Clinical trial results:
A Phase 2b, 8-Week, Parallel Group, Double Blind, Vehicle-Controlled Study of the Safety and Efficacy of ARQ-154 Foam 0.3% Administered QD in Adolescents and Adults with Scalp and Body Psoriasis

Summary

EudraCT number	2019-003354-92
Trial protocol	BG
Global end of trial date	25 September 2020

Results information

Result version number	v1 (current)
This version publication date	19 October 2023
First version publication date	19 October 2023

Trial information

Trial identification

Sponsor protocol code	ARQ-154-204

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04128007
WHO universal trial number (UTN)	-
Other trial identifiers	IND: 142047

Notes:

Sponsors

Sponsor organisation name	Arcutis Biotherapeutics, Inc.
Sponsor organisation address	3027 Townsgate Road, Suite 300, Westlake Village, CA , United States, 91361
Public contact	Clinical Trial Information , Arcutis Biotherapeutics, Inc., +1 805418 5006, information@arcutis.com
Scientific contact	Clinical Trial Information , Arcutis Biotherapeutics, Inc., +1 805418 5006, information@arcutis.com

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
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	25 September 2020
Is this the analysis of the primary completion data?	Yes
Primary completion date	25 September 2020
Global end of trial reached?	Yes
Global end of trial date	25 September 2020
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

This study assessed the safety and efficacy of ARQ-154 foam vs placebo applied once a day for 56 days by subjects with scalp and body psoriasis

Protection of trial subjects:

The study was performed in accordance with ICH GCP and the currently valid Declaration of Helsinki.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	07 January 2020
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Australia: 9
Country: Number of subjects enrolled	Bulgaria: 24
Country: Number of subjects enrolled	Canada: 62
Country: Number of subjects enrolled	United States: 209
Worldwide total number of subjects	304
EEA total number of subjects	24

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)	0
Children (2-11 years)	0
Adolescents (12-17 years)	2
Adults (18-64 years)	302
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details: -

Pre-assignment

Screening details:

Adolescents and adults with plaque psoriasis were enrolled at 46 sites in North America, Australia, and Europe.

Period 1

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

Arms

Are arms mutually exclusive?	Yes
Arm title	Roflumilast Foam 0.3%

Arm description:

Participants applied roflumilast foam 0.3% once daily (QD) for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.

Arm type	Experimental
Investigational medicinal product name	Roflumilast Foam 0.3%
Investigational medicinal product code	
Other name	ARQ-154
Pharmaceutical forms	Cutaneous foam
Routes of administration	Topical

Dosage and administration details:

Roflumilast foam 0.3% applied topically QD for 8 weeks.

Arm title	Vehicle Foam

Arm description:

Participants applied vehicle foam QD for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.

Arm type	Placebo
Investigational medicinal product name	Vehicle Foam
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Cutaneous foam
Routes of administration	Topical

Dosage and administration details:

Vehicle foam matched to roflumilast.

Number of subjects in period 1	Roflumilast Foam 0.3%	Vehicle Foam
Started	200	104
Completed	177	87
Not completed	23	17
Consent withdrawn by subject	9	6
Adverse event, non-fatal	5	2
Not reported	-	2
Lost to follow-up	8	7
Protocol deviation	1	-

Baseline characteristics

Reporting groups	
Reporting group title	Roflumilast Foam 0.3%
Reporting group description:	
Participants applied roflumilast foam 0.3% once daily (QD) for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.	
Reporting group title	Vehicle Foam
Reporting group description:	
Participants applied vehicle foam QD for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.	

Reporting group values	Roflumilast Foam 0.3%	Vehicle Foam	Total
Number of subjects	200	104	304
Age categorical Units: Subjects			
12-17 years	1	1	2
≥18 years	199	103	302
Age continuous Units: years			
arithmetic mean	45.2	45.0	
standard deviation	± 14.22	± 15.76	-
Gender categorical Units: Subjects			
Female	96	47	143
Male	104	57	161
Race Units: Subjects			
Asian	7	4	11
Native Hawaiian or Other Pacific Islander	0	1	1
Black or African American	9	6	15
White	180	91	271
More than one race	1	1	2
Unknown or Not Reported	3	1	4
Ethnicity Units: Subjects			
Hispanic or Latino	38	25	63
Not Hispanic or Latino	161	79	240
Unknown or Not Reporte	1	0	1
Scalp Investigator Global Assessment (S-IGA) Baseline Score			
The S-IGA is 5-point scale assessing the severity of plaque psoriasis on the scalp, with scores ranging from 0 ('clear') to 4 ('severe'). Higher scores indicate greater symptom severity. Two participants in the Roflumilast Foam 0.3% arm did not have baseline S-IGA assessments (n=198).			
Units: Subjects			
0 - Clear	0	0	0
1 - Almost Clear	0	0	0
2 - Mild	18	14	32

3 - Moderate	151	80	231
4 - Severe	29	10	39
Not Recorded	2	0	2
Body Investigator Global Assessment (B-IGA) Baseline Score			
The B-IGA is 5-point scale assessing the severity of plaque psoriasis on the body, with scores ranging from 0 ('clear') to 4 ('severe'). Higher scores indicate greater symptom severity. Two participants in the Roflumilast Foam 0.3% arm did not have baseline B-IGA assessments (n=198).			
Units: Subjects			
0 - Clear	0	0	0
1 - Almost Clear	0	0	0
2 - Mild	69	39	108
3 - Moderate	119	60	179
4 - Severe	10	5	15
Not Recorded	2	0	2
Psoriasis Scalp Severity Index (PSSI) Baseline Score			
The PSSI measures the extent of psoriasis involvement and the severity of erythema, induration, and desquamation of the scalp. Involvement and severity of psoriasis for the PSSI is scored using a scale of 0 to 72, where 0 = no psoriasis and higher scores indicate greater symptom severity. Two participants did not have a baseline PSSI assessment.			
Units: score on a scale			
arithmetic mean	22.4	20.9	
standard deviation	± 12.52	± 11.70	-
Scalp Itch Numeric Rating Scale (SI-NRS) Baseline Score			
The SI-NRS is a simple, single item scale to assess the participant-reported severity of scalp itch, on a scale ranging from 0 ("no itch") to 10 ("worst imaginable itch") the participant experienced in the past 24 hours. Higher scores indicate greater symptom severity.			
Units: score on a scale			
arithmetic mean	6.4	6.6	
standard deviation	± 2.35	± 2.25	-
Psoriasis Symptom Diary (PSD) Total Baseline Score			
The PSD is a 16-item questionnaire asking subjects to rate the severity of psoriasis-related symptoms in the past 24 hours. Each question is scored from 0 ("no symptoms") to 10 ("worst imaginable symptoms"). Scores range from 0 to 160, with higher scores indicating greater symptom severity. Two participants in the Roflumilast Foam 0.3% arm did not have baseline PSD assessments.			
Units: score on a scale			
arithmetic mean	78.5	84.3	
standard deviation	± 39.92	± 38.76	-

End points

End points reporting groups

Reporting group title	Roflumilast Foam 0.3%
Reporting group description:	
Participants applied roflumilast foam 0.3% once daily (QD) for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.	
Reporting group title	Vehicle Foam
Reporting group description:	
Participants applied vehicle foam QD for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.	

Primary: Achievement of Success in the Scalp Investigator Global Assessment (S-IGA) Scale

End point title	Achievement of Success in the Scalp Investigator Global Assessment (S-IGA) Scale
End point description:	
Achievement of success in the S-IGA scale is presented for each arm. Success is defined as an S-IGA score of 0 ('clear') or 1 ('almost clear'), plus a 2-grade improvement from baseline.The S-IGA is 5-point scale assessing the severity of plaque psoriasis on the scalp, with scores ranging from 0 ('clear') to 4 ('severe'). Higher scores indicate greater symptom severity. All randomized participants with S-IGA score at baseline ≥2 and data available are included.	
End point type	Primary
End point timeframe:	
Week 8	

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	181	88		
Units: Participants	107	10		

Statistical analyses

Statistical analysis title	S-IGA Success at Week 8 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	269
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [1]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	14.65

Confidence interval	
level	95 %
sides	2-sided
lower limit	6.64
upper limit	32.32

Notes:

[1] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Primary: Achievement of PSSI-90

End point title	Achievement of PSSI-90

End point description:

Achievement of a 90% reduction from baseline PSSI score (i.e., PSSI-90) is presented for each arm. The PSSI measures the extent of psoriasis involvement and the severity of erythema, induration, and desquamation of the scalp. Involvement and severity of psoriasis for the PSSI is scored using a scale of 0 to 72, where 0 = no psoriasis and higher scores indicate greater symptom severity. Results are based on observed data only. All randomized participants with data available are included.

End point type	Primary

End point timeframe:

Week 8

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	180	87		
Units: Participants	84	3		

Statistical analyses

Statistical analysis title	PSSI-90 at Week 8 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	267
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [2]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	34.45
Confidence interval	
level	95 %
sides	2-sided
lower limit	8.49
upper limit	139.77

Notes:

[2] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Secondary: Achievement of Body Investigator Global Assessment (B-IGA) Success at Week 8

End point title	Achievement of Body Investigator Global Assessment (B-IGA) Success at Week 8

End point description:

Achievement of success in the B-IGA scale is presented for each arm. Success is defined as a B-IGA score of 0 ('clear') or 1 ('almost clear'), plus a 2-grade improvement from baseline. The B-IGA is 5-point scale assessing the severity of plaque psoriasis on the body, with scores ranging from 0 ('clear') to 4 ('severe'). Higher scores indicate greater symptom severity. All randomized participants with data available and baseline B-IGA score ≥2 are included.

End point type	Secondary

End point timeframe:

Week 8

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	181	88		
Units: Participants	73	6		

Statistical analyses

Statistical analysis title	B-IGA Success at Week 8 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	269
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.0001 [3]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	8.8
Confidence interval	
level	95 %
sides	2-sided
lower limit	3.65
upper limit	21.18

Notes:

[3] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Secondary: Achievement of Success in Scalp Itch Numerical Rating Scale (SI-NRS) Score

End point title	Achievement of Success in Scalp Itch Numerical Rating Scale (SI-NRS) Score

End point description:

Achievement of SI-NRS success in participants with a baseline SI-NRS score ≥4 who achieve a ≥4-point improvement from Baseline at Weeks 2, 4, and 8 is presented for each arm. The SI-NRS is a participant-reported rating of severity of itch at its highest intensity during the previous 24-hour period. The scale ranges from 0 ('no itch') to 10 ('worst imaginable itch'), with higher scores indicating greater symptom severity. Results are based on observed data only. All randomized participants with baseline SI-NRS score ≥4 with data available are included.

End point type	Secondary

End point timeframe:
Baseline and Weeks 2, 4, 8

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	166	90		
Units: Percentage of Participants				
number (not applicable)				
Week 2	44.5	15.6		
Week 4	62.0	22.31		
Week 8	71.0	18.5		

Statistical analyses

Statistical analysis title	SI-NRS Success at Week 2 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	256
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [4]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	4.06
Confidence interval	
level	95 %
sides	2-sided
lower limit	2.14
upper limit	7.71

Notes:

[4] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Statistical analysis title	SI-NRS Success at Week 4 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	256
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [5]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	5.36
Confidence interval	
level	95 %
sides	2-sided
lower limit	2.93
upper limit	9.78

Notes:

[5] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Statistical analysis title	SI-NRS Success at Week 8 Odds Ratio
Comparison groups	Vehicle Foam v Roflumilast Foam 0.3%
Number of subjects included in analysis	256
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [6]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	9.74
Confidence interval	
level	95 %
sides	2-sided
lower limit	5.02
upper limit	18.89

Notes:

[6] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Secondary: Change From Baseline in Psoriasis Symptoms Diary (PSD) Score

End point title	Change From Baseline in Psoriasis Symptoms Diary (PSD) Score

End point description:

The change from baseline in total PSD scores at Weeks 4 and 8 is presented for each arm. The PSD is a 16-item questionnaire asking subjects to rate the severity of psoriasis-related symptoms in the past 24 hours. Each question is scored from 0 ("no symptoms") to 10 ("worst imaginable symptoms"). Scores range from 0 to 160, with higher scores indicating greater symptom severity. All randomized participants are included, with multiple imputation used for missing data.

End point type	Secondary

End point timeframe:

Baseline and Weeks 4 and 8

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	200	104		
Units: Score on a scale				
arithmetic mean (confidence interval 95%)				
Week 4	-45.0 (-53.8 to -36.1)	-25.4 (-35.2 to -15.6)		
Week 8	-55.0 (-64.0 to -46.1)	-27.5 (-37.5 to -17.6)		

Statistical analyses

Statistical analysis title	Comparison of Week 4 PSD Change from Baseline
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	304
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [7]
Method	ANCOVA
Parameter estimate	Least Squares (LS) Mean Difference
Point estimate	-19.6
Confidence interval	
level	95 %
sides	2-sided
lower limit	-27.4
upper limit	-11.8

Notes:

[7] - ANCOVA with country; treatment; and baseline S-IGA, B-IGA, and PSD scores as independent variables with multiple imputation of missing data.

Statistical analysis title	Comparison of Week 8 PSD Change from Baseline
Comparison groups	Vehicle Foam v Roflumilast Foam 0.3%
Number of subjects included in analysis	304
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [8]
Method	ANCOVA
Parameter estimate	LS Mean Difference
Point estimate	-27.5
Confidence interval	
level	95 %
sides	2-sided
lower limit	-35.5
upper limit	-19.5

Notes:

[8] - ANCOVA with country; treatment; and baseline S-IGA, B-IGA, and PSD scores as independent variables with multiple imputation of missing data.

Secondary: Time to Achieve a 50% Reduction From Baseline in Psoriasis Scalp Severity Index (PSSI-50) Score

End point title	Time to Achieve a 50% Reduction From Baseline in Psoriasis Scalp Severity Index (PSSI-50) Score

End point description:

The time to achieve PSSI-50 (i.e., a 50% reduction from baseline in PSSI score) is presented for each arm. The PSSI measures the extent of psoriasis involvement and the severity of erythema, induration, and desquamation of the scalp. Involvement and severity of psoriasis for the PSSI is scored using a scale of 0 to 72, where 0 = no psoriasis and higher scores indicating greater symptom severity. All randomized participants are included. A value of '9999' indicates the number of cases is too low to calculate data.

End point type	Secondary

End point timeframe:

Up to 8 weeks

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	200	104[9]		
Units: Days				
median (confidence interval 95%)	28.0 (17.0 to 29.0)	9999 (67 to 9999)		

Notes:

[9] - 9999 denotes not calculable due to low number of cases.

Statistical analyses

Statistical analysis title	Time to PSSI-50 Hazard Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	304
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [10]
Method	Logrank
Parameter estimate	Hazard ratio (HR)
Point estimate	3.94
Confidence interval	
level	95 %
sides	2-sided
lower limit	2.764
upper limit	5.616

Notes:

[10] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization.

Secondary: Achievement of Psoriasis Scalp Severity Index-75 (PSSI-75)

End point title	Achievement of Psoriasis Scalp Severity Index-75 (PSSI-75)

End point description:

Achievement of a 75% reduction in PSSI score (i.e., PSSI-75) from baseline is reported for each arm. The PSSI measures the extent of psoriasis involvement and the severity of erythema, induration, and desquamation of the scalp. Involvement and severity of psoriasis for the PSSI is scored using a scale of 0 to 72, where 0 = no psoriasis and higher scores indicate greater symptom severity. Results are based on observed data only. All randomized participants with data available are included.

End point type	Secondary

End point timeframe:

Week 8

End point values	Roflumilast Foam 0.3%	Vehicle Foam		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	180	87		
Units: Participants	121	19		

Statistical analyses

Statistical analysis title	PSSI-75 at Week 8 Odds Ratio
Comparison groups	Roflumilast Foam 0.3% v Vehicle Foam
Number of subjects included in analysis	267
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.0001 [11]
Method	Cochran-Mantel-Haenszel
Parameter estimate	Odds ratio (OR)
Point estimate	9.46
Confidence interval	
level	95 %
sides	2-sided
lower limit	4.81
upper limit	18.61

Notes:

[11] - Stratified by country, baseline S-IGA, and baseline B-IGA per randomization with multiple imputation of missing data.

Adverse events

Adverse events information[1]

Timeframe for reporting adverse events:

Up to 9 weeks

Adverse event reporting additional description:

All participants who received ≥1 dose of study intervention are included.

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	23.0

Reporting groups

Reporting group title	Roflumilast Foam 0.3%

Reporting group description:

Participants applied roflumilast foam 0.3% once daily (QD) for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.

Reporting group title	Vehicle Foam

Reporting group description:

Participants applied vehicle foam QD for 8 weeks. Areas of application were all areas affected, including the scalp, face, trunk, and intertriginous regions. There was a 1-week follow-up period after completing treatment.

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: No non-serious AEs met the 5% reporting cutoff.

Serious adverse events	Roflumilast Foam 0.3%	Vehicle Foam	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 198 (0.51%)	0 / 104 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events			
Reproductive system and breast disorders			
Testicular torsion			
subjects affected / exposed	1 / 198 (0.51%)	0 / 104 (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	Roflumilast Foam 0.3%	Vehicle Foam	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	0 / 198 (0.00%)	0 / 104 (0.00%)	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
05 February 2020	AM1: The primary purpose was to remove the 10% enrollment limits on Baseline S-IGA & B-IGA mild and severe scores.
22 April 2020	AM2: The primary purpose was to remove the inclusion of S-IGA mild.

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported