the responsibility of the user and should not be longer than 4 hours.

#### Before administration

1. Withdraw 0.5 mL of the reconstituted vaccine into the syringe.
2. Change the needle so that you are using a new needle.

Administer the vaccine intramuscularly.

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

#### **7. MANUFACTURER**

GlaxoSmithKline Biologicals S.A., Rixensart, Belgium

#### **8. LICENSE HOLDER**

GlaxoSmithKline (Israel) Ltd., 25 Basel St., Petach Tikva

#### **9. LICENSE NUMBER**

175-37-37768-00

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Arexvy DR V9