Clinical trial results:
A Phase 2a, Randomized, Double-blind, Placebo-controlled, Parallel-arm, Multicenter Study to Evaluate the Efficacy and Safety of CAT-354, a Recombinant Human Monoclonal Antibody Directed against Interleukin-13 (IL-13), on Asthma Control in Adults with Uncontrolled, Moderate-to-severe, Persistent Asthma

Summary

EudraCT number	2008-007844-33
Trial protocol	DE GB BG
Global end of trial date	03 August 2010

Results information

Result version number	v1 (current)
This version publication date	11 May 2016
First version publication date	11 May 2016

Trial information

Trial identification

Sponsor protocol code	MI-CP199

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT00873860
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	MedImmune, LLC
Sponsor organisation address	Milstein Building, Granta Park, Cambridge, United Kingdom, CB21 6GH
Public contact	Rene van de Merwe, Senior Director, Clinical Development, MedImmune, LLC., vandermerwer@medimmune.com
Scientific contact	Rene van de Merwe, Senior Director, Clinical Development, MedImmune, LLC., vandermerwer@medimmune.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	03 August 2010
Is this the analysis of the primary completion data?	No

Global end of trial reached?	Yes
Global end of trial date	03 August 2010
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The primary objective of this study was to evaluate the effect of 3 subcutaneous (SC) treatment regimens of CAT-354 versus placebo on asthma control at Study Day 92 in adults with uncontrolled, moderate-to-severe, persistent asthma.

Protection of trial subjects:

The conduct of this clinical study met all local legal and regulatory requirements. The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki and the International Conference on Harmonization guideline E6: Good Clinical Practice. Participating participant signed informed consent form and could withdraw from the study at any time without any disadvantage and without having to provide a reason for this decision. Only investigators qualified by training and experience were selected as appropriate experts to investigate the study drug.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	04 June 2009
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	Poland: 37
Country: Number of subjects enrolled	Romania: 77
Country: Number of subjects enrolled	Bulgaria: 52
Country: Number of subjects enrolled	Germany: 21
Country: Number of subjects enrolled	United Kingdom: 7
Worldwide total number of subjects	194
EEA total number of subjects	194

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)	0
Adults (18-64 years)	194
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details: -

Pre-assignment

Screening details:

A total of 357 participants were screened in this study, out of which 194 participants were enrolled and randomized.

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, Monitor, Carer

Arms

Are arms mutually exclusive?	Yes
Arm title	Placebo

Arm description:

Placebo matched to CAT-354 subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm type	Placebo
Investigational medicinal product name	Placebo matched to CAT-354
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Participants received Placebo matched to CAT-354 subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm title	CAT-354 150 mg

Arm description:

CAT-354 150 milligram (mg) subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm type	Experimental
Investigational medicinal product name	CAT-354
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Participants received CAT-354 150 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm title	CAT-354 300 mg

Arm description:

CAT-354 300 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm type	Experimental

Investigational medicinal product name	CAT-354
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Participants received CAT-354 300 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm title	CAT-354 600 mg

Arm description:

CAT-354 600 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Arm type	Experimental
Investigational medicinal product name	CAT-354
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Participants received CAT-354 600 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.

Number of subjects in period 1	Placebo	CAT-354 150 mg	CAT-354 300 mg
Started	48	47	51
Treated	47	47	51
Completed	44	47	48
Not completed	4	0	3
Adverse event, serious fatal	1	-	-
Consent withdrawn by subject	1	-	2
Unspecified	1	-	1
Lost to follow-up	1	-	-

Number of subjects in period 1	CAT-354 600 mg
Started	48
Treated	48
Completed	47
Not completed	1
Adverse event, serious fatal	-
Consent withdrawn by subject	-
Unspecified	-
Lost to follow-up	1

Baseline characteristics

Reporting groups	
Reporting group title	Placebo
Reporting group description:	
Placebo matched to CAT-354 subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 150 mg
Reporting group description:	
CAT-354 150 milligram (mg) subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 300 mg
Reporting group description:	
CAT-354 300 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 600 mg
Reporting group description:	
CAT-354 600 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	

Reporting group values	Placebo	CAT-354 150 mg	CAT-354 300 mg
Number of subjects	48	47	51
Age categorical Units: Subjects			
Adults (18-64 years)			

End points

End points reporting groups

Reporting group title	Placebo
Reporting group description:	
Placebo matched to CAT-354 subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 150 mg
Reporting group description:	
CAT-354 150 milligram (mg) subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 300 mg
Reporting group description:	
CAT-354 300 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 600 mg
Reporting group description:	
CAT-354 600 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	

Primary: Change From Baseline in the Mean Asthma Control Questionnaire (ACQ) Score at Day 92

End point title	Change From Baseline in the Mean Asthma Control Questionnaire (ACQ) Score at Day 92
End point description:	
ACQ is a participant-reported questionnaire to assess the asthma control with 6 items assessing night-time waking, symptoms on waking, activity limitation, shortness of breath, wheeze, and rescue short-acting beta agonist use. Each item was rated on a 7-point Likert scale ranging from 0 (no impairment) to 6 (maximum impairment). Overall ACQ score is the mean of the 6 item scores with a score range of 0 (well controlled) to 6 (extremely poor controlled). Data collected on Day 1 prior to dosing was considered as baseline. Results were reported for overall ACQ score. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued prior to receiving 4 doses due to safety reasons. Here, 'n' signifies those participants who were evaluable for this measure at specified time points for each arm, respectively.	
End point type	Primary
End point timeframe:	
Day 1 (baseline), Day 92	

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: units on a scale				
arithmetic mean (standard deviation)				
Day 1 (n=46, 46, 50, 47)	2.63 (± 0.51)	2.72 (± 0.58)	2.62 (± 0.5)	2.72 (± 0.76)
Change at Day 92 (n= 46, 46, 51, 47)	-0.61 (± 0.9)	-0.73 (± 1.12)	-0.7 (± 0.93)	-0.86 (± 1.09)

Statistical analyses

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.573 [1]
Method	ANOVA

Notes:

[1] - Change at Day 92: p-value was based on analysis of variance (ANOVA).

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.64 [2]
Method	ANOVA

Notes:

[2] - Change at Day 92: p-value was based on ANOVA.

Statistical analysis title	Statistical analysis 3
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.224 [3]
Method	ANOVA

Notes:

[3] - Change at Day 92: p-value was based on ANOVA.

Secondary: Time to First Observed Asthma Control	
End point title	Time to First Observed Asthma Control

End point description:

Time to first asthma control defined as number of days from Study Day 1 to the post-baseline ACQ score measurement time point when greater than or equal to (>=) 0.5 reduction from baseline in mean ACQ score was first observed. Time to first asthma control was analyzed from Day 1 through Day 92 and up to entire study duration through Day 169. The ACQ score is a participant-reported questionnaire to assess the asthma control with 6 items assessing night-time waking, symptoms on waking, activity limitation, shortness of breath, wheeze, and rescue short-acting beta agonist use. Each item was rated on 7-point Likert scale ranging from 0 (no impairment) to 6 (maximum impairment). Overall ACQ score is the mean of the 6 item scores with a score range of 0 (well controlled) to 6 (extremely poor controlled). Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons.

End point type	Secondary

End point timeframe:

Day 1 to Day 92 and Day 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: days				
median (confidence interval 95%)				
Day 1 to 92	25.5 (15 to 71)	22 (15 to 43)	15 (15 to 43)	15 (15 to 36)
Day 1 to 169	25.5 (15 to 71)	22 (15 to 43)	15 (15 to 43)	15 (15 to 36)

Statistical analyses

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.4686 [4]
Method	Logrank

Notes:

[4] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.317 [5]
Method	Logrank

Notes:

[5] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 3
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.1664 [6]
Method	Logrank

Notes:

[6] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 4
Comparison groups	Placebo v CAT-354 150 mg

Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.3234 [7]
Method	Logrank

Notes:

[7] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 5
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.3133 [8]
Method	Logrank

Notes:

[8] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 6
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.2108 [9]
Method	Logrank

Notes:

[9] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Secondary: Change from Baseline in Forced Expiratory Volume in 1 Second (FEV1) Recorded at Study Sites at Day 1, 15, 29, 43, 57, 71, 85, 92, 127 and 169

End point title	Change from Baseline in Forced Expiratory Volume in 1 Second (FEV1) Recorded at Study Sites at Day 1, 15, 29, 43, 57, 71, 85, 92, 127 and 169

End point description:

FEV1 is the maximal volume of air exhaled in the first second of a forced expiration from a position of full inspiration. Spirometry was performed with the participant in the sitting/standing (kept consistent at each visit) position at study sites by the investigator or qualified designee according to American Thoracic Society (ATS)/European Respiratory Society (ERS) guidelines. Multiple forced expiratory efforts (at least 3 but no more than 8) were performed for each office spirometry session and the 2 best efforts that met ATS/ERS acceptability and reproducibility criteria were recorded. The best efforts were based on the highest FEV1. The maximum FEV1 of the 2 best efforts was used for the analysis. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons.Here, ''n'' signifies participants evaluable for specified category for each arm, respectively.

End point type	Secondary

End point timeframe:

Day 1 (baseline), 15, 29, 43, 57, 71, 85, 92, 127 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: liters				
arithmetic mean (standard deviation)				
Day 1 (n=46,46,51,47)	1.949 (± 0.479)	2.178 (± 0.661)	1.907 (± 0.586)	1.977 (± 0.646)
Change at Day 15 (n=44,46,50,46)	0.019 (± 0.42)	0.122 (± 0.316)	0.116 (± 0.378)	0.134 (± 0.348)
Change at Day 29 (n=46,46,49,47)	0.051 (± 0.424)	0.138 (± 0.315)	0.149 (± 0.303)	0.222 (± 0.354)
Change at Day 43 (n=45,44,47,47)	0.125 (± 0.399)	0.131 (± 0.38)	0.164 (± 0.358)	0.147 (± 0.373)
Change at Day 57 (n=45,46,49,47)	0.043 (± 0.436)	0.127 (± 0.339)	0.187 (± 0.349)	0.201 (± 0.344)
Change at Day 71 (n=45,45,49,47)	0.047 (± 0.397)	0.158 (± 0.314)	0.179 (± 0.381)	0.19 (± 0.335)
Change at Day 85 (n=45,46,48,47)	0.087 (± 0.397)	0.135 (± 0.342)	0.286 (± 0.393)	0.265 (± 0.473)
Change at Day 92 (n=42,44,49,44)	0.063 (± 0.476)	0.158 (± 0.348)	0.211 (± 0.374)	0.262 (± 0.408)
Change at Day 127 (n=44,44,49,47)	0.094 (± 0.489)	0.144 (± 0.263)	0.241 (± 0.381)	0.237 (± 0.285)
Change at Day 169 (n=42,42,47,47)	0.101 (± 0.442)	0.204 (± 0.378)	0.211 (± 0.394)	0.236 (± 0.366)

Statistical analyses

No statistical analyses for this end point

Secondary: Change From Baseline in Peak Expiratory Flow (PEF) Recorded at Home Every Week From Day 1 to 169

End point title	Change From Baseline in Peak Expiratory Flow (PEF) Recorded at Home Every Week From Day 1 to 169

End point description:

The PEF is a participant’s maximum speed of expiration, as measured with a peak flow meter. Home peak flow testing for PEF was performed every morning while sitting or standing prior to using any medication (if needed) for asthma. Mean of the data was collected over 1 week prior to dosing on Day 1 was considered as baseline. Mean PEF values for each week were used to calculate the change from baseline values starting from Day 2 to 169. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons. Here, 'n' signifies those participants who were evaluable for this measure at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Day -7 to 1 (predose), Day 2 to 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: liters/minute				
arithmetic mean (standard deviation)				
Day -7 to 1 (n=46,46,51,47)	282.63 (± 100.65)	351.06 (± 130.41)	291.54 (± 119.46)	325.23 (± 123.9)
Change in Day 2 to 8 (n=44,46,51,47)	-5.77 (± 22.74)	1.91 (± 23.81)	-4.53 (± 19.02)	5.94 (± 29.93)
Change in Day 9 to 15 (n=45,46,51,47)	-7.46 (± 29.68)	-4.1 (± 28.15)	-2.83 (± 24.4)	5.75 (± 42.34)
Change in Day 16 to 22 (n=45,46,51,47)	-8.94 (± 35.72)	-6.53 (± 32.7)	-0.37 (± 33.85)	10.55 (± 51.26)
Change in Day 23 to 29 (n=44,46,51,47)	-10.53 (± 40.06)	-6.61 (± 37.95)	-0.79 (± 36.94)	10.61 (± 52.64)
Change in Day 30 to 36 (n=45,46,51,47)	-5.69 (± 44.69)	-5.69 (± 41.87)	-1.98 (± 36.06)	6.52 (± 50.15)
Change in Day 37 to 43 (n=44,46,50,47)	-11.08 (± 41.52)	-2 (± 49.76)	-4.07 (± 39.8)	5.55 (± 54.28)
Change in Day 44 to 50 (n=44,46,50,47)	-6.37 (± 41.5)	-9.02 (± 47.51)	-5.3 (± 36.57)	-0.84 (± 50.67)
Change in Day 51 to 57 (n=45,46,50,47)	-7 (± 41.7)	-6.01 (± 47.36)	-4.85 (± 41.27)	-3.57 (± 52.84)
Change in Day 58 to 64 (n=45,46,50,46)	-9.84 (± 38.73)	-2.83 (± 47.42)	-1.42 (± 41.9)	-0.73 (± 55.98)
Change in Day 65 to 71 (n=45,46,50,46)	-11.81 (± 43.87)	-3.98 (± 47.2)	-0.92 (± 49.95)	-1.82 (± 49.79)
Change in Day 72 to 78 (n=44,45,50,47)	-3.72 (± 44.07)	-3.42 (± 53.55)	2.54 (± 45.58)	1.78 (± 49.45)
Change in Day 79 to 85 (n=45,45,50,46)	-10.83 (± 43.99)	-6.67 (± 54.49)	-0.35 (± 40.29)	5.3 (± 60.62)
Change in Day 86 to 92 (n=45,46,50,47)	-3.26 (± 47.36)	-6.66 (± 51.23)	5.04 (± 40.52)	0.31 (± 62.86)
Change in Day 93 to 99 (n=45,46,50,47)	-2.52 (± 47.94)	-4.99 (± 49.91)	5.16 (± 40.99)	7.81 (± 58.29)
Change in Day 100 to 106 (n=44,46,49,47)	-9.6 (± 55.47)	-7.33 (± 52.64)	1.93 (± 43.08)	2 (± 62.18)
Change in Day 107 to 113 (n=44,45,48,47)	-7.53 (± 56.29)	-11.29 (± 57.33)	0.53 (± 45.6)	0.39 (± 61.52)
Change in Day 114 to 120 (n=42,45,47,47)	-2.19 (± 61.74)	-8.97 (± 55.61)	4.85 (± 39.54)	-3.03 (± 59.68)
Change in Day 121 to 127 (n=42,46,46,46)	-3.58 (± 65.64)	-8.99 (± 64.6)	3.61 (± 46.18)	-4.21 (± 57.88)
Change in Day 128 to 134 (n=42,45,45,47)	-4.39 (± 61.22)	-14.81 (± 61.39)	4.62 (± 44.65)	-2.64 (± 56.87)
Change in Day 135 to 141 (n=40,45,47,47)	-0.26 (± 58.83)	-17.03 (± 58.99)	1.11 (± 44.36)	-6.03 (± 63.13)
Change in Day 142 to 148 (n=40,45,47,47)	5.16 (± 66.54)	-11.63 (± 61.02)	-2.69 (± 51.65)	-9.65 (± 65.62)
Change in Day 149 to 155 (n=40,45,46,47)	0.43 (± 60.53)	-9.56 (± 60.13)	-7.65 (± 47.44)	-11.07 (± 62.16)
Change in Day 156 to 162 (n=40,45,46,46)	-1.38 (± 65.53)	-11.6 (± 62.14)	-10.05 (± 43.11)	-10.68 (± 66.86)
Change in Day 163 to 169 (n=37,41,42,40)	-0.36 (± 58.66)	-5.68 (± 60.69)	-4.71 (± 49.29)	-3.23 (± 66.84)

Statistical analyses

No statistical analyses for this end point

Secondary: Number of Puffs of Rescue Beta-2 Agonist Per Week

End point title	Number of Puffs of Rescue Beta-2 Agonist Per Week

End point description:

Number of Puffs of Rescue Beta-2 Agonist Per Week Rescue beta-2 agonist use (total number of puffs for the preceding week) was collected daily in the morning by the participants in the daily diary provided to them. Average values for each week were reported starting from Day -7 to Day 169. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons. Here, 'n' signifies those participants who were evaluable for this measure at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Day -7 to 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: puffs per week				
arithmetic mean (standard deviation)				
Day -7 to 1 (n=46,46, 51,47)	2.58 (± 1.7)	2.84 (± 2.03)	2.04 (± 1.51)	2.62 (± 1.96)
Day 2 to 8 (n=45,46, 51,47)	2.5 (± 1.8)	2.4 (± 2)	1.9 (± 1.5)	2.3 (± 2)
Day 9 to 15 (n=46,46, 51,47)	2.4 (± 1.8)	2.5 (± 2.3)	1.9 (± 1.5)	2.2 (± 2)
Day 16 to 22 (n=46,46, 51,47)	2.6 (± 1.9)	2.2 (± 2)	1.9 (± 1.7)	2.3 (± 2.2)
Day 23 to 29 (n=45,46, 51,47)	2.7 (± 2.1)	2.2 (± 2)	2 (± 1.9)	2.2 (± 2.1)
Day 30 to 36 (n=46,46, 51,47)	2.5 (± 2)	2.1 (± 2.2)	1.9 (± 2)	2 (± 1.9)
Day 37 to 43 (n=45,46, 50,47)	2.4 (± 2)	2.1 (± 2.2)	1.9 (± 2)	2 (± 2)
Day 44 to 50 (n=45,46, 50,47)	2.5 (± 2)	1.9 (± 2.2)	1.7 (± 2)	2 (± 2)
Day 51 to 57 (n=45,46, 50,47)	2.5 (± 2.1)	2 (± 2)	1.8 (± 1.9)	2 (± 2.1)
Day 58 to 64 (n=46,46, 49,46)	2.5 (± 2.2)	1.9 (± 2)	1.9 (± 2)	1.8 (± 2)
Day 65 to 71 (n=46,46, 50,47)	2.7 (± 2.3)	2 (± 2)	1.8 (± 2)	2 (± 1.9)
Day 72 to 78 (n=45,45, 50,46)	2.5 (± 2.2)	2 (± 2)	1.8 (± 2.1)	1.9 (± 1.8)
Day 79 to 85 (n=46,46, 50,46)	2.6 (± 2.3)	2.1 (± 2.1)	1.9 (± 2)	1.8 (± 1.8)
Day 86 to 92 (n=46,46, 50,47)	2.5 (± 2.3)	2 (± 2.1)	1.8 (± 2)	1.7 (± 1.7)
Day 93 to 99 (n=46,46, 50,47)	2.4 (± 2.2)	1.7 (± 2)	1.8 (± 2.1)	1.6 (± 1.8)
Day 100 to 106 (n=45,46, 49,47)	2.3 (± 2.1)	1.9 (± 2.2)	1.7 (± 2.2)	1.8 (± 1.8)
Day 107 to 113 (n=45,45, 48,47)	2.4 (± 2.1)	1.9 (± 2.2)	1.7 (± 1.9)	1.7 (± 1.6)
Day 114 to 120 (n=43,45, 47,47)	2.3 (± 2)	1.9 (± 2.1)	1.7 (± 1.9)	1.7 (± 1.7)
Day 121 to 127 (n=43,46, 46,47)	2.2 (± 1.9)	1.9 (± 2.2)	1.8 (± 2)	1.6 (± 1.6)
Day 128 to 134 (n=44,45, 47,47)	2.2 (± 2.1)	1.8 (± 2)	1.6 (± 1.9)	1.6 (± 1.7)
Day 135 to 141 (n=42,45, 47,47)	2.2 (± 2)	1.9 (± 1.9)	1.7 (± 2)	1.7 (± 1.8)
Day 142 to 148 (n=42,45, 47,47)	2.3 (± 2)	1.9 (± 2.1)	1.8 (± 2)	1.8 (± 1.8)
Day 149 to 155 (n=42,45, 46,47)	2.4 (± 2.2)	1.9 (± 2.1)	1.8 (± 2)	1.8 (± 1.8)
Day 156 to 162 (n=42,45, 46,46)	2.3 (± 2.1)	1.9 (± 2.1)	1.7 (± 2.2)	2 (± 2)
Day 163 to 169 (n=39,41,42,40)	2.7 (± 2.6)	1.9 (± 2.1)	1.6 (± 1.8)	1.7 (± 1.9)

Statistical analyses

No statistical analyses for this end point

Secondary: Asthma Quality of Life Questionnaire (Standardized Version) (AQLQ[S]) Scores

End point title	Asthma Quality of Life Questionnaire (Standardized Version) (AQLQ[S]) Scores

End point description:

AQLQ[S]: a 32-item questionnaire that measures the functional impairments experienced by adult participants including 4 domains (Symptoms, Activity Limitations, Emotional Function, and Environmental Stimuli). Participants were asked to recall their experiences during the previous 2 weeks and to score each of the 32 questions on a 7-point scale ranging from 7 (no impairment) to 1 (severe impairment). The overall score was calculated as the mean response to all questions. The 4 domain scores were the means of the responses to the questions in each of the domains. Overall AQLQ score and 4 domain scores ranged from 7 (no impairment) to 1 (severe impairment). Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons. Here, 'n' signifies those participants who were evaluable for this measure at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Day 1, 29, 57, 92, 127 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: units on a scale				
arithmetic mean (standard deviation)				
Overall : Day 1 (n=41,41,44,39)	4.22 (± 0.83)	3.96 (± 0.89)	4.12 (± 0.8)	4.11 (± 0.94)
Overall: Day 29 (n=43,41,44,40)	4.39 (± 1.04)	4.39 (± 1.01)	4.47 (± 0.97)	4.6 (± 0.91)
Overall: Day 57 (n=44,40,43,45)	4.57 (± 1.03)	4.56 (± 1.15)	4.47 (± 1.05)	4.73 (± 0.96)
Overall: Day 92 (n=40,42,40,38)	4.7 (± 1.16)	4.88 (± 1.31)	4.74 (± 1.15)	4.87 (± 0.99)
Overall: Day 127 (n=41,42,44,42)	4.69 (± 1.22)	4.76 (± 1.29)	4.64 (± 1.11)	4.85 (± 1.13)
Overall: Day 169 (n=41,44,45,44)	4.72 (± 1.29)	4.73 (± 1.26)	4.61 (± 1.27)	4.76 (± 1.13)
Symptom: Day 1 (n=41,41,44,39)	4.15 (± 0.88)	3.89 (± 0.84)	4.11 (± 0.71)	4.08 (± 1.06)
Symptom: Day 29 (n=43,41,44,40)	4.32 (± 1.08)	4.44 (± 1.07)	4.48 (± 0.94)	4.56 (± 1.01)
Symptom: Day 57 (n=44,40,43,45)	4.61 (± 1.02)	4.68 (± 1.23)	4.49 (± 1.05)	4.73 (± 1.05)
Symptom: Day 92 (n=40,42,40,38)	4.77 (± 1.17)	4.88 (± 1.4)	4.78 (± 1.17)	4.92 (± 1.01)
Symptom: Day 127 (n=41,42,44,42)	4.74 (± 1.33)	4.79 (± 1.31)	4.69 (± 1.09)	4.95 (± 1.31)
Symptom: Day 169 (n=41,44,45,44)	4.82 (± 1.3)	4.76 (± 1.29)	4.63 (± 1.26)	4.77 (± 1.31)
Activity Limitation: Day 1 (n=41,41,44,39)	4.38 (± 0.83)	4.07 (± 0.88)	4.13 (± 0.97)	4.15 (± 0.91)
Activity Limitation: Day 29 (n=43,41,44,40)	4.47 (± 1)	4.37 (± 1.07)	4.42 (± 1.08)	4.59 (± 0.92)

Activity Limitation: Day 57 (n=44,40,43,45)	4.57 (± 1.03)	4.42 (± 1.09)	4.41 (± 1.14)	4.74 (± 0.99)
Activity Limitation: Day 92 (n=40,42,40,38)	4.68 (± 1.19)	4.89 (± 1.29)	4.73 (± 1.15)	4.91 (± 1.04)
Activity Limitation: Day 127 (n=41,42,44,42)	4.64 (± 1.2)	4.77 (± 1.32)	4.62 (± 1.13)	4.66 (± 1.08)
Activity Limitation: Day 169 (n=41,44,45,44)	4.68 (± 1.28)	4.76 (± 1.26)	4.54 (± 1.31)	4.7 (± 1.14)
Emotional Function: Day 1 (n=41,41,44,39)	4.3 (± 1.08)	4.2 (± 1.18)	4.45 (± 1.1)	4.29 (± 1.24)
Emotional Function: Day 29 (n=43,41,44,40)	4.64 (± 1.27)	4.82 (± 1.17)	4.82 (± 1.22)	4.88 (± 1.17)
Emotional Function: Day 57 (n=44,40,43,45)	4.85 (± 1.36)	4.98 (± 1.42)	4.87 (± 1.24)	4.99 (± 1.13)
Emotional Function: Day 92 (n=40,42,40,38)	5 (± 1.31)	5.24 (± 1.33)	4.99 (± 1.45)	4.98 (± 1.02)
Emotional Function: Day 127 (n=41,42,44,42)	5.08 (± 1.4)	5.06 (± 1.48)	4.98 (± 1.4)	5.28 (± 1.29)
Emotional Function: Day 169 (n=41,44,45,44)	5.05 (± 1.56)	5 (± 1.5)	5.06 (± 1.39)	5.13 (± 1.28)
Environment stimuli: Day 1 (n=41,41,44,39)	3.88 (± 1.28)	3.55 (± 1.43)	3.7 (± 1.11)	3.85 (± 1.1)
Environment stimuli: Day 29 (n=43,41,44,40)	4.06 (± 1.26)	3.75 (± 1.48)	4.13 (± 1.41)	4.4 (± 1.2)
Environment stimuli: Day 57 (n=44,40,43,45)	4.07 (± 1.34)	4.04 (± 1.36)	4.09 (± 1.43)	4.37 (± 1.49)
Environment stimuli: Day 92 (n=40,42,40,38)	4.16 (± 1.56)	4.44 (± 1.63)	4.31 (± 1.43)	4.47 (± 1.47)
Environment stimuli: Day 127 (n=41,42,44,42)	4.18 (± 1.58)	4.3 (± 1.57)	4.15 (± 1.56)	4.51 (± 1.64)
Environment stimuli: Day 169 (n=41,44,45,44)	4.13 (± 1.54)	4.26 (± 1.5)	4.18 (± 1.76)	4.45 (± 1.51)

Statistical analyses

No statistical analyses for this end point

Secondary: Change From Baseline in Asthma Quality of Life Questionnaire (Standardized Version) (AQLQ[S]) Scores at Day 29, 57, 92, 127 and 169

End point title	Change From Baseline in Asthma Quality of Life Questionnaire (Standardized Version) (AQLQ[S]) Scores at Day 29, 57, 92, 127 and 169

End point description:

AQLQ[S]: a 32-item questionnaire that measures the functional impairments experienced by adult participants including 4 domains (Symptoms, Activity Limitations, Emotional Function, and Environmental Stimuli). Participants were asked to recall their experiences during the previous 2 weeks and to score each of 32 questions on a 7-point scale ranging from 7 (no impairment) to 1 (severe impairment). The overall score calculated as mean response to all questions. The 4 domain scores were means of the responses to questions in each of the domains. Overall AQLQ score and 4 domain scores ranged from 7 (no impairment) to 1 (severe impairment). Data collected on Day 1 prior to dosing considered as baseline. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons. Here, 'n' signifies participants who were evaluable at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Day 1, 29, 57, 92, 127 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: units on a scale				
arithmetic mean (standard deviation)				
Overall: Day 29 (n=34,35,37,31)	0.32 (± 0.65)	0.38 (± 0.64)	0.39 (± 0.88)	0.66 (± 0.76)
Overall: Day 57 (n=33,33,35,34)	0.45 (± 0.77)	0.7 (± 0.99)	0.38 (± 0.95)	0.77 (± 1.04)

Secondary: Patient Global Impression of Change (PGIC)

End point title	Patient Global Impression of Change (PGIC)

End point description:

Patient Global Impression of Change (PGIC): participant rated instrument to measure participant's change in overall status compared to baseline on a 7-point scale; range from 1 (very much worse) to 7 (very much better). Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons. Here, 'n' signifies those participants who were evaluable for this measure at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Day 92 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: units on a scale				
arithmetic mean (standard deviation)				
Day 92 (n=40,42,40,38)	5.1 (± 1.1)	5.3 (± 1.1)	5.3 (± 1)	5.2 (± 1.2)
Day 169 (n=42,44,45,44)	5.1 (± 1.1)	5.3 (± 1.1)	5 (± 1)	5.1 (± 1.3)

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Participants with Mean Asthma Control Questionnaire (ACQ) Score Less Than or Equal to 0.75 or ACQ Score Greater Than 0.75 but Less Than 1.5

End point title	Percentage of Participants with Mean Asthma Control Questionnaire (ACQ) Score Less Than or Equal to 0.75 or ACQ Score Greater Than 0.75 but Less Than 1.5

End point description:

Percentage of participants with mean ACQ score less than or equal to (<=) 0.75 or mean ACQ score greater than (>) 0.75 and less than (<) 1.5 were analyzed. The ACQ is a participant-reported questionnaire to assess the asthma control with 6 items assessing night-time waking, symptoms on waking, activity limitation, shortness of breath, wheeze, and rescue short-acting beta agonist use. Each item was rated on a 7-point Likert scale ranging from 0 (no impairment) to 6 (maximum impairment). Overall ACQ score is the mean of the 6 item scores with a score range of 0 (well controlled) to 6 (extremely poor controlled). Mean ACQ scores of less than or equal to (<=) 0.75 indicated well-controlled asthma, mean ACQ scores greater than (>) 0.75 but less than (<) 1.5 indicated partly controlled asthma. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons.

End point type	Secondary

End point timeframe:

Day 92 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: percentage of participants				
number (not applicable)				
ACQ score<=0.75: Day 92	13	19.6	11.8	17
ACQ score>0.75 and <1.5: Day 92	15.2	13	15.7	19.1
ACQ score<=0.75: Day 169	13	19.6	13.7	19.1
ACQ score>0.75 and <1.5: Day 169	21.7	10.9	17.6	19.1

Statistical analyses

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 150 mg v CAT-354 300 mg v CAT-354 600 mg
Number of subjects included in analysis	190
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.592 [10]
Method	Fisher exact

Notes:

[10] - ACQ score <=0.75, Day 169: Fisher exact test was used to compare all arms.

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg v CAT-354 300 mg v CAT-354 600 mg
Number of subjects included in analysis	190
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.934 [11]
Method	Fisher exact

Notes:

[11] - ACQ score <=0.75, Day 92: Fisher exact test was used to compare all arms.

Secondary: Serum Concentration for CAT-354

End point title	Serum Concentration for CAT-354[12]

End point description:

Pharmacokinetic (PK) population included participants who received CAT-354 and had a sufficient number of serum concentration measurements for computing PK parameters. Here, 'n' signifies those participants evaluable for this measure at specified time points for each group, respectively.

End point type	Secondary

End point timeframe:

Predose on Day 15, 29, 43, 57, 71 and 85; Day 88, 92, 99, 127, and 169

Notes:

[12] - The end point is not reporting statistics for all the arms in the baseline period. It is expected all the baseline period arms will be reported on when providing values for an end point on the baseline period.
Justification: No inferential statistical analysis was planned for this end-point

End point values	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	47	51	48	
Units: microgram per milliliter (mcg/mL)				
arithmetic mean (standard deviation)				
Day 15 (n=46,48,48)	14.5 (± 5.57)	27.8 (± 10.3)	56.4 (± 16)	
Day 29 (n=45,51,47)	20.8 (± 7.2)	40.2 (± 15)	81.9 (± 23.5)	
Day 43 (n=46,50,47)	26.9 (± 12.7)	51 (± 16)	98.5 (± 33.4)	
Day 57 (n=46,48,46)	28.4 (± 11.3)	58.8 (± 20.2)	108 (± 35.8)	
Day 71 (n=46,49,47)	29.3 (± 11.9)	61 (± 21.4)	112 (± 41.2)	
Day 85 (n=45,49,47)	31.1 (± 12.5)	62 (± 23.8)	120 (± 44.5)	
Day 88 (n=46,48,45)	43.4 (± 15.8)	85.7 (± 32.7)	157 (± 56.5)	
Day 92 (n=45,46,45)	42 (± 16.3)	86.8 (± 33.1)	156 (± 46.6)	
Day 99 (n=46,50,46)	31.3 (± 13)	69.3 (± 27.2)	125 (± 41.9)	
Day 127 (n=47,48,47)	11.5 (± 6.02)	22.9 (± 12)	43.7 (± 20.5)	
Day 169 (n=47,48,46)	2.94 (± 2.23)	5.87 (± 3.69)	10.1 (± 6.71)	

Statistical analyses

No statistical analyses for this end point

Secondary: Number of Participants With Anti-Drug Antibodies to CAT-354 at any Visit

End point title	Number of Participants With Anti-Drug Antibodies to CAT-354 at any Visit

End point description:

Safety population included all participants who received any dose of the investigational product. Here, ‘N’(number of participants analyzed) signifies those participants who were evaluable for this measure.

End point type	Secondary

End point timeframe:

Day 1, 92 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	47	47	49	47
Units: participants	0	0	0	0

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Participants With Positive Serum Antibodies to CAT-354 at any Visit

End point title	Percentage of Participants With Positive Serum Antibodies to CAT-354 at any Visit

End point description:

Safety population included all participants who received any dose of the investigational product. Here, 'N'(number of participants analyzed) signifies those participants who were evaluable for this measure.

End point type	Secondary

End point timeframe:

Day 1, 92 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	47	47	49	47
Units: percentage of participants	0	0	0	0

Statistical analyses

No statistical analyses for this end point

Secondary: Number of Participants With Treatment-Emergent Adverse Events (TEAEs) and Treatment-Emergent Serious Adverse Events (TESAEs)

End point title	Number of Participants With Treatment-Emergent Adverse Events (TEAEs) and Treatment-Emergent Serious Adverse Events (TESAEs)

End point description:

An adverse event (AE) was any untoward medical occurrence attributed to study drug in a participant who received study drug. A serious adverse event (SAE) was an AE resulting in any of the following outcomes or deemed significant for any other reason: death; initial or prolonged inpatient hospitalization; life-threatening experience (immediate risk of dying); persistent or significant disability/incapacity; congenital anomaly. Treatment-emergent were events between first dose of study drug and Day 169 that were absent before treatment or that worsened relative to pretreatment state. Safety population included all participants who received any dose of the investigational product.

End point type	Secondary

End point timeframe:

Day 1 to 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	47	47	51	48
Units: participants				
TEAEs	17	20	25	25
TESAEs	3	2	0	1

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Participants With at least 1 Moderate or Severe Exacerbation

End point title	Percentage of Participants With at least 1 Moderate or Severe Exacerbation

End point description:

Asthma exacerbation was defined as either a progressive increase of asthma symptoms (cough, wheeze, chest tightness, and/or shortness of breath) or a reduction of >= 20 percent (%) in PEF or FEV1 from baseline that did not resolve after the initiation of rescue medications and resulted in an administration of systemic corticosteroids by the investigator or health care provider. Asthma exacerbation severity was classified as: 1) Moderate-worsening symptoms that required systemic corticosteroids. 2) Severe-worsening symptoms that required systemic corticosteroids and hospital admission. No separate analyses were performed for moderate and severe exacerbations since only 1 participant had a severe exacerbation. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued prior to receiving 4 doses due to safety reasons.

End point type	Secondary

End point timeframe:

Day 92 and 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: Percentage of Participants				
number (not applicable)				
Day 92	4.3	2.2	2	4.3
Day 169	4.3	4.3	3.9	6.4

Statistical analyses

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 1 [13]
Method	Fisher exact

Notes:

[13] - Day 92: Fisher exact test was used for the analysis.

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 300 mg

Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.6022 [14]
Method	Fisher exact

Notes:
[14] - Day 92: Fisher exact test was used for the analysis.

Statistical analysis title	Statistical analysis 3
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 1 [15]
Method	Fisher exact

Notes:
[15] - Day 92: Fisher exact test was used for the analysis.

Statistical analysis title	Statistical analysis 4
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 1 [16]
Method	Fisher exact

Notes:
[16] - Day 169: Fisher exact test was used for the analysis.

Statistical analysis title	Statistical analysis 5
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 1 [17]
Method	Fisher exact

Notes:
[17] - Day 169: Fisher exact test was used for the analysis.

Statistical analysis title	Statistical analysis 6
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 1 [18]
Method	Fisher exact

Notes:
[18] - Day 169: Fisher exact test was used for the analysis.

Secondary: Moderate or Severe Asthma Exacerbations per Person per Annum

End point title	Moderate or Severe Asthma Exacerbations per Person per Annum

End point description:

Asthma exacerbation was defined as either a progressive increase of asthma symptoms (cough, wheeze, chest tightness, and/or shortness of breath) or a reduction of >=20% in PEF or FEV1 from baseline that did not resolve after the initiation of rescue medications and resulted in an administration of systemic corticosteroids by the investigator or health care provider. Asthma exacerbation rate, calculated as total asthma exacerbations per person per annum, was assessed based on asthma exacerbation data up to Day 92 and 169 (Rate = mean asthma exacerbations for all participants/X days*365 days, where X = 92 or 169). Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons.

End point type	Secondary

End point timeframe:

Day 1 to Day 92 and Day 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: asthma exacerbations/person/annum				
arithmetic mean (standard error)				
Day 1 to 92	0.26 (± 0.19)	0.09 (± 0.09)	0.08 (± 0.08)	0.25 (± 0.19)
Day 1 to 169	0.23 (± 0.19)	0.14 (± 0.1)	0.08 (± 0.06)	0.19 (± 0.11)

Statistical analyses

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.551 [19]
Method	Van Elteren Test

Notes:

[19] - Day 1 to 92: P-value was calculated against placebo group from Van Elteren Test.

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.492 [20]
Method	Van Elteren Test

Notes:

[20] - Day 1 to 92: P-value was calculated against placebo group from Van Elteren Test.

Statistical analysis title	Statistical analysis 3
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.983 [21]
Method	Van Elteren Test

Notes:

[21] - Day 1 to 92: P-value was calculated against placebo group from Van Elteren Test.

Statistical analysis title	Statistical analysis 4
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.991 [22]
Method	Van Elteren Test

Notes:

[22] - Day 1 to 169: P-value was calculated against placebo group from Van Elteren Test.

Statistical analysis title	Statistical analysis 5
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.9 [23]
Method	Van Elteren Test

Notes:

[23] - Day 1 to 169: P-value was calculated against placebo group from Van Elteren Test.

Statistical analysis title	Statistical analysis 6
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.673 [24]
Method	Van Elteren Test

Notes:

[24] - Day 1 to 169: P-value was calculated against placebo group from Van Elteren Test.

Secondary: Time to First Moderate or Severe Asthma Exacerbation	
End point title	Time to First Moderate or Severe Asthma Exacerbation

End point description:

Time to first moderate or severe asthma exacerbation was defined as time to first observed progressive increase of asthma symptoms (cough, wheeze, chest tightness, and/or shortness of breath) or a reduction of >=20% in PEF or FEV1 from baseline that did not resolve after the initiation of rescue medications and resulted in an administration of systemic corticosteroids by the investigator or health care provider. Evaluable population included all participants who received at least 4 doses of investigational product or received at least 1 dose but discontinued treatment due to safety reasons.

End point type	Secondary

End point timeframe:

Day 1 to Day 92 and Day 169

End point values	Placebo	CAT-354 150 mg	CAT-354 300 mg	CAT-354 600 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	46	46	51	47
Units: days				
arithmetic mean (standard error)				
Day 1 to 92	89.67 (± 1.56)	90.43 (± 1.32)	88.16 (± 2.12)	89.94 (± 1.36)
Day 1 to 169	162.24 (± 3.79)	163.5 (± 3.24)	158.29 (± 4.41)	161.21 (± 3.71)

Statistical analyses

Statistical analysis title	Statistical analysis 1
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.546 [25]
Method	Logrank

Notes:

[25] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 2
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.534 [26]
Method	Logrank

Notes:

[26] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 3
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.847 [27]
Method	Logrank

Notes:

[27] - Day 1 to 92: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 4
Comparison groups	Placebo v CAT-354 150 mg
Number of subjects included in analysis	92
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.987 [28]
Method	Logrank

Notes:

[28] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 5
Comparison groups	Placebo v CAT-354 300 mg
Number of subjects included in analysis	97
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.992 [29]
Method	Logrank

Notes:

[29] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Statistical analysis title	Statistical analysis 6
Comparison groups	Placebo v CAT-354 600 mg
Number of subjects included in analysis	93
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.688 [30]
Method	Logrank

Notes:

[30] - Day 1 to 169: P-value was calculated against placebo group from a stratified log-rank test with atopic asthma status and tertile of baseline mean ACQ score as the stratification factors.

Adverse events

Adverse events information	
Timeframe for reporting adverse events: Day 1 to 169	
Adverse event reporting additional description: Safety population included all participants who received any dose of the investigational product.	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	13.0

Reporting groups	
Reporting group title	Placebo
Reporting group description: Placebo matched to CAT-354 subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 600 mg
Reporting group description: CAT-354 600 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 300 mg
Reporting group description: CAT-354 300 mg subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	
Reporting group title	CAT-354 150 mg
Reporting group description: CAT-354 150 milligram (mg) subcutaneous injection once every 2 weeks on Day 1, 15, 29, 43, 57, 71, and 85.	

Serious adverse events	Placebo	CAT-354 600 mg	CAT-354 300 mg
Total subjects affected by serious adverse events			
subjects affected / exposed	3 / 47 (6.38%)	1 / 48 (2.08%)	0 / 51 (0.00%)
number of deaths (all causes)	1	0	0
number of deaths resulting from adverse events	0	0	0
Injury, poisoning and procedural complications			
Contusion			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Overdose			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences causally related to treatment / all	0 / 1	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Cardiac disorders			

subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 0
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0

Serious adverse events	CAT-354 150 mg		
Total subjects affected by serious adverse events			
subjects affected / exposed	2 / 47 (4.26%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		
Injury, poisoning and procedural complications			
Contusion			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences causally related to treatment / all	0 / 3		
deaths causally related to treatment / all	0 / 0		
Overdose			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Cardiac disorders			
Cardio-respiratory arrest			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Nervous system disorders			
Brain injury			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Cerebral haemorrhage			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Gastrointestinal disorders			
Gastrooesophageal reflux disease			

subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Hepatobiliary disorders			
Post cholecystectomy syndrome			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Respiratory, thoracic and mediastinal disorders			
Asthma			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Psychiatric disorders			
Somatoform disorder			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences causally related to treatment / all	0 / 0		
deaths causally related to treatment / all	0 / 0		
Infections and infestations			
Sinusitis			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		

Frequency threshold for reporting non-serious adverse events: 0 %

Non-serious adverse events	Placebo	CAT-354 600 mg	CAT-354 300 mg
Total subjects affected by non-serious adverse events			
subjects affected / exposed	17 / 47 (36.17%)	25 / 48 (52.08%)	25 / 51 (49.02%)
Neoplasms benign, malignant and unspecified (incl cysts and polyps)			
Lipoma			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Vascular disorders			

Hypertension			
subjects affected / exposed	0 / 47 (0.00%)	2 / 48 (4.17%)	1 / 51 (1.96%)
occurrences (all)	0	2	1
Labile hypertension			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Hypertensive crisis			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
General disorders and administration site conditions			
Chest pain			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Influenza like illness			
subjects affected / exposed	2 / 47 (4.26%)	3 / 48 (6.25%)	2 / 51 (3.92%)
occurrences (all)	2	4	2
Infusion site induration			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Injection site erythema			
subjects affected / exposed	1 / 47 (2.13%)	2 / 48 (4.17%)	1 / 51 (1.96%)
occurrences (all)	7	3	1
Injection site induration			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Injection site inflammation			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	2
Injection site pain			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	2 / 51 (3.92%)
occurrences (all)	0	7	8
Injection site pruritus			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Injection site rash			

subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Injection site reaction			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Oedema peripheral			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Pyrexia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Immune system disorders			
Hypersensitivity			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Reproductive system and breast disorders			
Breast pain			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Menopausal disorder			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	1	0	0
Menstruation irregular			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Respiratory, thoracic and mediastinal disorders			
Asthma			
subjects affected / exposed	3 / 47 (6.38%)	6 / 48 (12.50%)	5 / 51 (9.80%)
occurrences (all)	6	9	6
Cough			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Dyspnoea			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Epistaxis			

subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Nasal congestion			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Productive cough			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Oropharyngeal pain			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	2 / 51 (3.92%)
occurrences (all)	0	1	2
Rhinitis allergic			
subjects affected / exposed	1 / 47 (2.13%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	1	2	1
Rhinorrhoea			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Psychiatric disorders			
Acute psychosis			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Nightmare			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Investigations			
Alanine aminotransferase increased			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Blood alkaline phosphatase increased			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Blood bilirubin			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Blood chloride increased			

subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Blood glucose increased			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Blood urea increased			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Gamma-glutamyltransferase increased			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Lymphocyte count decreased			
subjects affected / exposed	3 / 47 (6.38%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	3	1	1
Neutrophil count decreased			
subjects affected / exposed	3 / 47 (6.38%)	2 / 48 (4.17%)	1 / 51 (1.96%)
occurrences (all)	3	2	2
Platelet count decreased			
subjects affected / exposed	1 / 47 (2.13%)	2 / 48 (4.17%)	0 / 51 (0.00%)
occurrences (all)	1	2	0
Reticulocyte count decreased			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Urine analysis abnormal			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
White blood cell count decreased			
subjects affected / exposed	1 / 47 (2.13%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	1	1	1
Injury, poisoning and procedural complications			
Arthropod bite			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Fall			

subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Limb injury			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Muscle rupture			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Nervous system disorders			
Dizziness			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	1	0	1
Headache			
subjects affected / exposed	2 / 47 (4.26%)	6 / 48 (12.50%)	1 / 51 (1.96%)
occurrences (all)	3	7	1
Hypoaesthesia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	2
Intercostal neuralgia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Lethargy			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Sciatica			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Somnolence			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Blood and lymphatic system disorders			
Eosinophilia			
subjects affected / exposed	1 / 47 (2.13%)	3 / 48 (6.25%)	0 / 51 (0.00%)
occurrences (all)	1	3	0
Leukopenia			

subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	2	0	0
Monocytopenia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Monocytosis			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Neutropenia			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	1	0	0
Ear and labyrinth disorders			
Ear pain			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Eye disorders			
Conjunctivitis			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	2	0
Keratitis			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Gastrointestinal disorders			
Abdominal pain			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	1	0	0
Abdominal pain lower			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Diarrhoea			
subjects affected / exposed	0 / 47 (0.00%)	5 / 48 (10.42%)	0 / 51 (0.00%)
occurrences (all)	0	6	0
Gastritis			
subjects affected / exposed	1 / 47 (2.13%)	2 / 48 (4.17%)	0 / 51 (0.00%)
occurrences (all)	1	2	0
Nausea			

subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Odynophagia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Vomiting			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Hepatobiliary disorders			
Biliary colic			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Biliary dyskinesia			
subjects affected / exposed	1 / 47 (2.13%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	1	1	1
Hyperbilirubinaemia			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	1	0	0
Skin and subcutaneous tissue disorders			
Dermatitis contact			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Pruritus			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Renal and urinary disorders			
Crystalluria			
subjects affected / exposed	0 / 47 (0.00%)	3 / 48 (6.25%)	1 / 51 (1.96%)
occurrences (all)	0	3	1
Haematuria			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Leukocyturia			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Nitrituria			

subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Urinary tract inflammation			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Musculoskeletal and connective tissue disorders			
Arthralgia			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	1	0	1
Back pain			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Muscle spasms			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Muscle tightness			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Musculoskeletal chest pain			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Pain in extremity			
subjects affected / exposed	1 / 47 (2.13%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	1	0	2
Infections and infestations			
Acute tonsillitis			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Bacteriuria			
subjects affected / exposed	0 / 47 (0.00%)	4 / 48 (8.33%)	2 / 51 (3.92%)
occurrences (all)	0	4	2
Bronchitis			
subjects affected / exposed	3 / 47 (6.38%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	3	0	1
Escherichia infection			

subjects affected / exposed

subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	2 / 51 (3.92%)
occurrences (all)	0	1	2
Tonsillitis			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Tooth abscess			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Tooth infection			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Upper respiratory tract infection			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	1 / 51 (1.96%)
occurrences (all)	0	0	1
Urinary tract infection			
subjects affected / exposed	0 / 47 (0.00%)	2 / 48 (4.17%)	1 / 51 (1.96%)
occurrences (all)	0	2	1
Urinary tract infection bacterial			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Viral infection			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Vulvovaginitis			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	0	1	0
Metabolism and nutrition disorders			
Hypercholesterolaemia			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0
Hyperglycaemia			
subjects affected / exposed	0 / 47 (0.00%)	1 / 48 (2.08%)	1 / 51 (1.96%)
occurrences (all)	0	1	1
Hypocalcaemia			
subjects affected / exposed	1 / 47 (2.13%)	1 / 48 (2.08%)	0 / 51 (0.00%)
occurrences (all)	1	1	0

Type 2 diabetes mellitus			
subjects affected / exposed	0 / 47 (0.00%)	0 / 48 (0.00%)	0 / 51 (0.00%)
occurrences (all)	0	0	0

Non-serious adverse events	CAT-354 150 mg		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	19 / 47 (40.43%)		
Neoplasms benign, malignant and unspecified (incl cysts and polyps)			
Lipoma			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Vascular disorders			
Hypertension			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Labile hypertension			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Hypertensive crisis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
General disorders and administration site conditions			
Chest pain			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Influenza like illness			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Infusion site induration			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Injection site erythema			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Injection site induration			

subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Injection site inflammation			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Injection site pain			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	3		
Injection site pruritus			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Injection site rash			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Injection site reaction			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Oedema peripheral			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Pyrexia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Immune system disorders			
Hypersensitivity			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Reproductive system and breast disorders			
Breast pain			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Menopausal disorder			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Menstruation irregular			

subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Respiratory, thoracic and mediastinal disorders			
Asthma			
subjects affected / exposed	5 / 47 (10.64%)		
occurrences (all)	9		
Cough			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Dyspnoea			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Epistaxis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Nasal congestion			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Productive cough			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Oropharyngeal pain			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Rhinitis allergic			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	4		
Rhinorrhoea			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Psychiatric disorders			
Acute psychosis			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Nightmare			

subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Investigations			
Alanine aminotransferase increased			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Blood alkaline phosphatase increased			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Blood bilirubin			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Blood chloride increased			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Blood glucose increased			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Blood urea increased			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Gamma-glutamyltransferase increased			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Lymphocyte count decreased			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Neutrophil count decreased			
subjects affected / exposed	3 / 47 (6.38%)		
occurrences (all)	3		
Platelet count decreased			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Reticulocyte count decreased			

subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Urine analysis abnormal			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
White blood cell count decreased			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Injury, poisoning and procedural complications			
Arthropod bite			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Fall			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Limb injury			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Muscle rupture			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Nervous system disorders			
Dizziness			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Headache			
subjects affected / exposed	6 / 47 (12.77%)		
occurrences (all)	8		
Hypoaesthesia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Intercostal neuralgia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Lethargy			

subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Sciatica			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Somnolence			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	5		
Blood and lymphatic system disorders			
Eosinophilia			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Leukopenia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Monocytopenia			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Monocytosis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Neutropenia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Ear and labyrinth disorders			
Ear pain			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Eye disorders			
Conjunctivitis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Keratitis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Gastrointestinal disorders			

Abdominal pain			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Abdominal pain lower			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Diarrhoea			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Gastritis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Nausea			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Odynophagia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Vomiting			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Hepatobiliary disorders			
Biliary colic			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Biliary dyskinesia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Hyperbilirubinaemia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Skin and subcutaneous tissue disorders			
Dermatitis contact			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Pruritus			

subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Renal and urinary disorders			
Crystalluria			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Haematuria			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Leukocyturia			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Nitrituria			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Urinary tract inflammation			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Musculoskeletal and connective tissue disorders			
Arthralgia			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Back pain			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Muscle spasms			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Muscle tightness			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Musculoskeletal chest pain			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Pain in extremity			

subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Infections and infestations			
Acute tonsillitis			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Bacteriuria			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Bronchitis			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Escherichia infection			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Gastroenteritis			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
H1n1 influenza			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Influenza			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Laryngitis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Lower respiratory tract infection			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Nasopharyngitis			
subjects affected / exposed	3 / 47 (6.38%)		
occurrences (all)	5		
Otitis media acute			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		

Pharyngitis			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	2		
Pharyngitis bacterial			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Respiratory tract infection			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Respiratory tract infection viral			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Rhinitis			
subjects affected / exposed	2 / 47 (4.26%)		
occurrences (all)	3		
Tonsillitis			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Tooth abscess			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Tooth infection			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Upper respiratory tract infection			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		
Urinary tract infection			
subjects affected / exposed	3 / 47 (6.38%)		
occurrences (all)	3		
Urinary tract infection bacterial			
subjects affected / exposed	1 / 47 (2.13%)		
occurrences (all)	1		
Viral infection			
subjects affected / exposed	0 / 47 (0.00%)		
occurrences (all)	0		

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
12 March 2009	- Modified the description of the gene and protein expression analyses to be performed as part of the exploratory analyses. - The upper age limit for participants in the study was increased to 65 years from 55 years - The inclusion criteria was modified: 1. To place an upper limit for predicted prebronchodilator FEV1 value of less than or equal to (<=)) 80% of individual predicted value at Visits 1 and 3. 2. Provide clarification to ensure that only participants with uncontrolled asthma. 3. Clarified that participants should have an ACQ score >= 1.5 at Visits 1 and 3. 4. Clarified for the requirement for a chest x-ray from the previous 12 months that had no findings suggestive of acute or chronic respiratory pathology other than asthma. - Exclusion criteria was amended: 1. For the modification to exclude participants with a history of ingestion of untreated water in a location known to be infected with parasites, resulting in acute or chronic diarrhea; or a diagnosis of parasitic infection within 6 months prior to screening rather than 1 month prior to randomization as previously stated. 2. To change from a history of primary immunodeficiency to a history of any known immunodeficiency disorder. 3. Addition of positive hepatitis B surface antigen, or hepatitis C virus antibody, as determined by medical history and/or participant's verbal report, A positive human immunodeficiency virus test or is taking antiretroviral medications, as determined by medical history and/or participant's verbal report. - Protocol was revised to specify that the SC injections of investigational product were to be administered into the SC tissue of the anterior thigh rather than the triceps muscle as previously written. - Gamma-glutamyl transferase was added to the serum chemistry panel. -Definition of asthma exacerbation and resolution of asthma exacerbation was modified. - Text stating that acute exacerbations were to be reported separately was been deleted from the protocol.
18 November 2009	Modified the description of the gene and protein expression analyses to be performed as part of the exploratory analyses. - The inclusion criteria was modified: 1. To remove the upper limit on the prebronchodilator FEV1 value of greater than or equal to (>=) 40 % and <= 80% of individual predicted value at Visits 1 and 3. 2. To increase the upper limit of body mass index (BMI) 35 to 40 kilogram per meter square (kg/m^2). 3. The use of a condom by a male sexual partner of a female subject of childbearing potential was added to the list of acceptable methods of contraception. - Additional criteria for allowing one repeat screening visit was added to the protocol. - The requirements to withhold agents prior to spirometry were clarified to be consistent with the recommendations of the American Thoracic Society/European Respiratory Society (ATS/ERS) Task Force. - The text describing visits for participants who prematurely discontinue the study was clarified. - The language describing blinding and the planned Stage 1 analysis was clarified to make it clear that group level unblinded data from the Stage 1 analysis would not be shared outside the sponsor.

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported