Clinical trial results:
A MULTICENTRE, RANDOMISED, DOSE-CONFIRMATION, FACTORIAL PHASE II STUDY TO EVALUATE THE OPTIMAL DOSE OF 68Ga-OPS202 AS A PET IMAGING AGENT IN SUBJECTS WITH GASTROENTEROPANCREATIC NEUROENDOCRINE TUMOUR (GEP-NET)

Summary

EudraCT number	2016-004928-39
Trial protocol	DK NL AT
Global end of trial date	05 August 2019

Results information

Result version number	v1 (current)
This version publication date	20 August 2020
First version publication date	20 August 2020

Trial information

Trial identification

Sponsor protocol code	D-FR-01070-002

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT03220217
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Ipsen Pharma
Sponsor organisation address	65 quai Georges Gorse, Boulogne-Billancourt, France, 92100
Public contact	Medical Director, Ipsen Pharma, clinical.trials@ipsen.com
Scientific contact	Medical Director, Ipsen Pharma, clinical.trials@ipsen.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	05 August 2019
Is this the analysis of the primary completion data?	No

Global end of trial reached?	Yes
Global end of trial date	05 August 2019
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To define the optimal dose range for peptide mass and radioactivity of Gallium-68 (68Ga)-satoreotide trizoxetan (formerly 68Ga-OPS202) based on detected lesions in adult subjects with somatostatin receptor subtype 2 (sstr2) positive gastroenteropancreatic neuroendocrine tumour (GEP-NET).

Protection of trial subjects:

The study was conducted under the provisions of the Declaration of Helsinki, and in accordance with the International Conference on Harmonisation Consolidated Guideline on Good Clinical Practice.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	26 September 2017
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 States: 2
Country: Number of subjects enrolled	Austria: 14
Country: Number of subjects enrolled	Denmark: 13
Worldwide total number of subjects	29
EEA total number of subjects	27

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)	15
From 65 to 84 years	14

85 years and over	0

Subject disposition

Recruitment

Recruitment details:

This dose-confirmation, 2 × 3 factorial Phase II study was conducted at 4 centres between September 2017 and August 2019. Adult subjects with sstr2-positive GEP-NET were randomised to investigational imaging product with 68Ga-satoreotide trizoxetan.

Pre-assignment

Screening details:

The Screening Visit (Visit 1) was performed within 2 weeks prior to the first 68Ga-satoreotide trizoxetan administration. Subjects' eligibility was re-checked by the investigator at Visit 2 (Day 1) before randomisation to 1 of 3 study arms (A, B or C) with differing 68Ga-satoreotide trizoxetan peptide mass dose and radioactivity dose ranges.

Period 1

Period 1 title	Overall Study (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Not blinded

Blinding implementation details:

This was an open-label study however independent readers who evaluated 68Ga-satoreotide trizoxetan positron emission tomography (PET)/computed tomography (CT) images were blinded to investigator site, clinical status of the subject, peptide mass dose, radioactivity dose and the temporal sequence of dosing.

Arms

Are arms mutually exclusive?	Yes
Arm title	Arm A: 5-20 µg/40-80 MBq Then 30-45 µg/100-140 MBq

Arm description:

Subjects received a single intravenous (i.v.) injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 micrograms (µg) and a radioactivity dose range of 40-80 Megabecquerel (MBq) on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 100-140 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Arm type	Experimental
Investigational medicinal product name	68Ga-satoreotide trizoxetan
Investigational medicinal product code	
Other name	68Ga-OPS202, 68Ga-IPN01070
Pharmaceutical forms	Solution for injection
Routes of administration	Intravenous use

Dosage and administration details:

Visit 2/Dose 1: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 5-20 µg and radioactivity dose range 40-80 MBq).
Visit 3/Dose 2: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 30-45 µg and radioactivity dose range 100-140 MBq).

Arm title	Arm B: 5-20 µg/100-140 MBq Then 30-45 µg/160-200 MBq

Arm description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 100-140 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 160-200 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Arm type	Experimental
Investigational medicinal product name	68Ga-satoreotide trizoxetan
Investigational medicinal product code	
Other name	68Ga-OPS202, 68Ga-IPN01070
Pharmaceutical forms	Solution for injection
Routes of administration	Intravenous use

Dosage and administration details:

Visit 2/Dose 1: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 5-20 µg and radioactivity dose range 100-140 MBq).
Visit 3/Dose 2: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 30-45 µg and radioactivity dose range 160-200 MBq).

Arm title	Arm C: 5-20 µg/160-200 MBq Then 30-45 µg/40-80 MBq

Arm description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 160-200 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 40-80 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Arm type	Experimental
Investigational medicinal product name	68Ga-satoreotide trizoxetan
Investigational medicinal product code	
Other name	68Ga-OPS202, 68Ga-IPN01070
Pharmaceutical forms	Solution for injection
Routes of administration	Intravenous use

Dosage and administration details:

Visit 2/Dose 1: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 5-20 µg and radioactivity dose range 160-200 MBq).
Visit 3/Dose 2: A single i.v. injection over one minute of 68Ga-satoreotide trizoxetan (peptide mass range 30-45 µg and radioactivity dose range 40-80 MBq).

Number of subjects in period 1	Arm A: 5-20 µg/40-80 MBq Then 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq Then 30-45 µg/160-200 MBq	Arm C: 5-20 µg/160-200 MBq Then 30-45 µg/40-80 MBq
Started	8	10	11
Completed	8	9	10
Not completed	0	1	1
Consent withdrawn by subject	-	1	-
Subject Missed Procedure	-	-	1

Baseline characteristics

Reporting groups	
Reporting group title	Arm A: 5-20 µg/40-80 MBq Then 30-45 µg/100-140 MBq

Reporting group description:

Subjects received a single intravenous (i.v.) injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 micrograms (µg) and a radioactivity dose range of 40-80 Megabecquerel (MBq) on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 100-140 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Reporting group title	Arm B: 5-20 µg/100-140 MBq Then 30-45 µg/160-200 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 100-140 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 160-200 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Reporting group title	Arm C: 5-20 µg/160-200 MBq Then 30-45 µg/40-80 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 160-200 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 40-80 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Reporting group values	Arm A: 5-20 µg/40-80 MBq Then 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq Then 30-45 µg/160-200 MBq	Arm C: 5-20 µg/160-200 MBq Then 30-45 µg/40-80 MBq
Number of subjects	8	10	11
Age categorical Units: Subjects			
Adults (18-64 years)	3	4	8
From 65-84 years	5	6	3
Age continuous Units: years			
arithmetic mean	70.5	67.6	60.7
standard deviation	± 11.1	± 6.4	± 12.3
Gender categorical Units: Subjects			
Female	2	6	2
Male	6	4	9

Reporting group values	Total		
Number of subjects	29		

Age categorical Units: Subjects			
Adults (18-64 years)	15		
From 65-84 years	14		
Age continuous Units: years arithmetic mean standard deviation	 -		
Gender categorical Units: Subjects			
Female	10		
Male	19		

End points

End points reporting groups

Reporting group title	Arm A: 5-20 µg/40-80 MBq Then 30-45 µg/100-140 MBq

Reporting group description:

Subjects received a single intravenous (i.v.) injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 micrograms (µg) and a radioactivity dose range of 40-80 Megabecquerel (MBq) on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 100-140 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Reporting group title	Arm B: 5-20 µg/100-140 MBq Then 30-45 µg/160-200 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 100-140 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg and a radioactivity dose range of 160-200 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Reporting group title	Arm C: 5-20 µg/160-200 MBq Then 30-45 µg/40-80 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg and a radioactivity dose range of 160-200 MBq on Visit 2 (Day 1).

After 15 to 21 days at Visit 3 (Days 16 to 22), subjects received a second i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 40-80 MBq.

Both injections were followed by PET/CT scan imaging 1 hour post dosing (up to 80 min).

Subject analysis set title	Arm A: 5-20 µg/40-80 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 40-80 MBq on Visit 2/Day 1.

Subject analysis set title	Arm A: 30-45 µg/100-140 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 100-140 MBq on Visit 3/Days 16 to 22.

Subject analysis set title	Arm B: 5-20 µg/100-140 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 100-140 MBq on Visit 2/Day 1.

Subject analysis set title	Arm B: 30-45 µg/160-200 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 160-200 MBq on Visit 3/Days 16 to 22.

Subject analysis set title	Arm C: 5-20 µg/160-200 MBq

Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 160-200 MBq on Visit 2/Day 1.

Subject analysis set title	Arm C: 30-45 µg/40-80 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 40-80 MBq on Visit 3/Days 16 to 22.

Subject analysis set title	Peptide Mass Dose Range 5-20 µg
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects from Arms A, B and C who received an injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 5-20 µg on Visit 2 (Day 1).

Subject analysis set title	Peptide Mass Dose Range 30-45 µg
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects from Arms A, B and C who received an injection of 68Ga-satoreotide trizoxetan with a peptide mass dose range of 30-45 µg on Visit 3 (Days 16-22).

Subject analysis set title	Radioactivity Dose Range 40-80 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects from Arms A and C who received an injection of 68Ga-satoreotide trizoxetan with a radioactivity dose of 40-80 MBq on either Visit 2 (Day 1) or on Visit 3 (Days 16-22).

Subject analysis set title	Radioactivity Dose Range 100-140 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects from Arms A and B who received an injection of 68Ga-satoreotide trizoxetan with a radioactivity dose range of 100-140 MBq on either Visit 2 (Day 1) or on Visit 3 (Days 16-22).

Subject analysis set title	Radioactivity Dose Range 160-200 MBq
Subject analysis set type	Per protocol

Subject analysis set description:

Subjects from Arms B and C who received an injection of 68Ga-satoreotide trizoxetan with a radioactivity dose range of 160-200 MBq on either Visit 2 (Day 1) or on Visit 3 (Days 16-22).

Primary: Relative Lesion Counts Presented by Combination of Injected Peptide/Radioactivity Dose Ranges

End point title	Relative Lesion Counts Presented by Combination of Injected Peptide/Radioactivity Dose Ranges[1]

End point description:

For each combination of injected peptide/radioactivity dose range, relative lesion counts were measured as the ratio of the number of lesions detected by 68Ga-satoreotide trizoxetan PET/CT and PET readings to the number of lesions assessed by standard-of-truth (SoT). The SoT in this study was the contrast enhanced (ce)CT scan images acquired at Visit 2 (Day 1) and Visit 3 (Days 16 to 22). Relative lesion counts for PET/CT and PET readings are presented for all organs and per target organ by each combination of injected peptide/radioactivity dose ranges after the 1st and 2nd injections.

End point type	Primary

End point timeframe:

Day 1 and Days 16 to 22

Notes:

[1] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: Only descriptive analyses were performed for the primary end point as per the protocol.

End point values	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq	Arm B: 30-45 µg/160-200 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	8[2]	8[3]	8[4]	8[5]
Units: Relative Lesion Count				
median (full range (min-max))				
PET/CT: All Organs	3.6 (0.73 to 15.00)	3.8 (1.71 to 13.5)	2.1 (0.64 to 4.41)	2.6 (0.82 to 5.25)
PET/CT: Liver	2.1 (0.73 to 9.00)	3.0 (2.00 to 8.00)	2.9 (0.83 to 8.00)	3.5 (1.50 to 11.00)
PET/CT: Lymph Nodes	2.0 (1.80 to 3.00)	2.0 (0.40 to 3.00)	1.00 (0.00 to 8.00)	0.9 (0.00 to 12.00)
PET: All Organs	2.6 (0.73 to 19.00)	3.9 (1.00 to 14.50)	2.2 (1.00 to 4.50)	2.6 (1.50 to 4.75)
PET: Liver	2.6 (0.73 to 5.00)	3.3 (1.00 to 7.00)	2.9 (0.67 to 7.00)	3.4 (1.33 to 9.00)
PET: Lymph Nodes	2.0 (1.80 to 3.00)	2.0 (1.60 to 4.00)	2.2 (0.50 to 10.0)	2.0 (0.50 to 14.00)

Notes:

[2] - Except liver (n=5) and lymph nodes (n=3)

[3] - Except liver (n=5) and lymph nodes (n=3)

[4] - Except liver (n=4) and lymph nodes (n=6)

[5] - Except liver (n=4) and lymph nodes (PET/CT n=6, PET n=3)

End point values	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	8[6]	8[7]		
Units: Relative Lesion Count				
median (full range (min-max))				
PET/CT: All Organs	2.7 (0.91 to 16.25)	2.5 (0.82 to 9.75)		
PET/CT: Liver	2.4 (0.86 to 7.5)	2.6 (0.76 to 5.17)		
PET/CT: Lymph Nodes	2.2 (1.25 to 5.00)	1.6 (1.00 to 2.00)		
PET: All Organs	2.8 (0.91 to 13.50)	2.7 (0.68 to 7.50)		
PET: Liver	2.4 (0.86 to 7.00)	2.3 (0.62 to 6.00)		
PET: Lymph Nodes	3.8 (1.00 to 6.00)	3.1 (0.75 to 4.00)		

Notes:

[6] - Except lymph nodes (n=4)

[7] - Except lymph nodes (n=4)

Statistical analyses

No statistical analyses for this end point

Primary: Relative Lesion Counts Presented by Peptide Mass and Radioactivity Dose Ranges

End point title	Relative Lesion Counts Presented by Peptide Mass and Radioactivity Dose Ranges[8]

End point description:

For each combination of injected peptide/radioactivity dose range, relative lesion counts were measured

as the ratio of the number of lesions detected by 68Ga-satoreotide trizoxetan PET/CT and PET readings to the number of lesions assessed by SoT. The SoT in this study was the ceCT scan images acquired at Visit 2 (Day 1) and Visit 3 (Day 16 to 22). Relative lesion counts for PET/CT and PET readings are presented for all organs and per target organ by both peptide mass range and radioactivity dose range.

End point type	Primary

End point timeframe:

Day 1 and Days 16 to 22

Notes:

[8] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: Only descriptive analyses were performed for the primary end point as per the protocol.

End point values	Peptide Mass Dose Range 5-20 µg	Peptide Mass Dose Range 30-45 µg	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	24[9]	24[10]	16[11]	16[12]
Units: Relative Lesion Count				
median (full range (min-max))				
PET/CT: All Organs	2.7 (0.64 to 16.25)	2.7 (0.82 to 13.50)	3.1 (0.73 to 15.00)	2.6 (0.64 to 13.50)
PET/CT: Liver	2.3 (0.73 to 9.00)	3.0 (0.76 to 11.00)	2.2 (0.73 to 9.00)	3.0 (0.83 to 8.00)
PET/CT: Lymph Nodes	2.0 (0.00 to 8.00)	1.3 (0.00 to 12.00)	2.0 (1.00 to 3.00)	1.3 (0.00 to 8.00)
PET: All Organs	2.6 (0.73 to 19.00)	2.8 (0.68 to 14.50)	2.6 (0.68 to 19.00)	2.8 (1.00 to 14.50)
PET: Liver	2.6 (0.67 to 7.00)	2.8 (0.62 to 9.00)	2.6 (0.62 to 6.00)	3.3 (0.67 to 7.00)
PET: Lymph Nodes	2.3 (0.50 to 10.00)	2.0 (0.50 to 14.00)	2.7 (0.75 to 4.00)	2.0 (0.50 to 10.00)

Notes:

[9] - Except liver (n=17) and lymph nodes (n=13)

[10] - Except liver (n=17) and lymph nodes (n=13)

[11] - Except liver (n=13) and lymph nodes (n=7)

[12] - Except liver and lymph nodes (n=9)

End point values	Radioactivity Dose Range 160-200 MBq			
Subject group type	Subject analysis set			
Number of subjects analysed	16[13]			
Units: Relative Lesion Count				
median (full range (min-max))				
PET/CT: All Organs	2.6 (0.82 to 16.25)			
PET/CT: Liver	2.7 (0.86 to 11.00)			
PET/CT: Lymph Nodes	1.3 (0.00 to 12.00)			
PET: All Organs	2.7 (0.91 to 13.50)			
PET: Liver	2.8 (0.86 to 9.00)			
PET: Lymph Nodes	2.2 (0.50 to 14.00)			

Notes:

[13] - Except liver (n=12) and lymph nodes (n=10)

Statistical analyses

No statistical analyses for this end point

Secondary: Image Quality as Assessed by Tumour-To-Background Ratio Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point title	Image Quality as Assessed by Tumour-To-Background Ratio Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point description:

For each PET assessment, image quality was quantitatively measured by the tumour-to-background ratio, obtained using the mean of all lesions tumour-to-backgrounds, for each of the following organs; liver, lymph nodes, bone and lungs. The tumour-to-background ratio was computed by mean standardised uptake value (SUVmean) of the lesion divided by the SUVmean of the subject's reference tissue (tumour-free liver or aortic blood). A high tumour-to-background ratio indicates high effectiveness of 68Ga-satoreotide trizoxetan as a diagnostic agent.

Tumour-to-background ratios are presented for liver and lymph nodes for each combination of injected peptide/radioactivity dose range. Insufficient data was available to calculate median (full range) values for bone and lungs.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq	Arm B: 30-45 µg/160-200 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	8[14]	8[15]	8[16]	8[17]
Units: Ratio				
median (full range (min-max))				
Liver	5.5 (3.75 to 12.88)	4.7 (3.56 to 9.96)	4.2 (3.10 to 24.95)	4.2 (3.05 to 29.33)
Lymph Nodes	7.4 (3.87 to 16.98)	6.2 (3.22 to 13.76)	5.1 (2.55 to 16.10)	8.2 (1.54 to 13.70)

Notes:

[14] - liver (n=5) and lymph nodes (n=3)

[15] - liver (n=5) and lymph nodes (n=3)

[16] - liver (n=5) and lymph nodes (n=6)

[17] - liver (n=5) and lymph nodes (n=6)

End point values	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	8[18]	8[19]		
Units: Ratio				

median (full range (min-max))				
Liver	3.6 (2.13 to 10.75)	4.0 (3.07 to 22.48)		
Lymph Nodes	5.7 (3.40 to 12.84)	4.5 (3.50 to 18.69)		

Notes:

[18] - lymph nodes (n=5)

[19] - lymph nodes (n=5)

Statistical analyses

No statistical analyses for this end point

Secondary: Image Quality as Assessed by Tumour-To-Background Ratio Presented by Peptide Mass and Radioactivity Dose Ranges

End point title	Image Quality as Assessed by Tumour-To-Background Ratio Presented by Peptide Mass and Radioactivity Dose Ranges

End point description:

For each PET assessment image quality was quantitatively measured by the tumour-to-background ratio, obtained using the mean of all lesions tumour-to-backgrounds, for each of the following organs; liver, lymph nodes, bone and lungs. The tumour-to-background ratio was computed by SUVmean of the lesion divided by the SUVmean of the subject's reference tissue (tumour-free liver or aortic blood). A high tumour-to-background ratio indicates high effectiveness of 68Ga-satoreotide trizoxetan as a diagnostic agent.

Tumour-to-background ratios are presented for liver and lymph nodes for each peptide mass and radioactivity dose range. Insufficient data was available to calculate median (full range) values for bone and lungs.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Peptide Mass Dose Range 5-20 µg	Peptide Mass Dose Range 30-45 µg	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	24[20]	24[21]	16[22]	16[23]
Units: Ratio				
median (full range (min-max))				
Liver	4.1 (2.13 to 24.95)	4.3 (3.05 to 29.33)	4.3 (3.07 to 22.48)	4.4 (3.10 to 24.95)
Lymph Nodes	5.5 (2.55 to 16.98)	5.2 (1.54 to 18.69)	4.9 (3.50 to 18.69)	5.3 (2.55 to 16.10)

Notes:

[20] - liver (n=18) and lymph nodes (n=14)

[21] - liver (n=18) and lymph nodes (n=14)

[22] - liver (n=13) and lymph nodes (n=8)

[23] - liver (n=10) and lymph nodes (n=9)

End point values	Radioactivity Dose Range 160-200 MBq			
Subject group type	Subject analysis set			
Number of subjects analysed	16[24]			
Units: Ratio				

median (full range (min-max))				
Liver	4.1 (2.13 to 29.33)			
Lymph Nodes	5.7 (1.54 to 13.70)			

Notes:

[24] - liver (n=13) and lymph nodes (n=11)

Statistical analyses

No statistical analyses for this end point

Secondary: Image Quality as Assessed by Independent Blinded Readers Quality Score

End point title	Image Quality as Assessed by Independent Blinded Readers Quality Score

End point description:

A qualitative analysis of the image was assessed by 2 independent blinded readers using a quality score (performed as a back-up to the quantitative quality measured by tumour-to-background analysis). For each PET/CT and PET assessment, each independent blinded reader performed a direct comparison of the 2 scans from Visit 2 and Visit 3. They noted which scan provided superior images based on overall image quality and lesion count and attributed a score for each assessment. The score for the assessment having superior images was set to "1", and score for the assessment not selected was set to "0". In case of equal quality, both assessments had a score of "1". The image quality score for PET/CT and PET readings by total sum of readers' scores by peptide mass and radioactivity dose range combination are presented. Score ranges from 0-16 (number of scans analysed) with higher score indicating more assessments class as superior.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq	Radioactivity Dose Range 160-200 MBq	
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	
Number of subjects analysed	16	16	16	
Units: Total Sum of Readers' Score				
number (not applicable)				
PET/CT: Peptide mass 5-20 µg	9	10	10	
PET/CT: Peptide mass 30-45 µg	13	14	13	
PET: Peptide mass 5-20 µg	7	14	13	
PET: Peptide mass 30-45 µg	11	15	13	

Statistical analyses

No statistical analyses for this end point

Secondary: Lesion Maximum Standardised Uptake Value (SUVmax) Presented by Combination of Injected Peptide/Radioactivity Dose Ranges

End point title	Lesion Maximum Standardised Uptake Value (SUVmax)

	Presented by Combination of Injected Peptide/Radioactivity Dose Ranges

End point description:

For each PET assessment, SUVmax was measured for each lesion, up to a maximum of 5 most avid lesions per organ that were confirmed by SoT assessment. In order to obtain a unique measure per organ, values of the SUVmax were computed within each of the following organs; liver, lymph nodes, bone and lungs. SUVmax results are presented for liver and lymph nodes for each combination of injected peptide/radioactivity dose range. Insufficient data was available to calculate median (full range) values for bone and lungs.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq	Arm B: 30-45 µg/160-200 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	8[25]	8[26]	8[27]	8[28]
Units: Unit-less measure				
median (full range (min-max))				
Liver	24.2 (18.25 to 49.16)	22.9 (18.01 to 59.83)	9.5 (6.74 to 63.68)	16.0 (9.56 to 78.43)
Lymph Nodes	24.7 (19.52 to 40.74)	35.7 (16.69 to 41.11)	28.5 (9.03 to 83.06)	27.7 (5.25 to 53.79)

Notes:

[25] - liver (n=5) and lymph nodes (n=3)

[26] - liver (n=5) and lymph nodes (n=3)

[27] - liver (n=5) and lymph nodes (n=6)

[28] - liver (n=5) and lymph nodes (n=6)

End point values	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	8[29]	8[30]		
Units: Unit-less measure				
median (full range (min-max))				
Liver	12.4 (6.95 to 30.07)	17.7 (10.62 to 30.28)		
Lymph Nodes	13.8 (6.08 to 21.73)	12.7 (6.15 to 21.33)		

Notes:

[29] - lymph nodes (n=5)

[30] - lymph nodes (n=5)

Statistical analyses

No statistical analyses for this end point

Secondary: Lesion SUVmax Presented by Peptide Mass and Radioactivity Dose Ranges

End point title	Lesion SUVmax Presented by Peptide Mass and Radioactivity Dose Ranges

End point description:

