Clinical trial results:
A Phase 2a Double-Blind, Randomized, Placebo-Controlled Study to Evaluate the Efficacy and Safety of MK-1654 in Healthy Participants Inoculated with Experimental Respiratory Syncytial Virus

Summary

EudraCT number	2018-003347-28
Trial protocol	GB
Global end of trial date	14 August 2020

Results information

Result version number	v1 (current)
This version publication date	05 June 2021
First version publication date	05 June 2021

Trial information

Trial identification

Sponsor protocol code	MK-1654-005

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04086472
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Merck Sharp & Dohme Corp.
Sponsor organisation address	2000 Galloping Hill Road, Kenilworth, NJ, United States, 07033
Public contact	Clinical Trials Disclosure, Merck Sharp & Dohme Corp., ClinicalTrialsDisclosure@merck.com
Scientific contact	Clinical Trials Disclosure, Merck Sharp & Dohme Corp., ClinicalTrialsDisclosure@merck.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	22 March 2020
Is this the analysis of the primary completion data?	Yes
Primary completion date	22 March 2020
Global end of trial reached?	Yes
Global end of trial date	14 August 2020
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The primary objective of this study is to determine if a single intravenous (IV) dose of MK-1654 when administered at 1 of 4 dose levels results in a reduction in viral load after intranasal inoculation (with respiratory syncytial virus [RSV] A Memphis 37b) compared to IV placebo. It is hypothesized that at least 1 of the 4 dose levels of MK-1654 given prior to inoculation will reduce the area under the viral load-time curve (VL-AUC) from Day 2 through Day 11 (inclusive) after viral inoculation (Study Day 31 through Day 40) compared to placebo.

Protection of trial subjects:

This study was conducted in conformance with Good Clinical Practice standards and applicable country and/or local statutes and regulations regarding ethical committee review, informed consent, and the protection of human subjects participating in biomedical research.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	28 October 2019
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	United Kingdom: 80
Worldwide total number of subjects	80
EEA total number of subjects	0

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)	80
From 65 to 84 years	0

85 years and over	0

Subject disposition

Recruitment

Recruitment details: -

Pre-assignment

Screening details:

Healthy adult male and female participants were recruited at a single study site in the United Kingdom.

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	Investigator, Assessor, Subject

Arms

Are arms mutually exclusive?	Yes
Arm title	MK-1654 100 mg

Arm description:

Participants receive a single IV infusion of MK-1654 100 mg on Day 1.

Arm type	Experimental
Investigational medicinal product name	MK-1654
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

Single dose of MK-1654 administered via IV infusion.

Investigational medicinal product name	RSV-A Memphis 37b
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Inhalation solution
Routes of administration	Intranasal use

Dosage and administration details:

Approximately 4Log10 plaque-forming units (PFU)/mL RSV-A virus inoculation strain Memphis 37b administered via intranasal inoculation.

Arm title	MK-1654 200 mg

Arm description:

Participants receive a single IV infusion of MK-1654 200 mg on Day 1.

Arm type	Experimental
Investigational medicinal product name	RSV-A Memphis 37b
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Inhalation solution
Routes of administration	Intranasal use

Dosage and administration details:

Approximately 4Log10 PFU/mL RSV-A virus inoculation strain Memphis 37b administered via intranasal inoculation.

Investigational medicinal product name	MK-1654
Investigational medicinal product code	
Other name	

Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

Single dose of MK-1654 administered via IV infusion.

Arm title	MK-1654 300 mg

Arm description:

Participants receive a single IV infusion of MK-1654 300 mg on Day 1.

Arm type	Experimental
Investigational medicinal product name	MK-1654
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

Single dose of MK-1654 administered via IV infusion.

Investigational medicinal product name	RSV-A Memphis 37b
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Inhalation solution
Routes of administration	Intranasal use

Dosage and administration details:

Approximately 4Log10 PFU/mL RSV-A virus inoculation strain Memphis 37b administered via intranasal inoculation.

Arm title	MK-1654 900 mg

Arm description:

Participants receive a single IV infusion of MK-1654 900 mg on Day 1.

Arm type	Experimental
Investigational medicinal product name	MK-1654
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

Single dose of MK-1654 administered via IV infusion.

Investigational medicinal product name	RSV-A Memphis 37b
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Inhalation solution
Routes of administration	Intranasal use

Dosage and administration details:

Approximately 4Log10 PFU/mL RSV-A virus inoculation strain Memphis 37b administered via intranasal inoculation.

Arm title	Placebo

Arm description:

Participants receive a single IV infusion of placebo on Day 1.

Arm type	Placebo

Investigational medicinal product name	Placebo
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

Placebo (0.9% sodium chloride, United States Pharmacopeia [USP] sterile saline) administered via IV infusion.

Investigational medicinal product name	RSV-A Memphis 37b
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Inhalation solution
Routes of administration	Intranasal use

Dosage and administration details:

Approximately 4Log10 PFU/mL RSV-A virus inoculation strain Memphis 37b administered via intranasal inoculation.

Number of subjects in period 1	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg
Started	16	16	16
Received MK-1654 or Placebo	16	16	16
Inoculated w/ RSV A Memphis 37b	14	14	14
Not Inoculated	2 [1]	2 [2]	2 [3]
Completed	12	14	14
Not completed	4	2	2
Consent withdrawn by subject	1	1	1
Physician decision	-	1	1
Various reasons	2	-	-
Lost to follow-up	1	-	-

Number of subjects in period 1	MK-1654 900 mg	Placebo
Started	16	16
Received MK-1654 or Placebo	16	16
Inoculated w/ RSV A Memphis 37b	13	15
Not Inoculated	3 [4]	1 [5]
Completed	13	14
Not completed	3	2
Consent withdrawn by subject	-	-
Physician decision	-	-
Various reasons	3	1
Lost to follow-up	-	1

Notes:

[1] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.
Justification: A subset of participants received MK-1654 or placebo, but were not inoculated with RSV A Memphis 37b.

[2] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.
Justification: A subset of participants received MK-1654 or placebo, but were not inoculated with RSV A Memphis 37b.

[3] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.
Justification: A subset of participants received MK-1654 or placebo, but were not inoculated with RSV A Memphis 37b.

[4] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.
Justification: A subset of participants received MK-1654 or placebo, but were not inoculated with RSV A Memphis 37b.

[5] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.
Justification: A subset of participants received MK-1654 or placebo, but were not inoculated with RSV A Memphis 37b.

Baseline characteristics

Reporting groups	
Reporting group title	MK-1654 100 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 100 mg on Day 1.	
Reporting group title	MK-1654 200 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 200 mg on Day 1.	
Reporting group title	MK-1654 300 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 300 mg on Day 1.	
Reporting group title	MK-1654 900 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 900 mg on Day 1.	
Reporting group title	Placebo
Reporting group description:	
Participants receive a single IV infusion of placebo on Day 1.	

Reporting group values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg
Number of subjects	16	16	16
Age categorical Units: Subjects			
Adults (18-64 years)	16	16	16
Age Continuous Units: Years			
arithmetic mean	30.4	27.1	27.6
standard deviation	± 6.9	± 8.3	± 8.7
Sex: Female, Male Units:			
Female	4	5	12
Male	12	11	4
Race (NIH/OMB) Units: Subjects			
American Indian or Alaska Native	0	0	0
Asian	1	2	0
Native Hawaiian or Other Pacific Islander	0	0	0
Black or African American	0	1	0
White	14	11	14
More than one race	1	2	2
Unknown or Not Reported	0	0	0
Ethnicity (NIH/OMB) Units: Subjects			
Hispanic or Latino	1	0	0
Not Hispanic or Latino	15	16	16
Unknown or Not Reported	0	0	0

Reporting group values	MK-1654 900 mg	Placebo	Total

Number of subjects	16	16	80
Age categorical Units: Subjects			
Adults (18-64 years)	16	16	80
Age Continuous Units: Years			
arithmetic mean	26.4	25.3	
standard deviation	± 4.5	± 4.1	-
Sex: Female, Male Units:			
Female	5	9	35
Male	11	7	45
Race (NIH/OMB) Units: Subjects			
American Indian or Alaska Native	0	0	0
Asian	1	1	5
Native Hawaiian or Other Pacific Islander	0	0	0
Black or African American	0	0	1
White	15	14	68
More than one race	0	1	6
Unknown or Not Reported	0	0	0
Ethnicity (NIH/OMB) Units: Subjects			
Hispanic or Latino	0	0	1
Not Hispanic or Latino	16	16	79
Unknown or Not Reported	0	0	0

End points

End points reporting groups	
Reporting group title	MK-1654 100 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 100 mg on Day 1.	
Reporting group title	MK-1654 200 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 200 mg on Day 1.	
Reporting group title	MK-1654 300 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 300 mg on Day 1.	
Reporting group title	MK-1654 900 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 900 mg on Day 1.	
Reporting group title	Placebo
Reporting group description:	
Participants receive a single IV infusion of placebo on Day 1.	

Primary: Area Under the Viral Load-time Curve (VL-AUC)

End point title	Area Under the Viral Load-time Curve (VL-AUC)
End point description:	
The VL-AUC will be determined by reverse transcription qualitative integrated cycler polymerase chain reaction (RT-qPCR) after viral inoculation. All randomized participants who received a dose of study drug, a RSV inoculation, and had data available are included.	
End point type	Primary
End point timeframe:	
10 days; from Day 2 through Day 11 (inclusive) after viral inoculation (Study Day 31 through Day 40)	

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	13	13	14	13
Units: log10 copies-/ml*days				
least squares mean (confidence interval 95%)	19.94 (12.11 to 27.78)	14.74 (6.90 to 22.58)	16.44 (8.89 to 23.99)	15.33 (7.50 to 23.17)

End point values	Placebo			
Subject group type	Reporting group			
Number of subjects analysed	15			
Units: log10 copies-/ml*days				
least squares mean (confidence interval 95%)	21.25 (13.96 to 28.55)			

Statistical analyses

Statistical analysis title	MK-1654 100 mg vs. Placebo
Comparison groups	MK-1654 100 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
P-value	= 0.808
Method	ANOVA
Parameter estimate	Least squares (LS) Mean Difference
Point estimate	-1.31
Confidence interval	
level	90 %
sides	2-sided
lower limit	-10.25
upper limit	7.64

Statistical analysis title	MK-1654 200 mg vs. Placebo
Comparison groups	MK-1654 200 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
P-value	= 0.229
Method	ANOVA
Parameter estimate	LS Mean Difference
Point estimate	-6.51
Confidence interval	
level	90 %
sides	2-sided
lower limit	-15.46
upper limit	2.43

Statistical analysis title	MK-1654 300 mg vs. Placebo
Comparison groups	MK-1654 300 mg v Placebo

Number of subjects included in analysis	29
Analysis specification	Pre-specified
Analysis type	
P-value	= 0.363
Method	ANOVA
Parameter estimate	LS Mean Difference
Point estimate	-4.81
Confidence interval	
level	90 %
sides	2-sided
lower limit	-13.58
upper limit	3.96

Statistical analysis title	MK-16654 900 mg vs. Placebo
Comparison groups	MK-1654 900 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
P-value	= 0.273
Method	ANOVA
Parameter estimate	LS Mean Difference
Point estimate	-5.92
Confidence interval	
level	90 %
sides	2-sided
lower limit	-14.87
upper limit	3.02

Secondary: Percentage of Participants with Symptomatic Respiratory Syncytial Virus (RSV) Infection

End point title	Percentage of Participants with Symptomatic Respiratory Syncytial Virus (RSV) Infection

End point description:

Symptomatic RSV infection is defined as presence of at least 2 quantifiable RT-qPCR at ≥2 consecutive days, plus symptoms of either any grade from 2 different symptoms from the Subject Symptom Card (SSC) or at least one Grade 2 symptom from ≥1 respiratory categories. All randomized participants who received a dose of study drug, a RSV inoculation, and had data available are included.

End point type	Secondary

End point timeframe:

10 days; from Day 2 through Day 11 (inclusive) after viral inoculation (Study Day 31 through Day 40)

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	13	13	14	13
Units: Percentage of Participants				
number (confidence interval 95%)	53.85 (25.13 to 80.78)	30.77 (9.09 to 61.43)	35.71 (12.76 to 64.86)	30.77 (9.09 to 61.43)

End point values	Placebo			
Subject group type	Reporting group			
Number of subjects analysed	15			
Units: Percentage of Participants				
number (confidence interval 95%)	53.33 (26.59 to 78.73)			

Statistical analyses

Statistical analysis title	MK-1654 100 mg vs. Placebo
Comparison groups	MK-1654 100 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
Parameter estimate	Difference in percentage
Point estimate	0.51
Confidence interval	
level	95 %
sides	2-sided
lower limit	-36.57
upper limit	37.78

Statistical analysis title	MK-1654 200 mg vs. Placebo
Comparison groups	MK-1654 200 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
Parameter estimate	Difference in percentage
Point estimate	-22.56
Confidence interval	
level	95 %
sides	2-sided
lower limit	-56.7
upper limit	15.53

Statistical analysis title	MK-1654 300 mg vs. Placebo
Comparison groups	MK-1654 300 mg v Placebo
Number of subjects included in analysis	29
Analysis specification	Pre-specified
Analysis type	
Parameter estimate	Difference in percentage
Point estimate	-17.62
Confidence interval	
level	95 %
sides	2-sided
lower limit	-53.09
upper limit	20.01

Statistical analysis title	MK-1654 900 mg vs. Placebo
Comparison groups	MK-1654 900 mg v Placebo
Number of subjects included in analysis	28
Analysis specification	Pre-specified
Analysis type	
Parameter estimate	Difference in percentage
Point estimate	-22.56
Confidence interval	
level	95 %
sides	2-sided
lower limit	-56.7
upper limit	15.53

Secondary: Number of Participants with an Adverse Event (AE)	
End point title	Number of Participants with an Adverse Event (AE)
End point description:	
An AE is any untoward medical occurrence in a clinical study participant, temporally associated with the use of study intervention, whether or not considered related to the study intervention. All participants who received any study intervention are included.	
End point type	Secondary
End point timeframe:	
Up to 187 days	

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	16	16	16	16
Units: Participants	11	12	12	8

End point values	Placebo			
Subject group type	Reporting group			
Number of subjects analysed	16			
Units: Participants	11			

Statistical analyses

No statistical analyses for this end point

Secondary: Number of Participants with a Serious Adverse Event (SAE)

End point title	Number of Participants with a Serious Adverse Event (SAE)

End point description:

An SAE is any untoward medical occurrence in a clinical study participant that results in death, is life-threatening, requires hospitalization or prolongation of existing hospitalization, results in persistent or significant disability/incapacity, is a congenital anomaly/birth defect, or is another important medical event. All participants who received any study intervention are included.

End point type	Secondary

End point timeframe:

Up to 187 days

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	16	16	16	16
Units: Participants	0	0	0	0

End point values	Placebo			
Subject group type	Reporting group			
Number of subjects analysed	16			
Units: Participants	0			

Statistical analyses

No statistical analyses for this end point

Secondary: Serum Concentration of MK-1654

End point title	Serum Concentration of MK-1654[1]

End point description:

The post-dosing concentration of MK-1654 will be determined in serum. On Day 1, 3 samples will be taken at 1, 2, and 4 hours after administration. All randomized participants who received MK-1654 and had no major protocol deviations are included (each data point is based on 16 participants unless indicated otherwise).

End point type	Secondary

End point timeframe:

Predose and Days 1 (1, 2, and 4 hours postdose), 8, 15, 29, 40, and 57

Notes:

[1] - 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: Serum concentration of MK-1654 was not evaluated in the placebo arm.

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	16	16	16	16
Units: µg/mL				
arithmetic mean (standard deviation)				
Predose (n=16,15,16,16)	0.0369 (± 0.148)	0.00 (± 0.00)	0.00 (± 0.00)	0.00 (± 0.00)
Day 1, 1 hour postdose	16.4 (± 3.13)	36.0 (± 6.65)	62.6 (± 16.8)	134 (± 45.1)
Day 1, 2 hours postdose	34.3 (± 6.42)	72.6 (± 12.5)	125 (± 25.7)	298 (± 46.8)
Day 1, 4 hours postdose	33.3 (± 6.19)	68.8 (± 11.5)	122 (± 26.9)	287 (± 46.0)
Day 8	16.0 (± 2.54)	33.0 (± 5.48)	56.7 (± 12.8)	140 (± 24.1)
Day 15	14.5 (± 2.49)	29.1 (± 4.19)	47.6 (± 8.57)	123 (± 21.6)
Day 29 (n=14,15,14,14)	11.9 (± 2.11)	23.1 (± 3.06)	38.5 (± 6.99)	103 (± 16.0)
Day 40 (n=12,14,14,13)	10.2 (± 1.74)	21.4 (± 3.18)	35.6 (± 7.16)	88.5 (± 13.4)
Day 57 (n=11,11,11,8)	9.46 (± 2.01)	18.7 (± 2.60)	32.3 (± 6.14)	79.5 (± 15.5)

Statistical analyses

No statistical analyses for this end point

Secondary: Concentration of RSV Serum Neutralizing Antibody Titers

End point title	Concentration of RSV Serum Neutralizing Antibody Titers

End point description:

RSV serum neutralization titers were determined by enzyme-linked immunosorbent assay (ELISA). All randomized participants who received one correct dose of study drug corresponding to the treatment group the participant was randomized into, had data available for the time point, and had no major protocol deviations are included (each data point is based on 16 participants unless indicated otherwise).

End point type	Secondary

End point timeframe:

Days 1, 29, 40, and 57

End point values	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg	MK-1654 900 mg
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	16	16	16	16
Units: Titers				
geometric mean (confidence interval 95%)				
Day 1, Predose (n=16,15,14,16,15)	669.1 (487.5 to 918.4)	699.3 (530.9 to 921.0)	954.0 (606.1 to 1501.4)	893.8 (649.0 to 1230.8)
Day 1, 2 hours postdose (n=16,16,15,16,16)	11137.6 (8884.8 to 13961.7)	24836.1 (21971.4 to 28074.3)	41544.8 (33688.4 to 51233.3)	100163.5 (84649.3 to 118521.1)
Day 29 (n=14,15,14,14,15)	4727.2 (4026.3 to 5550.0)	8135.8 (6945.6 to 9530.0)	13263.2 (11050.6 to 15918.9)	31367.8 (26876.0 to 36610.3)
Day 40 (n=13,14,14,13,15)	4517.1 (3899.6 to 5232.2)	8357.6 (7073.1 to 9875.4)	13510.9 (11564.1 to 15785.4)	27935.5 (19429.8 to 40164.6)
Day 57 (n=11,11,11,8,12)	4377.8 (3338.4 to 5740.9)	5531.9 (4315.0 to 7092.1)	11557.9 (9428.4 to 14168.4)	22209.6 (17585.6 to 28049.5)

End point values	Placebo			
Subject group type	Reporting group			
Number of subjects analysed	16			
Units: Titers				
geometric mean (confidence interval 95%)				
Day 1, Predose (n=16,15,14,16,15)	837.4 (567.9 to 1234.9)			
Day 1, 2 hours postdose (n=16,16,15,16,16)	1225.4 (621.0 to 2418.3)			
Day 29 (n=14,15,14,14,15)	1037.1 (673.9 to 1596.1)			
Day 40 (n=13,14,14,13,15)	1540.4 (1025.9 to 2313.0)			
Day 57 (n=11,11,11,8,12)	1500.2 (908.7 to 2476.8)			

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information	
Timeframe for reporting adverse events:	
Up to 187 days	
Adverse event reporting additional description:	
All participants who received a dose of any study intervention are included.	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	23.1

Reporting groups	
Reporting group title	MK-1654 100 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 100 mg on Day 1.	
Reporting group title	MK-1654 200 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 200 mg on Day 1.	
Reporting group title	MK-1654 300 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 300 mg on Day 1.	
Reporting group title	MK-1654 900 mg
Reporting group description:	
Participants receive a single IV infusion of MK-1654 900 mg on Day 1.	
Reporting group title	Placebo
Reporting group description:	
Participants receive a single IV infusion of placebo on Day 1.	

Serious adverse events	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events			

Serious adverse events	MK-1654 900 mg	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events			

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

Non-serious adverse events	MK-1654 100 mg	MK-1654 200 mg	MK-1654 300 mg
Total subjects affected by non-serious adverse events			
subjects affected / exposed	11 / 16 (68.75%)	12 / 16 (75.00%)	12 / 16 (75.00%)
Vascular disorders			
Phlebitis			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
General disorders and administration site conditions			
Catheter site bruise			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Immune system disorders			
Seasonal allergy			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Reproductive system and breast disorders			
Dysmenorrhoea			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Respiratory, thoracic and mediastinal disorders			
Cough			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Epistaxis			
subjects affected / exposed	1 / 16 (6.25%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	1	7	0
Nasal congestion			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Oropharyngeal pain			
subjects affected / exposed	1 / 16 (6.25%)	1 / 16 (6.25%)	3 / 16 (18.75%)
occurrences (all)	1	1	4
Rhinorrhoea			

subjects affected / exposed	2 / 16 (12.50%)	1 / 16 (6.25%)	1 / 16 (6.25%)
occurrences (all)	2	1	1
Psychiatric disorders			
Depression			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1
Investigations			
Alanine aminotransferase increased			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Aspartate aminotransferase increased			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Body temperature increased			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
C-reactive protein increased			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
SARS-CoV-2 test positive			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Injury, poisoning and procedural complications			
Contusion			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Nasal injury			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Nervous system disorders			
Headache			
subjects affected / exposed	6 / 16 (37.50%)	6 / 16 (37.50%)	5 / 16 (31.25%)
occurrences (all)	8	6	6
Presyncope			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1

Gastrointestinal disorders			
Abdominal discomfort			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Abdominal pain upper			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1
Constipation			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Diarrhoea			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Haemorrhoids			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Nausea			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Odynophagia			
subjects affected / exposed	2 / 16 (12.50%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	2	0	0
Vomiting			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Skin and subcutaneous tissue disorders			
Dermatitis contact			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Dry skin			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Psoriasis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Rash			

subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Renal and urinary disorders			
Dysuria			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1
Musculoskeletal and connective tissue disorders			
Arthralgia			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	2
Back pain			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1
Musculoskeletal pain			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Neck pain			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Infections and infestations			
Bronchitis viral			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
COVID-19			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	0 / 16 (0.00%)
occurrences (all)	0	1	0
Gastroenteritis			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	1	0	0
Nasopharyngitis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Oral candidiasis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	0 / 16 (0.00%)
occurrences (all)	0	0	0
Oral herpes			

subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	1	0	1
Upper respiratory tract infection			
subjects affected / exposed	1 / 16 (6.25%)	3 / 16 (18.75%)	3 / 16 (18.75%)
occurrences (all)	1	4	3
Viral pharyngitis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	1 / 16 (6.25%)
occurrences (all)	0	0	1

Non-serious adverse events	MK-1654 900 mg	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	8 / 16 (50.00%)	11 / 16 (68.75%)	
Vascular disorders			
Phlebitis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
General disorders and administration site conditions			
Catheter site bruise			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Immune system disorders			
Seasonal allergy			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Reproductive system and breast disorders			
Dysmenorrhoea			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Respiratory, thoracic and mediastinal disorders			
Cough			
subjects affected / exposed	1 / 16 (6.25%)	1 / 16 (6.25%)	
occurrences (all)	1	1	
Epistaxis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Nasal congestion			

subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
Oropharyngeal pain			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Rhinorrhoea			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Psychiatric disorders			
Depression			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Investigations			
Alanine aminotransferase increased			
subjects affected / exposed	1 / 16 (6.25%)	1 / 16 (6.25%)	
occurrences (all)	1	1	
Aspartate aminotransferase increased			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Body temperature increased			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
C-reactive protein increased			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
SARS-CoV-2 test positive			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Injury, poisoning and procedural complications			
Contusion			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Nasal injury			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Nervous system disorders			

Headache			
subjects affected / exposed	5 / 16 (31.25%)	3 / 16 (18.75%)	
occurrences (all)	7	3	
Presyncope			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Gastrointestinal disorders			
Abdominal discomfort			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Abdominal pain upper			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Constipation			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Diarrhoea			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Haemorrhoids			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Nausea			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Odynophagia			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Vomiting			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
Skin and subcutaneous tissue disorders			
Dermatitis contact			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Dry skin			

subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Psoriasis			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Rash			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Renal and urinary disorders			
Dysuria			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Musculoskeletal and connective tissue disorders			
Arthralgia			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Back pain			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Musculoskeletal pain			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Neck pain			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	
Infections and infestations			
Bronchitis viral			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
COVID-19			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Gastroenteritis			
subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
Nasopharyngitis			

subjects affected / exposed	1 / 16 (6.25%)	0 / 16 (0.00%)	
occurrences (all)	1	0	
Oral candidiasis			
subjects affected / exposed	0 / 16 (0.00%)	1 / 16 (6.25%)	
occurrences (all)	0	1	
Oral herpes			
subjects affected / exposed	2 / 16 (12.50%)	0 / 16 (0.00%)	
occurrences (all)	2	0	
Upper respiratory tract infection			
subjects affected / exposed	1 / 16 (6.25%)	2 / 16 (12.50%)	
occurrences (all)	1	2	
Viral pharyngitis			
subjects affected / exposed	0 / 16 (0.00%)	0 / 16 (0.00%)	
occurrences (all)	0	0	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
03 October 2019	The primary reasons for the amendment were to remove template text and to clarify that participants should avoid vulnerable individuals after completing the study.
14 August 2020	The primary reason for the amendment (approved 03-Dec-2020, after study completion) was to clarify that leftover main study nasal swab wash would be stored for future research.

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported