

Materials Design Analysis Reporting (MDAR) Checklist for Authors

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: [doi:10.31222/osf.io/9sm4x](https://doi.org/10.31222/osf.io/9sm4x)). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

Materials

Antibodies	Yes (indicate where provided: page no/section/legend)	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.		
NRP1 antibody	Abcam Cat# ab81321	
NRP1 antibody	Santa Cruz , Cat# sc-5307	
TuJ1 antibody	Promega Cat# G712A	
NeuN antibody	Millipore Cat# ABN91	
GFP antibody	Thermo Cat# A-6455	
ColIV antibody	Southern Biotech Cat#1340-01	
CD31 antibody	Santa Cruz Biotechnology Cat# sc-376764	
Alexa Fluor 488 donkey anti-mouse antibody	Thermo Fischer Scientific Cat# R37114	
Alexa Fluor 488 goat anti-rabbit antibody	Thermo Fischer Scientific Cat# A21428	
Alexa Fluor 488 goat anti-chicken antibody	Thermo Fischer Scientific Cat# A11039	
Alexa Fluor 488 donkey anti-goat antibody	Thermo Fischer Scientific Cat# A11055	
Alexa Fluor 555 donkey anti-goat antibody	Thermo Fischer Scientific Cat# A21432	
Alexa Fluor 555 goat anti-mouse antibody	Thermo Fischer Scientific Cat# A21422	
Alexa Fluor 647 donkey anti-rabbit antibody	Thermo Fischer Scientific Cat# A31573	
Alexa Fluor 488 Phalloidin antibody	Thermo Fischer Scientific Cat# A12379	
SARS-CoV S protein antibody	Abcam Cat# ab272420	
ACE2 antibody	R&D Systems, Cat#AF933	
OLIG2 antibody	IBL , Cat#18953	
biotinylated anti-goat/sheep antibody	Amersham, Cat# RPN1025	
biotinylated anti-mouse 1 antibody	GE Healthcare Cat# RPN 1001	
polyclonal goat anti mouse immunoglobulins/AP	DAKO, Cat# D0486	
monoclonal mouse anti-rabbit immunoglobulins, Clone MR12/53	Dako, Cat# M0737	
Alexa Fluor 488 anti rabbit antibody	Thermo Fischer Scientific Cat# A-11008	
Alexa Fluor 555 anti rabbit antibody	Thermo Fischer Scientific Cat# A27039	
SARS-CoV-1 anti N Rabbit polyclonal antibody	From Ilkka Julkunen, University of Turku, Finland. DOI: 10.1128/JVI.79.21.13800-13805.2005	
SARS-CoV-2 S1 RBD antibody	Sino Biological Cat#, 40592-T62 , HD14AP2102	
SARS-CoV S antibody	Abcam Cat# ab272420	
TMPRSS2 antibody	Santa Cruz Cat# sc-515727	

anti-tubulin antibody	Cell Signalling mAb cat# 3873	
IR dye 680 RD Goat anti-Rabbit antibody	Li-COR, Cat# 926-68071	
Phalloidin Alexa-647	ThermoFisher Scientific cat# A22287	
Aquaporin antibody	TMH-Medizinhandel Cat# AQP-004	

Cell materials	Yes (indicate where provided: page no/section/legend)	n/a
Cell lines: Provide species information, strain. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID	Human embryonic kidney (HEK) 293t (CRL-3216), VERO-E6 (CRL-1586) and Caco-2 (HTB-37) cells were originally purchased at ATCC.	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		X

Experimental animals	Yes (indicate where provided: page no/section/legend)	n/a
Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID	C57BL6 mice (males, 3 months old) were purchased from Jackson Laboratories (Cat# 000664). BALBc animals were purchased from Jackson Laboratories (Cat# 000651)	
Animal observed in or captured from the field: Provide species, sex and age where possible		x
Model organisms: Provide Accession number in repository (where relevant) OR RRID		x

Plants and microbes	Yes (indicate where provided: page no/section/legend)	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		x
Microbes: provide species and strain, unique accession number if available, and source	HUS/32/2018 § 16, and TYH2018/32/2018	x

Human research participants	Yes (indicate where provided: page no/section/legend)	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	42/8/20 Covid19	
Provide statement confirming informed consent obtained from study participants.	The patients or their immediate family consented to autopsy and the use of tissue for research.	
Report on age and sex for all study participants.	Patient 1: 71y male; Patient 2: 80y male; Patient 3: 72y female; Patient 4: 98y female; Patient 5: 68y male; Patient 6: 68y male; Patient 7: 45y female; Patient 8: 78y female; Patient 9: 27y female; Patient 10: 68y female; Patient 11: 78y male; Patient 12: 45y male; Patient 13: 67y female; Patient 14: 61y male	

Design

Study protocol	Yes (indicate where provided: page no/section/legend)	n/a
For clinical trials, provide the trial registration number OR cite DOI in manuscript.		x
Laboratory protocol	Yes (indicate where provided: page no/section/legend)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.		x
Experimental study design (statistics details)	Yes (indicate where provided: page no/section/legend)	n/a
State whether and how the following have been done, or if they were not carried out.		x
Sample size determination		x
Randomisation		x
Blinding		x
Inclusion/exclusion criteria		x
Sample definition and in-laboratory replication	Yes (indicate where provided: page no/section/legend)	n/a
State number of times the experiment was replicated in laboratory	Each in vitro experiment was repeated independently at least three times	
Define whether data describe technical or biological replicates	Each experiment had 3-5 technical replicates	
Ethics	Yes (indicate where provided: page no/section/legend)	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	42/8/20 Covid19	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	All animal studies were performed in compliance with the animal policies of the German Center for Neurodegenerative Diseases (Munich), and were approved by the District Government of Upper Bavaria)	
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.		x
Dual Use Research of Concern (DURC)	Yes (indicate where provided: page no/section/legend)	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval		x

Analysis

Attrition	Yes (indicate where provided: page no/section/legend)	n/a
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.		x
Statistics	Yes (indicate where provided: page no/section/legend)	n/a
Describe statistical tests used and justify choice of tests.	Please refer to figure legends and the “materials and methods”	
Data Availability	Yes (indicate where provided: page no/section/legend)	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.	There is no restriction on protocols – see “materials and methods”	
If data are publicly available, provide accession number in repository or DOI or URL.		x
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	The accession codes for scRNAseq datasets are provided in “materials and methods”	
Code Availability	Yes (indicate where provided: page no/section/legend)	n/a
For all newly generated code and software essential for replicating the main findings of the study:		x
State whether the code or software is available.		x
If code is publicly available, provide accession number in repository, or DOI or URL.		x

Reporting

Adherence to community standards	Yes (indicate where provided: page no/section/legend)	n/a
MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR.		x
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.		x