For each PET assessment, SUVmax was measured for each lesion, up to a maximum of 5 most avid lesions per organ that are confirmed by SoT assessment. In order to obtain a unique measure per organ, mean of the SUVmax was computed within each of the liver, lymph nodes, bone and lungs. SUVmax results are presented for liver and lymph nodes by both peptide mass range and radioactivity dose range. Insufficient data was available to calculate median (full range) values for bone and lungs.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Peptide Mass Dose Range 5-20 µg	Peptide Mass Dose Range 30-45 µg	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	24[31]	24[32]	16[33]	16[34]
Units: Unit-less measure				
median (full range (min-max))				
Liver	15.6 (6.74 to 63.68)	21.1 (9.56 to 78.43)	20.0 (10.62 to 49.16)	20.1 (6.74 to 63.68)
Lymph Nodes	20.6 (6.08 to 83.06)	20.3 (5.25 to 53.79)	20.4 (6.15 to 40.74)	32.6 (9.03 to 83.06)

Notes:

[31] - liver (n= 18) and lymph nodes (n=14)

[32] - liver (n= 18) and lymph nodes (n=14)

[33] - liver (n= 13) and lymph nodes (n=8)

[34] - liver (n= 10) and lymph nodes (n=9)

End point values	Radioactivity Dose Range 160-200 MBq			
Subject group type	Subject analysis set			
Number of subjects analysed	16[35]			
Units: Unit-less measure				
median (full range (min-max))				
Liver	13.3 (6.95 to 78.43)			
Lymph Nodes	18.6 (5.25 to 53.79)			

Notes:

[35] - liver (n= 13) and lymph nodes (n=11)

Statistical analyses

No statistical analyses for this end point

Secondary: Absolute Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point title	Absolute Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point description:

For each PET/CT and PET assessment, the absolute number of lesions detected by 68Ga-satoreotide trizoxetan were reported for each of the following anatomic sites; primary site of GEP-NET, liver, lymph

nodes, axial/appendicular skeleton (bone) and lungs. The absolute number of lesions for PET/CT and PET readings for the 5 anatomic sites are presented by each combination of injected peptide/radioactivity dose ranges.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq	Arm B: 30-45 µg/160-200 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	8[36]	8[37]	8[38]	8[39]
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)	0.0 (0 to 1)	0.5 (0 to 1)
PET/CT: Liver	8.5 (3 to 15)	12.5 (3 to 22)	8.0 (0 to 19)	11.00 (0 to 21)
PET/CT: Lymph Nodes	4.0 (0 to 9)	2.0 (0 to 6)	4.0 (0 to 8)	2.0 (0 to 12)
PET/CT: Bone	2.0 (1 to 6)	1.0 (1 to 5)	1.0 (0 to 55)	1.0 (1 to 43)
PET/CT: Lung	0.0 (0 to 0)	0.0 (0 to 0)	0.0 (0 to 1)	0.0 (0 to 2)
PET: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)	1.0 (0 to 1)	0.5 (0 to 1)
PET: Liver	7.5 (3 to 22)	9.0 (3 to 23)	8.0 (0 to 25)	13.0 (0 to 26)
PET: Lymph Nodes	4.0 (0 to 9)	4.0 (0 to 10)	3.0 (0 to 21)	2.0 (0 to 18)
PET: Bone	1.0 (1 to 1)	1.0 (0 to 1)	1.0 (0 to 43)	1.0 (0 to 46)
PET: Lung	0.5 (0 to 2)	0.0 (0 to 1)	0.0 (0 to 2)	2.0 (0 to 4)

Notes:

[36] - Except lymph nodes (n=7), bone (n=3), lung (n=4)

[37] - Except lymph nodes (n=7), bone (n=3), lung (n=4)

[38] - Except liver, lymph nodes, bone (n=7), lung (n=5)

[39] - Except liver, lymph nodes, bone (n=7), lung (n=5)

End point values	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	8[40]	8[41]		
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)		
PET/CT: Liver	14.5 (3 to 71)	14.5 (3 to 93)		
PET/CT: Lymph Nodes	6.0 (1 to 11)	3.5 (1 to 10)		
PET/CT: Bone	2.0 (1 to 10)	3.0 (2 to 6)		
PET/CT: Lung	0.0 (0 to 1)	0.0 (0 to 0)		
PET: Primary Site	1.0 (1 to 1)	1.0 (1 to 1)		
PET: Liver	14.0 (3 to 76)	11.0 (3 to 78)		
PET: Lymph Nodes	6.5 (1 to 10)	4.5 (1 to 8)		
PET: Bone	3.5 (2 to 15)	3.0 (1 to 13)		
PET: Lung	2.0 (0 to 4)	0.0 (0 to 0)		

Notes:

[40] - Except bone (n=4), lung (n=3)

[41] - Except bone (n=4), lung (n=3)

Statistical analyses

No statistical analyses for this end point

Secondary: Absolute Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Presented by Peptide Mass and Radioactivity Dose Ranges

End point title	Absolute Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Presented by Peptide Mass and Radioactivity Dose Ranges

End point description:

For each PET/CT and PET assessment, the absolute number of lesions detected by 68Ga-satoreotide trizoxetan were reported for each of the following anatomic sites; primary site of GEP-NET, lymph nodes, liver, axial/appendicular skeleton (bone) and lungs. The absolute number of lesions for PET/CT and PET readings for the 5 anatomic sites are presented for all organs and per target organ by both peptide mass range and radioactivity dose range.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Peptide Mass Dose Range 5-20 µg	Peptide Mass Dose Range 30-45 µg	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	24[42]	24[43]	16[44]	16[45]
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)	1.0 (0 to 1)	0.5 (0 to 1)
PET/CT: Liver	9.0 (0 to 71)	13.0 (0 to 93)	11.5 (3 to 93)	11.0 (0 to 22)
PET/CT: Lymph Nodes	4.5 (0 to 11)	2.0 (0 to 12)	4.0 (0 to 10)	2.0 (0 to 8)
PET/CT: Bone	1.0 (0 to 55)	1.5 (1 to 43)	3.0 (1 to 6)	1.0 (0 to 55)
PET/CT: Lung	0.0 (0 to 1)	0.0 (0 to 2)	0.0 (0 to 0)	0.0 (0 to 1)
PET: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)	1.0 (0 to 1)	1.0 (0 to 1)
PET: Liver	9.0 (0 to 76)	11.0 (0 to 78)	10.0 (3 to 78)	8.0 (0 to 25)
PET: Lymph Nodes	6.0 (0 to 21)	4.0 (0 to 18)	4.0 (0 to 9)	3.5 (0 to 21)
PET: Bone	1.5 (0 to 43)	1.0 (0 to 46)	1.0 (1 to 13)	1.0 (0 to 43)
PET: Lung	0.5 (0 to 4)	0.0 (0 to 4)	0.0 (0 to 2)	0.0 (0 to 2)

Notes:

[42] - Except liver (n=23), lymph nodes (n=22), bone (n=14) and lung (n=12)

[43] - Except liver (n=23), lymph nodes (n=22), bone (n=14) and lung (n=12)

[44] - Except lymph nodes (n=15), bone and lung (n=7)

[45] - Except liver (n=15), lymph nodes (n=14), bone (n=10), and lung (n=9)

End point values	Radioactivity Dose Range 160-200 MBq			
Subject group type	Subject analysis set			
Number of subjects analysed	16[46]			
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	1.0 (0 to 1)			
PET/CT: Liver	11.0 (0 to 71)			
PET/CT: Lymph Nodes	4.0 (0 to 12)			

PET/CT: Bone	1.0 (1 to 43)			
PET/CT: Lung	0.0 (0 to 2)			
PET: Primary Site	1.0 (0 to 1)			
PET: Liver	13.0 (0 to 76)			
PET: Lymph Nodes	6.0 (0 to 18)			
PET: Bone	2.0 (0 to 46)			
PET: Lung	2.0 (0 to 4)			

Notes:

[46] - Except liver and lymph nodes (n=15), bone (n=11) and lung (n=8)

Statistical analyses

No statistical analyses for this end point

Secondary: Difference in Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Compared to Lesions Detected by SoT Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point title	Difference in Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Compared to Lesions Detected by SoT Presented by Combination of Injected Peptide/Radioactivity Dose Range

End point description:

For each PET/CT and PET assessment, the number of lesions detected by 68Ga-satoreotide trizoxetan and SoT (ceCT) were reported for each of the following anatomic sites; primary site of GEP-NET, lymph nodes, liver, axial/appendicular skeleton (bone) and lungs. The difference was calculated by number of lesions detected by 68Ga-satoreotide trizoxetan - number of lesions detected by ceCT scan. A positive difference indicates that more lesions were detected by 68Ga-satoreotide trizoxetan than by ceCT scan. A negative difference indicates that more lesions were detected by ceCT scan than by 68Ga-satoreotide trizoxetan. The difference in number of lesions for PET/CT and PET readings for the 5 anatomic sites are presented by each combination of injected peptide/radioactivity dose ranges.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq	Arm B: 30-45 µg/160-200 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	8[47]	8[48]	8[49]	8[50]
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	0.5 (-1 to 1)	0.5 (-1 to 1)	0.0 (-1 to 1)	0.0 (0 to 1)
PET/CT: Liver	6.0 (-3 to 13)	9.0 (3 to 14)	8.0 (-1 to 19)	10.0 (0 to 21)
PET/CT: Lymph Nodes	2.0 (0 to 8)	0.0 (-3 to 4)	0.0 (-3 to 7)	0.0 (-2 to 11)
PET/CT: Bone	2.0 (1 to 6)	1.0 (1 to 5)	1.0 (0 to 43)	1.0 (1 to 31)
PET/CT: Lung	0.0 (0 to 0)	0.0 (0 to 0)	0.0 (-1 to 1)	0.0 (-1 to 1)
PET: Primary Site	0.5 (-1 to 1)	0.5 (-1 to 1)	0.5 (0 to 1)	0.0 (-1 to 1)
PET: Liver	4.0 (-3 to 22)	5.5 (0 to 21)	8.0 (-2 to 25)	11.0 (0 to 26)
PET: Lymph Nodes	2.0 (0 to 8)	3.0 (0 to 10)	1.0 (-2 to 18)	1.0 (-2 to 13)
PET: Bone	1.0 (1 to 1)	1.0 (0 to 1)	1.0 (0 to 31)	1.0 (0 to 34)
PET: Lung	0.5 (0 to 2)	0.0 (0 to 1)	0.0 (-1 to 2)	2.0 (-1 to 4)

Notes:

[47] - Except lymph nodes (n=7), bone (n=3) and lung (n=4)

[48] - Except lymph nodes (n=7), bone (n=3) and lung (n=4)

[49] - Except liver, lymph nodes, bone (n=7), and lung (n=5)

[50] - Except liver, lymph nodes, bone (n=7), and lung (n=5)

End point values	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	8[51]	8[52]		
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	0.5 (0 to 1)	0.5 (0 to 1)		
PET/CT: Liver	4.0 (-3 to 53)	5.5 (-5 to 75)		
PET/CT: Lymph Nodes	3.0 (1 to 11)	1.0 (0 to 10)		
PET/CT: Bone	2.0 (1 to 10)	3.0 (2 to 6)		
PET/CT: Lung	0.0 (0 to 1)	0.0 (0 to 0)		
PET: Primary Site	1.0 (0 to 1)	1.0 (0 to 1)		
PET: Liver	5.0 (-3 to 58)	5.0 (-8 to 60)		
PET: Lymph Nodes	5.5 (0 to 8)	4.5 (-1 to 7)		
PET: Bone	3.5 (2 to 15)	3.0 (1 to 13)		
PET: Lung	2.0 (0 to 4)	0.0 (0 to 0)		

Notes:

[51] - Except bone (n=4), and lung (n=3)

[52] - Except bone (n=4), and lung (n=3)

Statistical analyses

No statistical analyses for this end point

Secondary: Difference in Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Compared to Lesions Detected by SoT Presented by Peptide Mass and Radioactivity Dose Ranges

End point title	Difference in Number of Lesions Detected by 68Ga-Satoreotide Trizoxetan Compared to Lesions Detected by SoT Presented by Peptide Mass and Radioactivity Dose Ranges

End point description:

For each PET/CT and PET assessment, the number of lesions detected by 68Ga-satoreotide trizoxetan and SoT (ceCT) were reported for each of the following anatomic sites; primary site of GEP-NET, lymph nodes, liver, axial/appendicular skeleton (bone) and lungs. The difference was calculated by number of lesions detected by 68Ga-satoreotide trizoxetan - number of lesions detected by ceCT scan. A positive difference indicates that more lesions were detected by 68Ga-satoreotide trizoxetan than by ceCT scan. A negative difference indicates that more lesions were detected by ceCT scan than by 68Ga-satoreotide trizoxetan. The difference in number of lesions for PET/CT and PET readings for the 5 anatomic sites results are presented by both peptide mass range and radioactivity dose range.

End point type	Secondary

End point timeframe:

Day 1 and Days 16 to 22

End point values	Peptide Mass Dose Range 5-20 µg	Peptide Mass Dose Range 30-45 µg	Radioactivity Dose Range 40-80 MBq	Radioactivity Dose Range 100-140 MBq
Subject group type	Subject analysis set	Subject analysis set	Subject analysis set	Subject analysis set
Number of subjects analysed	24[53]	24[54]	16[55]	16[56]
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	0.0 (-1 to 1)	0.0 (-1 to 1)	0.5 (-1 to 1)	0.0 (-1 to 1)
PET/CT: Liver	7.0 (-3 to 53)	10.0 (-5 to 75)	5.5 (-5 to 75)	8.0 (-1 to 19)
PET/CT: Lymph Nodes	2.0 (-3 to 11)	1.0 (-3 to 11)	2.0 (0 to 10)	0.0 (-3 to 7)
PET/CT: Bone	1.0 (0 to 43)	1.5 (1 to 31)	3.0 (1 to 6)	1.0 (0 to 43)
PET/CT: Lung	0.0 (-1 to 1)	0.0 (-1 to 1)	0.0 (0 to 0)	0.0 (-1 to 1)
PET: Primary Site	1.0 (-1 to 1)	1.0 (-1 to 1)	1.0 (-1 to 1)	0.5 (-1 to 1)
PET: Liver	6.0 (-3 to 58)	6.0 (-8 to 60)	4.5 (-8 to 60)	6.0 (-2 to 25)
PET: Lymph Nodes	4.5 (-2 to 18)	3.5 (-2 to 13)	4.0 (-1 to 8)	2.0 (-2 to 18)
PET: Bone	1.5 (0 to 31)	1.0 (0 to 34)	1.0 (1 to 13)	1.0 (0 to 31)
PET: Lung	0.0 (-1 to 4)	0.0 (-1 to 4)	0.0 (0 to 2)	0.0 (-1 to 2)

Notes:

[53] - Except liver (n=23), lymph nodes (n=22), bone (n=14), and lung (n=12)

[54] - Except liver (n=23), lymph nodes (n=22), bone (n=14), and lung (n=12)

[55] - Except lymph nodes (n=15), bone (n=7), and lung (n=7)

[56] - Except liver (n=15), lymph nodes (n=14), bone (n=10), and lung (n=9)

End point values	Radioactivity Dose Range 160-200 MBq			
Subject group type	Subject analysis set			
Number of subjects analysed	16[57]			
Units: Lesions				
median (full range (min-max))				
PET/CT: Primary Site	0.0 (0 to 1)			
PET/CT: Liver	10.0 (-3 to 53)			
PET/CT: Lymph Nodes	1.0 (-2 to 11)			
PET/CT: Bone	1.0 (1 to 31)			
PET/CT: Lung	0.0 (-1 to 1)			
PET: Primary Site	1.0 (-1 to 1)			
PET: Liver	8.0 (-3 to 58)			
PET: Lymph Nodes	5.0 (-2 to 13)			
PET: Bone	2.0 (0 to 34)			
PET: Lung	2.0 (-1 to 4)			

Notes:

[57] - Except liver, lymph nodes (n=15), bone (n=11), and lung (n=8)

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Treatment emergent adverse events (AEs) were recorded from Day 1 up to 14 days after the last dose of investigational imaging product (up to 36 days overall).

Adverse event reporting additional description:

All subjects included in the Safety Population analysis received 2 injections of 68Ga-satoreotide trizoxetan during the study. AEs were allocated to each combination of injected peptide/radioactivity dose range according to the following rule: AEs were allocated to the last dose of 68Ga-satoreotide trizoxetan received, based on AE start date/time.

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	22.1

Reporting groups

Reporting group title	Arm A: 5-20 µg/40-80 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 40-80 MBq on Visit 2/Day 1.

Reporting group title	Arm A: 30-45 µg/100-140 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 100-140 MBq on Visit 3/Days 16 to 22.

Reporting group title	Arm B: 5-20 µg/100-140 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 100-140 MBq on Visit 2/Day 1.

Reporting group title	Arm B: 30-45 µg/160-200 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 160-200 MBq on Visit 3/Days 16 to 22.

Reporting group title	Arm C: 5-20 µg/160-200 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 5-20 µg and a radioactivity range of 160-200 MBq on Visit 2/Day 1.

Reporting group title	Arm C: 30-45 µg/40-80 MBq

Reporting group description:

Subjects received a single i.v. injection of 68Ga-satoreotide trizoxetan with a peptide mass of 30-45 µg and a radioactivity range of 40-80 MBq on Visit 3/Days 16 to 22.

Reporting group title	Overall

Reporting group description:

Total number of AEs experienced across all Arms.

Serious adverse events	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events	0	0	0

Serious adverse events	Arm B: 30-45 µg/160-200 MBq	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events	0	0	0

Serious adverse events	Overall		
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 27 (0.00%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		

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

Non-serious adverse events	Arm A: 5-20 µg/40-80 MBq	Arm A: 30-45 µg/100-140 MBq	Arm B: 5-20 µg/100-140 MBq
Total subjects affected by non-serious adverse events			
subjects affected / exposed	2 / 8 (25.00%)	4 / 8 (50.00%)	4 / 9 (44.44%)
Investigations			
Blood potassium increased			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Blood urine present			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
Vascular disorders			
Flushing			
subjects affected / exposed	0 / 8 (0.00%)	1 / 8 (12.50%)	0 / 9 (0.00%)
occurrences (all)	0	1	0
Nervous system disorders			
Dizziness			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
General disorders and administration site conditions			

Administration site pain			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
Feeling cold			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Fatigue			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Non-cardiac chest pain			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Injection site pain			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Gastrointestinal disorders			
Abdominal pain			
subjects affected / exposed	0 / 8 (0.00%)	1 / 8 (12.50%)	0 / 9 (0.00%)
occurrences (all)	0	1	0
Diarrhoea			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
Constipation			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
Nausea			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Vomiting			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	0	0	0
Skin and subcutaneous tissue disorders			
Alopecia			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Renal and urinary disorders			

Proteinuria			
subjects affected / exposed	1 / 8 (12.50%)	2 / 8 (25.00%)	0 / 9 (0.00%)
occurrences (all)	1	2	0
Endocrine disorders			
Basedow's disease			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Metabolism and nutrition disorders			
Hyperglycaemia			
subjects affected / exposed	0 / 8 (0.00%)	0 / 8 (0.00%)	1 / 9 (11.11%)
occurrences (all)	0	0	1
Hypertriglyceridaemia			
subjects affected / exposed	1 / 8 (12.50%)	0 / 8 (0.00%)	0 / 9 (0.00%)
occurrences (all)	1	0	0

Non-serious adverse events	Arm B: 30-45 µg/160-200 MBq	Arm C: 5-20 µg/160-200 MBq	Arm C: 30-45 µg/40-80 MBq
Total subjects affected by non-serious adverse events			
subjects affected / exposed	6 / 9 (66.67%)	3 / 10 (30.00%)	5 / 10 (50.00%)
Investigations			
Blood potassium increased			
subjects affected / exposed	1 / 9 (11.11%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	1	0	0
Blood urine present			
subjects affected / exposed	1 / 9 (11.11%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	1	0	0
Vascular disorders			
Flushing			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Nervous system disorders			
Dizziness			
subjects affected / exposed	0 / 9 (0.00%)	1 / 10 (10.00%)	0 / 10 (0.00%)
occurrences (all)	0	1	0
General disorders and administration site conditions			
Administration site pain			
subjects affected / exposed	1 / 9 (11.11%)	1 / 10 (10.00%)	1 / 10 (10.00%)
occurrences (all)	1	1	1
Feeling cold			

subjects affected / exposed	0 / 9 (0.00%)	1 / 10 (10.00%)	1 / 10 (10.00%)
occurrences (all)	0	1	1
Fatigue			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Non-cardiac chest pain			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Injection site pain			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Gastrointestinal disorders			
Abdominal pain			
subjects affected / exposed	2 / 9 (22.22%)	0 / 10 (0.00%)	1 / 10 (10.00%)
occurrences (all)	2	0	1
Diarrhoea			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	2 / 10 (20.00%)
occurrences (all)	0	0	2
Constipation			
subjects affected / exposed	1 / 9 (11.11%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	1	0	0
Nausea			
subjects affected / exposed	1 / 9 (11.11%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	1	0	0
Vomiting			
subjects affected / exposed	0 / 9 (0.00%)	1 / 10 (10.00%)	0 / 10 (0.00%)
occurrences (all)	0	1	0
Skin and subcutaneous tissue disorders			
Alopecia			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Renal and urinary disorders			
Proteinuria			
subjects affected / exposed	2 / 9 (22.22%)	0 / 10 (0.00%)	1 / 10 (10.00%)
occurrences (all)	2	0	1
Endocrine disorders			

Basedow's disease			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Metabolism and nutrition disorders			
Hyperglycaemia			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0
Hypertriglyceridaemia			
subjects affected / exposed	0 / 9 (0.00%)	0 / 10 (0.00%)	0 / 10 (0.00%)
occurrences (all)	0	0	0

Non-serious adverse events	Overall		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	18 / 27 (66.67%)		
Investigations			
Blood potassium increased			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		
Blood urine present			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		
Vascular disorders			
Flushing			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		
Nervous system disorders			
Dizziness			
subjects affected / exposed	1 / 27 (3.70%)		
occurrences (all)	1		
General disorders and administration site conditions			
Administration site pain			
subjects affected / exposed	2 / 27 (7.41%)		
occurrences (all)	3		
Feeling cold			
subjects affected / exposed	2 / 27 (7.41%)		
occurrences (all)	3		
Fatigue			

subjects affected / exposed occurrences (all) Non-cardiac chest pain subjects affected / exposed occurrences (all) Injection site pain subjects affected / exposed occurrences (all)	1 / 27 (3.70%) 1 1 / 27 (3.70%) 1 1 / 27 (3.70%) 1		
Gastrointestinal disorders Abdominal pain subjects affected / exposed occurrences (all) Diarrhoea subjects affected / exposed occurrences (all) Constipation subjects affected / exposed occurrences (all) Nausea subjects affected / exposed occurrences (all) Vomiting subjects affected / exposed occurrences (all)	 4 / 27 (14.81%) 4 2 / 27 (7.41%) 2 1 / 27 (3.70%) 1 1 / 27 (3.70%) 2 1 / 27 (3.70%) 1		
Skin and subcutaneous tissue disorders Alopecia subjects affected / exposed occurrences (all)	 1 / 27 (3.70%) 1		
Renal and urinary disorders Proteinuria subjects affected / exposed occurrences (all)	 5 / 27 (18.52%) 6		
Endocrine disorders Basedow's disease subjects affected / exposed occurrences (all)	 1 / 27 (3.70%) 1		
Metabolism and nutrition disorders			

Hyperglycaemia subjects affected / exposed occurrences (all)	1 / 27 (3.70%) 1		
Hypertriglyceridaemia subjects affected / exposed occurrences (all)	1 / 27 (3.70%) 1		

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
20 May 2019	The substantial changes were: • To update personnel (sponsor's representative and medically responsible person). • To amend concomitant medications that were not allowed. • To amend conditions in which abnormalities in laboratory test values should be reported as AEs. • To add an interim analysis.

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported