

**Clinical trial results:****A PHASE II STUDY TO EVALUATE THE SAFETY, TOLERABILITY, EFFICACY AND PHARMACOKINETICS OF INTRAVENOUS ASCENDING DOSES OF IDES IN KIDNEY TRANSPLANTATION****Summary**

EudraCT number	2014-000712-34
Trial protocol	SE
Global end of trial date	13 October 2016

**Results information**

Result version number	v1 (current)
This version publication date	28 October 2017
First version publication date	28 October 2017

**Trial information****Trial identification**

Sponsor protocol code	13-HMedIdeS-03
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**Additional study identifiers**

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT02475551
WHO universal trial number (UTN)	-

Notes:

**Sponsors**

Sponsor organisation name	Hansa Medical AB
Sponsor organisation address	Scheelevägen 22, Lund, Sweden, 22007
Public contact	Hansa Medical AB, Hansa Medical AB, +46 768581506,
Scientific contact	Hansa Medical AB, Hansa Medical AB, +46 768581506,

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:

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**Results analysis stage**

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Analysis stage	Final
Date of interim/final analysis	22 November 2016
Is this the analysis of the primary completion data?	Yes
Primary completion date	13 October 2016
Global end of trial reached?	Yes
Global end of trial date	13 October 2016
Was the trial ended prematurely?	No

Notes:

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**General information about the trial**

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Main objective of the trial:

To study the safety and tolerability of IdeS in renal transplantation

Protection of trial subjects:

To secure the safety of the patients, a cautious approach was chosen, employing staggered dosing with at least 7 days between patients within a dose group and at least 14 days between dosing of the first patient in a higher dose group and dosing of the last patient in the previous dose group. The requirement for staggered dosing within dose groups was removed (in protocol amendment 3) when a sufficient amount of safety data was available to assess that it was no longer necessary. In addition, increase to a higher dose group was controlled by the DMC that evaluated all safety data prior to each dose escalation.

No placebo group was included in the study since it could not be ethically justified to randomise patients with DSAs to placebo treatment. The presence of DSAs is a contraindication to transplantation due to the high risk of hyperacute and acute AMR.

Background therapy:

Induction therapy was given according to clinical practice at each site. If anti-thymocyte globulin (ATG) was indicated, ATGAM® (equine ATG [eATG]) was given since rabbit ATG (rATG) is cleaved by IdeS.

In addition to the medication that was administered as standard of care of kidney transplant patients, the following medication was required according to protocol:

Premedication: In order to prevent an anaphylactic reaction due to infusion of a biological IMP, the patients received premedication with methylprednisolone sodium succinate (Solu-Medrol®) 250 mg i.v. and 10 mg oral loratadine before each IdeS infusion.

Prophylactic Antibiotics: All patients received 1 g phenoxymethylpenicillin (Kåvepenin) once daily (OD) from the start of IdeS treatment until recovery of serum IgG level (>3 g/L) as antibiotic prophylaxis to prevent opportunistic infections due to low IgG levels.

Standard of Care Medication

The medication administered as standard of care of kidney transplant patients at the sites included; Prophylactic Antibiotics, Prophylaxis of Pneumocystis jirovecii, Viral Prophylaxis and Surveillance, and maintenance immunosuppression.

Evidence for comparator: -

Actual start date of recruitment	04 June 2015
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

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**Population of trial subjects**

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**Subjects enrolled per country**

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Country: Number of subjects enrolled	Sweden: 10
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Worldwide total number of subjects	10
EEA total number of subjects	10

Notes:

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**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)	8
From 65 to 84 years	2
85 years and over	0

## Subject disposition

### Recruitment

Recruitment details:

The study was conducted at 2 sites (departments of transplant surgery) in Sweden.

### Pre-assignment

Screening details:

Screening of a patient could take place up to 28 days before first dosing on study day 0. If the patient met all inclusion and no exclusion criteria and was not dosed with IdeS within 28 days, for example because the patient did not receive an organ offer within this time frame, the patient could be re-screened.

12 patients screened , 10 enrolled.

### Period 1

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

### Arms

Are arms mutually exclusive?	Yes
<b>Arm title</b>	First dose group

Arm description:

Patients in the first dose group received one intravenous (i.v.) dose of 0.25 mg/kg IdeS over 15 minutes.

Arm type	Experimental
Investigational medicinal product name	HMED-IdeS
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

One intravenous (i.v.) dose of 0.25 mg/kg over 15 minutes.

<b>Arm title</b>	Second dose group
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Arm description:

The second dose group received one dose of 0.50 mg/kg after evaluation of the safety and efficacy in the first group.

Arm type	Experimental
Investigational medicinal product name	HMED-IdeS
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

One intravenous (i.v.) dose of 0.50 mg/kg ideS over 15 minutes.

<b>Number of subjects in period 1</b>	First dose group	Second dose group
Started	5	5
Completed	5	5

## Baseline characteristics

### Reporting groups

Reporting group title	Overall trial
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Reporting group description: -

Reporting group values	Overall trial	Total	
Number of subjects	10	10	
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)	8	8	
From 65-84 years	2	2	
85 years and over	0	0	
Age continuous			
Units: years			
arithmetic mean	51.6		
standard deviation	± 13.7	-	
Gender categorical			
Units: Subjects			
Female	7	7	
Male	3	3	

## End points

### End points reporting groups

Reporting group title	First dose group
Reporting group description: Patients in the first dose group received one intravenous (i.v.) dose of 0.25 mg/kg IdeS over 15 minutes.	
Reporting group title	Second dose group
Reporting group description: The second dose group received one dose of 0.50 mg/kg after evaluation of the safety and efficacy in the first group.	

### Primary: Safety parameters

End point title	Safety parameters <sup>[1]</sup>
End point description: Number of adverse events reported in each treatment group.	
End point type	Primary
End point timeframe: From day -1 and throughout the study including the follow-up period until day 180 ± 7 days	

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: No formal statistical analysis were performed in this study. All endpoints were presented using descriptive statistics, individual patient listings and graphs.

End point values	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: Number of Adverse Events	52	54		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Efficacy defined as the IdeS dosing scheme resulting in HLA antibody levels acceptable for transplantation within 24 hours from dosing

End point title	Efficacy defined as the IdeS dosing scheme resulting in HLA antibody levels acceptable for transplantation within 24 hours from dosing
End point description: Number of patients with HLA antibody levels acceptable for transplantation within 24 hours from dosing with IdeS.	
End point type	Secondary
End point timeframe: Within 24 hours from dosing with HMed-IdeS	

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: Number of subjects	5	5		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Reduction of PRA levels in cytotoxic sera screen after IdeS treatment

End point title	Reduction of PRA levels in cytotoxic sera screen after IdeS treatment			
End point description:	Number of patients who had a reduction of PRA levels up to 24 hours after dosing with IdeS. Data available only for 6 patients.			
End point type	Secondary			
End point timeframe:	Within 24 hours from dosing with IdeS			

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	3	3		
Units: Number of subjects	3	3		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Result in FACS and cytotoxic crossmatch test after IdeS treatment

End point title	Result in FACS and cytotoxic crossmatch test after IdeS treatment			
End point description:	Number of subjects crossmatch negative after IdeS treatment. Data available for 7 subjects as 3 missing post dose FACS and CDC CXM.			
End point type	Secondary			
End point timeframe:	Post IdeS treatment (between 2 and 24 hours)			

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	3	4		
Units: Number of subjects	3	4		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, Cmax: peak drug concentration

End point title	Pharmacokinetic (PK) profile of IdeS, Cmax: peak drug concentration
End point description:	
End point type	Secondary
End point timeframe:	Up to 24 hours after dosing with IdeS

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: µg/L				
arithmetic mean (standard deviation)	5900 (± 1200)	9900 (± 890)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Immunogenicity of IdeS by measuring anti-drug antibodies

End point title	Immunogenicity of IdeS by measuring anti-drug antibodies
End point description:	The overall average (SD) level of anti-IdeS IgG (ADA), ImmunoCAP (mg/L) at day 180.
End point type	Secondary
End point timeframe:	Day 180

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: mg/L				
arithmetic mean (standard deviation)	140 (± 190)	120 (± 180)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Kidney function in patients who were transplanted

End point title	Kidney function in patients who were transplanted
End point description:	Number of subjects having functioning kidney, assessed by serum creatinine, eGFR and kidney biopsy at day 180.
End point type	Secondary
End point timeframe:	Day 180

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: Number of subjects	5	5		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, Tmax: time to maximum serum concentration

End point title	Pharmacokinetic (PK) profile of IdeS, Tmax: time to maximum serum concentration
End point description:	
End point type	Secondary
End point timeframe:	Up to 24 hours post dosing of IdeS

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: Hours				
arithmetic mean (standard deviation)	0.70 ( $\pm$ 0.27)	0.29 ( $\pm$ 0.11)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, AUC: area under the plasma concentration-time curve

End point title	Pharmacokinetic (PK) profile of IdeS, AUC: area under the plasma concentration-time curve
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End point description:

End point type	Secondary
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End point timeframe:

From time 0 to infinity.

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: $\mu\text{g}\times\text{h}/\text{L}$				
arithmetic mean (standard deviation)	210000 ( $\pm$ 120000)	630000 ( $\pm$ 530000)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, $t_{1/2}$ : terminal half-life

End point title	Pharmacokinetic (PK) profile of IdeS, $t_{1/2}$ : terminal half-life
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End point description:

Harmonic mean reported for  $t_{1/2}$  rather than arithmetic mean

End point type	Secondary
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End point timeframe:

During terminal phase of elimination.

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: Hours				
arithmetic mean (standard deviation)	74 ( $\pm$ 16)	93 ( $\pm$ 50)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, Clearance

End point title	Pharmacokinetic (PK) profile of IdeS, Clearance
End point description:	
End point type	Secondary
End point timeframe:	
Up to day 21.	

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: mL/h/kg				
arithmetic mean (standard deviation)	1.7 ( $\pm$ 1.2)	1.2 ( $\pm$ 0.76)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, Vss: volume of distribution at steady state

End point title	Pharmacokinetic (PK) profile of IdeS, Vss: volume of distribution at steady state
End point description:	
End point type	Secondary
End point timeframe:	
Up to day 21.	

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: L/kg				
arithmetic mean (standard deviation)	0.12 (± 0.054)	0.13 (± 0.042)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacokinetic (PK) profile of IdeS, Vz: apparent volume of distribution

End point title	Pharmacokinetic (PK) profile of IdeS, Vz: apparent volume of distribution
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End point description:

End point type	Secondary
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End point timeframe:

Up to day 21.

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: L/kg				
arithmetic mean (standard deviation)	0.17 (± 0.080)	0.16 (± 0.069)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Time to recovery of total serum IgG

End point title	Time to recovery of total serum IgG
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End point description:

Time to 80% recovery of Immunoglobulin G

End point type	Secondary
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End point timeframe:

Up to day 180

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	2	2		
Units: Days				
arithmetic mean (standard deviation)	141 (± 26.9)	42.5 (± 29)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Time to recovery of total HLA-antibody

End point title	Time to recovery of total HLA-antibody
End point description:	Time to 80% recovery of SAB-HLA
End point type	Secondary
End point timeframe:	Up to day 180

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	4	5		
Units: Days				
arithmetic mean (standard deviation)	87 (± 66)	23 (± 22)		

### Statistical analyses

No statistical analyses for this end point

### Secondary: Pharmacodynamic (PD) profile of IdeS (cleavage of IgG)

End point title	Pharmacodynamic (PD) profile of IdeS (cleavage of IgG)
End point description:	Mean IgG cleavage scores at 24 hours post dosing with IdeS. Summary of IgG cleavage scores: 0 = No intact IgG, scIgG or F(ab)2. 1 = F(ab)2. 2 = Mix of scIgG and F(ab)2. 3 = Only scIgG. 4 = Mix of intact IgG and scIgG. 5 = Only intact IgG.
End point type	Secondary
End point timeframe:	24 hours post dosing with IdeS

<b>End point values</b>	First dose group	Second dose group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	5	5		
Units: IgG cleavage scores				
arithmetic mean (standard deviation)	1 ( $\pm$ 0)	1 ( $\pm$ 0)		

### **Statistical analyses**

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No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

From day -1 and throughout the study including the follow-up period until day 180 ± 7 days

Assessment type	Systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	18.1
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### Reporting groups

Reporting group title	0.25 mg/kg
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Reporting group description: -

Reporting group title	0.50 mg/kg
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Reporting group description: -

<b>Serious adverse events</b>	0.25 mg/kg	0.50 mg/kg	
Total subjects affected by serious adverse events			
subjects affected / exposed	3 / 5 (60.00%)	5 / 5 (100.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Investigations			
Blood creatine increased			
subjects affected / exposed	1 / 5 (20.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Donor specific antibody present			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Vascular disorders			
Lymphocele			
subjects affected / exposed	1 / 5 (20.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Blood and lymphatic system disorders			
Leukopenia			

subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Immune system disorders</b>			
<b>Transplant rejection</b>			
subjects affected / exposed	0 / 5 (0.00%)	3 / 5 (60.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 3	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Kidney transplant rejection</b>			
subjects affected / exposed	0 / 5 (0.00%)	2 / 5 (40.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 2	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Hepatobiliary disorders</b>			
<b>Cholecystitis</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Cholelithiasis</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Renal and urinary disorders</b>			
<b>Renal artery stenosis</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Ureteric obstruction</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Infections and infestations</b>			
<b>Abdominal infection</b>			

subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	1 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Catheter site infection</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	1 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Parvovirus infection</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	1 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Sepsis</b>			
subjects affected / exposed	1 / 5 (20.00%)	2 / 5 (40.00%)	
occurrences causally related to treatment / all	1 / 1	0 / 2	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Pneumonia</b>			
subjects affected / exposed	1 / 5 (20.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Infection</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Serratia infection</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Urinary tract infection</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
<b>Urosepsis</b>			

subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

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

<b>Non-serious adverse events</b>	0.25 mg/kg	0.50 mg/kg	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	5 / 5 (100.00%)	5 / 5 (100.00%)	
Vascular disorders			
Lymphocele			
subjects affected / exposed	1 / 5 (20.00%)	2 / 5 (40.00%)	
occurrences (all)	1	2	
Vena cava thrombosis			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
General disorders and administration site conditions			
Pain			
subjects affected / exposed	1 / 5 (20.00%)	1 / 5 (20.00%)	
occurrences (all)	1	1	
Fatigue			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Pyrexia			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Immune system disorders			
Transplant rejection			
subjects affected / exposed	0 / 5 (0.00%)	4 / 5 (80.00%)	
occurrences (all)	0	5	
Kidney transplant rejection			
subjects affected / exposed	0 / 5 (0.00%)	2 / 5 (40.00%)	
occurrences (all)	0	2	
Respiratory, thoracic and mediastinal disorders			

Hydrothorax subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Psychiatric disorders			
Anxiety subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Insomnia subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Sleep disorder subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Investigations			
Blood creatine increased subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	2 / 5 (40.00%) 2	
Escherichia test positive subjects affected / exposed occurrences (all)	2 / 5 (40.00%) 2	0 / 5 (0.00%) 0	
Neutrophil count increased subjects affected / exposed occurrences (all)	2 / 5 (40.00%) 2	0 / 5 (0.00%) 0	
Alanine aminotransferase increased subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Blood alkaline phosphatase increased subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Blood triglycerides increased subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Donor specific antibody present subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Haematocrit increased			

subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Weight increased subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Injury, poisoning and procedural complications Post procedural haematoma subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Procedural pain subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Cardiac disorders Atrial fibrillation subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Sinus tachycardia subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Tachycardia subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Nervous system disorders Headache subjects affected / exposed occurrences (all)	2 / 5 (40.00%) 2	1 / 5 (20.00%) 1	
Tremor subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Blood and lymphatic system disorders Anaemia subjects affected / exposed occurrences (all)	2 / 5 (40.00%) 2	3 / 5 (60.00%) 3	
Leukopenia subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	2 / 5 (40.00%) 2	

Gastrointestinal disorders			
Diarrhoea			
subjects affected / exposed	2 / 5 (40.00%)	0 / 5 (0.00%)	
occurrences (all)	2	0	
Gastritis			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Nausea			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Vomiting			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Hepatobiliary disorders			
Cholecystitis			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Cholelithiasis			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Skin and subcutaneous tissue disorders			
Rash			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
Renal and urinary disorders			
Proteinuria			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Renal artery stenosis			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Ureteric obstruction			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Musculoskeletal and connective tissue disorders			

Osteoporosis subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 0	0 / 5 (0.00%) 0	
<b>Infections and infestations</b>			
Urinary tract infection subjects affected / exposed occurrences (all)	3 / 5 (60.00%) 3	3 / 5 (60.00%) 7	
Sepsis subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	2 / 5 (40.00%) 2	
Candida infection subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 2	
Infection subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	2 / 5 (40.00%) 2	
Pneumonia subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	1 / 5 (20.00%) 1	
Abdominal infection subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Adenovirus infection subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
BK virus infection subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Catheter site infection subjects affected / exposed occurrences (all)	1 / 5 (20.00%) 1	0 / 5 (0.00%) 0	
Cytomegalovirus infection subjects affected / exposed occurrences (all)	0 / 5 (0.00%) 0	1 / 5 (20.00%) 1	
Cytomegalovirus viraemia			

subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
<b>Influenza</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Nasopharyngitis</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Parvovirus infection</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
<b>Postoperative wound infection</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Serratia infection</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Urosepsis</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Wound infection</b>			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
<b>Metabolism and nutrition disorders</b>			
<b>Fluid overload</b>			
subjects affected / exposed	4 / 5 (80.00%)	3 / 5 (60.00%)	
occurrences (all)	4	3	
<b>Diabetes mellitus</b>			
subjects affected / exposed	1 / 5 (20.00%)	1 / 5 (20.00%)	
occurrences (all)	1	1	
<b>Decreased appetite</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	
<b>Hyperglycaemia</b>			
subjects affected / exposed	0 / 5 (0.00%)	1 / 5 (20.00%)	
occurrences (all)	0	1	

Hyperkalaemia			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Hyperlipidaemia			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	
Hypokalaemia			
subjects affected / exposed	1 / 5 (20.00%)	0 / 5 (0.00%)	
occurrences (all)	1	0	

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
01 December 2014	<p>Amendment 1, dated 26 Sep 2014</p> <ul style="list-style-type: none"><li>• Inclusion criterion number 3 was changed to allow inclusion of patients who were more highly sensitised. This was done because preliminary data from an ongoing phase II study showed high efficacy also on highly sensitised patients and one patient in that study had been transplanted with a good result.</li><li>• Results in cytotoxic cross-match test were added to the secondary endpoints.</li><li>• P-alkaline phosphatase (ALP) was added to the clinical chemistry variables since this variable was also required for safety evaluation.</li><li>• It was clarified that treatment with IdeS should be performed the day before transplantation for patients with a living donor and on the day of transplantation for patients with a deceased donor.</li><li>• The sampling time points for cross-match tests after IdeS administration were clarified.</li><li>• The time points for kidney biopsies were changed and it was clarified that patients who did not undergo transplantation would not have biopsies taken.</li><li>• The causality rating for AEs was changed to be consistent with the safety plan.</li><li>• The procedures for SAE and SUSAR reporting were changed to be consistent with the safety management plan.</li><li>• The principal investigator at Uppsala University Hospital was changed.</li><li>• One more site (Karolinska University Hospital) was added.</li></ul>
14 November 2015	<p>Amendment 3, dated 20 Oct 2015</p> <ul style="list-style-type: none"><li>• Staggered dosing within dose groups removed.</li><li>• Number of additional patients that could be included in each dose group increased from 2 to 6 additional patients (i.e. total 2-8 patients).</li><li>• Clarified on signature page of protocol that principal investigator at Uppsala University Hospital was the coordinating investigator for study.</li><li>• Known horse allergy added as an exclusion criterion.</li><li>• Requirement for a negative cross-match test before transplantation was removed.</li><li>• Screening window increased to include day 0, i.e. including the day of IdeS administration.</li><li>• Flow charts were updated to specify that day 0 was the day of IdeS dosing and to clarify when pre-dose sampling was to be performed.</li><li>• In the flow chart clarified that the pregnancy test did not have to be repeated pre-dose if the pregnancy test at screening had been performed within the last 24 hours prior to dosing.</li><li>• Clarified viral surveillance (BK, EBV, and CVM) would be performed.</li><li>• Previous virology screening (for HIV and hepatitis B and C) accepted if performed within 36 months prior to IdeS administration instead of only 6 months.</li><li>• P-creatinine was added to the table describing the DMC safety data package</li><li>• Complement function variables would not be evaluated for clinical significance at each time point.</li><li>• Phenoxyethylpenicillin changed to 1 g OD instead of 1 g three times daily.</li><li>• Valaciclovir 500 mg three times daily was changed to valganciclovir 450 mg daily.</li><li>• Clarified that induction therapy would be given according to clinical practice.</li><li>• Additional time points added in the flow chart for analysis of SAB-C1q</li><li>• Complement function screening C3dg was removed</li><li>• Evaluation of causal relationship between SAEs and other medications apart from the IMP omitted</li><li>• Patients could be re-screened if IdeS had not been given within 28 days from first screening</li><li>• Info regarding Investigators from Karolinska University Hospital added</li></ul>

Notes:

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## **Interruptions (globally)**

Were there any global interruptions to the trial? No

## **Limitations and caveats**

None reported