

**Clinical trial results:****The immune-response and safety of COVID-19 vaccination in patients with chronic kidney disease, on dialysis, or living with a kidney transplant****Summary**

|                          |                |
|--------------------------|----------------|
| EudraCT number           | 2021-000868-30 |
| Trial protocol           | NL             |
| Global end of trial date | 23 March 2022  |

**Results information**

|                                   |  |
|-----------------------------------|--|
| Result version number             | v1 (current)   |
| This version publication date     | 31 December 2023   |
| First version publication date    | 31 December 2023   |
| Summary attachment (see zip file) | RECOVAC-IR study - primary endpoint (the_recovac_immune_response_study__the.25 (1).pdf)<br>RECOVAC-IR study - study design (gfab186.pdf)<br>RECOVAC-IR study - follow-up (ciac557.pdf)<br>T-cell response (sars_cov_2_spike_specific_ifn__t_cell_response.12.pdf)<br>B-cell response (1-s2.0-S1600613523004926-main.pdf) |

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

|                       |                |
|-----------------------|----------------|
| Sponsor protocol code | NL76215.042.20 |
|-----------------------|----------------|

**Additional study identifiers**

|                                    |                     |
|------------------------------------|---------------------|
| ISRCTN number                      | -                   |
| ClinicalTrials.gov id (NCT number) | NCT04741386         |
| WHO universal trial number (UTN)   | -                   |
| Other trial identifiers            | RECOVAC: consortium |

Notes:

**Sponsors**

|                              |  |
|------------------------------|--|
| Sponsor organisation name    | University Medical Center Groningen  |
| Sponsor organisation address | Hanzeplein 1, Groningen, Netherlands, 9713 GZ                                    |
| Public contact               | study coordinator, RECOVAC consortium, 0031 0503616161, a.l.messchendorp@umcg.nl |
| Scientific contact           | study coordinator, RECOVAC consortium, 0031 0503616161, a.l.messchendorp@umcg.nl |

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                                | No |

Notes:

**Results analysis stage**

|  |               |
|--|---------------|
| Analysis stage                                       | Final         |
| Date of interim/final analysis                       | 16 June 2022  |
| Is this the analysis of the primary completion data? | No            |
| Global end of trial reached?                         | Yes           |
| Global end of trial date                             | 23 March 2022 |
| Was the trial ended prematurely?                     | No            |

Notes:

**General information about the trial**

Main objective of the trial:

To assess the efficacy and safety of vaccination against COVID-19 in patients with CKD4/5, patients on dialysis, and kidney transplant recipients as compared to controls.

The primary endpoint is the antibody based immune response on day 28 after the second vaccination. Participants will be classified as responders or non-responders. The percentage of responders of each patient cohort will be compared with the percentage responders in the control group.

Protection of trial subjects:

If the subjects had not participated in this trial, they could have received the same vaccine via the national vaccination campaign with no additional safety surveillance. Furthermore, vaccination of all participants will probably be completed within 8 weeks. Therefore, interim safety analysis is deemed not necessary and not feasible. Biweekly investigator meetings will be held until 4 weeks after the last patient has received the last vaccination and less frequently thereafter to discuss, among others, the different types of AEs.

In accordance to section 10, subsection 4, of the WMO, the sponsor will suspend the study if there is sufficient ground that continuation of the study will jeopardise subject health or safety. The sponsor will notify the accredited METC without undue delay of a temporary halt including the reason for such an action. The study will be suspended pending a further positive decision by the accredited METC. The investigator will take care that all subjects are kept informed.

Background therapy: -

Evidence for comparator: -

|   |                  |
|---|------------------|
| Actual start date of recruitment                          | 01 February 2021 |
| 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 | Netherlands: 843 |
| Worldwide total number of subjects   | 843              |
| EEA total number of subjects         | 843              |

Notes:

| <b>Subjects enrolled per age group</b>    |     |
|---|-----|
| 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)                      | 515 |
| From 65 to 84 years                       | 328 |
| 85 years and over                         | 0   |

## Subject disposition

### Recruitment

Recruitment details:

As of februari 2021 subjects were recruited in 4 UMCs in the Netherlands (UMCG, Erasmusmc, AUMC and Radboudumc). Patients were recruited via the out patient clinics of the centers. Controls were recruited via patients; controls were partners, siblings or household members of patients. An equal amount of subjects was anticipated in each center.

### Pre-assignment

Screening details:

A total of 1093 subjects were approached for participation in this study and 854 subjects agreed to participate. Of these 854, 11 were screeningfailures leaving 843 patients that were included in the study (200 controls, 173 CKD G4/5, 172 Dialysis, 298 kidney transplant recipients).

### Pre-assignment period milestones

|                              |                    |
|------------------------------|--------------------|
| Number of subjects started   | 854 <sup>[1]</sup> |
| Number of subjects completed | 843                |

### Pre-assignment subject non-completion reasons

|                            |  |
|----------------------------|--|
| Reason: Number of subjects | Screeningfailure - use of immunosuppression: 5 |
| Reason: Number of subjects | Screeningfailure - eGFR too low or too high: 5 |
| Reason: Number of subjects | Screeningfailure - active malignancy: 1        |

Notes:

[1] - The number of subjects reported to have started the pre-assignment period are not the same as the worldwide number enrolled in the trial. It is expected that these numbers will be the same.

Justification: Screeningfailures were included in this pre-assignment period

### Period 1

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

### Arms

|           |                      |
|-----------|----------------------|
| Arm title | COVID-19 vaccination |
|-----------|----------------------|

Arm description:

Four different cohorts were included in the study.

Cohort A, the control group, consisted of subjects without kidney disease (eGFR >45 mL/min/1.73m<sup>2</sup>), cohort B of patients with severely impaired kidney function (eGFR <30 mL/min/1.73m<sup>2</sup> or chronic kidney disease (CKD) stages G4/5); cohort C of patients on hemodialysis or peritoneal dialysis; and cohort D of kidney transplant recipients.

The control cohort included partners, siblings, or household members of participants in cohorts B, C, and D.

The numbers of participants in each cohort were equally divided over the 4 participating centers. All participants received 2 mRNA-1273 COVID-19 vaccinations (Moderna Biotech Spain, S.L.) with an interval of 28 d according to the manufacturer's instructions.

|  |                   |
|--|-------------------|
| Arm type                               | Experimental      |
| Investigational medicinal product name | COVID-19 vaccine  |
| Investigational medicinal product code | SUB207171         |
| Other name                             | mRNA-1273         |
| Pharmaceutical forms                   | Injection         |
| Routes of administration               | Intramuscular use |

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**Dosage and administration details:**

0,5 ml solution with 100 microgram mRNA injected into the muscle for 2 times with an interval of 28 days between each injection

| <b>Number of subjects in period 1</b>  | <b>COVID-19 vaccination</b> |
|--|-----------------------------|
| Started                                | 843                         |
| Completed day 28 after vaccination     | 837                         |
| Included for analysis primary endpoint | 800 <sup>[2]</sup>          |
| Included for analysis 6 months         | 745 <sup>[3]</sup>          |
| Completed                              | 801                         |
| Not completed                          | 42                          |
| Adverse event, serious fatal           | 19                          |
| Consent withdrawn by subject           | 9                           |
| Physician decision                     | 1                           |
| Lost to follow-up                      | 13                          |

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**Notes:**

[2] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.

Justification: The numbers of patients included for analysis is provided - 'per protocol analysis'

[3] - The number of subjects at this milestone seems inconsistent with the number of subjects in the arm. It is expected that the number of subjects will be greater than, or equal to the number that completed, minus those who left.

Justification: The numbers of patients included for analysis is provided - 'per protocol analysis'

## Baseline characteristics

### Reporting groups

|                                |               |
|--------------------------------|---------------|
| Reporting group title          | Overall trial |
| Reporting group description: - |               |

| Reporting group values                             | Overall trial | Total |  |
|--|---------------|-------|--|
| Number of subjects                                 | 843           | 843   |  |
| Age categorical                                    |               |       |  |
| Units: Subjects                                    |               |       |  |
| In utero   |               | 0     |  |
| Preterm newborn infants (gestational age < 37 wks) |               | 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)                               |               | 0     |  |
| From 65-84 years                                   |               | 0     |  |
| 85 years and over                                  |               | 0     |  |
| Age continuous                                     |               |       |  |
| Units: years                                       |               |       |  |
| arithmetic mean                                    | 58.3          |       |  |
| standard deviation                                 | ± 13.9        | -     |  |
| Gender categorical                                 |               |       |  |
| Units: Subjects                                    |               |       |  |
| Female   | 374           | 374   |  |
| Male   | 469           | 469   |  |

### Subject analysis sets

|                            |                    |
|----------------------------|--------------------|
| Subject analysis set title | Cohort A - Control |
| Subject analysis set type  | Per protocol       |

Subject analysis set description:

Four different cohorts were included in the study.

Cohort A, the control group, consisted of subjects without kidney disease (eGFR >45 mL/min/1.73m<sup>2</sup>).

The control cohort included partners, siblings, or household members of participants in cohorts B, C, and D.

The numbers of participants in each cohort were equally divided over the 4 participating centers.

Baseline characteristics for all control subjects that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.

|                            |                     |
|----------------------------|---------------------|
| Subject analysis set title | Cohort B - CKD G4/5 |
| Subject analysis set type  | Per protocol        |

Subject analysis set description:

Cohort B consists of patients with severely impaired kidney function (eGFR <30 mL/min/1.73m<sup>2</sup> or chronic kidney disease (CKD) stages G4/5).

Baseline characteristics for all CKD G4/5 patients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021

|                            |                     |
|----------------------------|---------------------|
| Subject analysis set title | Cohort C - Dialysis |
|----------------------------|---------------------|

|                           |              |
|---------------------------|--------------|
| Subject analysis set type | Per protocol |
|---------------------------|--------------|

Subject analysis set description:

Cohort C consists of patients on hemodialysis or peritoneal dialysis.

Baseline characteristics for all dialysis patients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.

|                            |   |
|----------------------------|---|
| Subject analysis set title | Cohort D - Kidney transplant recipients |
|----------------------------|---|

|                           |              |
|---------------------------|--------------|
| Subject analysis set type | Per protocol |
|---------------------------|--------------|

Subject analysis set description:

Cohort D consists of kidney transplant recipients

Baseline characteristics for all kidney transplant recipients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.

| Reporting group values  | Cohort A - Control | Cohort B - CKD G4/5 | Cohort C - Dialysis |
|---|--------------------|---------------------|---------------------|
| Number of subjects  | 200                | 173                 | 172                 |
| Age categorical<br>Units: Subjects  |                    |                     |                     |
| In utero<br>Preterm newborn infants (gestational age < 37 wks)<br>Newborns (0-27 days)<br>Infants and toddlers (28 days-23 months)<br>Children (2-11 years)<br>Adolescents (12-17 years)<br>Adults (18-64 years)<br>From 65-84 years<br>85 years and over |                    |                     |                     |
| Age continuous<br>Units: years  |                    |                     |                     |
| arithmetic mean   | 58.2               | 61.0                | 59.8                |
| standard deviation  | ± 13.4             | ± 13.1              | ± 14.2              |
| Gender categorical<br>Units: Subjects   |                    |                     |                     |
| Female  | 120                | 62                  | 58                  |
| Male  | 80                 | 111                 | 114                 |

| Reporting group values  | Cohort D - Kidney transplant recipients |  |  |
|---|---|--|--|
| Number of subjects  | 298                                     |  |  |
| Age categorical<br>Units: Subjects  |   |  |  |
| In utero<br>Preterm newborn infants (gestational age < 37 wks)<br>Newborns (0-27 days)<br>Infants and toddlers (28 days-23 months)<br>Children (2-11 years)<br>Adolescents (12-17 years)<br>Adults (18-64 years)<br>From 65-84 years<br>85 years and over |   |  |  |

|                    |        |  |  |
|--------------------|--------|--|--|
| Age continuous     |        |  |  |
| Units: years       |        |  |  |
| arithmetic mean    | 56.0   |  |  |
| standard deviation | ± 14.1 |  |  |
| Gender categorical |        |  |  |
| Units: Subjects    |        |  |  |
| Female             | 134    |  |  |
| Male               | 164    |  |  |



## End points

### End points reporting groups

|   |   |
|---|---|
| Reporting group title   | COVID-19 vaccination                    |
| Reporting group description:<br>Four different cohorts were included in the study.<br>Cohort A, the control group, consisted of subjects without kidney disease (eGFR >45 mL/min/1.73m <sup>2</sup> ), cohort B of patients with severely impaired kidney function (eGFR <30 mL/min/1.73m <sup>2</sup> or chronic kidney disease (CKD) stages G4/5); cohort C of patients on hemodialysis or peritoneal dialysis; and cohort D of kidney transplant recipients.<br>The control cohort included partners, siblings, or household members of participants in cohorts B, C, and D.<br>The numbers of participants in each cohort were equally divided over the 4 participating centers. All participants received 2 mRNA-1273 COVID-19 vaccinations (Moderna Biotech Spain, S.L.) with an interval of 28 d according to the manufacturer's instructions. |   |
| Subject analysis set title  | Cohort A - Control                      |
| Subject analysis set type   | Per protocol                            |
| Subject analysis set description:<br>Four different cohorts were included in the study.<br>Cohort A, the control group, consisted of subjects without kidney disease (eGFR >45 mL/min/1.73m <sup>2</sup> ).<br>The control cohort included partners, siblings, or household members of participants in cohorts B, C, and D.<br>The numbers of participants in each cohort were equally divided over the 4 participating centers.<br>Baseline characteristics for all control subjects that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.  |   |
| Subject analysis set title  | Cohort B - CKD G4/5                     |
| Subject analysis set type   | Per protocol                            |
| Subject analysis set description:<br>Cohort B consists of patients with severely impaired kidney function (eGFR <30 mL/min/1.73m <sup>2</sup> or chronic kidney disease (CKD) stages G4/5).<br><br>Baseline characteristics for all CKD G4/5 patients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.  |   |
| Subject analysis set title  | Cohort C - Dialysis                     |
| Subject analysis set type   | Per protocol                            |
| Subject analysis set description:<br>Cohort C consists of patients on hemodialysis or peritoneal dialysis.<br><br>Baseline characteristics for all dialysis patients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.   |   |
| Subject analysis set title  | Cohort D - Kidney transplant recipients |
| Subject analysis set type   | Per protocol                            |
| Subject analysis set description:<br>Cohort D consists of kidney transplant recipients<br><br>Baseline characteristics for all kidney transplant recipients that were included in the per protocol analysis of the primary outcome of the study is depicted in the attached article by Sanders et al., Transplantation 2021.  |   |

**Primary: SARS-CoV-2 specific seroconversion rate**

|                 |  |
|-----------------|--|
| End point title | SARS-CoV-2 specific seroconversion rate <sup>[1]</sup> |
|-----------------|--|

End point description:

SARS-CoV-2 Spike S1-specific IgG antibodies were measured in serum samples by a validated fluorescent bead-based multiplex-immunoassay with a specificity and sensitivity of 99.7% and 91.6%, respectively. Concentrations were interpolated from a reference consisting of pooled sera using a 5-parameter logistic fit and NIBSC/WHO COVID-19 reference serum 20/136, and expressed as international binding antibody units per mL (BAU/mL). SARS-CoV-2 Spike S1-specific IgG antibodies were measured at baseline for exclusion of subjects who had a previous SARS-CoV-2 infection before vaccination, and at second vaccination to assess the immune-response after the first vaccination. Primary outcome was defined as seroconversion rate at 28 d after the second vaccination. Participants were classified as responder or nonresponder based on seroconversion with a threshold for seropositivity based on receiver operator curve analysis set at S1-specific IgG antibody concentration  $\geq 10$  BAU/mL.

|                |         |
|----------------|---------|
| End point type | Primary |
|----------------|---------|

End point timeframe:

28 days after second COVID-19 vaccination

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: All statistical analyses are provided via the attached articles

| End point values            | COVID-19 vaccination | Cohort A - Control   | Cohort B - CKD G4/5  | Cohort C - Dialysis  |
|-----------------------------|----------------------|----------------------|----------------------|----------------------|
| Subject group type          | Reporting group      | Subject analysis set | Subject analysis set | Subject analysis set |
| Number of subjects analysed | 800 <sup>[2]</sup>   | 191                  | 162                  | 159                  |
| Units: Number of subjects   |                      |                      |                      |                      |
| Responder                   | 675                  | 191                  | 162                  | 158                  |
| Non-responder               | 125                  | 0                    | 0                    | 1                    |

Notes:

[2] - See flow-chart attached article Sanders et al, Transplantation 2022

| End point values            | Cohort D - Kidney transplant recipients |  |  |  |
|-----------------------------|---|--|--|--|
| Subject group type          | Subject analysis set                    |  |  |  |
| Number of subjects analysed | 288                                     |  |  |  |
| Units: Number of subjects   |   |  |  |  |
| Responder                   | 164                                     |  |  |  |
| Non-responder               | 124                                     |  |  |  |

**Statistical analyses**

No statistical analyses for this end point

**Secondary: Durability of antibody response**

|                 |                                 |
|-----------------|---------------------------------|
| End point title | Durability of antibody response |
|-----------------|---------------------------------|

End point description:

Change in antibody response (antibody level 28 days after second vaccination / antibody level 6 months after second vaccination)

|                |           |
|----------------|-----------|
| End point type | Secondary |
|----------------|-----------|

End point timeframe:

SARS-CoV2 specific antibodies 28 days and at 6 months after second vaccination

| End point values                      | COVID-19 vaccination | Cohort A - Control   | Cohort B - CKD G4/5  | Cohort C - Dialysis  |
|---------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Subject group type                    | Reporting group      | Subject analysis set | Subject analysis set | Subject analysis set |
| Number of subjects analysed           | 745 <sup>[3]</sup>   | 181                  | 152                  | 145                  |
| Units: fold change                    |                      |                      |                      |                      |
| median (inter-quartile range (Q1-Q3)) | 6.32 (2.86 to 11.7)  | 7.72 (4.97 to 12.5)  | 7.53 (4.17 to 11.6)  | 9.00 (5.43 to 15.0)  |

Notes:

[3] - See flow chart figure 1 article Sanders et al, CID, 2023

| End point values                      | Cohort D - Kidney transplant recipients |  |  |  |
|---------------------------------------|---|--|--|--|
| Subject group type                    | Subject analysis set                    |  |  |  |
| Number of subjects analysed           | 267                                     |  |  |  |
| Units: fold change                    |   |  |  |  |
| median (inter-quartile range (Q1-Q3)) | 2.25 (0.51 to 7.31)                     |  |  |  |

## Statistical analyses

No statistical analyses for this end point

## Secondary: SARS-CoV-2 specific T-cell response

End point title SARS-CoV-2 specific T-cell response

End point description:

SARS-CoV2-specific T cells were measured using an IFN- $\gamma$  ELISPOT assay. Individuals with a S-specific response of  $\geq 50$  SFCs/106 PBMCs after vaccination and a  $\geq 2$ -fold increase between the 28 d postvaccination and baseline were defined as a responder.

End point type Secondary

End point timeframe:

baseline and 28 days after second vaccination

| End point values            | COVID-19 vaccination | Cohort A - Control   | Cohort B - CKD G4/5  | Cohort C - Dialysis  |
|-----------------------------|----------------------|----------------------|----------------------|----------------------|
| Subject group type          | Reporting group      | Subject analysis set | Subject analysis set | Subject analysis set |
| Number of subjects analysed | 390 <sup>[4]</sup>   | 92                   | 80                   | 77                   |
| Units: Number of subjects   |                      |                      |                      |                      |
| Responder                   | 228                  | 70                   | 56                   | 42                   |
| Non-responder               | 162                  | 12                   | 25                   | 33                   |

Notes:

[4] - See flowchart figure 1 of article Imhof et al., Transpl direct, 2022

| End point values            | Cohort D -<br>Kidney<br>transplant<br>recipients |  |  |  |
|-----------------------------|--|--|--|--|
| Subject group type          | Subject analysis set                             |  |  |  |
| Number of subjects analysed | 141  |  |  |  |
| Units: Number of subjects   |  |  |  |  |
| Responder                   | 60   |  |  |  |
| Non-responder               | 81   |  |  |  |

## Statistical analyses

No statistical analyses for this end point

## Secondary: SARS-CoV-2 specific memory B cell response

|   |  |
|---|--|
| End point title   | SARS-CoV-2 specific memory B cell response |
| End point description:<br>Measurement was performed by a commercially available B cell ELISpot, according to the manufacturer's instructions (U-CyTech biosciences) |  |
| End point type  | Secondary                                  |
| End point timeframe:<br>Baseline and 28 days after second vaccination   |  |

| End point values                      | COVID-19<br>vaccination | Cohort A -<br>Control | Cohort B - CKD<br>G4/5 | Cohort C -<br>Dialysis |
|---------------------------------------|-------------------------|-----------------------|------------------------|------------------------|
| Subject group type                    | Reporting group         | Subject analysis set  | Subject analysis set   | Subject analysis set   |
| Number of subjects analysed           | 115 <sup>[5]</sup>      | 35                    | 29                     | 20                     |
| Units: 10 <sup>6</sup> PBMCs          |                         |                       |                        |                        |
| median (inter-quartile range (Q1-Q3)) | 100 (50 to 200)         | 158 (63 to 631)       | 79 (25 to 316)         | 100 (20 to 501)        |

Notes:

[5] - See Malahe et al, AJT, 2023

| End point values                      | Cohort D -<br>Kidney<br>transplant<br>recipients |  |  |  |
|---------------------------------------|--|--|--|--|
| Subject group type                    | Subject analysis set                             |  |  |  |
| Number of subjects analysed           | 31   |  |  |  |
| Units: 10 <sup>6</sup> PBMCs          |  |  |  |  |
| median (inter-quartile range (Q1-Q3)) | 25 (5 to 50)                                     |  |  |  |

## Statistical analyses

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No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

Solicited AEs were collected for 7 days after each vaccination. In this study SAEs are reported until 6 months after the second vaccination.

Adverse event reporting additional description:

Adverse events are defined as any undesirable experience occurring to a subject during the study, whether or not considered related to COVID-19 vaccination. In this study, solicited AEs will be reported by all participants on a daily basis for 7 days after each vaccination.

|                 |            |
|-----------------|------------|
| Assessment type | Systematic |
|-----------------|------------|

### Dictionary used

|                 |        |
|-----------------|--------|
| Dictionary name | MedDRA |
|-----------------|--------|

|                    |    |
|--------------------|----|
| Dictionary version | 24 |
|--------------------|----|

### Reporting groups

|                       |          |
|-----------------------|----------|
| Reporting group title | Controls |
|-----------------------|----------|

Reporting group description:

Cohort A - partners, siblings or householdmembers of patients

|                       |          |
|-----------------------|----------|
| Reporting group title | CKD G4/5 |
|-----------------------|----------|

Reporting group description:

Kidney patients with a kidney function <30 ml/min/1.73m2

|                       |          |
|-----------------------|----------|
| Reporting group title | Dialysis |
|-----------------------|----------|

Reporting group description:

Kidney patients on either hemodialysis or peritoneal dialysis

|                       |                              |
|-----------------------|------------------------------|
| Reporting group title | Kidney Transplant Recipients |
|-----------------------|------------------------------|

Reporting group description: -

| Serious adverse events                            | Controls  | CKD G4/5         | Dialysis          |
|---|---|------------------|-------------------|
| Total subjects affected by serious adverse events |   |                  |                   |
| subjects affected / exposed                       | 0 / 200 (0.00%)   | 10 / 173 (5.78%) | 18 / 172 (10.47%) |
| number of deaths (all causes)                     | 0   | 4                | 6                 |
| number of deaths resulting from adverse events    | 0   | 0                | 0                 |
| Infections and infestations                       |   |                  |                   |
| Any SAE   | Additional description: See articles Sanders et al. CID, 2022 and Trasplantation 2022 |                  |                   |
| subjects affected / exposed                       | 0 / 200 (0.00%)   | 10 / 173 (5.78%) | 18 / 172 (10.47%) |
| occurrences causally related to treatment / all   | 0 / 0   | 2 / 10           | 0 / 18            |
| deaths causally related to treatment / all        | 0 / 0   | 0 / 4            | 0 / 6             |

| Serious adverse events                            | Kidney Transplant Recipients |  |  |
|---|------------------------------|--|--|
| Total subjects affected by serious adverse events |                              |  |  |
| subjects affected / exposed                       | 24 / 298 (8.05%)             |  |  |
| number of deaths (all causes)                     | 6                            |  |  |
| number of deaths resulting from                   | 0                            |  |  |

|   |   |  |  |
|---|---|--|--|
| adverse events                                  |   |  |  |
| Infections and infestations                     |   |  |  |
| Any SAE   | Additional description: See articles Sanders et al. CID, 2022 and Trasplantation 2022 |  |  |
| subjects affected / exposed                     | 24 / 298 (8.05%)  |  |  |
| occurrences causally related to treatment / all | 2 / 24  |  |  |
| deaths causally related to treatment / all      | 0 / 6   |  |  |

Frequency threshold for reporting non-serious adverse events: 5 %

| <b>Non-serious adverse events</b>                     | Controls  | CKD G4/5           | Dialysis           |
|---|---|--------------------|--------------------|
| Total subjects affected by non-serious adverse events |   |                    |                    |
| subjects affected / exposed                           | 185 / 200 (92.50%)  | 156 / 173 (90.17%) | 140 / 172 (81.40%) |
| Infections and infestations                           |   |                    |                    |
| Any solicited AE                                      | Additional description: A full description of these solicited AEs can be found in article Sanders et al. Transplantation 2021 |                    |                    |
| subjects affected / exposed                           | 185 / 200 (92.50%)  | 156 / 173 (90.17%) | 140 / 172 (81.40%) |
| occurrences (all)                                     | 185   | 156                | 140                |

| <b>Non-serious adverse events</b>                     | Kidney Transplant Recipients  |  |  |
|---|---|--|--|
| Total subjects affected by non-serious adverse events |   |  |  |
| subjects affected / exposed                           | 280 / 298 (93.96%)  |  |  |
| Infections and infestations                           |   |  |  |
| Any solicited AE                                      | Additional description: A full description of these solicited AEs can be found in article Sanders et al. Transplantation 2021 |  |  |
| subjects affected / exposed                           | 280 / 298 (93.96%)  |  |  |
| occurrences (all)                                     | 280   |  |  |

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

| Date              | Amendment  |
|-------------------|--|
| 02 September 2021 | <ol style="list-style-type: none"><li>1. Definition of primary endpoint is added</li><li>2. How to deal with subjects that were tested positive for COVID-19 is added</li><li>3. Corona questionnaire has been updated</li><li>4. SAEs will be reported only until 6 months after vaccination</li></ol>  |
| 23 November 2021  | <ol style="list-style-type: none"><li>1. The study is shortened to 6 months after second vaccination (instead of 12 months) due to an extra vaccination that is applied by the Dutch government in these medical risk groups</li><li>2. Kidney transplant patients in this study are invited for a follow-up study</li><li>3. Patients not participating in this follow-up study and whom are invited for a third vaccination via the government will be offered antibody measurement via the current study.</li></ol> |

Notes:

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported

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### Online references

<http://www.ncbi.nlm.nih.gov/pubmed/34753894>

<http://www.ncbi.nlm.nih.gov/pubmed/34450647>

<http://www.ncbi.nlm.nih.gov/pubmed/37270109>

<http://www.ncbi.nlm.nih.gov/pubmed/37198189>

<http://www.ncbi.nlm.nih.gov/pubmed/35796536>

<http://www.ncbi.nlm.nih.gov/pubmed/36284929>