



## Clinical trial results:

### Evaluation of [11C]-methionine positron emission computerised tomography (PET CT) in diagnosing neurofibromatosis 1(NF1) - malignant peripheral nerve sheath tumours (MPNST)

#### Summary

EudraCT number	2010-019759-23
Trial protocol	GB
Global end of trial date	09 January 2014

#### Results information

Result version number	v1 (current)
This version publication date	17 October 2018
First version publication date	17 October 2018
Summary attachment (see zip file)	FINAL STUDY REPORT (Final_Report_for_MET_PET_study01_04_2014.pdf)

#### Trial information

##### Trial identification

Sponsor protocol code	PET-CT140410
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##### Additional study identifiers

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

Notes:

#### Sponsors

Sponsor organisation name	Guy's and St Thomas' NHS Foundation Trust
Sponsor organisation address	Great Maze Pond, London, United Kingdom, SE19RT
Public contact	Professor Rosalie Ferner, Guy's and St Thomas' NHS Foundation Trust, 0044 02071883970 , rosalie.ferner@kcl.ac.uk
Scientific contact	Professor Rosalie Ferner, Guy's and St Thomas' NHS Foundation Trust, 0044 02071883970 , rosalie.ferner@kcl.ac.uk

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	26 August 2013
Is this the analysis of the primary completion data?	Yes
Primary completion date	26 August 2013
Global end of trial reached?	Yes
Global end of trial date	09 January 2014
Was the trial ended prematurely?	Yes

Notes:

## General information about the trial

Main objective of the trial:

1) To evaluate whether [11C]-methionine is more sensitive and specific than FDG PET CT in evaluating malignant transformation of plexiform neurofibromas in NF1 patients.

Protection of trial subjects:

All patients will be followed for reporting of adverse events (AEs) from when the informed consent is signed until the telephone call on the day following the PET CT. If there are AEs that occurred while the patient was on study which are attributed (almost certainly, probably or possibly imaging agent-related) to [11C]-methionine, and are still present on the follow-up phone call, the patient will be followed monthly until resolution or stabilisation of these events.

Background therapy:

None

Evidence for comparator: -

Actual start date of recruitment	14 February 2012
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: 5
Worldwide total number of subjects	5
EEA total number of subjects	5

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)	5
From 65 to 84 years	0

85 years and over	0
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## Subject disposition

### Recruitment

Recruitment details:

5 subjects were recruited to this trial within the United Kingdom

### Pre-assignment

Screening details:

Twenty two individuals were assessed & failed screening

### Period 1

Period 1 title	Study Intervention (overall period)
Is this the baseline period?	Yes
Allocation method	Not applicable
Blinding used	Not blinded

### Arms

Arm title	All Participants
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Arm description:

AEs and concomitant medications must be assessed prior to administration of the first imaging agent [11C]-methionine. AEs must be assessed throughout the patient's time in the PET Imaging Centre.

[11C]-methionine imaging:

- Patients must fast starting 4 hours prior to [11C]-methionine administration (Time = T0), until after their scan (Time = T0+1). Patients may drink water throughout this period of approximately 5 hours of fasting.
- An intravenous injection of 800 MBq ( $\pm$  10%) [11]C-methionine will be administered (Time = T0) in accordance with section 6.1.4 "[11C]-methionine Administration". A 40-minute dynamic PET acquisition scan over the lesion will be performed. After this the patient may get up off the scanning couch, have a drink of water and use the toilet.

Arm type	Experimental
Investigational medicinal product name	[11]C-methionine
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Radiopharmaceutical precursor
Routes of administration	Intravenous bolus use

Dosage and administration details:

intravenous injection of 800 MBq ( $\pm$  10%) [11]C-methionine

<b>Number of subjects in period 1</b>	All Participants
Started	5
Completed	5



## Baseline characteristics

### Reporting groups

Reporting group title	Study Intervention
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Reporting group description: -

Reporting group values	Study Intervention	Total	
Number of subjects	5	5	
Age categorical			
Patients with suspected malignant transformation of their plexiform neurofibromas will be enrolled. Each patient will participate in the trial for approximately 1 week.			
Units: Subjects			
In utero	0	0	
Preterm newborn infants (gestational age < 37 wks)	0	0	
Newborns (0-27 days)	0	0	
Infants and toddlers (28 days-23 months)	0	0	
Children (2-11 years)	0	0	
Adolescents (12-17 years)	0	0	
Adults (18-64 years)	5	5	
From 65-84 years	0	0	
85 years and over	0	0	
Gender categorical			
Units: Subjects			
Female	3	3	
Male	2	2	

## End points

### End points reporting groups

Reporting group title	All Participants
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Reporting group description:

AEs and concomitant medications must be assessed prior to administration of the first imaging agent [11C]-methionine. AEs must be assessed throughout the patient's time in the PET Imaging Centre.

[11C]-methionine imaging:

- Patients must fast starting 4 hours prior to [11C]-methionine administration (Time = T0), until after their scan (Time = T0+1). Patients may drink water throughout this period of approximately 5 hours of fasting.
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### Primary: Primary Endpoint

End point title	Primary Endpoint <sup>[1]</sup>
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End point description:

Evaluation of [11C]-Methionine PET CT in the diagnosis of neurofibromatosis 1 (NF1)- malignant peripheral nerve sheath tumours (MPNST). Improvement of identification of NF1 patients with malignant transformation of symptomatic plexiform neurofibromas compared with FDG PET CT.

End point type	Primary
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End point timeframe:

Duration of trial

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: Trial was terminated early after only 5 participants enrolled. Please see attached document for results.

<b>End point values</b>	All Participants			
Subject group type	Reporting group			
Number of subjects analysed	5			
Units: whole	5			

### Statistical analyses

No statistical analyses for this end point

### Secondary: Secondary Outcomes

End point title	Secondary Outcomes
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End point description:

To compare the semi-quantitative uptake of methionine with genetic analysis of the NF1- MPNST

End point type	Secondary
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End point timeframe:  
Duration of trial interventions

<b>End point values</b>	All Participants			
Subject group type	Reporting group			
Number of subjects analysed	5			
Units: whole	5			

### Statistical analyses

No statistical analyses for this end point

### Secondary: Secondary Outcomes

End point title	Secondary Outcomes
End point description: To assess the safety of [11C]- methionine in patients with NF1 who are at risk of malignant transformation of plexiform neurofibromas to MPNST	
End point type	Secondary
End point timeframe: Duration of trial intervention	

<b>End point values</b>	All Participants			
Subject group type	Reporting group			
Number of subjects analysed	5			
Units: whole	5			

### Statistical analyses

No statistical analyses for this end point



## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

From consent to post methionine until their Off-Study telephone assessment after administration of [<sup>11</sup>C]-methionine.

Assessment type	Systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	17.1
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### Reporting groups

Reporting group title	Whole Trial
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Reporting group description: -

Serious adverse events	Whole Trial		
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 5 (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	Whole Trial		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	1 / 5 (20.00%)		
Investigations			
Discomfort at venesection site.			
subjects affected / exposed	1 / 5 (20.00%)		
occurrences (all)	1		

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

Trial was terminated early due to technical problems with inadequate yield of [11C]-Methionine & significant difficulties in recruiting patients with this rare disease complication with stringent inclusion criteria. 5 subjects were recruited only.
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Notes: