



Clinical trial results:

A low-interventional study to investigate the efficacy and safety of SARS-CoV-2 vaccines in patients with rheumatic diseases.

Summary

EudraCT number	2021-002245-15
Trial protocol	DE
Global end of trial date	11 December 2023

Results information

Result version number	v1 (current)
This version publication date	11 December 2025
First version publication date	11 December 2025

Trial information

Trial identification

Sponsor protocol code	CCM-RNT-202102
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Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	Charité Universitätsmedizin Berlin
Sponsor organisation address	Charitéplatz 1, Berlin, Germany, 10117
Public contact	Rheumatologie Studienabteilung: David Simon, Medizinische KLinik mit Schwerpunkt Rheumatologie und klinische Immunologie, 0049 30450513025, rheumastudien@charite.de
Scientific contact	Rheumatologie Studienabteilung: David Simon, Medizinische KLinik mit Schwerpunkt Rheumatologie und klinische Immunologie, 0049 30450513025, rheumastudien@charite.de

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	01 June 2022
Is this the analysis of the primary completion data?	Yes
Primary completion date	01 June 2022
Global end of trial reached?	Yes
Global end of trial date	11 December 2023
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To identify AIRD-specific variables that influence the expression and duration of vaccine protection following SARS-CoV-2 vaccination.

Protection of trial subjects:

The conduct of this study met all legal and regulatory requirements and in accordance with ethical principles of the Declaration of Helsinki.

Background therapy:

Patients with autoimmune rheumatic diseases (AIRD) are at a slightly higher risk for infection with SARS-CoV-2 and for a more severe outcome of COVID-19 compared with healthy individuals. However, it is also known that vaccination effectiveness can be reduced in patients with AIRD,^{2 3} raising the need for a strategy to identify patients who might benefit from antibody testing and additional vaccine doses. Since patients with AIRD have been largely excluded from the vaccination registration studies, data needed to be collected to fill the knowledge gap regarding COVID-19 vaccination in rheumatic patients. We therefore aimed to identify the factors that lead to a diminished humoral response and investigated the immunogenicity of different COVID-19 vaccines in a large cohort of patients with AIRD, using an immunocompetent control group (IC) for comparison.

Evidence for comparator: -

Actual start date of recruitment	25 May 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	Germany: 604
Worldwide total number of subjects	604
EEA total number of subjects	604

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)	565
From 65 to 84 years	39
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

394 patients were initially recruited. Then 86 patients were excluded for protocol deviations. Clinical characterization and blood sampling took place between June and September 2021 at Charité site, and the stored blood samples were collected in April and May 2021 among patients with AIRD.

Pre-assignment

Screening details:

- 1) Participants had to meet the following inclusion criteria: age 18 years or older, AIRD diagnosis and vaccination with a COVID-19 vaccine authorised for use in Germany.
- 2) Participants (immunocompetent controls- healthcare workers and elderly patients) from 3 other cohort studies (EICOV, COVIMMUNIZE, COVIM) conducted at Charité

Period 1

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

Blinding implementation details:

Observational study with research blood sampling as the one and only intervention.

Arms

Are arms mutually exclusive?	Yes
Arm title	AIRD group

Arm description:

This group includes: inflammatory joint diseases, connective tissue diseases/myositis, vasculitis, and other rheumatic autoimmune diseases.

Arm type	Experimental
Investigational medicinal product name	COVID-19 mRNA vaccine - BioNtech
Investigational medicinal product code	BNT162b2
Other name	Comirnaty
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

xxx

Investigational medicinal product name	COVID-19 vaccine-AstraZeneca
Investigational medicinal product code	AZD1222
Other name	Vaxzevria
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

xxx

Investigational medicinal product name	COVID-19 Vaccine Moderna
Investigational medicinal product code	mRNA-1273
Other name	
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

xxx

Arm title	control group
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Arm description:

healthy participants received vaccination with two doses of AZD1222 and a short time period between administration of first and second vaccination

Arm type	Active comparator
Investigational medicinal product name	COVID-19 mRNA vaccine - BioNtech
Investigational medicinal product code	BNT162b2
Other name	Comirnaty
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

N/A

Investigational medicinal product name	COVID-19 vaccine-AstraZeneca
Investigational medicinal product code	AZD1222
Other name	Vaxzevria
Pharmaceutical forms	Solution for injection
Routes of administration	Intramuscular use

Dosage and administration details:

N/A

Number of subjects in period 1	AIRD group	control group
Started	308	296
Completed	308	296

Baseline characteristics

Reporting groups

Reporting group title	AIRD group
Reporting group description: This group includes: inflammatory joint diseases, connective tissue diseases/myositis, vasculitis, and other rheumatic autoimmune diseases.	
Reporting group title	control group
Reporting group description: healthy participants received vaccination with two doses of AZD1222 and a short time period between administration of first and second vaccination	

Reporting group values	AIRD group	control group	Total
Number of subjects	308	296	604
Age categorical Units: Subjects			
Age ≥60 years	147	76	223
Age <60 years	161	220	381
Age continuous Units: years			
median	59	40	
inter-quartile range (Q1-Q3)	46.3 to 66.0	31.0 to 60.0	-
Gender categorical Units: Subjects			
Female	209	199	408
Male	99	97	196
Comorbidities Units: Subjects			
Cardiovascular disease	118	69	187
Type 2 diabetes	23	13	36
Respiratory disease	41	32	73
no disease	126	182	308

End points

End points reporting groups

Reporting group title	AIRD group
Reporting group description: This group includes: inflammatory joint diseases, connective tissue diseases/myositis, vasculitis, and other rheumatic autoimmune diseases.	
Reporting group title	control group
Reporting group description: healthy participants received vaccination with two doses of AZD1222 and a short time period between administration of first and second vaccination	

Primary: vaccination response.

End point title	vaccination response. ^[1]
End point description: The threshold for positivity for anti-SARS-CoV-2 IgG levels was set at >1.00 S/ CO (signal/predefined cut-off of 30) in accordance with manufacturer's instructions. All analyses were performed using neutralisation capacities as well as anti-RBD-IgG levels. Of the patients with AIRD, 84.4% had been vaccinated with two doses of an mRNA vaccine (BNT162b2, n=233; mRNA-1273, n=27), while 7.1% of patients had received two doses of AZD1222 (n=22) and 8.4% of patients one dose of AZD1222 followed by one dose of an mRNA vaccine (n=26). Patients with AIRD vaccinated with two doses of AZD1222 showed significantly lower neutralising capacity and anti-RBD-IgG levels (53.7%, 2.0 S/CO) than those vaccinated with mRNA based vaccines (BNT162b2: 90.7%, 5.5 S/CO; mRNA-1273:95.3%, 6.0 S/CO) or a heterologous vaccination scheme (94.4%, 6.0 S/CO).	
End point type	Primary
End point timeframe: Antibody response was measured predominantly about 2–4 weeks after the second dose of vaccination. Maximum time from vaccination to blood taking was restricted to 60 days to avoid an influence of waning antibody responses. Vaccine interval range was 21–54	
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: For more details please visit the journal Rheumatic & Musculoskeletal Diseases (RMD) Open online (http:// dx. doi. org/ 10.1136/ rmdopen- 2022- 002650).	

End point values	AIRD group	control group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	308	296		
Units: neutralising capacity (%)				
median (inter-quartile range (Q1-Q3))	90.8 (54.2 to 95.9)	96.5 (93.5 to 97.1)		

Statistical analyses

No statistical analyses for this end point

Primary: Anti-RBD-IgG-level

End point title	Anti-RBD-IgG-level ^[2]
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End point description:

End point type	Primary
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End point timeframe:

after 2 doses of vaccination

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: For more details please visit the journal Rheumatic & Musculoskeletal Diseases (RMD)

Open

online ([http:// dx. doi. org/ 10.1136/ rmdopen- 2022- 002650](http://dx.doi.org/10.1136/rmdopen-2022-002650)).

End point values	AIRD group	control group		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	308	296		
Units: S/CO				
median (inter-quartile range (Q1-Q3))	5.6 (2.0 to 6.6)	6.7 (6.3 to 7.1)		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information^[1]

Timeframe for reporting adverse events:

overall trial

Assessment type	Non-systematic
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Dictionary used

Dictionary name	own
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Dictionary version	1
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Reporting groups

Reporting group title	Verum
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Reporting group description: -

Reporting group title	Placebo
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Reporting group description: -

Serious adverse events	Verum	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 308 (0.00%)	0 / 296 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	

Frequency threshold for reporting non-serious adverse events: 1 %

Non-serious adverse events	Verum	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	0 / 308 (0.00%)	0 / 296 (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 adverse events were reported , because only retrospective data were analyzed.

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported

Online references

<http://www.ncbi.nlm.nih.gov/pubmed/36597977>