



Clinical trial results:

Phase II trial: uPAR-PET for prognostication in patients with non-small cell lung cancer

Summary

EudraCT number	2015-005642-59
Trial protocol	DK
Global end of trial date	30 January 2025

Results information

Result version number	v1 (current)
This version publication date	10 May 2026
First version publication date	10 May 2026

Trial information

Trial identification

Sponsor protocol code	AK-2015-LC-1
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Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	Rigshospitalet
Sponsor organisation address	Blegdamsvej 9, Copenhagen, Denmark, 2100
Public contact	Professor Andreas Kjær, Department of Clinical Physiology and Nuclear Medicine, Rigshospitalet, 0045 35454011, akjaer@sund.ku.dk
Scientific contact	Professor Andreas Kjær, Department of Clinical Physiology and Nuclear Medicine, Rigshospitalet, 0045 35454011, akjaer@sund.ku.dk

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	Interim
Date of interim/final analysis	10 March 2026
Is this the analysis of the primary completion data?	Yes
Primary completion date	30 January 2025
Global end of trial reached?	Yes
Global end of trial date	30 January 2025
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

68Ga-NOTA-AE105 PET/CT will be evaluated as a prognostic tool in patients with NSCLC by observer-blinded readings and compared to the prognostic performance of FDG-PET/CT and prognostic biomarkers as uPAR.

Protection of trial subjects:

It is emphasized that participation in the study is voluntary and will have no influence on the otherwise planned treatment, whether the patient will participate or not. The study is conducted in accordance with the Helsinki Declaration and the Good Clinical Practice (GCP). All clinical information about the participants is protected under the act on processing of Personal Data and the Danish Health Legislation. Overall, it is considered that the project is ethically sound, as there are no significant risks associated with the uPAR PET/CT imaging procedure.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 February 2016
Long term follow-up planned	Yes
Long term follow-up rationale	Scientific research
Long term follow-up duration	5 Years
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Denmark: 49
Worldwide total number of subjects	49
EEA total number of subjects	49

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)	11
From 65 to 84 years	38
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Prospective inclusion of patients with non-small cell lung cancer.

Pre-assignment

Screening details:

We prospectively screened 59 patients, whereof 49 were included. Four of the included patients did not undergo 68Ga-NOTA-AE105 PET/CT due to failed tracer production (n=3) and one patient did not show up for the PET/CT scan due to misunderstandings.

Pre-assignment period milestones

Number of subjects started	49
Number of subjects completed	49

Period 1

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

Blinding implementation details:

An experienced board-certified nuclear medicine physician analyzed the 68Ga-NOTA-AE105 PET/CT scans. If doubt regarding CT evaluation, a board-certified radiologist was consulted. The reader had access to previous imaging data, but was blinded to other patient data and follow-up data.

Arms

Arm title	Experimental arm
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Arm description:

All patients included for 68Ga-NOTA-AE105 PET/CT

Arm type	Experimental
Investigational medicinal product name	68Ga-NOTA-AE105
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate and solvent for concentrate for solution for infusion
Routes of administration	Intravenous bolus use

Dosage and administration details:

Median dose of 198 MBq (range 176–203 MBq) i.v.

Number of subjects in period 1	Experimental arm
Started	49
Not completed	0 ^[1]
Completed	49

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 total of 49 patients were included in the study. Of these, 45 patients underwent ⁸GaNOTAAE105 (uPAR) PET/CT. The four patients who did not undergo PET/CT were excluded due to failed tracer production (n = 3) or cancellation by the patient because of a misunderstanding (n = 1).

Baseline characteristics

Reporting groups

Reporting group title	Overall trial
Reporting group description: -	

Reporting group values	Overall trial	Total	
Number of subjects	49	49	
Age categorical			
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)	11	11	
From 65-84 years	38	38	
85 years and over	0	0	
Age continuous			
Units: years			
median	69		
full range (min-max)	41 to 80	-	
Gender categorical			
Units: Subjects			
Female	34	34	
Male	15	15	

Subject analysis sets

Subject analysis set title	Primary analysis set
Subject analysis set type	Per protocol

Subject analysis set description:

All patients who underwent 68Ga-NOTA-AE105 PET/CT and had evaluable lesions visible on PET and/or CT.

Subject analysis set title	Safety set
Subject analysis set type	Safety analysis

Subject analysis set description:

The study population comprised all patients who were enrolled and underwent preoperative 68GaNOTAAE105 uPAR PET/CT imaging. A total of 45 patients were scanned and constitute the safety and feasibility analysis set (primary analysis set).

Reporting group values	Primary analysis set	Safety set	
Number of subjects	45	45	
Age categorical			
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)	10	10	
From 65-84 years	35	35	
85 years and over	0	0	
Age continuous			
Units: years			
median	69	69	
full range (min-max)	41 to 80	41 to 80	
Gender categorical			
Units: Subjects			
Female	26	31	
Male	11	14	

End points

End points reporting groups

Reporting group title	Experimental arm
Reporting group description: All patients included for 68Ga-NOTA-AE105 PET/CT	
Subject analysis set title	Primary analysis set
Subject analysis set type	Per protocol
Subject analysis set description: All patients who underwent 68Ga-NOTA-AE105 PET/CT and had evaluable lesions visible on PET and/or CT.	
Subject analysis set title	Safety set
Subject analysis set type	Safety analysis
Subject analysis set description: The study population comprised all patients who were enrolled and underwent preoperative 68GaNOTAAE105 uPAR PET/CT imaging. A total of 45 patients were scanned and constitute the safety and feasibility analysis set (primary analysis set).	

Primary: Feasibility of uPAR PET

End point title	Feasibility of uPAR PET ^[1]
End point description: Feasibility was defined as successful completion of the uPAR PET/CT scan with evaluable imaging data suitable for quantitative analysis.	
End point type	Primary
End point timeframe: From tracer administration to completion of the planned uPAR PET/CT examination.	

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: This primary endpoint is descriptive. Feasibility was assessed as the proportion of included patients who successfully underwent uPAR PET imaging. Of 49 included patients, 45 completed the PET/CT examination; the remaining four were due to failed tracer production (n=3) and patient cancellation (n=1). Tracer uptake was observed in all imaged tumors. As no inferential analysis was planned, no statistical analysis was applicable.

End point values	Primary analysis set			
Subject group type	Subject analysis set			
Number of subjects analysed	45			
Units: Number of patients				
Completion	45			
Non completion	0			

Statistical analyses

No statistical analyses for this end point

Primary: Safety

End point title	Safety ^[2]
End point description: Safety was assessed by recording adverse events related to administration of the investigational tracer,	

including serious adverse events and suspected unexpected serious adverse reactions.

End point type	Primary
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End point timeframe:

From administration of ⁸GaNOTAAE105 until 24 hours after tracer injection.

Notes:

[2] - 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: This primary endpoint is descriptive in nature. Safety was assessed by recording the occurrence of adverse events following administration of the PET tracer. No tracerrelated adverse events were observed in the study population. As no events occurred, no formal statistical analysis was applicable or performed.

End point values	Safety set			
Subject group type	Subject analysis set			
Number of subjects analysed	45			
Units: Number of subjects				
No adverse events	45			
Adverse events	0			

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information^[1]

Timeframe for reporting adverse events:

Within 24 hours of 68Ga-NOTA-AE105 injection

Adverse event reporting additional description:

The study was initiated before the publication of CTCAE version 5.0; therefore, adverse events were assessed using CTCAE version 4.0

Assessment type	Systematic
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Dictionary used

Dictionary name	CTCAE
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Dictionary version	4
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Reporting groups

Reporting group title	All patients scanned
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Reporting group description: -

Serious adverse events	All patients scanned		
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 45 (0.00%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events			

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

Non-serious adverse events	All patients scanned		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	0 / 45 (0.00%)		

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.

Justification: No nonserious adverse events were reported in this study. The 68GaNOTAAE105 tracer has a short physical half-life, and safety monitoring was therefore focused on the period during and immediately after tracer administration and the uPAR PET/CT procedure. Adverse events were actively monitored and recorded within the first 24 hours following tracer administration. No adverse events considered related to the tracer or imaging procedure were observed during this period.

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
23 January 2023	<p>A total of four amendments have submitted, Amendment 3 and 4 (change in inclusion criteria and study population) qualifies as substantial amendments. The remaining amendments were nonsubstantial, as they did not impact participant safety, study design, or scientific validity.</p> <p>In Amendment 3 (23-JAN-2023), the inclusion criteria were amended to include only local (operable) NSCLC and LCNEC (pilot study), as recruitment of patients with metastatic NSCLC proved challenging and the study was no longer considered relevant in mesothelioma due to developments in treatment.</p>
10 April 2024	<p>A total of four amendments have submitted, Amendment 3 and 4 (change in inclusion criteria and study population) qualifies as substantial amendments. The remaining amendments were nonsubstantial, as they did not impact participant safety, study design, or scientific validity.</p> <p>In Amendment 4 (10-APR-2024), the inclusion criteria were narrowed to include only patients with operable NSCLC, as patients with LCNEC have been included in a separate, parallel study. A pilot study in patients with LCNEC was therefore not expected to provide additional knowledge on this PET tracer. The last patient is included by the end of 2024, and an extension of the approval period has therefore been requested. All patients are intended to be followed for five years, and the final review of medical records will therefore take place before December 31st 2029. As the followup consists solely of medical record review and no trialrelated procedures, the study has, by agreement with the GCP unit, not been transferred to CTIS.</p> <p>In Amendment 4 the sample size was reduced to 61 patients.</p> <p>The final analysis will include fewer patients than originally planned due to interrupted recruitment and availability of complete paired imaging and tissue data. However, a subset of patients was enrolled early (2016-2017) and has substantially longer followup than planned, resulting in mature timetoevent data. As the study was designed as a survival analysis with an assumed large effect size, extended followup partially compensates for the reduced sample size.</p>

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? Yes

Date	Interruption	Restart date
01 January 2018	Because of capacity constraints, staff shortages, slow accrual in advanced/unresectable disease and COVID, the inclusion was paused from 2018-2022.	01 February 2023

Notes:

Limitations and caveats

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

This submission represents an interim analysis. The primary endpoint OS and secondary endpoint DFS have not yet been reached due to limited follow-up time. Final analyses will be reported once sufficient follow-up time has been achieved.

Notes: