Clinical trial results:
Peanut Oral Immunotherapy Study of Early Intervention for Desensitization (POSEIDON)

Summary

EudraCT number	2018-001749-15
Trial protocol	GB IE FR DE
Global end of trial date	05 July 2022

Results information

Result version number	v1 (current)
This version publication date	26 February 2023
First version publication date	26 February 2023

Trial information

Trial identification

Sponsor protocol code	ARC005

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT03736447
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Aimmune Therapeutics Inc.
Sponsor organisation address	8000 Marina Blvd, Suite 300, Brisbane, United States, 94005
Public contact	Director of Regulatory Affairs, Aimmune Therapeutics Inc, +1 650-409-5164, RegulatoryAffairs@aimmune.com
Scientific contact	Director of Regulatory Affairs, Aimmune Therapeutics Inc, +1 650-409-5164, RegulatoryAffairs@aimmune.com

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	Yes
EMA paediatric investigation plan number(s)	EMEA-001734-PIP01-14
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	14 December 2022
Is this the analysis of the primary completion data?	Yes
Primary completion date	05 July 2022
Global end of trial reached?	Yes
Global end of trial date	05 July 2022
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The primary objective of this study is to determine the efficacy and safety of Characterized Peanut Allergen (AR101) through reduction in clinical reactivity to limited amounts of peanut allergen in peanutallergic children aged 1 to < 4 years.

Protection of trial subjects:

Protocol and ICF were approved by IECs or IRBs and FDA in conformance with US code of Federal Regulations and ICH guidelines. Study was conducted per GCP and Declaration of Helsinki guidelines. Patients or parents /legal guardians of patients were educated on study and to notify sites of allergic symptoms occurring at home. Diary logs for completion at home by patients/families to measure IP compliance and alert sites of Adverse Events of Interest, including accidental exposure or epinephrine pen use.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 November 2018
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	United States: 84
Country: Number of subjects enrolled	United Kingdom: 41
Country: Number of subjects enrolled	Germany: 14
Country: Number of subjects enrolled	France: 7
Worldwide total number of subjects	146
EEA total number of subjects	21

Notes:

Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	49
Children (2-11 years)	97

Adolescents (12-17 years)	0
Adults (18-64 years)	0
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details: -

Pre-assignment

Screening details:

289 subjects were screened and 146 were initially randomized and enrolled in the study. The randomized population consisted of 98 subjects in the AR101 group and 48 subjects in the placebo group. The final intent-to-treat (ITT) population had 146 subjects.

Period 1

Period 1 title	Overall trial (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Subject, Investigator, Monitor, Data analyst, Carer, Assessor

Arms

Are arms mutually exclusive?	Yes
Arm title	AR101

Arm description:

A peanut-derived oral immunotherapy drug

Arm type	Experimental
Investigational medicinal product name	AR101
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral powder
Routes of administration	Oral use

Dosage and administration details:

Pull-apart capsules containing 0.5, 1, 10 or 100 mg peanut protein
Sachets containing 300 mg peanut protein

Arm title	Placebo

Arm description:

Matching placebo

Arm type	Placebo
Investigational medicinal product name	Placebo
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral powder
Routes of administration	Oral use

Dosage and administration details:

Equivalent amount of placebo powder containing inactive ingredients in pull-apart capsules and sachets.

Number of subjects in period 1	AR101	Placebo
Started	98	48
Completed	83	45
Not completed	15	3
Continued commitment to study treatment	3	-
Physician decision	1	-
Consent withdrawn by subject	5	1
Adverse event, non-fatal	5	1
Taste aversion to study product	-	1
Lost to follow-up	1	-

Baseline characteristics

Reporting groups	
Reporting group title	AR101
Reporting group description:	
A peanut-derived oral immunotherapy drug	
Reporting group title	Placebo
Reporting group description:	
Matching placebo	

Reporting group values	AR101	Placebo	Total
Number of subjects	98	48	146
Age categorical Units: Subjects			
1-<2 years	33	16	49
2-<3 years	35	15	50
3-<4 years	30	17	47
Gender categorical Units: Subjects			
Female	41	20	61
Male	57	28	85

End points

End points reporting groups	
Reporting group title	AR101
Reporting group description: A peanut-derived oral immunotherapy drug	
Reporting group title	Placebo
Reporting group description: Matching placebo	

Primary: Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 1000 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)

End point title	Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 1000 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)
End point description: The percentage of subjects in the ITT population who achieve desensitization as determined by tolerating specified challenge doses of peanut protein with no more than mild allergy symptoms during the exit double-blind placebo-controlled food challenge (DBPCFC).	
End point type	Primary
End point timeframe: 12 months	

End point values	AR101	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	98	48		
Units: percentage of subjects				
number (confidence interval 95%)	68.4 (58.2 to 77.4)	4.2 (0.5 to 14.3)		

Statistical analyses

Statistical analysis title	% of subjects who tolerated 1000 mg in DBPCFC
Comparison groups	AR101 v Placebo
Number of subjects included in analysis	146
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001
Method	Farrington-Manning test
Parameter estimate	Risk difference (RD)
Point estimate	64.2

Confidence interval	
level	95 %
sides	2-sided
lower limit	47
upper limit	81.4

Secondary: Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 600 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)

End point title	Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 600 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)

End point description:

The percentage of subjects in the ITT population who achieve desensitization as determined by tolerating specified challenge doses of peanut protein with no more than mild allergy symptoms during the exit double-blind placebo-controlled food challenge (DBPCFC).

End point type	Secondary

End point timeframe:

12 months

End point values	AR101	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	98	48		
Units: percentage of subjects				
number (confidence interval 95%)	73.5 (63.6 to 81.9)	6.3 (1.3 to 17.2)		

Statistical analyses

Statistical analysis title	% of subjects who tolerated 600 mg in DBPCFC
Comparison groups	AR101 v Placebo
Number of subjects included in analysis	146
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001
Method	Farrington-Manning test
Parameter estimate	Risk difference (RD)
Point estimate	67.2
Confidence interval	
level	95 %
sides	2-sided
lower limit	50
upper limit	84.5

Secondary: Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 300 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)

End point title	Percentage of Subjects Who Tolerated a Single Highest Dose of at Least 300 mg in the Exit Double-Blind, Placebo-Controlled Food Challenge (DBPCFC)

End point description:

The percentage of subjects in the ITT population who achieve desensitization as determined by tolerating specified challenge doses of peanut protein with no more than mild allergy symptoms during the exit double-blind placebo-controlled food challenge (DBPCFC).

End point type	Secondary

End point timeframe:

12 months

End point values	AR101	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	98	48		
Units: percentage of subjects				
number (confidence interval 95%)	79.6 (70.3 to 87.1)	22.9 (12.0 to 37.3)		

Statistical analyses

Statistical analysis title	% of subjects who tolerated 300 mg in DBPCFC
Comparison groups	AR101 v Placebo
Number of subjects included in analysis	146
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001
Method	Farrington-Manning test
Parameter estimate	Risk difference (RD)
Point estimate	56.7
Confidence interval	
level	95 %
sides	2-sided
lower limit	39.8
upper limit	73.5

Secondary: Maximum Severity of Symptoms in Participants at Any Challenge Dose During the Exit Double-blind Placebo Controlled Food Challenge (DBPCFC)

End point title	Maximum Severity of Symptoms in Participants at Any Challenge Dose During the Exit Double-blind Placebo Controlled Food Challenge (DBPCFC)

End point description:

The maximum severity of symptoms that occurred at any challenge dose of peanut protein during the exit DBPCFC.

End point type	Secondary

End point timeframe:
12 months

End point values	AR101	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	98	48		
Units: Participants				
None	50	2		
Mild	29	23		
Moderate	17	21		
Severe	2	2		
Life-threatening or fatal	0	0		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information	
Timeframe for reporting adverse events:	
12 months	
Assessment type	Systematic
Dictionary used	
Dictionary name	MedDRA
Dictionary version	21.1
Reporting groups	
Reporting group title	AR101
Reporting group description: -	
Reporting group title	Placebo
Reporting group description: -	

Serious adverse events	AR101	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	7 / 98 (7.14%)	2 / 48 (4.17%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events			
Injury, poisoning and procedural complications			
Carbon monoxide poisoning			
subjects affected / exposed	0 / 98 (0.00%)	1 / 48 (2.08%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Respiratory, thoracic and mediastinal disorders			
Asthma			
subjects affected / exposed	0 / 98 (0.00%)	1 / 48 (2.08%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Infections and infestations			
Enterovirus infection			
subjects affected / exposed	1 / 98 (1.02%)	0 / 48 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Influenza			

subjects affected / exposed	1 / 98 (1.02%)	0 / 48 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Respiratory syncytial virus bronchiolitis			
subjects affected / exposed	1 / 98 (1.02%)	0 / 48 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Status asthmaticus			
subjects affected / exposed	1 / 98 (1.02%)	0 / 48 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Viral infection			
subjects affected / exposed	1 / 98 (1.02%)	0 / 48 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 5 %

Non-serious adverse events	AR101	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	96 / 98 (97.96%)	47 / 48 (97.92%)	
Injury, poisoning and procedural complications			
Arthropod bite			
subjects affected / exposed	7 / 98 (7.14%)	2 / 48 (4.17%)	
occurrences (all)	7	2	
Contusion			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Head injury			
subjects affected / exposed	6 / 98 (6.12%)	1 / 48 (2.08%)	
occurrences (all)	6	1	
Nervous system disorders			
Headache			

subjects affected / exposed	10 / 98 (10.20%)	1 / 48 (2.08%)	
occurrences (all)	10	1	
General disorders and administration site conditions			
Pyrexia			
subjects affected / exposed	50 / 98 (51.02%)	20 / 48 (41.67%)	
occurrences (all)	50	20	
Ear and labyrinth disorders			
Ear pain			
subjects affected / exposed	5 / 98 (5.10%)	3 / 48 (6.25%)	
occurrences (all)	5	3	
Immune system disorders			
Anaphylactic reaction			
subjects affected / exposed	8 / 98 (8.16%)	4 / 48 (8.33%)	
occurrences (all)	8	4	
Seasonal allergy			
subjects affected / exposed	4 / 98 (4.08%)	4 / 48 (8.33%)	
occurrences (all)	4	4	
Eye disorders			
Eye pruritus			
subjects affected / exposed	9 / 98 (9.18%)	5 / 48 (10.42%)	
occurrences (all)	9	5	
Eye swelling			
subjects affected / exposed	9 / 98 (9.18%)	3 / 48 (6.25%)	
occurrences (all)	9	3	
Ocular hyperaemia			
subjects affected / exposed	6 / 98 (6.12%)	2 / 48 (4.17%)	
occurrences (all)	6	2	
Gastrointestinal disorders			
Abdominal pain			
subjects affected / exposed	23 / 98 (23.47%)	6 / 48 (12.50%)	
occurrences (all)	23	6	
Abdominal pain upper			
subjects affected / exposed	14 / 98 (14.29%)	4 / 48 (8.33%)	
occurrences (all)	14	4	
Constipation			

subjects affected / exposed	11 / 98 (11.22%)	5 / 48 (10.42%)	
occurrences (all)	11	5	
Diarrhoea			
subjects affected / exposed	34 / 98 (34.69%)	13 / 48 (27.08%)	
occurrences (all)	34	13	
Flatulence			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Lip swelling			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Nausea			
subjects affected / exposed	5 / 98 (5.10%)	2 / 48 (4.17%)	
occurrences (all)	5	2	
Oral pruritus			
subjects affected / exposed	10 / 98 (10.20%)	2 / 48 (4.17%)	
occurrences (all)	10	2	
Teething			
subjects affected / exposed	10 / 98 (10.20%)	7 / 48 (14.58%)	
occurrences (all)	10	7	
Vomiting			
subjects affected / exposed	52 / 98 (53.06%)	15 / 48 (31.25%)	
occurrences (all)	52	15	
Respiratory, thoracic and mediastinal disorders			
Asthma			
subjects affected / exposed	11 / 98 (11.22%)	7 / 48 (14.58%)	
occurrences (all)	11	7	
Cough			
subjects affected / exposed	52 / 98 (53.06%)	21 / 48 (43.75%)	
occurrences (all)	52	21	
Dysphonia			
subjects affected / exposed	5 / 98 (5.10%)	1 / 48 (2.08%)	
occurrences (all)	5	1	
Nasal congestion			

subjects affected / exposed	14 / 98 (14.29%)	5 / 48 (10.42%)	
occurrences (all)	14	5	
Rhinitis allergic			
subjects affected / exposed	5 / 98 (5.10%)	1 / 48 (2.08%)	
occurrences (all)	5	1	
Rhinorrhoea			
subjects affected / exposed	42 / 98 (42.86%)	15 / 48 (31.25%)	
occurrences (all)	42	15	
Sneezing			
subjects affected / exposed	23 / 98 (23.47%)	9 / 48 (18.75%)	
occurrences (all)	23	9	
Throat irritation			
subjects affected / exposed	8 / 98 (8.16%)	2 / 48 (4.17%)	
occurrences (all)	8	2	
Wheezing			
subjects affected / exposed	14 / 98 (14.29%)	4 / 48 (8.33%)	
occurrences (all)	14	4	
Skin and subcutaneous tissue disorders			
Dermatitis atopic			
subjects affected / exposed	6 / 98 (6.12%)	5 / 48 (10.42%)	
occurrences (all)	6	5	
Dry skin			
subjects affected / exposed	8 / 98 (8.16%)	2 / 48 (4.17%)	
occurrences (all)	8	2	
Eczema			
subjects affected / exposed	24 / 98 (24.49%)	12 / 48 (25.00%)	
occurrences (all)	24	12	
Erythema			
subjects affected / exposed	34 / 98 (34.69%)	17 / 48 (35.42%)	
occurrences (all)	34	17	
Perioral dermatitis			
subjects affected / exposed	17 / 98 (17.35%)	4 / 48 (8.33%)	
occurrences (all)	17	4	
Pruritus			
subjects affected / exposed	27 / 98 (27.55%)	15 / 48 (31.25%)	
occurrences (all)	27	15	

Rash			
subjects affected / exposed	23 / 98 (23.47%)	11 / 48 (22.92%)	
occurrences (all)	23	11	
Rash erythematous			
subjects affected / exposed	8 / 98 (8.16%)	3 / 48 (6.25%)	
occurrences (all)	8	3	
Swelling face			
subjects affected / exposed	5 / 98 (5.10%)	1 / 48 (2.08%)	
occurrences (all)	5	1	
Urticaria			
subjects affected / exposed	51 / 98 (52.04%)	24 / 48 (50.00%)	
occurrences (all)	51	24	
Psychiatric disorders			
Irritability			
subjects affected / exposed	6 / 98 (6.12%)	1 / 48 (2.08%)	
occurrences (all)	6	1	
Infections and infestations			
Conjunctivitis			
subjects affected / exposed	6 / 98 (6.12%)	5 / 48 (10.42%)	
occurrences (all)	6	5	
Coronavirus infection			
subjects affected / exposed	6 / 98 (6.12%)	6 / 48 (12.50%)	
occurrences (all)	6	6	
Ear infection			
subjects affected / exposed	11 / 98 (11.22%)	2 / 48 (4.17%)	
occurrences (all)	11	2	
Gastroenteritis			
subjects affected / exposed	10 / 98 (10.20%)	6 / 48 (12.50%)	
occurrences (all)	10	6	
Gastroenteritis viral			
subjects affected / exposed	8 / 98 (8.16%)	1 / 48 (2.08%)	
occurrences (all)	8	1	
Hand-foot-and-mouth disease			
subjects affected / exposed	5 / 98 (5.10%)	2 / 48 (4.17%)	
occurrences (all)	5	2	
Influenza			

subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Lower respiratory tract infection			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Nasopharyngitis			
subjects affected / exposed	28 / 98 (28.57%)	13 / 48 (27.08%)	
occurrences (all)	28	13	
Rhinitis			
subjects affected / exposed	20 / 98 (20.41%)	8 / 48 (16.67%)	
occurrences (all)	20	8	
Upper respiratory tract infection			
subjects affected / exposed	35 / 98 (35.71%)	13 / 48 (27.08%)	
occurrences (all)	35	13	
Urinary tract infection			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	
Viral infection			
subjects affected / exposed	9 / 98 (9.18%)	5 / 48 (10.42%)	
occurrences (all)	9	5	
Viral upper respiratory tract infection			
subjects affected / exposed	9 / 98 (9.18%)	5 / 48 (10.42%)	
occurrences (all)	9	5	
Metabolism and nutrition disorders			
Decreased appetite			
subjects affected / exposed	5 / 98 (5.10%)	0 / 48 (0.00%)	
occurrences (all)	5	0	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
27 June 2019	Amendment 1.0
02 March 2020	Amendment 2.0
29 May 2020	Amendment 3.0
17 March 2021	Amendment 4.0

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? Yes

Date	Interruption	Restart date
18 March 2020	On the 11 March 2020 the World Health Organization (WHO) declared COVID-19 a global pandemic. On the 18 March 2020, Aimmune notified the sites globally of a halt to screening, enrolment and exit visits. A protocol amendment was submitted on the 29 March 2020 to include an emergency situations appendix. Temporary halt notifications were sent to some countries. It was agreed that prior to sites restarting these specified study procedures, and following the lifting of emergency restrictions, several points needed to be considered to ensure sites are ready to recommence these procedures again onsite: 1. Required Aimmune resources, clinical supplies and related vendor processes are in place and fully functional to restart specified procedures as per protocol. 2. Site can restart inclinic visit procedures/assessments (e.g., screening, updosing, maintenance) as per protocol for all subjects. 3. Site can accommodate and recommence CRA onsite monitoring visits. 4. Site has adequate resources and clinical supplies in place to conduct the required procedures per protocol, including data entry and query resolution. Upon completion of Study Procedure Restart Checklist forms, sites were then able to recommence their study activities. The last site restarted activities on the 13 February 2021.	13 February 2021

Notes:

Limitations and caveats

None reported